

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following “mystery” outbreaks occurred within the calendar year of 1993. While some of the following reports may have been legitimate outbreaks, most if not all of them appear to be generated man-made outbreaks with the overall goal of convincing American and the world that it is on the precipice of a major pandemic. The fact that these “mystery” outbreaks exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and militarial control of society.

**Title:** Mystery Illness Killing Tourism In New Mexico's Indian Country

**Date:** June 6, 1993

**Source:** [Seattle Times](#)

**Abstract:** Summer was supposed to bring thousands of tourists to this hauntingly beautiful area billed as the "heart of Indian country." But that was before a mystery illness threatened to cut the heart out of the local tourist-based economy.

As word spread that 11 people had died of the flu-like ailment in recent weeks, hotel and motel reservations were canceled by the hundreds.

Now, even after word Friday of a possible breakthrough to solve the mystery, merchants and civic leaders around the Navajo reservation of northwest New Mexico and northeastern Arizona worry about long-term economic harm.

"The damage is done, and we don't want any more damage," said Mohammad Aysheh, who owns a complex of gas stations and shops on the east edge of Gallup.

On Friday, Gov. Bruce King arrived in Gallup as medical experts in Santa Fe announced that a virus linked to rodent droppings may be the culprit in the mystery illness.

Jana Lee Aspin of the Albuquerque Visitors and Convention Bureau said yesterday that bed and breakfasts were reporting business down 50 to 60 percent, and hotels also were reporting many cancellations.

"Somewhere out there, there is a lot of sensationalism going on that is causing panic," she said. "We've heard there are reports in the East that people in the Albuquerque area are dying like flies" ([Seattle Times, 1993](#)).

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**Title:** Rare Health Alert Is Issued For Mystery Illness

**Date:** March 16, 2003

**Source:** [New York Times](#)

**Abstract:** As a mysterious respiratory illness spread to more countries, the World Health Organization yesterday issued a rare health alert, declaring the ailment "a worldwide health threat" and urging all countries to help in seeking its cause and control.

The agency said that in the last week it had received reports of more than 150 new suspected cases of the illness, now known as Severe Acute Respiratory Syndrome, or SARS. The syndrome has caused at least nine deaths, the last one a nurse in Hanoi. Some victims have recovered but no one has been up, around and healthy in the past two weeks.. It apparently does not respond to antiviral and antibiotic drugs.

Reported cases have come from Canada and six countries in Asia — Hong Kong and elsewhere in China, Indonesia, the Philippines, Singapore, Thailand and Vietnam, the health organization said. There have been no reports of the illness in the United States. But yesterday, an ill passenger and two companions who traveled from New York City were removed from a flight after it arrived in Frankfurt and put in isolation in a German hospital.

The ill passenger is a doctor from Singapore who treated one of the earliest cases there, and who flew to a medical meeting in New York City, said Dick Thompson, a W.H.O. spokesman. The doctor may have gone to a hospital in New York — the agency is not certain which one — before flying back to Singapore via Frankfurt with his wife and another doctor. Before boarding the flight, the doctor called a colleague in Singapore to describe his symptoms, and the colleague notified the World Health Organization.

The cause has not been identified, and scientists do not know whether it is a virus or even an infectious agent. Although health officials have suspected avian influenza, which has infected a small number of people sporadically in Hong Kong since 1997, laboratory tests have not detected that rare strain, known as influenza A(H5N1). As a result, laboratory scientists are focusing on the possibility of a previously unknown infectious agent.

Dr. Julie L. Gerberding, director of the Centers for Disease Control and Prevention, said in a news conference yesterday that it appeared to take direct and sustained contact to transmit the illness from an affected individual to other people. "There is no evidence to suggest that this can be spread through brief contact or assemblages of large numbers of people," she said.

Asked whether this might be an instance of bioterrorism, she replied, "We are keeping an open mind."

In an emergency advisory issued yesterday, the World Health Organization, an arm of the United Nations based in Geneva, said that "there is presently no indication to restrict travel to any destination."

But Dr. Gerberding said, "We are advising persons planning nonessential or elective travel to affected areas that they may wish to postpone their trip until further notice."

Updated information will be posted on the centers' Web site, [www.cdc.gov/travel](http://www.cdc.gov/travel).

W.H.O. and American officials urged all travelers to be aware of the main signs. In addition to the breathing problems, the illness can cause a dry cough and other flu-like symptoms that are thought to develop two to seven days after exposure. They usually start with a sudden onset of high fever and go on to include muscle aches, headache, sore throat and shortness of breath.

Standard lab tests often show low numbers of white blood cells and platelets, which help blood to clot.

The health agency said any passenger or airline crew member who developed such symptoms should immediately seek medical attention and ensure that information about their recent travel was passed on to the health care staff. "Any traveler who develops these symptoms is advised not to undertake further travel until they have recovered," it said.

If a passenger became ill on a flight, the agency asked airlines to alert the airport of destination and to refer any ill passengers to airport health officials.

"There are currently no indications to restrict the onward travel of well passengers, but all passengers and crew should be advised to seek medical attention if they develop" symptoms, the agency said.

In another rare step, the Centers for Disease Control and Prevention activated its emergency operations center in Atlanta, including sophisticated communications technology, to enhance its ability to coordinate information from other countries and to investigate any suspect cases in this country.

The C.D.C. has used the operations center only twice before, for the mosquito-borne West Nile fever epidemic last year and the [anthrax attacks in 2001](#). The last time it issued a global health alert was in 1993, to enhance measures to control tuberculosis. W.H.O. officials said they could not recall the last time an emergency global travel advisory was issued.

The secretary of health and human services, Tommy G. Thompson, said his department "is applying a full-court press to learn more about this outbreak and how it might impact on the United States."

The C.D.C. and New York City health officials are now investigating the travel histories of the passengers now in a German hospital as well as one of the eight cases suspected to be the new syndrome in Toronto and Vancouver, British Columbia.

Two hours before the plane landed, the W.H.O. notified German health officials, who had the plane moved to a separate runway where the doctor, his wife and a colleague disembarked and were taken to a nearby hospital. German health officials advised the other passengers to monitor their health and gave them a telephone number to call if they developed any symptoms. Officials did not release any information on his condition.

Mr. Thompson, the spokesman for the W.H.O., said the cases in Toronto involved a family who returned home after flying to Hong Kong. A woman, Kwan Sui-chu, died shortly after her return. Five other family

members who had not been to Hong Kong have since become ill; four are still in the hospital while the fifth, Mrs. Kwan's son, Chi Kwai Tse, died on March 13, according to Toronto Public Health officials.

Toronto health officials said they were aware of two other cases in Vancouver, both people who had recently traveled to Hong Kong. C.D.C. officials are aiding in the investigation because Mrs. Kwan's daughter, who is being treated in Toronto, had flown to Atlanta recently, Mr. Thompson said.

So far, laboratory scientists have not been able to identify a known or novel infectious agent, said Dr. David L. Heymann, a W.H.O. official.

Japanese officials said their tests showed that the influenza virus was not the cause of the illness. But Dr. Heymann said samples from more victims needed to be tested, because it can take weeks for the immune system to produce influenza antibodies, the proteins that are formed to fight invading microbes.

"We have not ruled out influenza definitively," Dr. Heymann said.

Tests of victims' samples have found no evidence of mycoplasma or similar microbes that are the usual causes of atypical pneumonia. Additional tests have shown no evidence of Ebola or any of the other viruses that cause hemorrhagic fevers, hanta virus and bacteria.

In Hong Kong, an American businessman died on Thursday after passing through Hong Kong and falling ill in Hanoi, where 30 doctors and other medical personnel have fallen ill at the hospital where the businessman was initially treated ([New York Times, 2003](#)).

**Title:** China Reveals Much Larger Outbreak Of Mysterious Illness

**Date:** March 26, 2003

**Source:** [Seattle Times](#)

**Abstract:** For the first time, Chinese government officials revealed today that nearly three dozen people have died and almost 800 became ill in a mysterious outbreak that Western medical investigators confirm was the beginning spread of a new flu-like disease.

The new numbers raised the worldwide death total from severe acute respiratory syndrome, or SARS, to 51, with 1,325 cases since mid-November.

Until now, Chinese authorities said only five people had died from a pneumonia-like illness that struck southern Guangdong province. The new count of 34 includes three deaths in Beijing.

"Everything we've seen so far indicates it's the same disease," said Dr. Meirion Evans, member of a WHO team that has studied the cases in southern China.

"We're getting a more complete picture. It's certainly been one of the objectives of the mission to clarify whether the outbreak in China was the same disease as what's been seen outside of China."

For weeks, Chinese officials said only 305 people were sickened in an outbreak that started in November.

But a spokeswoman for the Guangzhou city government, who identified herself only by the surname Ye, said today that 792 cases of atypical pneumonia were reported in the province by the end of February, putting the worldwide case number at more than 1,300.

Health authorities in Hong Kong have said the disease spread when a sick Beijing professor stayed at the Metropole Hotel in late February, infecting six other guests, who then carried it to Singapore, Vietnam and Canada.



World Health Organization scientists say the disease spreads when victims cough or sneeze in close contact with others. Most SARS victims have been family members of those who have the disease or health workers treating them.

But the spread among strangers in the Hong Kong hotel and among nine tourists on a March 15 China Air flight from Hong Kong to Beijing has heightened fears.

Numerous schools in Hong Kong and Singapore have closed and hospitals are straining to treat their own doctors and nurses. Hong Kong media reports say about 60 schools are closed, although government officials have not confirmed that. Singapore's school closings, from day-care centers to junior colleges, will keep a half-million students temporarily out of class.

"On purely medical grounds, there are currently no strong reasons for closing all schools," said Teo Chee Hean, Singapore's education minister.

But he said parents are fearful.

Singapore also has imposed a 10-week quarantine on 740 people exposed to the disease. The U.S. State Department is urging against travel to Vietnam. Officials in the Philippines urged travelers from countries hit by the disease to stay home for a week. Tens of thousands of Filipinos work in Hong Kong and Singapore, many as domestic helpers.

WHO officials say signs continue pointing to a virus causing the common cold as the most likely bug behind the illness. Labs for the U.S. Centers for Disease Control and Prevention and Hong Kong University said they had found the coronavirus in specimens from SARS patients. The coronavirus can be blamed for about 10 percent to 20 percent of common colds.

Today, virus experts at the Bernhard Nocht Institute for Tropical Medicine in Hamburg, Germany, backed up that evidence with their own research ([Seattle Times, 2003](#)).

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**Title:** Mystery Illness Hits Airport

**Date:** February 21, 2005

**Source:** [CNN](#)

**Abstract:** Dozens of people were hospitalized after a mystery illness struck an Australian airport, forcing hundreds of people to be evacuated from the terminal.

Fifty-seven people were treated for dizziness, vomiting, shortness of breath and nausea at the Virgin Blue terminal in Melbourne Airport on Monday morning, officials told CNN.

It is still unclear what is causing the illnesses, but Melbourne Airport spokeswoman Brooke Lord told Reuters news agency a chemical leak may be at fault.

But it is unclear what the substance could be, or how it was released into the air.

"Their symptoms were not life threatening but they certainly needed help," Melbourne Metropolitan Ambulance spokesman James Howe told CNN.

"(The people) were in varying degrees of distress, as you can imagine, it can be quite draining for them not knowing what was affecting them."

Forty-seven people were rushed to hospital, and 36 of them were later discharged. Ten were treated at the scene.

The Melbourne fire brigade is combing the area, wearing hazardous materials suits and testing the air for toxic chemicals.

"We've got 50 firefighters down there, but so far they can't find anything," the brigade's deputy chief fire officer Keith Adamson told CNN.

"We'll find it eventually, it should be just a matter of hours."

Rescue crews from the airport were also on scene, along with the Victoria police.

Authorities evacuated about 700 people from the terminal at 10:10 a.m. (2300 GMT) Monday, a Melbourne Airport spokesman said in a statement.

Passengers on an incoming Virgin Blue aircraft were being bussed from the plane to other non-affected terminals, the spokesman said.

Virgin Blue passengers scheduled to depart from Melbourne have been delayed.

The Qantas domestic terminal and the international terminal are open ([CNN, 2005](#)).

**Title:** "Mystery Illness" At Melbourne Airport: Toxic Poisoning Or Mass Hysteria?

**Date:** September 20, 2005

**Source:** [Medical Journal of Australia](#)

**Abstract:** A government report concluded that the cause of the recent cluster of illness affecting 57 people at Melbourne Airport was a "mystery". On reviewing the evidence, I noted the appearance of a constellation of distinct psychogenic features (in the absence of an identifiable pathogenic agent or source), and non-specific symptoms not correlated with any particular illness, strongly suggesting a diagnosis of mass psychogenic illness. Given the time differential between the illness onset in the index case and the initiation of air sampling, and the added factor of the air-conditioning in the terminal being switched to exhaust mode, the possibility that a toxic agent was responsible for making some of the victims ill cannot be completely excluded. Future investigations of similar incidents should, in the absence of clinical or laboratory findings, consider the diagnosis of mass psychogenic illness. Failure to do so can engender avoidable confusion and unease among the Australian public. The issue of diagnosing collective psychogenic illness will continue to be a major public health challenge, exacerbated by widespread anxieties over the threat of chemical and biological weapons and fears of contamination.

On Monday 21 February 2005, Australian media broadcast news of a mysterious "gas leak" which was blamed for causing breathing problems, dizziness, nausea, headache and vomiting in 57 people in the vicinity of a terminal at Melbourne's domestic airport. An investigation by Victorian emergency services personnel identified no leak, and the results of air quality tests were unremarkable. The incident disrupted a third of the domestic passenger flights over 2 days and cost a commercial airline company an estimated three million dollars, not to mention the financial burden borne by responding emergency services and government agencies. In response, Victorian Premier Steve Bracks asked Emergency Services Commissioner Bruce Esplin to "investigate and analyse any matters pertinent to a comprehensive understanding of the incident". The Esplin report, issued on 24 March 2005, concluded that the illness cluster was a mystery. However, in my opinion, the most obvious diagnosis in the circumstances — mass psychogenic illness — did not receive due consideration.

Chain of events

**Unless otherwise noted, the following summary of the events of 21 February 2005 is based on information contained within the Esplin report:**

#### **At the domestic terminal**

07:12 — the Airport Coordination Centre was notified that a female newsagency employee had collapsed at the base of the escalators in the southern domestic terminal (mezzanine level), a distance of 15 metres from her workplace located in the terminal. The Aviation Rescue and Firefighting (ARFF) service responded and she was transported to hospital by the Metropolitan Ambulance Service (MAS).

The report failed to give a cause for her condition (although witnesses later told a journalist that she "was under stress and hadn't eaten for hours"). It concluded, however, that the incident was "unrelated then and later to the incident that developed".<sup>1</sup> The reasoning for this conclusion was not provided.

08:48 — the Airport Coordination Centre was notified that a second female employee of the same newsagency had collapsed inside the agency. ARFF responders found her to be conscious and breathing.

09:02 — a female American Express counter employee, 15 metres from where the woman involved in the second incident was being treated, collapsed and vomited. (She was the only one of three people working at the counter to fall ill [Andrew Bolt, journalist, personal communication], which was not mentioned in the Esplin report.)

09:05 — the immediate vicinity of the incidents was cordoned off and air sampling undertaken by the ARFF and airport staff for “breathability” and “flammability”. Test results were unremarkable, although the test was considered incapable of detecting any chemical or biological contaminants.<sup>1</sup> After testing, the southern terminal’s air-conditioning system was switched to spill mode (ie, air is expelled from the building to the outside) between 09:30 and 09:45, possibly removing any harmful agents that may have been in the facility.

09:15 — the next person to feel ill was a nearby security guard who had approached MAS personnel while they were treating the American Express employee. He then phoned his union, which alerted and advised that all security guards employed by Group 4 Securitas should be checked by the MAS.

Shortly thereafter, two security guards from the airport departure security screening point — about 600 metres from the earlier collapses — reported feeling ill. The next two airport staff to be “counted” as ill were security guard union members reporting to the MAS, as per union instructions. (This was not made clear in the Esplin report.) The MAS at this point relocated to a position outside the terminal to set up patient triage.

09:55 — two domestic airline staff, whose counter overlooked the area where people first reported feeling unwell, arrived at the triage location, saying that they also felt ill. The ARFF Commander ordered that the southern terminal be evacuated and closed, and the international terminal was cordoned off from the southern terminal. Everyone in the southern terminal was evacuated in an orderly and safe manner to an open air assembly area. MAS personnel were advised to don protective clothing and masks. Around this time, the MAS gave the first of a number of informal media interviews.

13:00 — the MAS advised that it had so far transported 38 people to hospital. Some were believed to be affected by sun exposure in the outdoor triage area.

13:40 — further, more sophisticated, atmospheric sampling was conducted by scientific staff of the Metropolitan Fire Brigade for the presence of volatile organic compounds, and some specific chemicals and chemical warfare agents. The equipment included photoionising detectors (to detect high concentrations of foreign material in the atmosphere) and rapid alarm identification detectors.<sup>1</sup> Unfortunately, the Esplin report does not mention the specific agents that these devices were designed to search for. There were no readings to indicate suspected agents, only very minor readings (i) for materials related to aircraft exhaust fumes and (ii) in the proximity of two bins containing seized aerosol cans.

14:00 — a total of 57 people had by now been seen in the triage area: 47 had been transported to hospital, and 10 had refused transportation. Patients were already arriving back at the airport from hospital.

15:00 — the MAS advised that no further casualties had presented to the triage area.

18:20 — state and federal emergency services declared the area safe and the southern terminal was reopened. All of the casualties, except one with pre-existing asthma, were released from hospital the same day, including the very first case. A few reported lingering symptoms for “a number of days”. At the international terminal

The Esplin report made only vague mention of a scare among security staff and customs workers in the airport's international section on the same day. These employees had made three separate emergency calls to the incident controller upon noticing mysterious fumes and feeling sick. However, responding members of the Metropolitan Fire Brigade soon pinpointed the causes of their symptoms: a coat of fresh paint in one incident, new rubber bollards in a second, and dust in a third.

Metropolitan Ambulance Service personnel were advised to don protective clothing and masks. So, what really happened?

In its subsequent investigation, the Esplin report ruled out common exposure to food and water, citing epidemiological studies by the Department of Human Services, and noting that the symptoms experienced "were relatively non-specific and did not correlate closely with any particular illness".

I believe that this episode shares many of the classic features of mass psychogenic illness. Contrary to popular wisdom, this is not a diagnosis of exclusion. At Melbourne's domestic airport on 21 February 2005, there were distinct features of mass psychogenic illness, an absence of a plausible pathogenic agent or source, and vague epidemiological findings yielding no pattern indicative of specific illness or exposure, all of which make mass psychogenic illness the most likely explanation for what happened.

Firstly, the outbreak began with a dramatic singular incident (an index case) and was primarily spread by line-of-sight and sound, and later telecommunications. Symptoms were transient and benign, with a rapid onset and recovery, and were consistent with anxiety. There was an absence of clinical or laboratory evidence of organic aetiology and, despite air quality tests and an epidemiological study, no identifiable causative agent. However, I would allow that, given the time differential between illness onset in the index case and the initiation of sophisticated air testing, as well as the early decision to turn the air-conditioning system to spill mode, the possibility cannot be completely excluded that a toxic agent was responsible for making some of the victims ill.

Media reports and witnesses suggested a preponderance of female victims, also characteristic of mass psychogenic illness, although the Esplin report gave no male to female ratio for the casualties. The report did not note that, according to the emergency personnel on the scene, of the 57 "victims" only two or three were passengers. In one instance, a passenger taken to hospital was a woman complaining of a headache — a headache she was later reported to have had ever since she boarded a plane in Coolangatta, Queensland, earlier on the day of the incident.

Again, consistent with a diagnosis of mass psychogenic illness, the incident escalated once the MAS was advised to don protective clothing and masks — serving to confirm suspicions that there was a serious health threat in the terminal. The report does admit that "loose language" by the MAS and the media — including the words "toxic", "noxious", and "chemical", and remarks that people "were dropping like flies" — were likely to have exacerbated the situation. For example, in one news interview, an ambulance spokesman said that "a lot of people were actively vomiting". Another said that many "became violently ill", including with "severe vomiting". Despite normal air quality checks and failure to locate a plausible source of a potential contaminant, many media outlets in subsequent days continued to describe the episode as an unidentified chemical or gas leak.

Everyone in the southern terminal was evacuated in an orderly and safe manner to an open air assembly area.

Once it became clear that the victims were returning to the airport from the hospital and were not seriously ill (starting at 14:00), anxiety levels were reduced, and by 15:00 no further illness reports were received. This situation was reinforced when at 18:20 state and federal emergency services declared the area safe. This is consistent with other similar mass psychogenic illness incidents, which rapidly dissipate once the threat is perceived to have passed.

It is clear from broadcast interviews with victims that many were concerned about the possibility of chemical or biological attack. Since the terrorist attacks in the United States on 11 September 2001, there

has been an escalation in the number of reports of mass psychogenic illness involving the perceived use of chemical or biological agents and, in particular, concern over the targeting of mass transit. This may have been the lens through which many airport officials interpreted the initial events. Passengers are transients, but airport staff are “captives” of their work and, hence, may have viewed events differently, engendering greater anxiety.

Given all these factors, it is surprising to me that mass psychogenic illness was not considered by the investigators. The stigma and controversy often surrounding such diagnoses may have been a factor. But, paradoxically, excluding mass psychogenic illness may have inadvertently created public perceptions and fear about a Melbourne Airport “mystery illness” that continues, possibly unnecessarily, to this day.

We live in an age preoccupied with environmental concerns and fear of chemical, biological and other attacks. The Madrid and the recent London train and bus bombings are likely to focus even greater awareness on mass transit as prime terrorist targets, further heightening the potential for similar future episodes of psychogenic illness. Thankfully, thus far, the fear of such incidents has proven more harmful than any real event. However, failure to diagnose mass psychogenic illness in the face of what would seem to be compelling evidence, or to at least consider it as a possible explanation, may create unnecessary public unease.

## **Definition and Characteristics of Mass Psychogenic Illness**

### **Definition**

The rapid spread of illness signs and symptoms, for which there is no plausible organic aetiology. Episodes are typified by an anxiety-generating precipitant within the victims' immediate environment, and symptoms occur within close temporal proximity of exposure to the stimulus.

### **Characteristics**

1. The appearance of symptoms with no plausible organic basis
2. Transient and benign symptoms
3. Rapid onset and recovery
4. Occurrence in a segregated group
5. Extraordinary anxiety
6. Symptoms spread via line-of-sight, sound, or oral communication
7. Spread often occurs down the age-scale beginning in older or higher status persons
8. A preponderance of female participants

In most reports there is an identifiable index case ([Medical Journal of Australia, 2005](#)).

**Title:** Deadly Mystery Illness In China Baffles Officials

**Date:** July 25, 2005

**Source:** [MSNBC](#)

**Abstract:** A mystery disease that has killed 17 farmers who handled sick pigs or sheep in China's southwest is unrelated to bird flu or SARS and is probably caused by bacteria carried by pigs, state media reported Monday.

An additional 41 people were hospitalized in Sichuan province with symptoms that include high fever, fatigue, nausea and vomiting, and “became comatose later with bruises under the skin,” the official Xinhua News Agency said. It said 12 were in critical condition.

The illness likely stems from streptococcus suis, a bacteria that is usually spread among pigs, provincial health official Zeng Huajin was quoted as saying by the China Daily newspaper.



### **'Not SARS, Anthrax or Bird Flu'**

"I can assure you that the disease is absolutely not SARS, anthrax or bird flu," Zeng said. He did not elaborate on how the illness spread to humans, saying more research needed to be done.

A spokesman for the World Health Organization said the symptoms reported "seem consistent" with streptococcus suis.

"We don't think we've seen numbers on this scale before, but it might be because of a heightened surveillance system," said Bob Dietz, a spokesman for the World Health Organization in Manila. "Of course we are concerned anytime we have a situation like this. We will continue to watch it closely."

China is sensitive to such public health threats after criticism of its handling of severe acute respiratory syndrome, which emerged in 2002. The government was widely criticized for its slow response to pleas for information about the disease, which killed nearly 800 people worldwide before subsiding in July 2003.

China also is trying to contain an outbreak of avian flu in its west, where thousands of migratory birds have died in recent weeks.

Dietz said China has so far kept WHO informed "in a timely manner" about the outbreak that killed the farmers. WHO headquarters in Geneva was awaiting laboratory results before it would speculate on what the disease might be.

### **17 People Killed**

A man who answered the phone at the Sichuan health bureau on Monday said 17 people have died from the mystery illness and two have recovered. He refused to give his name, saying only that the cause of the deaths was under investigation.

A woman who answered the phone at the Ziyang No. 1 People's Hospital, where most of the patients were being treated, hung up when asked about the cases.

The last major pig-borne epidemic occurred in Malaysia, where 265 people were infected with the Nipah virus between 1998 and 1999. Some 105 people died and nearly a million hogs were slaughtered before the outbreak was controlled. The virus is capable of infecting a variety of animals and is lethal to about 50 percent of human patients, causing encephalitis.

The Chinese ministries of health and agriculture sent a team to Sichuan last week to help investigate, treat and control of the outbreak, the China Daily said.

Xinhua said medical experts believe the illness in Sichuan "is not spreading further among humans," and that there were "no obvious signs of (an) epidemic."

Shanghai's Oriental Morning Post newspaper said the patients were 30 to 70 years old, and one was a woman.

The son of one victim told Hong Kong's Cable TV said his father fell ill after slaughtering a pig and eating some of the meat. The names of the son and victim were not given.

Also Monday, two supermarket chains in Hong Kong stopped the sale of frozen pork from Sichuan as officials sought to assure the public the disease did not pose a threat to the territory ([MSNBC, 2005](#)).

**Title:** Mysterious Disease Outbreak In China Baffles WHO

**Date:** July 27, 2005

**Source:** [New Scientist](#)

**Abstract:** The death toll from a hitherto rare disease has risen to 24 in southwest China, with more than 117 people feared infected. Chinese health officials report that the disease is caused by known bacteria from pigs, though the size and virulence of the outbreak has baffled the World Health Organization.

"It's never occurred in an outbreak this big before," WHO spokesman Bob Dietz told AFP. "We're accustomed to seeing only one or two cases. We're not accustomed to this large number of people getting infected. And we don't understand why that is."

The disease is believed to be caused by the pig bacterium *Streptococcus suis*. The first cases surfaced in June 2005 in two cities in China's Sichuan province. All cases were either farmers that had butchered infected pigs or people who later handled the contaminated pork products, says the Chinese Ministry of Health. No person-to-person transmission has been reported.

### **High Mortality Rate**

The first recorded human case of *S. suis* was in Denmark in 1968. Only 200 cases have been reported since then, excluding the current outbreak. Dick Thompson, a WHO spokesman in Geneva, says full laboratory reports on the 76 confirmed and 41 suspected infections will help experts to understand why this outbreak has grown so large and deadly. They will look for co-infection with other pathogens and attempt to solidify the diagnosis and extent of the outbreak, he told New Scientist.

Symptoms of the disease include high fever, nausea, vomiting and haemorrhaging. The high mortality rate is worrying - nearly one third confirmed cases have since died. A Chinese Health Ministry spokesman, Mao Qun'an told the paper China Daily that the Chinese Centre for Disease Control and Prevention are searching for more effective treatments.

According to investigations in China, the infected pigs are thought to have come from up to 300 different farms, which were then spread across 70 areas in and around the two cities of Ziyang and Neijiang. No cases have been reported outside these areas.

Sichuan is China's second largest pork producing province. All 469 infected pigs have been buried and pork exports have been suspended from the areas involved. The Health Ministry is urging people not to process or slaughter infected animals in an effort to contain the spread ([New Scientist, 2005](#)).

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**Title:** Mystery Illness Kills Four In South Africa

**Date:** October 6, 2008

**Source:** [AFP](#)

**Abstract:** Four people, two of them Zambians, have died in Johannesburg of a mystery flu-like illness, the health department spokesman said Monday.

"The initial patient, who was from Zambia, arrived in South Africa on September 12 and she died two days later after being treated for tick-bite fever," Fidel Hadebe told AFP.

"The (Zambian) medical personnel who accompanied her also died two days later after being treated for flu," Hadebe said.

"A third person, a nursing sister at the same clinic in Johannesburg, also died, while a cleaner at the same clinic also took ill and died late Sunday," he added.

"We are still investigating the actual causes of these deaths to determine if they are related to flu or fever. We cannot at this stage say categorically what the causes are because we dealt with a combination of symptoms from these patients," he said.

"But most of the patients who died manifested flu-like symptoms," Hadebe said.

Health authorities were trying to trace anyone who had contact with the victims, in a bid to contain the disease. Anyone who had travelled to Zambia over the past month and who was suffering from flu-like symptoms was advised to seek medical attention ([AFP, 2008](#)).

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**Title:** China's Mystery HIV-Like Disease May Be All In The Mind

**Date:** February 10, 2010

**Source:** [BBC](#)

**Abstract:** Hundreds of people in China believe they might have a new disease with HIV-like symptoms, but doctors suggest their illness could be the result of a mental rather than a physical condition.

The Chinese authorities have been accused of covering up respiratory illnesses like Sars in the past.

This time doctors are blaming a breakdown in trust between the medical profession and patients, who fear they are being lied to when their diagnostic tests come back negative.

One man convinced he has the condition insisted on meeting in an empty motel room. He tries to avoid public places to reduce the chances of transmission.

He wears a face mask - he suspects his virus is spread by close contact, through sweat or saliva. He thinks he caught it after he had sex with a female prostitute.

But he is not HIV positive - seven HIV tests have come back negative.

"I've been to many hospitals, I've had many tests. None of these has proved I'm ill," he explains.

Swelling up

"They've examined my organs, tested me for sexual diseases. I'm unwell, but the doctors can't explain why."

There are dozens of Chinese internet chat rooms filled with people who believe they have the same mystery illness.

"I joined the chat room because I was sure I had been infected with this virus," said another patient, who refused to meet face-to-face because, he said, he did not want to pass it to us.

He started to feel ill several months ago, also after a visit to a prostitute, where he says he took precautions to avoid catching HIV.

"Twenty-four hours later I had a strong desire to vomit. I had headaches, I was dizzy, I could feel my internal organs were swelling up. I was in intense pain. This lasted months."

He thought he was HIV positive but was tested several times and there was no sign of HIV antibodies.

The man is unhappy with the response from the medical establishment in China and has tried to bring his illness to the attention of the World Health Organization (WHO) and researchers overseas, but with little success.

"Most of the doctors didn't have the patience to listen to my story," he complains, adding that he is sure the virus is spreading throughout the country.

### **HIV Phobia**

Both men are certain they are ill, but at the moment doctors do not think they are dealing with an unknown virus.

They suspect extreme guilt or anxiety about an act the men are ashamed of - sex with a prostitute - is affecting their immune systems, making them feel ill.

Scientists at the Pasteur Institute in Shanghai started getting letters from the patients in August.

In early December, they began a study of five patients. So far they have ruled out HIV. The work is still continuing.

Last month, China's Centre for Disease Control tested a larger group of 60 patients. They too ruled out any connection with HIV.

Dr Cai Weiping is a senior Chinese HIV researcher based at the People's Number 8 hospital in the southern province of Guangdong.

He is concerned that growing numbers of patients with what he describes as "HIV phobia" are using up scarce resources.

"They come to have tests again and again, wasting money.

"A real HIV sufferer may take 15 minutes to deal with. A patient with the phobia can take at least an hour, or as much as half a day of arguing before they go away."

Some of the patients claim they have infected family members, friends or colleagues. Dr Cai is doubtful.

"What their relatives tell us about their own symptoms doesn't match what we have heard from the patients."

He believes the problem is psychological rather than physical.

"They think we are concealing an epidemic," he explains.

"In the past we were secretive about the spread of diseases. People didn't believe the numbers of infections we announced.

"Today that's impossible because China is now making much more effort to find patients who have HIV or other diseases."

### **'Real Symptoms'**

Although incidences of "HIV phobia" have been reported in other countries, the doctor believes conditions unique to China have produced a larger number of cases here.

Huge changes in the country's medical system in recent years have not worked well, a fact the government acknowledges.

They have left many patients suspicious of the motivations of the medical profession.

"Patients think doctors just see them as machines to make money out of, instead of being driven by a desire to cure them or to save life," says Dr Cai.

The internet has allowed large numbers of people who are frightened but have little expertise to share their fears and in the process heighten them.

But even if the doctor is right and the young man in the motel room is suffering simply from delusion, it is severe enough to leave him trapped behind his mask.

"I feel that I will die soon," he says.

"I haven't been home for a month because I don't want to infect my family. My doctors don't understand me. They say it's caused by fear, but my symptoms are real."

He is so scared he might spread what is wrong with him to others, he has started to withdraw from society.

Physical or mental, the effect of this condition is devastating for him ([BBC, 2010](#)).

**Title:** Mystery Illness Sidelines Football Team

**Date:** August 23, 2010

**Source:** [NBC 4 News](#)

**Abstract:** A doctor sums up the illness that hit 19 members of a northwest Oregon high school football team as "very weird." They all suffered muscle damage after a preseason camp.

Three of the McMinnville High School players also were diagnosed with a rare soft-tissue condition called "compartment syndrome," which caused soreness and swelling in their triceps.

They underwent surgery to relieve the pressure.

The 19 players all had elevated levels of the enzyme creatine kinase, or CK, which is released by muscles when they're injured, said Dr. Craig Winkler of Willamette Valley Medical Center in McMinnville.

High CK levels can lead to kidney failure if not properly treated.

"To have an epidemic like this is very weird," Winkler said.

Officials said the cause was still a mystery, but high CK levels can result from vigorous exercise or the use of certain medications or food supplements.



Five of the athletes were treated in the emergency room and sent home.

The other 11 were admitted to the hospital and given intravenous fluids to maintain adequate hydration and prevent kidney failure, he said.

Ten boys remained hospitalized Sunday, but they were in good condition and were expected to be released Monday, said Rosemari Davis, Willamette Valley Medical Center's chief executive officer.

Practices for all fall sports start Monday.

Before their symptoms started this past week, the players were at an immersion camp organized by first-year coach Jeff Kearin.

Winkler said the players worked out last Sunday at the high school's wrestling room, where temperatures reached 115 degrees.

He said the high temperature and dehydration may have played a role.

He also said officials will look at water sources and what the kids had to drink, including power mixes.

Winkler said blood test results expected Tuesday could show whether the athletes ingested creatine, which is found in legal high-powered protein supplements.

He added officials are not testing for steroids because it would be unlikely for that many students to have access, and "creatine makes way more sense."

Two players said Sunday that supplements were not a factor.

Fullback and linebacker Jacob Montgomery, one of the 10 still hospitalized, said he first experienced a tightness in his triceps and forearms Tuesday.

"They swelled to the verge of popping," the 17-year-old senior said in a telephone interview. "I thought it was just swelling from an intense workout."

Montgomery said he went to get checked out Wednesday after learning another player was taken to the hospital.

He and fellow senior Josh Nice said neither they nor any of the other players have taken any supplements or performance enhancers.

"They don't know what's behind this whole thing," said Nice, a wide receiver hospitalized since Friday.

He added he hopes to return to practice as soon as possible.

Winkler said the hospital and school began screening players for CK after the first few were brought to the hospital early last week.

The normal range for CK is 35 to 232 units per liter, but some students showed levels as high as 42,000, putting them at risk of kidney injury, Winkler said. Those with levels in the 3,000 range were treated in the hospital's emergency room and released, while those with levels above 10,000 were admitted.

Superintendent Maryalice Russell told The Oregonian newspaper she doesn't believe Kearin's workout was excessive.

She also said she has no evidence steroids or supplements were involved.

"I don't have any information at this time that would indicate that's the case," she said. "I'm continuing to look at additional information as it may come my way."

A home phone listing for Kearin could not be found.

But one of his former Cal State Northridge colleagues told The Oregonian that

Kearin is "very conscientious about the high school development and the kids."

"His personality is not a big, hard-nosed, lineman's mentality, or a weight-room-mentality guy," Los Angeles Valley College coach Jim Fenwick said.

Tom Welter, Oregon School Activities Association executive director, said the organization's medical committee will investigate and make recommendations to the executive board after its next meeting in September.

The OSAA oversees school sports in the state.

"It's a really bizarre situation," said Nice's mother, Margaret Nice, whose son Daniel also remains hospitalized. "But we're all trying to hang in here and hope and pray that they can come up with the answer to what caused this" ([NBC 4 News, 2010](#)).

**Title:** Uganda Mystery Illness: Tests Fail To Identify Killer

**Date:** December 7, 2010

**Source:** [BBC](#)

**Abstract:** Tests have so far failed to identify an illness that has killed at least 38 people in northern Uganda, officials say.

The Ugandan Ministry of Health said the preliminary tests had ruled out ebola, typhoid and several other diseases.

It said some test results suggested it might be plague, but that further tests were being carried out.

Patients complain of a severe headache and dizziness, which eventually give way to diarrhoea and vomiting.

The ministry said that a full recovery was possible if people sought medical help in the illness's early stages.

It said the results suggesting it was plague were not consistent with findings by medical workers on the ground.

It advised people not to eat meat from sick domesticated and wild animals and to take precautions such as washing hands regularly.

The illness was first reported on 10 November and more than 90 people have been treated for it.

The ministry said it lasted for between two and 10 days, and that the vomit and diarrhoea contained blood.

The tests were carried out in a total of four Ugandan and foreign laboratories.

A BBC correspondent in Uganda, Joshua Mmali, says additional information about the illness has been difficult to obtain, with officials refusing to comment further ([BBC, 2010](#)).

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**Title:** Twelve Horses Dead In Mystery Illness Outbreak

**Date:** October 7, 2011

**Source:** [Brisbane Times](#)

**Abstract:** Biosecurity Queensland has now confirmed that five horses have been euthanised in a paddock where seven others have mysteriously died.

Test results have confirmed that the Hendra virus is not the cause of the illness that affected the 12 dead horses at the property in the Kooralbyn area in the Gold Coast hinterland.

Speculation is mounting that the horses consumed a toxic or contaminated substance.

Queensland Chief Veterinary Officer Dr Rick Symons said Biosecurity Queensland would perform post mortems on the horses to try and determine what made them fall sick and die so rapidly.

“We don’t expect to have the complete post mortem results until next week,” he said.

“There were a total of 25 horses on the property. Three of the surviving horses are showing signs of the illness and are being monitored.

“I want to acknowledge the quick actions of the private veterinarians who attended the property yesterday and their use of appropriate protective equipment.

“While this is not a case of Hendra virus infection, vets should always take appropriate precautions including the use of personal protective equipment.”

Two private vets were called to the paddock yesterday, after locals in Kooralbyn discovered the dead horses and notified the RSPCA.

The horse deaths were reported to Biosecurity Queensland about 4pm.

A Kooralbyn resident, who stopped at the property early yesterday afternoon and did not want to be named, said several horses were dead and one was struggling to get off the ground.

"I went as far as the fence line and I saw enough and I wasn't getting any closer," she said.

"The horses looked in terrible condition. One was trying to get up and was shaking and struggling as though it was suffering from colic.

"We've been told one of the horses was found dead in the creek."

She said the horses had been in the paddock for two weeks.

No one had been seen visiting the paddock, which was about five kilometres from a local pony and equestrian club, she said.

There were concerns in the community about why and how the horses had died and whether the creek water was contaminated, she said.

"It's hard to understand why the horses have gotten that sick in a fortnight and the question is where were they before they were put in the paddock?"

The RSPCA has ruled out animal cruelty as the cause of death, according to spokesman Michael Beattie.

Veterinarians, called in by the RSPCA, found the horses were covered in ticks.

Mr Beattie said they did not believe ticks had caused the deaths.

There was speculation that the animals had consumed something contaminated, but that still had to be confirmed through more tests ([Brisbane Times, 2011](#)).

**Title:** 22 Students Hospitalized After Falling Ill At Houston High School Football Game

**Date:** November 5, 2011

**Source:** [Fox News](#)

**Abstract:** More than 20 people, mostly band members, were hospitalized Friday night after suddenly falling ill during a high school football game in southwest Houston on Friday night.

It was first believed they had been exposed to an unknown chemical, but fire officials said later they had found no trace of gases or chemical agents at the scene.

Austin and Yates high schools were playing at Barnett Stadium when, sometime around 9:00pm local time, students suddenly fell ill and hazmat teams and emergency crews were dispatched to the stadium, myFOXhouston reported.

The victims, mainly band members and dancers from Austin High, were reportedly suffering from nausea, vomiting and heart palpitations.

David Almaguer, Houston Fire Department assistant chief, told KTRK-TV that the victims had been taken to several local hospitals.

"A number of the students were complaining of nausea," he said. "We ended up with 22 students being transported to five different hospitals"

A hazmat team was set up a decontamination unit in the vicinity of the stadium, which was evacuated following the incident, KPRC-TV reported.

A student told myFOXhouston he began to smell something odd when he saw his sister lose consciousness.

Another witness told KTRK-TV, "Three dancers moved to the side and started throwing up, then as we got to the stands, more started falling."

A doctor who interviewed patients at the scene said investigators were still trying to work out what caused the students to suddenly become ill, after fire officials said their detection equipment had found no sign of gases or chemical agents in the area.

"The kids all ate at different places, some of them ate at different times ... but they did have something in their stomachs. At this point, it remains a little unclear what set it off," Emergency Medical Services doctor David Purse said ([Fox News, 2011](#)).

**Title:** Mysterious Illness At Leroy High School

**Date:** November 8, 2011

**Source:** [WKBW News](#)

**Abstract:** It's been more than a week that six Leroy High School students have been shaking uncontrollably and the cause has doctors stumped.

The symptoms are similar to Tourette Syndrome, including shaking and jerking in their necks and heads. One student, who did not want to be identified, said it started when she woke up from a nap and could not speak because the shaking was so severe.

Now, she said the shaking has gotten so bad that she can't go to school. She is tutored at home. The teen has gone to a psychologist, neurologist and general practitioner but doctors can't pinpoint the problem.

The teen said the medicine the doctors have administered are making her so tired, she sleeps nearly the entire day. She said what's worse is that she worries about what could happen.

"For eight or ninth days now shaking and it doesn't stop. It's a lot of pressure on my back and it makes my neck sore," Unidentified girl said.

School officials said they are working closely with students, their parents and doctors to try and find a cause. They also hope to stop this illness from spreading. Doctors said they will be monitoring the six girls to make sure they don't get any worse ([WKBW News, 2011](#)).

**Title:** Mystery Illness At LeRoy High School Spreads To 15 Students

**Date:** January 26, 2012

**Source:** [Huffington Post](#)

**Abstract:** The mystery illness that hit 12 girls at LeRoy High School in upstate New York -- which was [recently diagnosed](#) by a local doctor as conversion disorder -- has now spread to more teens at the school. The New York State Health Department [confirms to local NBC affiliate WGRZ](#) that they have seen 15 cases of students exhibiting the same Tourettes-like symptoms, including one boy.

The 12 girls who were initially exhibiting strange Tourette's-like tics and uncontrollable verbal outbursts several months ago, as well as three more students, are thought to have a particular type of conversion



disorder known as [mass psychogenic illness](#), an ailment in which psychological stress is expressed physically. School officials [told TODAY](#) that environmental factors in the school building or surrounding areas are not to blame, and the cause of the outbreak remains uncertain.

To get a second opinion on their diagnosis, students may elect to travel to the National Institute of Health facilities in Bethesda, Maryland for [further testing](#). The testing will be free of charge, and will involve a physical examination as well as possible clinical neurophysiological testing.

Conversion disorder is a main area of research at the NIH facility, and those who are eligible may participate in the [ongoing research](#) study there ([Huffington Post, 2012](#)).

**Title:** U.S. Tourist Dies While On South American Cruise

**Date:** November 23, 2011

**Source:** [CNN](#)

**Abstract:** An American woman died aboard a cruise ship that docked at Rio de Janeiro on Tuesday, the same ship on which 86 passengers previously fell ill, according to the state-run Brazilian news agency, Agencia Brasil.

The American tourist died aboard the MS Veendam, owned by cruise operator Holland America. Federal Police told Agencia Brasil that forensic doctors were investigating her death.

The ship's doctors told police that the woman was elderly and suffered from diabetes and hypertension, according the agency.

The other passengers came down with diarrhea prior to her death during an earlier part of the trip, the ship's doctors said.

The Veendam left New York 36 days ago for a South America tour ([CNN, 2011](#)).

**Title:** Mystery Illness Hits Cruise Ship, US Tourist Dies

**Date:** November 23, 2011

**Source:** [Huffington Post](#)

**Abstract:** An American woman has died, and 86 others have fallen ill aboard [a cruise ship that was struck by a mystery illness](#), CNN reports.

[According to The Examiner](#), only 79 passengers were sickened.

The MS Veendam, operated by Holland America, was on a South American tour and docked Tuesday in Rio de Janiero. Forensic doctors are investigating the elderly woman's death. It's not believed to be related to the "mystery illness," as ship doctors told police she suffered from hypertension and diabetes.

AFP reports the mystery illness has been solved, and was simply the stomach flu.

Last week, a 60-year-old [Celebrity Cruise passenger died](#) while on an excursion, prompting the line to cancel parasailing trips ([Huffington Post, 2011](#)).

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Conversion disorder is a main area of research at the NIH facility, and those who are eligible may participate in the [ongoing research](#) study there ([Huffington Post, 2012](#)).

**Title:** Mystery Disease In Central America Kills Thousands

**Date:** February 12, 2012

**Source:** [Huffington Post](#)

**Abstract:** Jesus Ignacio Flores started working when he was 16, laboring long hours on construction sites and in the fields of his country's biggest sugar plantation.

Three years ago his kidneys started to fail and flooded his body with toxins. He became too weak to work, wracked by cramps, headaches and vomiting.

On Jan. 19 he died on the porch of his house. He was 51. His withered body was dressed by his weeping wife, embraced a final time, then carried in the bed of a pickup truck to a grave on the edge of Chichigalpa, a town in Nicaragua's sugar-growing heartland, where studies have found more than one in four men showing symptoms of chronic kidney disease.

A mysterious epidemic is devastating the Pacific coast of Central America, killing more than 24,000 people in El Salvador and Nicaragua since 2000 and striking thousands of others with chronic kidney disease at rates unseen virtually anywhere else. Scientists say they have received reports of the phenomenon as far north as southern Mexico and as far south as Panama.

Last year it reached the point where El Salvador's health minister, Dr. Maria Isabel Rodriguez, appealed for international help, saying the epidemic was undermining health systems.

Wilfredo Ordonez, who has harvested corn, sesame and rice for more than 30 years in the Bajo Lempa region of El Salvador, was hit by the chronic disease when he was 38. Ten years later, he depends on dialysis treatments he administers to himself four times a day.

"This is a disease that comes with no warning, and when they find it, it's too late," Ordonez said as he lay on a hammock on his porch.

Many of the victims were manual laborers or worked in sugar cane fields that cover much of the coastal lowlands. Patients, local doctors and activists say they believe the culprit lurks among the agricultural chemicals workers have used for years with virtually none of the protections required in more developed countries. But a growing body of evidence supports a more complicated and counterintuitive hypothesis.

The roots of the epidemic, scientists say, appear to lie in the grueling nature of the work performed by its victims, including construction workers, miners and others who labor hour after hour without enough water in blazing temperatures, pushing their bodies through repeated bouts of extreme dehydration and heat stress for years on end. Many start as young as 10. The punishing routine appears to be a key part of some previously unknown trigger of chronic kidney disease, which is normally caused by diabetes and high-blood pressure, maladies absent in most of the patients in Central America.

"The thing that evidence most strongly points to is this idea of manual labor and not enough hydration," said Daniel Brooks, a professor of epidemiology at Boston University's School of Public Health, who has worked on a series of studies of the kidney disease epidemic.

Because hard work and intense heat alone are hardly a phenomenon unique to Central America, some researchers will not rule out manmade factors. But no strong evidence has turned up.

"I think that everything points away from pesticides," said Dr. Catharina Wesseling, an occupational and environmental epidemiologist who also is regional director of the Program on Work, Health and Environment in Central America. "It is too multinational; it is too spread out.

"I would place my bet on repeated dehydration, acute attacks everyday. That is my bet, my guess, but nothing is proved."

Dr. Richard J. Johnson, a kidney specialist at the University of Colorado, Denver, is working with other researchers investigating the cause of the disease. They too suspect chronic dehydration.

"This is a new concept, but there's some evidence supporting it," Johnson said. "There are other ways to damage the kidney. Heavy metals, chemicals, toxins have all been considered, but to date there have been no leading candidates to explain what's going on in Nicaragua ...

"As these possibilities get exhausted, recurrent dehydration is moving up on the list."

In Nicaragua, the number of annual deaths from chronic kidney disease more than doubled in a decade, from 466 in 2000 to 1,047 in 2010, according to the Pan American Health Organization, a regional arm of

the World Health Organization. In El Salvador, the agency reported a similar jump, from 1,282 in 2000 to 2,181 in 2010.

Farther down the coast, in the cane-growing lowlands of northern Costa Rica, there also have been sharp increases in kidney disease, Wesseling said, and the Pan American body's statistics show deaths are on the rise in Panama, although at less dramatic rates.

While some of the rising numbers may be due to better record-keeping, scientists have no doubt they are facing something deadly and previously unknown to medicine.

In nations with more developed health systems, the disease that impairs the kidney's ability to cleanse the blood is diagnosed relatively early and treated with dialysis in medical clinics. In Central America, many of the victims treat themselves at home with a cheaper but less efficient form of dialysis, or go without any dialysis at all.

At a hospital in the Nicaraguan town of Chinandega, Segundo Zapata Palacios sat motionless in his room, bent over with his head on the bed.

"He no longer wants to talk," said his wife, Enma Vanegas.

His levels of creatinine, a chemical marker of kidney failure, were 25 times the normal amount.

His family told him he was being hospitalized to receive dialysis. In reality, the hope was to ease his pain before his inevitable death, said Carmen Rios, a leader of Nicaragua's Association of Chronic Kidney Disease Patients, a support and advocacy group.

"There's already nothing to do," she said. "He was hospitalized on Jan. 23 just waiting to die."

Zapata Palacios passed away on Jan. 26. He was 49.

Working with scientists from Costa Rica, El Salvador and Nicaragua, Wesseling tested groups on the coast and compared them with groups who had similar work habits and exposure to pesticide but lived and worked more than 500 meters (1,500 feet) above sea level.

Some 30 percent of coastal dwellers had elevated levels of creatinine, strongly suggesting environment rather than agrochemicals was to blame, Brooks, the epidemiologist, said. The study is expected to be published in a peer-reviewed journal in coming weeks.

Brooks and Johnson, the kidney specialist, said they have seen echoes of the Central American phenomenon in reports from hot farming areas in Sri Lanka, Egypt and the Indian east coast.

"We don't really know how widespread this is," Brooks said. "This may be an under-recognized epidemic."

Jason Glaser, co-founder of a group working to help victims of the epidemic in Nicaragua, said he and colleagues also have begun receiving reports of mysterious kidney disease among sugar cane workers in Australia.

Despite the growing consensus among international experts, Elsy Brizuela, a doctor who works with an El Salvadoran project to treat workers and research the epidemic, discounts the dehydration theory and insists "the common factor is exposure to herbicides and poisons."

Nicaragua's highest rates of chronic kidney disease show up around the Ingenio San Antonio, a plant owned by the Pellas Group conglomerate, whose sugar mill processes nearly half the nation's sugar. Flores and Zapata Palacios both worked at the plantation.

According to one of Brooks' studies, about eight years ago the factory started providing electrolyte solution and protein cookies to workers who previously brought their own water to work. But the study also found that some workers were cutting sugar cane for as long as 9 1/2 hours a day with virtually no break and little shade in average temperatures of 30 C (87 F).

In 2006, the plantation, owned by one of the country's richest families, received \$36.5 million in loans from the International Finance Corp., the private-sector arm of the World Bank Group, to buy more land, expand its processing plant and produce more sugar for consumers and ethanol production.

In a statement, the IFC said it had examined the social and environmental impacts of its loans as part of a due diligence process and did not identify kidney disease as something related to the sugar plantation's operations.

Nonetheless, the statement said, "we are concerned about this disease that affects not only Nicaragua but other countries in the region, and will follow closely any new findings."

Ariel Granera, a spokesman for the Pellas' business conglomerate, said that starting as early as 1993 the company had begun taking a wide variety of precautions to avoid heat stress in its workers, from starting their shifts very early in the morning to providing them with many gallons of drinking water per day.

Associated Press reporters saw workers bringing water bottles from their homes, which they refilled during the day from large cylinders of water in the buses that bring them to the fields.

Glaser, the co-founder of the activist group in Nicaragua, La Isla Foundation, said that nonetheless many worker protections in the region are badly enforced by the companies and government regulators, particularly measures to stop workers with failing kidneys from working in the cane fields owned by the Pellas Group and other companies.

Many workers disqualified by tests showing high levels of creatinine go back to work in the fields for subcontractors with less stringent standards, he said. Some use false IDs, or give their IDs to their healthy sons, who then pass the tests and go work in the cane fields, damaging their kidneys.

"This is the only job in town," Glaser said. "It's all they're trained to do. It's all they know."

The Ingenio San Antonio mill processes cane from more than 24,000 hectares (60,000 acres) of fields, about half directly owned by the mill and most of the rest by independent farmers.

The trade group for Nicaragua's sugar companies said the Boston University study had confirmed that "the agricultural sugar industry in Nicaragua has no responsibility whatsoever for chronic renal insufficiency in Nicaragua" because the research found that "in the current body of scientific knowledge there is no way to establish a direct link between sugar cane cultivation and renal insufficiency."

Brooks, the epidemiologist at Boston University, told the AP that the study simply said there was no definitive scientific proof of the cause, but that all possible connections remained open to future research.

In comparison with Nicaragua, where thousands of kidney disease sufferers work for large sugar estates, in El Salvador many of them are independent small farmers. They blame agricultural chemicals and few appear to have significantly changed their work habits in response to the latest research, which has not received significant publicity in El Salvador.

In Nicaragua, the dangers are better known, but still, workers need jobs. Zapata Palacios left eight children. Three of them work in the cane fields.

Two already show signs of disease ([Huffington Post, 2012](#)).

**Title:** Air New Zealand Plane Quarantined In Auckland After 73 Passengers Fall Ill

**Date:** February 13, 2012

**Source:** [The Australian](#)

**Abstract:** AN Air New Zealand plane has been quarantined after landing at Auckland Airport carrying children with flu-like symptoms, TVNZ reported.

The Boeing 777-200 landed in Auckland this morning local time, with 274 passengers from Narita International Airport outside Tokyo.

A group of 73 passengers, including children, were suffering from the flu-like symptoms.

TVNZ reported none of the passengers have been allowed to leave the plane. Two crews are on board and wearing protective gear.

The Auckland Regional Public Health Service has been notified, TVNZ said ([The Australian, 2012](#)).

**Title:** Mystery Virus Kills Thousands Of Lambs

**Date:** February 25, 2012

**Source:** [Telegraph](#)

**Abstract:** The Schmallenberg virus causes lambs to be born dead or with serious deformities such as fused limbs and twisted necks, which mean they cannot survive.

Scientists are urgently trying to find out how the disease, which also affects cattle, spreads and how to fight it, as the number of farms affected increases by the day.

So far, 74 farms across southern and eastern England have been hit by the virus, which arrived in this country in January.

A thousand farms in Europe have reported cases since the first signs of the virus were seen in the German town of Schmallenberg last summer.

The National Farmers Union has called it a potential “catastrophe” and warned farmers to be vigilant. “This is a ticking time bomb,” said Alastair Mackintosh, of the NFU. “We don’t yet know the extent of the disease. We only find out the damage when sheep and cows give birth, and by then it’s too late.”

It is unclear exactly how the disease arrived in Britain, but the leading theory is that midges carried the virus across the Channel or North Sea in the autumn. However, scientists cannot yet rule out transmission of the disease from animal to animal.

Infected ewes do not show any symptoms of the virus until they give birth, with horrific results. Farmers have described delivering the deformed and stillborn animals as heartbreaking.

The lambing season has only just begun, which means that the full impact of the disease will not be felt until the weather warms up and millions more animals are born.



On the Continent, some farms have lost half of their lambs. So far the worst hit in Britain have lost 20 per cent, according to the Department for Environment, Food and Rural Affairs (Defra).

Approximately 16 million lambs are born in Britain every year and sell at market for about £100 each. The effect of the disease on farms that are already struggling in the downturn could be severe.

“For any business to lose 20 per cent of your stock would be a huge blow,” said Mr Mackintosh. “For a farmer to lose 20 per cent of your flock is catastrophic. If it was 50 per cent you would be put out of action.

“I was talking to one who has 10,000 sheep. If he loses even five per cent of the animals born this year, that’s a hell of a lot of lambs. I know another who says 10 per cent of his ewes have become barren. He has 6,000 ewes, so that is 600 animals producing nothing.”

The Food Standards Agency has sought to allay any fears about eating lamb, although little is known about the virus so far.

The Agency said: “Any risk to consumers through the food chain is likely to be low. No illness has been reported to date in humans exposed to animals infected with Schmallenberg virus.”

The worst affected counties are Norfolk, Suffolk, East Sussex and Kent, but the virus has spread all along the south coast to Cornwall.

Farmers fear the disease may spread to larger flocks in the north of England, Wales and Scotland. In Europe, Germany, Holland and France have suffered worst, while recent cases have been reported in Italy and Luxembourg.

John, a farmer from East Sussex who wanted to remain anonymous, said he had lost 40 out of 400 lambs so far, at a cost to his business of more than £4,000.

“I’ve had to put more lambs down in the past month than I have done in the past 20 years. Every one is a serious blow to our finances. But it’s an emotional thing too,” he said.

There are also fears that the virus may be seen later this year among cows, which have a longer gestation period.

Five of the British farms have seen cattle affected, with calves aborted at six months of pregnancy.

Cows are thought to be more robust than sheep and therefore more resistant, but Schmallenberg virus could still reduce milk yields and put pressure on a dairy industry that is already suffering, says Mr Mackintosh. “From what I hear, we are likely to see weak calves that take a lot of expense and nursing to get going again. Having to do that will hit a business hard.”

The last confirmed midge-borne virus to hit the British farming industry was bluetongue in 2007, but a series of trade restrictions and a vaccine averted disaster.

This time there is no vaccine, and Defra says a ban on imports would not work, because the disease “is already here”. A spokesman said: “Defra is taking this seriously. We track emerging diseases. There is work going on across Europe and the amount we know is improving rapidly. We are keeping everything under review.”

Its website says “farmers and vets should remain vigilant and report any suspicious cases to AHVLA [the Animal Health and Veterinary Laboratories Agency] for testing as part of our enhanced surveillance”.

However, farmers are not yet legally required to notify authorities of an outbreak, leading some in the industry to fear it may already be much more widespread than figures suggest.

Nigel Miller, the president of the NFU in Scotland said: “The escalation and range of cases is deeply concerning and some experts are now suggesting that the volume of cases being seen is an indication that this is, in fact, the second year of infection.

“If that is the case then it raises the worrying prospect that the virus may have an effective overwintering mechanism.”

The AHVLA identifies Schmallenberg as one of a group of viruses “typically primarily spread by biting insect vectors, such as midges and mosquitoes, although the routes of Schmallenberg virus transmission have not yet been confirmed. The potential for direct transmission (ie direct from one animal to another) is therefore, as yet, unknown.”

It said: “There is unlikely to be a risk to human health from Schmallenberg virus; but this is not yet certain” ([Telegraph, 2012](#)).

**Title:** Uganda Government Squabbles While Children Die Of Mysterious Disease

**Date:** March 6, 2012

**Source:** [Washington Times](#)

**Abstract:** The [Ugandan government](#) has come under fire for its handling of a mysterious disease that has killed hundreds of children in the northern part of this impoverished East African nation.

The illness, called nodding disease and characterized by symptoms similar to epilepsy, has afflicted more than 1,000 children since June. Its cause is unknown, and there is no cure. Victims often nod their heads uncontrollably. Many also suffer mental retardation and stunted growth.

Government officials deflect blame for the outbreak. The [Health Ministry](#) faults the [central government](#) for failing to treat the disease and finance research into its cause. The [government](#) blames the [Health Ministry](#) for failing to tap funds in the [ministry's](#) budget for malaria control to combat the epidemic.

The standoff has placed intense scrutiny on President [Yoweri Museveni's](#) regime, which stands accused of massive financial mismanagement since a landslide presidential victory last year. [Mr. Museveni](#) assumed the presidency in 1986.

Last month, the [Finance Ministry](#) rejected the [Health Ministry's](#) request for \$3 million just days after it was announced that 170 newly elected members of parliament would receive about \$50,000 each to purchase luxury vehicles.

That same week, the [government](#) rejected a pay raise for teachers that would have kept pace with the country's near 30 percent inflation rate.

[Tamale Mirundi](#), a spokesman for [Mr. Museveni](#), defended the [government's](#) position.

“Nodding disease is not an issue for [the president's office]. That falls under Ministry of Health,” he said.

Parliament recently approved a request from [Mr. Museveni](#) for a budget supplement of \$39 million that he says is required to keep the [government](#) running despite massive injections of foreign aid each year. The United States alone gave Uganda \$1.1 billion last year.

[Mr. Museveni](#)'s proposal does not include funding for nodding disease, which the [government](#) says the [Health Ministry](#) should handle by diverting about \$420,000 meant for malaria control.

The [Health Ministry](#) said the malaria funds are not enough for a disease that spans three districts in the north of the country. Many victims of the disease travel long distances to reach the nearest of three treatment centers.

A group of Ugandans living in Britain, alarmed by what they see as government indifference toward the country's sick and poor, plans to raise funds to provide social care and transportation for families affected by the disease. The World Health Organization is assisting with research into its cause and treatment.

The disease mainly affects children ages 5 to 15. It is characterized by repeated head drooping and is often accompanied by convulsions and staring spells. Those affected often have permanently stunted growth, including brain growth. Food and weather may trigger the illness.

The disease was first discovered in Tanzania in 1962.

Many of the victims are malnourished and already suffer from river blindness. At least 200 people have died ([Washington Times, 2012](#)).

**Title:** Mysterious Illness Kills 3 Family Members, Sickens Fourth

**Date:** March 7, 2012

**Source:** [CBS News](#)

**Abstract:** There's a medical mystery in Calvert County. A respiratory illness killed almost an entire family.

Jessica Kartalija has the latest on the investigation.

Three family members are dead and another is still fighting for her life. Now investigators believe it could be a bizarre strain of the flu.

Calvert County's hazmat team — on full respirators — entered their home looking for samples of a microbe deadly enough to kill three of four family members.

"We got a large family and everybody is concerned about what's going on," said a neighbor.

Ruth Blake, 81, died March 1. Her 58-year-old son and 51-year-old daughter died Tuesday.

The Maryland Department of Health and Mental Hygiene has confirmed two family members died of complications of influenza H3 circulating this season, combined with a bacterial infection.

"I'm just concerned. It's a really big loss to the family," said a neighbor.

Maryland Medical Examiner David Fowler says at least one of the bodies was brought to Baltimore City for an autopsy. Blake's other daughter is being treated at a Washington-area hospital. The three siblings were caring for Blake when she contracted a pneumonia-like illness.

"I think that this is highly unusual and that's why this is newsworthy but as far as we can tell at this moment, this has been confined to these four individuals and this has been confined to this family group," Fowler said.

Health officials have contacted members of Blake's extended family.

"I don't know a lot. I'm just trying to find out so I can take precautions for my family," a neighbor said.

School officials in Calvert County are notifying parents to watch for signs of illness.

"It's upsetting to think that there's something out there and we don't know what it's all about," a neighbor said.

Flu season goes through May. If you haven't gotten a flu shot yet, health officials are urging you to get one.

Health officials also urge anyone who believes they may have contracted the flu to wash their hands often and keep sick children at home ([CBS News, 2012](#)).

**Title:** Mysterious 'Zombie' Disease Afflicts Thousands Of Ugandan Children

**Date:** March 21, 2012

**Source:** [Raw Story](#)

**Abstract:** Agnes Apio has to tie up her son Francis before she can leave the house. In his state, he is a danger to himself. Where once he walked and talked like a normal child, now he is only able to drag himself along in the dirt. Francis is suffering from "Nodding Disease," a brain disorder that, [according to CNN](#), afflicts at least 3,000 children in northern Uganda, leaving them physically stunted and severely mentally disabled.

"I feel dark in my heart," Apio says as waves flies away from her son's face and mops up his urine after a seizure, "This boy has become nothing."

"Reportedly the children gnaw at their fabric restraints, like a rabid animals," says [The Daily Tech](#). The article calls them "zombie children," having "no cure" and "no future."

First the victims become restless, can't concentrate. They say they have trouble thinking. Then comes the nodding, an uncontrollable dipping of the head that presages the disease's debilitating epilepsy-like seizures. It is this nodding motion that [gives the illness its name](#).

Nodding Disease first attacks the nervous system, then the brain. As the epilepsy-like seizures progress and worsen, the children become less and less like themselves, and more and more distant and blank. Eventually the brain stops developing and the victims' bodies [stop growing](#). So far, no patients have recovered.

Grace Lagat also has to tie up her children in order to leave the house. Daughter Pauline, 13, and son Thomas are bound hand and foot to keep them from shuffling away and getting lost. Pauline recently disappeared for five days.

Experts are baffled as to what causes the disease, which only occurs in children. Early findings suggest a confluence of the presence of the black fly-borne parasitic worm *Onchocerca Volvulus*, which causes river blindness, and acute vitamin B6 deficiency.

[According to the Centers for Disease Control](#), onset usually takes place at the age of five or six and progresses rapidly, leaving the victims severely mentally and physically handicapped within a couple of years.

Victims can wander off and disappear. Some 200 "secondary deaths" have been blamed on fires and accidents caused by children with the disease.

Physicians and workers with the Ugandan Red Cross are frustrated by what they see as a lack of urgency in the government's handling of the disease. After months of lagging, officials have only begun an official tally of cases within the last two weeks.

The situation was already dire when a team from the World Health Organization visited northern Uganda in 2009. CNN quotes one doctor from the team, Dr. Joaquin Saweka as saying, "It was quite desperate, I can tell you. Imagine being surrounded by 26 children and 12 of them showing signs of this. The attitude was to quickly find a solution to the problem."

Solutions, however, have been slow in coming.

Doctors have been treating the seizures caused by the disease with epilepsy drugs, but their efficacy is limited. The drugs only slow the progression of the disease, but fail to stop it.

Currently, Ugandan government officials say that they are doing everything they can to fight the epidemic. They say that new epilepsy drugs are being tried and special training has been instituted for local health officials. This, they say, is as much as can be done for a disease whose cause and cure are largely unknown.

Saweka said, "When you know the root cause, you address the cure. Now you are just relieving the symptoms. We don't expect to cure anybody" ([Raw Story, 2012](#)).

**Title:** Vietnam Pleads For Help As Mystery Disease Kills 19, Sickens 171

**Date:** April 19, 2012

**Source:** [MSNBC](#)

**Abstract:** Vietnam has asked the World Health Organization to help investigate a mystery disease that has killed 19 people and sickened 171 others in central Vietnam.

Le Han Phong, chairman of the People's Committee in Ba To district in Quang Ngai province, says patients first experience a rash on their hands and feet along with high fever, loss of appetite and eventually organ failure.

He says nearly 100 people remain hospitalized, including 10 in critical condition. Patients with milder symptoms are being treated at home.

Phong says the first case was detected last year and that the disease had died down until a spate of new infections were recently reported, mostly in one impoverished village.

A Ministry of Health investigation was inconclusive ([MSNBC, 2012](#)).

**Title:** Vietnam Pleads For Help As Mystery Disease Kills 19, Sickens 171

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**Source:** [MSNBC](#)

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A Ministry of Health investigation was inconclusive ([MSNBC, 2012](#)).

**Title:** U.K. Army Base Evacuated After Servicemen Fall Ill

**Date:** May 2, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** It was recently revealed that the headquarters of the British Army Land Forces in Andover, United Kingdom, were evacuated in late March over fears of a biological attack after four staff members collapsed from a mysterious illness.

Commanding officers thought that a package, possibly containing the bioterror agent anthrax, might have infiltrated the \$71 million complex when the staff simultaneously fell ill with flu-like symptoms. A portion of the base was sealed off while Ministry of Defense Police investigated the possible security breach, according to [DailyStar.co.uk](#).

“It was panic stations,” an anonymous source at the base said, [DailyStar.co.uk](#) reports. “Their symptoms were so bad there were immediate fears that they had been exposed to an outside biochemical agent. Rumors spread like wildfire that there had been an anthrax attack in the building.

“People rushed outside and then the place was evacuated. There was a genuine belief that something was terribly wrong.”

The U.K. Ministry of Defense recently confirmed that base was evacuated on March 30. A thorough investigation revealed no evidence of foul play.

British Army Land Forces headquarters is the service’s main intelligence station and is considered a prime target for a terrorist attack. The incident highlights the risk posed to security forces by biochemical agents.

There are more than 2,000 civilian and military personnel working at the site, which coordinates all of the Army’s activities in the United Kingdom.

The affected servicemen have since recovered from the illness, but its cause has yet to be diagnosed, according to [DailyStar.co.uk](#) ([Bio Prep Watch, 2012](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** Generally, an illness is between an individual and their doctor, especially if that person is a celebrity with a public image to uphold. Since 2008 however, major "celebrities" in America and Europe have suffered from a "mystery illness" that most recovered from within a day. The massive amount of mystery illness news headlines are no accident, but part of a propaganda campaign to introduce the mystery illness terminology to the public prior to a major mystery pandemic.

**Title:** Cher's Mystery Illness

**Date:** October 8, 2008

**Source:** [New Zealand Herald](#)

**Abstract:** Cher has sparked concerns over her health after cancelling her sixth Las Vegas show in less than a month. The 62-year-old singer - whose residency at the Las Vegas' Caesars Palace was due to end last weekend - cancelled her performances on Saturday and Sunday due to "asthma-related bronchitis". Last week, Cher's publicist Liz Rosenberg revealed the star was suffering from "Vegas throat", the nickname for when the throat is affected by the desert city's dry air. ([New Zealand Herald, 2008](#)).

**Title:** Janet Jackson Resumes Tour After Mystery Illness

**Date:** October 16, 2008

**Source:** [Guardian](#)

**Abstract:** Janet Jackson has recovered from her mystery illness and will be resuming her postponed tour. Not only that, but the mystery illness has been revealed! The pop star has been suffering from vestibular migraines.

Jackson's "Rock Witchu" tour was getting off to a troubled start. She first cancelled a gig in Montreal on September 29, and was rushed to hospital after a sound check. Jackson later called off nine dates across the US, including shows in Philadelphia, Boston, Atlanta and New York City ([Guardian, 2008](#)).

**Title:** Metallica Pull Swedish Show As Hetfield Falls Ill [Due To Mystery Illness]

**Date:** March 9, 2009

**Source:** [Contact Music](#)

**Abstract:** Metallica were forced to scrap a Swedish show over the weekend to allow ailing frontman James Hetfield to recover from a mystery illness. A statement posted on the group's website on Sunday reads, "Tonight's second show in Stockholm has been cancelled due to James falling ill and receiving medical attention at the hospital ([Contact Music, 2009](#)).

**Title:** Brock Lesnar Bombshell: Mystery Illness Hospitalizes UFC Champ

**Date:** November 16, 2009

**Source:** [City Pages](#)

**Abstract:** At a post-UFC 105 press conference on Saturday, president Dana White dropped a bombshell about his biggest star: Brock Lesnar, the heavyweight champ, is down for the count with a mystery illness. Earlier, Lesnar postponed his scheduled title defense, citing symptoms first believed

to be H1N1 flu and later confirmed to be Mono. But now, Lensar has additional complications that have forced him to withdraw entirely from the bout with no known return date to the UFC ([City Pages, 2009](#)).

**Title:** Winona Ryder Rushed To Hospital With Mystery Illness

**Date:** November 19, 2008

**Source:** [The Inquisitr](#)

**Abstract:** Gen X actress and reformed shoplifter Winona Ryder has been struck by a medical emergency while on a flight to London. Ryder was taken to hospital near London's Heathrow Airport. According to a statement from British Airways "The captain of BA282, which was traveling from LA to Heathrow, requested a priority landing as a female passenger required medical attention. The passenger was taken to a local hospital for treatment. The plane touched down shortly before noon UK time." Cabin crew are said to have looked after Ryder while on board the flight. A later statement from Winona Ryder's spokeswoman called the emergency a "precautionary measure" and that Ryder she was quickly discharged ([The Inquisitr, 2008](#)).

**Title:** OJ's Sister Dies of Mystery Illness

**Date:** April 7, 2009

**Source:** [Newser](#)

**Abstract:** OJ Simpson's younger sister died of a mysterious illness yesterday in Sacramento, the *Bee* reports. Carmelita Durio had been ill since she collapsed in court following her brother's robbery conviction in October, and none of six specialists she consulted were able to diagnose what plagued the 60-year-old. "Her body just broke down," says brother Melvin Simpson ([Newser, 2009](#)).

**Title:** Jay Leno Suffering From Mystery Illness

**Date:** April 24, 2009

**Source:** [Telegraph](#)

**Abstract:** The Thursday and Friday night tapings of his Tonight Show were cancelled after he felt unwell and sought treatment in hospital in Los Angeles, NBC representative Tracy St Pierre said. The lack of explanation for his sudden admission to hospital prompted internet rumours that the 58-year-old comic, who has rarely missed a day at work during his 17-year run on the show, was seriously ill or had suffered a heart attack ([Telegraph, 2009](#)).

**Title:** Jack Black Bedridden With Mystery Illness

**Date:** June 14, 2009

**Source:** [The Inquisitr](#)

**Abstract:** Jack Black is reported to be ill with a mystery "vomiting virus" that has kept him bedridden for over a week. "Just last weekend, I thought I was knocking on death's door" Black [told Starpulse](#). "I have never had this thing before where it has to go out of you in all directions. I'm not going into the grisly details, but it was explosive. Simultaneous explosions. I was wondering whether it was the sushi I ate or whether I caught it from someone and the doctor said it was the latter." Black was also concerned he might be contagious, and would pass the bug on to his two kids. "It's harder when you've got two babies, because you're exploding, then you're washing your hands 'cos you don't want to get them sick either. It's a constant battle to stay clean." The cause of Black's illness is yet to be determined ([The Inquisitr, 2009](#)).

**Title:** Mystery Illness Floors Casey Stoner

**Date:** August 11, 2009

**Source:** [Herald Sun](#)

**Abstract:** A mystery illness has brought a sudden end to Casey Stoner's campaign for a second MotoGP world championship. Stoner will miss the next three races starting with Sunday's Czech Grand Prix in Brno. Ducati team boss Livio Suppo said he expected that after further treatment in Australia Stoner would return for the Portuguese GP in Estoril in early October. That would give Stoner just one lead-in race before his home event, the Australian Grand Prix at Phillip Island on October 18. Stoner's shock withdrawal comes after a two-month battle with a virus that first struck him



at the Barcelona GP in Catalunya in June where he finished third despite vomiting in his helmet and suffering severe stomach cramps ([Herald Sun, 2009](#)).

**Title:** Mystery Illness Forces Paul Rodriguez Into ICU

**Date:** October 2, 2009

**Source:** [TMZ](#)

**Abstract:** Doctors haven't figured out exactly what's wrong with comedian Paul Rodriguez -- who's in ICU right now with severe abdominal pains. Mario Santoya -- who works with Paul at the California Latino Water Coalition -- tells us Paul is in stable condition at George Washington University Hospital in D.C., but has been forced to take pain medication while doctors try and pinpoint the cause of his illness. Mario says multiple tests and x-rays have been performed on Paul since he was rushed to the hospital yesterday -- but to no avail ([TMZ, 2009](#)).

**Title:** Hospital Visit Reveals PM's Mystery Illness

**Date:** October 3, 2009

**Source:** [News \(AU\)](#)

**Abstract:** Kevin Rudd's mystery illness has been revealed - he has been suffering a painful case of gallstones. The Prime Minister said he had been to a hospital in Melbourne, on the advice of his GP, where the diagnosis was made, the Herald Sun reports ([News, 2009](#)).

**Title:** Roman Polanski's Mystery Illness

**Date:** October 19, 2009

**Source:** [Pop Eater](#)

**Abstract:** One of [Roman Polanski](#)'s lawyers says the jailed filmmaker is undergoing medical tests, though his current condition "is not of exceptional gravity." The Paris-based lawyer declined to say what kind of exams Polanski had undergone. A Swiss tabloid newspaper Blick printed pictures Saturday of a van it said had whisked the director from the prison to a Zurich hospital ([Pop Eater, 2009](#)).

**Title:** Lady Gaga Concert Cancelled, Mystery Illness Cited

**Date:** January 14, 2010

**Source:** [Lafayette Online](#)

**Abstract:** Lady Gaga cancelled her concert at Purdue University tonight due to a "sudden illness." Tickets will be honored for admittance to the rescheduled concert on January 26th. Todd Wetzel, director of Purdue Convocations, said that anyone unable to attend the rescheduled performance will be offered a refund at the point of purchase. The producers request that any potential returns be conducted prior to the Jan. 26 rescheduled concert date ([Lafayette Online, 2010](#)).

**Title:** Gary Coleman Hospitalised For Mystery Illness

**Date:** May 27, 2010

**Source:** [Gossiboo Crew](#)

**Abstract:** Gary Coleman rushed to the hospital in Utah. Now 42, Gary has been admitted for a mystery illness. The former Diff'rent Strokes actor, 42, was admitted to a medical facility on Wednesday (27May10) and underwent surgery for a mystery illness, reports TMZ.com. Further details were unavailable as WENN went to press and the star's agent, Robert Malcolm, had yet to respond to requests for a comment. Coleman, who suffers from a congenital kidney disease which requires frequent dialysis, has faced a string of health problems in recent months -- he was hospitalised in January and again in February (10) after suffering apparent seizures ([Gossiboo Crew, 2010](#)).

**Title:** John Mayer Sick: Mystery Illness Forces Cancellation Of European Shows

**Date:** August 1, 2010

**Source:** [Huffington Post](#)

**Abstract:** John Mayer is waiting on his health to change before going back onstage. The garrulous pop star has pulled the plug on the remainder of his shows in Europe and will be returning to the U.S.

to recover from an undisclosed illness which caused him to cancel last night's concert in Copenhagen ([Huffington Post, 2010](#)).

**Title:** Robbie Williams' Mystery Illness

**Date:** September 17, 2010

**Source:** [MTV](#)

**Abstract:** [Robbie Williams](#) says he's been battling an illness for years that has made him "lethargic and depressed." He said he was recently diagnosed with the mystery problem but had been suffering for four years. Rob explained: "I thought I was lethargic and depressed as a person, I thought that was my make-up. I found out a few months ago that I'd been ill, completely by mistake, and I don't want to go into the whys and wherefores, but what I had made you lethargic and made you depressed and I'd had it for years and not known" ([MTV, 2010](#)).

**Title:** Robert Downey Jr. With Mystery Illness, Halts Production On Sherlock Holmes Sequel

**Date:** October 8, 2010

**Source:** [Third Age](#)

**Abstract:** Robert Downey Jr. apparently hasn't shown up to the London, England, set of Guy Ritchie's Sherlock Holmes sequel, in which the Iron Man 2 star plays the titular character, because he's feeling under the weather. Everyone was fired up and ready to go, a source told British newspaper The Sun. Word filtered around that Robert had a bit of a sniffle and wouldn't be coming in. It was a bit of a shock ([Third Age, 2010](#)).

**Title:** Aretha Franklin Released From Hospital After Mystery Illness

**Date:** November 4, 2010

**Source:** [Media Outrage](#)

**Abstract:** Aretha Franklin is home resting after being discharged from the hospital on Saturday. Turns out Aretha Franklin was hospitalized late last month after falling ill and having to cancel a gig in Virginia "on doctor's orders." In a statement released by her new publicist Tracey Jordan, the Queen of Soul was released from Detroit's Sinai Grace Hospital on Saturday (Oct. 30) "following a brief stay." Jordan refused to comment on the specific nature of Franklin's ailment. "Franklin is resting comfortably at home, but is anxious to get back on the road to perform for her countless fans around the world," Jordan said. "I would like to thank my friends, fans and supporters for all the beautiful flowers and their many well wishes," Franklin stated ([Media Outrage, 2010](#)).

**Title:** Peter Andre Struck Down By Mystery Illness

**Date:** November 16, 2010

**Source:** [London Evening Standard](#)

**Abstract:** The 'Behind Closed Doors' singer - who has two children Junior, five, and three-year-old Princess Tiaamii with ex-wife Katie Price - had to pull out of a recent public appearance and now has to undergo a series of medical tests to establish why he is feeling so unwell. He revealed in his new! magazine column: "I'm sorry to say that I haven't been feeling too great these last couple of weeks. I don't know what's wrong with me but I've got some ongoing health problems, and I've been having lots of tests at the hospital. I also had an MRI scan last week, so hopefully the doctors will get to the bottom of it soon" ([London Evening Standard, 2010](#)).

**Title:** Linkin Park Cancel Concert Due To Chester Bennington's [Mystery] Illness

**Date:** February 11, 2011

**Source:** [Current](#)

**Abstract:** To give time to Chester Bennington to recuperate from his mystery illness, Linkin Park were forced to scrap their gig on February 10 ([Current, 2011](#)).

**Title:** Mystery Illness Hits Playboy Mansion Partygoers  
**Date:** February 13, 2011  
**Source:** [ABC News](#)

**Abstract:** The Los Angeles Department of Public Health is investigating a suspected respiratory infection outbreak among attendees of the [DOMAINfest Global Conference](#), which drew more than 700 people from around the world.

The main activities of the conference on Internet business, which ran Feb. 1-3, were held at the Fairmont Miramar Hotel in Santa Monica, Calif., but many participants also attended events at other locations, including the famed [Playboy Mansion](#), which is in Holmby Hills.

The health department issued a statement saying it is investigating the cause and source of the illness, and said that nothing indicated the suspected outbreak extended beyond the attendees of the conference.

Eighty conference guests were reported sick, and at least four participants were reportedly diagnosed with a mild form of Legionnaires disease, an illness characterized by fever, headaches and aches all over the body.

"Outbreaks of legionnaire's disease are not that common," Dr. Stephen Jones of Northridge Hospital Medical Center told [ABC Los Angeles station KABC-TV](#). "We'll see just sporadic outbreaks every once in a while, usually in groups of people who have been exposed to the bacteria, usually through some kind of contaminated air conditioning system" ([ABC News, 2011](#)).

**Title:** Bryan Ferry Suffering From Mystery Illness  
**Date:** April 6, 2011  
**Source:** [Rolling Stone](#)

**Abstract:** [Roxy Music](#) frontman Bryan Ferry has [undergone tests in a U.K. hospital](#) for an unknown ailment. Though some initial reports have claimed that the singer had a heart attack, his spokesperson clarified that this was not the case in a statement earlier today. The 65-year-old Ferry was taken to the hospital after complaining about feeling ill. The singer has canceled an appearance at an event for the 2012 Olympics but as of now will go forward with plans for solo tour dates in Israel, Russia and Northern Europe in the coming weeks ([Rolling Stone, 2011](#)).

**Title:** Teri Hatcher's Mystery Illness  
**Date:** April 20, 2011  
**Source:** [Extra](#)

**Abstract:** "Desperate Housewives" star [Teri Hatcher](#) reveals she has been battling a debilitating and rare illness, telling "Extra," "I've been struggling with this thing called frozen shoulder, which is a real condition which women get. It's basically left me pretty much not functioning with my left arm... I can't hook a bra anymore."

Hatcher explains the affliction is extremely painful. To alleviate the pain, the actress is treated with cortisone shots. "I'm not asking for sympathy or anything, it could be much worse, but when you take away something like being able to pick up a bag... I really can't wait 'til it's gone so I can just exercise like crazy again, because I sort of miss it."

Refusing to let her illness slow her down, the actress is teaming with [Grain Foods Foundation](#) to launch "The Bread Art Project," which benefits Share Our Strength, a non-profit organization that fights childhood hunger. "It's one-in-four in our country that are still going hungry," Hatcher explains.

In a unique and creative way of donating, Terri is asking fans to personalize virtual pieces of bread! "You can create a piece of toast and that will donate one dollar to Share Our Strength, and it's really fun" ([Extra, 2011](#)).

**Title:** Fergie's Vomit-Filled Anniversary [Due To Mystery Illness]  
**Date:** May 19, 2011  
**Source:** [Daily Fill](#)

**Abstract:** Fergie "vomited all over the place" during a recent anniversary trip with husband Josh Duhamel. The 38-year-old actor – who married the Black Eyed Peas singer in 2009 – whisked his wife away to Mexico for a romantic break to celebrate their second wedding anniversary in January, only for her to be struck down with a mystery illness for a day and a half ([Daily Fill, 2011](#)).

**Title:** Mysterious Illness Slows Up-and-Coming Driver  
**Date:** May 26, 2011  
**Source:** [New York Times](#)

**Abstract:** From mastery to mystery, no Nascar driver has taken more dramatic turns this season than Trevor Bayne. Bayne is the 20-year-old part-time Sprint Cup driver who stunned the sport by winning the most prestigious race on the circuit, the Daytona 500, in only his second career start. That victory propelled him to instant stardom, only to have his promising career suddenly and bizarrely interrupted by an illness doctors have yet to diagnose ([New York Times, 2011](#)).

**Title:** Sonia Gandhi Undergoes Surgery For Mystery Illness In US Hospital  
**Date:** August 5, 2011  
**Source:** [Economic Times](#)

**Abstract:** Congress President Sonia Gandhi underwent a surgery in a US hospital and would be away for 2-3 weeks.

Party General Secretary Janardhan Dwivedi told reporters on Thursday that the 64-year-old leader was "recently diagnosed with a medical condition that requires a surgery".

The Congress or the party president's office refused to disclose the details of the ailment that Sonia was suffering from or the hospital and the country where she is being treated. A statement on her condition is likely to be issued on Friday.

Sources in the government said Sonia, accompanied by son Rahul and daughter Priyanka, left for the US on Wednesday.

That the Congress leaders had not been kept in the loop was evident when Dwivedi first told reporters on Thursday that she had already undergone surgery, before correcting himself.

The secrecy over Sonia's medical condition and even the place that she is being treated is baffling for many as she is the most important leader of the ruling coalition ([Economic Times, 2011](#)).

**Title:** US Open 2011: Venus Williams Reveals Mystery Illness With No Known Cure  
**Date:** September 1, 2011  
**Source:** [Telegraph](#)

**Abstract:** Williams pulled out of her second-round match at the US Open less than an hour before she was due to play Sabine Lisicki on Arthur Ashe Stadium. But her condition turns out to be a far more serious business than a simple tennis match.

As Williams explained in a statement, Sjögren's syndrome is "an ongoing medical condition that affects my energy level and causes fatigue and joint pain ... I am thankful I finally have a diagnosis and am now focused on getting better and returning to the court soon."

Williams has been dogged by injury and illness lately, to the point where she has played only 10 matches all year. Her problems included a bad hip and a torn abdominal muscle, but she was also reported to have a persistent illness ([Telegraph, 2011](#)).

**Title:** Jonah Lomu's Mystery Illness  
**Date:** September 29, 2011  
**Source:** [Stuff](#)

**Abstract:** As public concern mounts about the condition of rugby star Jonah Lomu, it appears a women's magazine has negotiated an exclusive deal for his story. The former All Black has been in Auckland Hospital since Saturday, and the lack of information on his condition has led to speculation he is seriously ill. Today an Auckland Hospital spokesperson directed queries about his health to a writer at the New Zealand Woman's Weekly magazine, "because they're the only ones allowed to know about his condition" ([Stuff, 2011](#)).

**Title:** Cassano Hospitalised With Mystery Illness  
**Date:** October 31, 2011  
**Source:** [Corriere](#)

**Abstract:** AC Milan forward Antonio Cassano was taken ill on Saturday evening at Malpensa airport on his way back from Rome. He was admitted to Milan's polyclinic. Mystery shrouds the exact nature of Cassano's illness and the club has erected a wall of silence to ensure the player's privacy. Cassano's wife Carolina was at his side in hospital for almost the whole of Sunday. Others aboard the aircraft say that during the flight Cassano got out of his seat to laugh and joke with teammates. Then as he walked across the tarmac to the shuttle bus, the Bari-born playmaker looked faint, tired and disoriented, had difficulty speaking and moving, and complained of blurred vision. At first, it was thought that he had had a sudden drop in blood pressure or been the victim of a violent intestinal virus. Clearly, it was more than a run-of-the-mill attack of flu so he was taken immediately to the polyclinic for tests. "The lad is not well and we are looking into it", was the laconic comment from club doctor Rodolfo Tavara, who was at Cassano's bedside from the moment he went into hospital on Saturday evening. The player is believed to have gone home in the early hours of Sunday morning but was taken ill again. He was admitted to the polyclinic's neurology ward, where he will remain until Monday for further tests, which it is hoped will shed light on the causes of the episode ([Corriere, 2011](#)).

**Title:** Adele's Mystery Illness  
**Date:** October 31, 2011  
**Source:** [The Beat](#)

**Abstract:** Rumors are out there that the mystery illness Adele is battling is actually a life-threatening form of throat cancer. Adele announced Friday she has cancelled all her remaining performances in 2011 as she prepares to have surgery to repair her vocal cords ([The Beat, 2011](#)).

**Title:** Selena Gomez Rushed To Hospital With Mystery Illness After Appearing On TV Chat Show  
**Date:** November 6, 2011  
**Source:** [Mirror](#)

**Abstract:** Disney starlet Selena Gomez has been admitted to hospital in the US after being taken ill on The Tonight Show. The star, 18, who is romantically linked with singer and actor Justin Bieber, 17, was taken from the studios to a Los Angeles hospital, where she is undergoing tests. According to reports, the Wizards of Waverly Place actress fell ill after her interview with host Jay Leno. The exact problem is still unknown, but sources at the studios revealed she left complaining of nausea and severe headaches. An NBC insider said: "We haven't heard what was wrong, she just suddenly came over unwell so she was taken to hospital" ([Mirror, 2011](#)).

**Title:** Saturdays Star Frankie Sandford Still Fragile With Mystery Illness And Under Doctor's Orders  
**Date:** November 16, 2011  
**Source:** [Now](#)

**Abstract:** Frankie Sandford isn't allowed to attend all of The Saturdays' band commitments because she hasn't yet fully recovered from her mystery illness. The 22-year-old took a few weeks out to receive medical treatment last month but has since returned to the limelight, but only to prepare for the girls' upcoming stadium tour - and nothing else ([Now, 2011](#)).

**Title:** Mystery Illness Strikes Gay Singer George Michael  
**Date:** November 23, 2011  
**Source:** [Opinion Wappers](#)

**Abstract:** Could it be?, i wonder if it's?, has the symptoms of? perhaps it is! ([Opinion Wappers, 2011](#)).

**Title:** Mystery Dog Illness On Queen's Sandringham Estate Unlikely To Be Caused By Plants  
**Date:** December 6, 2011  
**Source:** [Telegraph](#)

**Abstract:** A mystery illness which may have killed at least eight dogs exercised on the Queen's Sandringham estate is unlikely to have been caused by plants, scientists have said.

Researchers investigating the outbreak of so-called Seasonal Canine Illness (SCI) say there is no sign that green algae, non-native plants or fungi are behind the deaths.

A report by Animal Health Trust (AHT) found there were 95 cases of the illness in five woodlands across the country this year. The areas included Sherwood Forest in Nottinghamshire, Thetford Forest, Norfolk, as well as Sandringham.

Two dogs walked on the royal estate are known to have died this year, while six died last year. No new cases of SCI have been reported for a month.

Since the outbreak, Dr Mark Spencer of the Natural History Museum, has visited Sandringham and concluded there was "no obvious evidence of any plants which would cause the clinical signs of SCI in dogs through contact alone" ([Telegraph, 2011](#)).

**Title:** 'Bushy-Tailed' Lloyds Chief Antonio Horta-Osorio Prepares For His Comeback [After Mystery Illness]  
**Date:** December 14, 2011  
**Source:** [Telegraph](#)

**Abstract:** "In layman's term, he overdid it," said Lloyds Banking Group's communication director, Matt Young, when asked to say why the lender's chief executive had just been forced to take six weeks off to recoup from a mystery illness. He was very well... bushy-tailed... big smile," was Lloyds chairman Sir Win Bischoff's take on the re-energised Antonio Horta-Osorio, who will return to the helm of the state-backed bank next month ([Telegraph, 2011](#)).

**Title:** John Edwards Cites Mystery Illness To Delay Trial's Start  
**Date:** December 22, 2011  
**Source:** [NY Daily News](#)

**Abstract:** Former presidential candidate John Edwards says he has been diagnosed with a medical condition that would make it difficult for him to attend his approaching criminal trial over campaign finances and is asking for it to be delayed.

In a motion filed Thursday, Edwards' lawyers asked a federal judge to delay the start of the Jan. 30 trial for at least two months. They did not disclose his illness and filed sealed records with the court.

"The Defendant has a medical issue ... that will prevent a trial of this matter during the January 2012 Criminal Term," the motion says. "The failure to grant a continuance would be likely to result in a miscarriage of justice."

Members of the defense team could not immediately be reached for comment ([NY Daily News, 2011](#)).

**Title:** Angelina Jolie Fights 'Mystery Illness'

**Date:** December 24, 2011

**Source:** [Gossip Cop](#)

**Abstract:** "Angelina Jolie is battling a mystery illness that is causing her hair to fall out and speeding up her continuing weight loss," claims Star magazine. According to the tabloid, it's a "dire situation," and Brad Pitt is "begging her to get help." A so-called Star "source" alleges, "Angie's not doing very well at the moment. She is eating, but the weight is still falling off and she's constantly exhausted, often going to bed at the same time as the kids." An alarmist "insider" adds, "She cries for no reason ([Gossip Cop, 2011](#)).

**Title:** Mystery Illness Sidelines AC/DC

**Date:** January 27, 2012

**Source:** [Epiphone](#)

**Abstract:** AC/DC frontman Brian Johnson told the *The Cowhead Show* that the band's new album plans have been delayed by illness. "One of the boys is a little sick and I can't say anything, but he's getting better. He's doing wonderful. Full recovery fully expected." Johnson says that he expects the band to go back into the studio later this year to start working on a follow-up to 2008's *Black Ice*. It's a wonderful thing when we get in a room. Whenever the boys get back together, I get all excited. The boys, after a while, pick the guitars up, Phil [Rudd] will make his way to the drums, Cliff [Williams] will pull his bass out and then all of a sudden this noise comes out and I sit there with just this big old grin on my face" ([Epiphone, 2012](#)).



# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following outbreaks occurred within the calendar year of 1993. While some of the following reports may have been legitimate outbreaks, most if not all of them appear to be generated man-made outbreaks with the overall goal of convincing American and the world that it is on the precipice of a major pandemic. The fact that these outbreaks exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and militarial control of society.

**Title:** Ancient Killer, Anthrax, Grips Impoverished Haiti -- Deteriorating Conditions Let Preventable Disease Take Hold

**Date:** December 13, 1993

**Source:** [Seattle Times](#)

**Abstract:** Behind a flimsy curtain, a doctor armed with a dozen used syringes and a single vial of penicillin works on the front line of Haiti's newest hell, a disease so lethal that it is stockpiled for biological warfare.

He's treating scores of people for anthrax - almost never seen in the developed world but passed on from sick livestock to people too poor or too hungry to destroy and burn the tainted animals.

"It is killing a lot of people here. I see as many as eight new cases a day," said Edouard Nemorin, 56, at his dirt-floored clinic in this northeast Haiti village. "Some people get badly, badly swollen, and then they die suddenly, like that." He snapped his fingers.

One hospital alone reported about a dozen deaths in the past two months, but no one is keeping count.

Anthrax is so infectious and lethal that it's stockpiled by several armies as a biological weapon. An accidental release of anthrax spores from a Soviet research center in 1979 killed hundreds; the Pentagon called it perhaps the world's most deadly biological accident.

If a person eats meat tainted with *Bacillus anthracis*, the bug rips through a person's digestive tract, causing grotesque bloating that can be fatal in 36 hours, doctors say. Physicians here in northern Haiti speak of faces that balloon to nearly twice their normal size and tongues that grow as long as cow's tongues.

The disease flourished in the Middle Ages but is now relatively rare.

"We thought anthrax was cured. We thought it was gone from here - and everywhere else," said Bill Clemmer, a Georgetown-trained physician who works in a northern Haiti hospital. "If there was ever two or three cases in the U.S., U.S. authorities would be up in arms. They'd send teams of investigators. Here, we have no idea of how widespread it is."



In fact, rare outbreaks of anthrax from tainted meat still occur in developing nations. Eighty died in Ghana in 1988. Five died in Haiti from 1985 to 1988. In the United States, though, the last case was reported in 1980.

The disease has been known since ancient times and is believed to be the "plague of boils" that Moses called down on the Egyptians.

Health-care workers blame the current outbreak here, about 20 miles south of Cap Haitien, on the steady deterioration of conditions over the last several years, and not just the instability wrought by the 1991 military coup against President Jean-Bertrand Aristide.

"There is a breakdown in the structure of this society," said an American doctor who asked to remain anonymous for fear of reprisals by authorities. "It's another symptom of the infrastructure collapsing in Haiti."

Preventing anthrax is simple: All goats, cattle and horses must be vaccinated. Haitian law requires those vaccinations, prohibits the slaughter of unvaccinated animals and mandates the burning of every animal suspected of having anthrax.

But who is enforcing Haitian law these days? Who is running the vaccination programs?

No one here. For several years, say villagers, the vaccination program has gradually fallen apart.

An international oil embargo against Haiti, in effect for most of the last six months, appears to have worsened all health problems, including anthrax. With the price of rice, beans and cooking oil doubling or tripling in the past few months, people are cutting back on their meals.

And even though word of the epidemic is widespread, some Haitians are slaughtering their sick animals and taking a chance on the meat, health workers say.

For many poor families, a cow is their largest investment. If the cow dies from anthrax, they have little means to feed themselves.

Animals become infected by grazing on contaminated land. The anthrax bacterium produces spores that can survive dormant for many years in soil and animal products.

The disease - malcharbone in Creole, literally "sick charcoal," because an early symptom is a black lesion on the skin - spreads with alarming ease.

It is so contagious that an infected animal can transmit the disease through spores in the air.

If anthrax spores are inhaled, a person may first get pneumonia.

If anthrax is passed by touching an infected animal, the black lesions may appear.

If anthrax is ingested through meat, the first symptoms are those of severe gastroenteritis, with fever, diarrhea and vomiting. Then the bloating starts.

Even in the worst cases, antibiotics can cure the disease - if caught early. But that's a big if here.

"People aren't coming to the hospital until they are almost dead," said Kerry Kelly, a U.S.-trained registered nurse. "They can't afford to pay for the bus."

The first anthrax cases along Haiti's northeastern coast were reported five months ago. No other part of the countryside is yet reporting cases.

In the last two months, one hospital - the director asked that it remain unidentified - has had one or two cases a day. About a dozen people have died and perhaps 100 have survived.

In the hospital, doctors treat the anthrax patients immediately, then send them home. The doctors keep no anthrax patients, out of fear that the disease will race through the hospital ([Seattle Times, 1993](#)).

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**Title:** Bubonic Plague Detected In Kazazhstan

**Date:** July 8, 2002

**Source:** [UCLA](#)

**Abstract:** A case of bubonic plague has been detected in southwestern Kazakhstan, and doctors have placed those in contact with the infected person in isolation, state television channel Khabar said on Monday.

Khabar said a nine-year-old boy from the village of Kulandy in the arid Kyzyl Orda region was brought to hospital with a high temperature last Friday. It said he could have been bitten by infected fleas carried by desert rodents.

The disease, which until recently has been fatal in 90 percent of cases, leads to swollen lymph nodes, high fever and delirium. It spreads by coughing, sneezing or simply talking. Three global epidemics in the sixth, 14th and 17th centuries killed over 100 million people.

Although largely eradicated worldwide, bubonic plague occurs from time to time in Kazakhstan. Last year one person died and several others were taken to hospital in the Central Asian state.

Khabar said the source of the infection was natural. It hastened to dispel concerns that it might have come from abandoned biological warfare laboratories developed on nearby Resurrection Island in Soviet times ([UCLA, 2002](#)).

**Title:** New Mexico Man, 53, Is Seriously Ill With Plague At Beth Israel

**Date:** November 7, 2002

**Source:** [New York Times](#)

**Abstract:** A 53-year-old New Mexico man was in critical condition last night at Beth Israel Medical Center with bubonic plague, the rare and deadly disease that once decimated Europe, health officials said.

His wife, a 47-year-old woman, remains under observation at Beth Israel as tests for the disease are conducted.

Despite the rarity of the disease -- health officials said they could not recall another confirmed case in New York City -- experts said last night that the man had almost certainly contracted the illness in Santa Fe, N.M., one of the only places in the nation where bubonic plague occurs with any regularity.

The officials dismissed any suggestion that criminal activity, including bioterrorism, might have been involved.

In a statement, Beth Israel said the couple, whose names were not released, had traveled to Manhattan from "a rural area of New Mexico." They arrived at the emergency room on Tuesday night "after several days of flulike symptoms, high fevers and swollen lymph nodes," the statement said.

"Taking all of the necessary precautions, the patients were immediately placed in isolation, and the hospital immediately notified the New York City Department of Health," it said.

The woman was in stable condition at Beth Israel last night. The man was on a respirator.

At a news conference last night, Thomas R. Frieden, the city's health commissioner, said that both victims were residents of the Santa Fe area who had arrived in New York City on a vacation on Nov. 1. He said that they became ill on Sunday. The timing provided evidence that the man, and perhaps the woman, became infected before arriving in the city, since the incubation period before symptoms of plague become apparent is two to seven days.

Dr. Frieden said that New York City health officials had been in contact with the medical authorities in New Mexico, and had obtained more evidence that the infection most likely occurred in that state.

The New Mexico officials found evidence in July that a dead wood rat on property owned by the couple now confined to Beth Israel had been carrying fleas infected by the bubonic plague, he said.

"We are confident the exposure occurred in New Mexico," Dr. Frieden said. "There is no risk to New Yorkers from the individuals who are being evaluated for plague."

One government health official said last night that the chances that anyone else had been infected with the plague by either victim was remote. The official said the disease, which can be treated with antibiotics if diagnosed quickly, can be transmitted from person to person only through direct contact with a draining skin lesion. The most recent case of person-to-person infection in the United States was in 1925, the official said.

"We hear the words 'bubonic plague' and think about the horrible things that happened in Europe, but they didn't have antibiotics then," the official said. "This is not a public health threat, not a situation where anybody else needs to be concerned."

In the 14th century, 25 million deaths in Europe were attributed to bubonic and pneumonic plague, known collectively as the Black Death.

City health officials, citing data from the Centers for Disease Control, said there are 10 to 15 cases of plague annually across the nation, mostly in rural areas of New Mexico, Colorado, Arizona, California, Oregon and Nevada. Other records show that there are 10 to 40 cases each year, about half of them in Santa Fe County, said the government health official, who declined to be identified.

The disease is transmitted by fleas that attach themselves to wild animals. The official said the high concentration of infections near Santa Fe apparently results from a large population of rodents ([New York Times, 2002](#)).

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**Title:** Less Lethal Cousin Of Smallpox Arrives In The U.S.

**Date:** June 9, 2003

**Source:** New York Times

**Abstract:** Monkeypox, a viral disease related to smallpox but less infectious and less deadly, has been detected for the first time in the Americas, with at least 23 cases reported in three Midwestern states, the Centers for Disease Control and Prevention said yesterday.

Wisconsin reported 18 cases (15 suspected and 3 confirmed); Illinois reported four (one confirmed); and Indiana reported a single case. The patients ranged in age from 4 to 48 and became ill from May 15 to June 3. All had had direct or close contact with ill prairie dogs, which have become a fad in the exotic-pet market and which might have caught monkeypox from another species, possibly Gambian giant pouched rats; the rats are imported as pets from West or Central Africa, where the disease has long occurred. Monkeypox in Africa is carried mainly by squirrels but named after monkeys because it often kills them.

Several patients in the American outbreak work for veterinarians or pet stores that sold prairie dogs and Gambian rats. No patients have died and four have been hospitalized. Laboratory tests performed at the disease centers in Atlanta yesterday confirmed that the patients had been infected with the monkeypox virus, which belongs to the same orthopox family that includes the virus that causes smallpox.

The monkeypox patients typically fell ill with signs and symptoms like fever, headaches, dry cough, swollen lymph nodes, chills and drenching sweats, Wisconsin health officials said. One to 10 days later, the patients developed rashes consisting of blisterlike pimples that filled with pus, broke open and produced scabs. The rash often erupted in different stages, or crops, as it appeared on the head, trunk and arms and legs. Monkeypox lesions can scar the skin like smallpox or chickenpox.

Most monkeypox patients became ill 4 to 12 days after exposure to a sick animal, but the incubation period may have been as long as 20 days.

The federal disease centers issued a health alert about monkeypox on Saturday night in part out of its concern that doctors who had treated the cases had initially mistaken some for smallpox and chickenpox, said Dr. Stephen M. Ostroff, an epidemiologist at the agency.

Another concern was quickly alerting the public because the cases occurred so recently and because more people could be infected from diseased animals sold in recent days.

By quickly identifying the animals that can be infected with monkeypox, health officials hope to eliminate them before the disease becomes endemic in this country and in the Americas, Dr. Ostroff said. For this and other reasons, the disease centers advised people not to release into the wild live animals suspected of being infected with monkeypox.

Smallpox vaccination can protect against monkeypox, but at least one patient in the current outbreak in this country had been vaccinated for smallpox before routine vaccination was discontinued in 1972.

The disease agency has not recommended a ban on sales of prairie dogs and Gambian rats because the agency is still "in an information-gathering stage," Dr. Ostroff said. But two states, Illinois and Wisconsin, have acted to end their sale and distribution. On Friday afternoon, Wisconsin officials issued a quarantine prohibiting importation, sale and movement of prairie dogs received after April 1 and any nonhuman mammals that come in contact with them. On Saturday night, Gov. Rod R. Blagojevich of Illinois signed an executive order prohibiting sales, import or even public display of these animals.

The federal disease agency is asking physicians, veterinarians and the public to report to their local health departments any rash that develops in people within 21 days of their being exposed to prairie dogs, Gambian rats or other animals.

The agency advised hospital workers caring for suspected monkeypox patients to follow standard infection control measures, including the gloves, gowns and N-95 masks that have been used to protect against SARS. The agency also advised veterinarians to take the same precautions in caring for sick prairie dogs, Gambian rats, other rodents and rabbits.

Monkeypox has long been known to cause sporadic infections in the jungles of West and Central Africa. A sputtering outbreak has been occurring in recent years in Congo.

Up to 10 percent of monkeypox cases have been fatal in West Africa, according to different studies; before smallpox was eradicated, its death rate was about 30 percent.

Studies have shown that outbreaks of monkeypox tend to die out in humans as the virus passes through successive waves, or generations, of cases. This contrasts with smallpox, which continues to spread for centuries until the person-to-person chain of transmission is broken.

The sudden appearance of monkeypox in the United States is a surprise, representing the latest in a series of emerging diseases to reach this country. A prime example is the mosquito-borne West Nile fever, which has spread through the country since it first entered the Americas in 1999.

Precisely how monkeypox reached the United States is unknown. Dr. Ostroff said that the disease agency was investigating possibilities that included the arrival of an infected person or animal from West Africa.

Dr. Kurt Reed, an infectious-disease pathologist who runs the microbiology laboratory and the clinical research center at the Marshfield Clinic in central Wisconsin, said his laboratory had detected the virus in specimens from a 4-year-old girl who had been bitten on the finger by her new pet prairie dog in mid-May.

The girl's parents, who also had contact with the prairie dog, later developed the disease, though the 38-year-old father, who had been vaccinated against smallpox as a child, had a milder case. The monkeypox virus was also detected in a lymph node from the prairie dog, which died a few days later.

The girl went to the clinic with a lesion on her finger, Dr. Reed said, and bacterial cultures quickly ruled out tularemia and the plague. Biopsies of lesions taken from the girl's mother showed a poxlike virus.

Cultures from the mother's virus and from the prairie dog matched and suggested an ailment from the orthopox family, Dr. Reed said.

"Right then we knew we had something interesting," he said. "We do lots and lots of virus cultures. This was very unusual. There's nothing really in the literature about prairie dogs having pox viruses."

When the clinic contacted the state health department, the doctors were told of similar cases in the Milwaukee area and learned that the prairie dogs may have been housed with Gambian rats through an exotic pet dealer in suburban Chicago. "That really raised the suspicion that this was an old-world virus that had made its way into the United States," Dr. Reed said.

The disease agency said that the prairie dogs were sold by a Milwaukee animal distributor in May to two pet shops in the Milwaukee area and during a pet "swap meet" in northern Wisconsin. The Milwaukee animal distributor obtained prairie dogs and a Gambian giant rat, which was ill at the time, from a northern Illinois animal distributor. Investigations are under way to trace the source of the animals and to find out where they went, Centers for Disease Control officials said.

Preliminary information suggests that animals from this distributor may have been sold in other states, which the agency did not name.

Prairie dogs and Gambian rats are part of a wide array of exotic animals feeding a growing and diversifying niche pet market, though some animal rights advocates oppose their domestication.

Prairie dogs, plant-eating members of the squirrel family, are believed to have a sophisticated communication system through smell and touch, and they are known to burrow complex tunnel systems.

The rats, which grow to the size of small cats, eat pet food as well as fruits, vegetables and cooked meats.

"They are intelligent, social and can be very gentle if handled from an early age," one enthusiast, Jazmyn Concolor, posted on the Web site [www.altpet.net](http://www.altpet.net), adding that one rat sleeps with a stuffed toy lion. "They are not pets for everyone, requiring patience and understanding of their habits."

The disease centers urged people to avoid contact with prairie dogs and Gambian rats that have missing patches of fur, rashes or discharges from their eyes or nose, all signs of the illness.

The agency also urged people to wash their hands with soap and water after contact with any animal and to warn doctors and hospitals in advance in seeking medical care if they thought they might be infected.

The disease agency issued no specific treatment recommendations, but scientists are testing an antiviral drug, cidofovir, for its efficacy ([New York Times, 2003](#)).

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**Title:** New York City Man Accidentally Exposed To Anthrax

**Date:** February 22, 2006

**Source:** [New York 1](#)

**Abstract:** City officials say a Manhattan resident has been hospitalized after he was accidentally exposed to inhalation anthrax while working with animal skins in Brooklyn, but investigators say there is no evidence the exposure has anything to do with terrorism.

In a press conference at City Hall Wednesday afternoon, Mayor Michael Bloomberg announced the 44-year-old man, who sources say is Vado Diomande, became ill last Thursday, February 16th, during a trip to Pennsylvania.

Diomande was hospitalized in the town of Sayre, where doctors diagnosed the inhalation anthrax exposure and traced it back to New York City.

Diomande is now recovering in a hospital in Sayre, where he is in an Intensive Care Unit listed in fair condition.

City officials say Diomande, the artistic director at the Manhattan dance company Kotchegna, makes African drums from animal skins. Investigators believe was exposed to the anthrax after he worked with unprocessed cow and goat hides that he had purchased on a visit to the Ivory Coast in Africa in December.

The city says he told investigators he worked with the animal skins in the days prior to his trip to Pennsylvania.

Anthrax is a potentially deadly agent that naturally occurs in animals such as goats and cows.

As a result of the exposure, the Department of Health and the Centers for Disease Control have sealed off Diomande's work and storage area, as well as his car, in the DUMBO section of Brooklyn, and his residence in the West Village, to check for any signs of anthrax.



"We have yet to enter the warehouse," said Bloomberg. "We want to make sure that when we do that we protect the safety of the people who are going to go in and make the first assessment, and then over a period of time very carefully we'll make sure that if there is any anthrax it is decontaminated without letting it get out of that particular room, out of that building."

According to the DOH, four people who may have directly handled the same animal hides as Diomande are being treated with antibiotics as a precaution.

The city says the case appears to be isolated. The mayor stressed that anthrax cannot be transmitted from person to person, and that other people who work in the DUMBO warehouse where the exposure occurred are not in any danger.

"At this time, we have every reason to believe that this infection is an isolated, accidentally and naturally transmitted case. No other illnesses have been reported whatsoever," said Bloomberg. "The city is working closely with local, state and federal health and law enforcement officials to investigate this case, and our Health Department is reaching out to anyone who might be at risk to provide them with antibiotics if necessary. There is no — let me repeat, no - evidence at this time of any criminal intent associated with this infection."

"He worked with unprocessed animal hides, which is a known way of getting Anthrax," said DOH Commissioner Dr. Thomas Frieden. "He did that, as far we know from interviews with him, he did that only in a facility in DUMBO which is not populated by other people."

In the weeks following the 9/11 terrorist attacks, letters laced with anthrax were discovered in several locations around the country, including in New York City. The attacks, which remain unsolved, killed five people and sickened 17 ([New York 1, 2006](#)).

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**Title:** Tularemia Outbreak At A Metropolitan Airport, Texas

**Date:** September 7, 2009

**Source:** [Pub Med](#)

**Abstract:** A jackrabbit die-off near a metropolitan airport was observed by an airport contractor. Further investigation determined that this die-off was probably due to epizootic tularemia. Because of proximity to areas of heavy human traffic and fears of transmission of tularemia to humans, the local health district and department of emergency management organized a multiagency response involving local animal control, environmental health, public health, law enforcement, and airport personnel, in addition to state and federal agencies. The tularemia epizootic subsequently ended, and no cases of human tularemia occurred. In our after-action analysis, we identified several lessons learned: the importance of animal illness surveillance, which can serve as a warning for potential human illness and epidemic; the usefulness of pre-event planning, training, and exercises in facilitating a coordinated response; the usefulness of an effective communication system with the healthcare community; the importance of responders being familiar with Centers for Disease Control and Prevention (CDC) Category A bioterrorism agents when considering a rapid response; and the fact that attempts at environmental control may result in perturbations in animal populations with unintended consequences ([Pub Med, 2009](#)).

**Title:** Pneumonic Plague Now in China

**Date:** November 5, 2009

**Source:** [Infowars](#)

**Abstract:** Two people have died, a town of 10,000 is under quarantine, and the area within a 17-mile radius around it has been sealed to contain a pneumonic plague outbreak:

Chinese authorities have put a whole town in quarantine after an outbreak of horrifying pneumonic plague.

[efoods]Two people have died from the highly contagious disease, an even more powerful brother of The Black Death – the bubonic plague believed to have wiped out a quarter of the population of Europe in the 14th Century.

Pneumonic plague is one of the most virulent and deadly diseases on earth, usually fatal within 24 hours.

It attacks the lungs and kills nearly everyone who catches it unless they get rapid treatment with antibiotics.

A dozen people in the stricken town of Ziketan have so far been infected. The disease spreads fast and is passed from person to person by coughing.

Authorities in northwest China have sealed off the remote town of 10,000 people and begun a treatment and quarantine programme.

Residents are terrified, shops have been shuttered, homes disinfected, face masks distributed, there has been panic buying and streets are deserted, witnesses reported.

The World Health Organisation said it was in close contact with Chinese health authorities and that measures taken so far were appropriate.

It looks serious, but the Chinese regime being what it is, they aren't limited by anything in their choice of means to keep the disease from spreading. People are just worker ants for them ([Infowars, 2009](#)).

**Title:** Death Toll Still Rising In Ukraine's Flu Outbreak

**Date:** November 5, 2009

**Source:** [Monsters & Critics](#)

Abstract: The death toll in Ukraine's flu outbreak continued to rise on Thursday.

A total of 95 persons have died from flu-related symptoms since the disease struck Ukraine's western provinces late last month, said Zinovy Mytnik, vice health minister, in comments reported by the Interfax news agency.

A total of 633,877 Ukrainians nationwide have registered with health authorities as suffering from the flu, though some have recovered since the disease's late October outbreak, Mytnik said.

Ukraine's Ministry of Health on Wednesday gave a total of currently infected at some 470,000.

The particularly virulent A/H1N1 flu strain, or swine flu, was likely responsible for a significant proportion of the infections, based on laboratory testing thus far, Mytnik said, speaking at a Kiev press conference.

Since the beginning of the flu outbreak, Ukraine's Health Ministry had sent 31 samples from persons infected with flu to a British laboratory to be checked for the presence of swine flu, of which 15 tested positive.

A former Soviet republic, Ukraine lacks a modern public health infrastructure and, since the beginning of the flu outbreak in late October, has seen severe shortages of even simple medical supplies such as protective masks and flu remedies.

No Ukrainian laboratory is capable of testing for the presence of swine flu, Mytnik said.

International medical assistance continued arriving in Ukraine on Thursday, with European Union nations taking the lead. Top contributors were Slovakia, Austria, Hungary and Poland - the last being the first country to respond to a Ukrainian October 31 appeal for foreign aid, according to an Intefax report.

EU-donated medical supplies en route or already in Ukraine included protective masks, respiration equipment and surgical gloves.

Emergency shipments of the swine flu treatment Tamiflu, produced in Switzerland, first began arriving by cargo plane to Ukraine on Sunday.

Ukrainian Prime Minister Yulia Tymoshenko, on a visit to the western city of Chernovtsy, near the epicentre of the flu outbreak, said government efforts to control the flu's spread were working.

'There is no need to to invoke a national emergency,' she said, according to a Korrespondent website report.

Tymoshenko's government has attempted to control the flu outbreak with the imposition of a partial quarantine of eight western provinces most badly hit by the disease, a military-style mobilization of state-owned fabric and clothes factories to mass-produce protective masks, and limits to allowable public gatherings.

In the midst of a campaign for Ukraine's presidency, Tymoshenko has, since the beginning of the flu outbreak, repeatedly attacked the private health industry, accusing drug manufacturers of inflating prices artificially and pharmacists of hoarding medical supplies.

A government consumer protection agency in Lviv, one of the worst-hit cities in the flu outbreak, on Thursday filed a class-action suit against local health officials, accusing them of conspiring with private health suppliers to price-gouge consumers of medical supplies, the Unian news service reported ([Monsters & Critics, 2009](#)).

**Title:** Bio-Terror Drill In Ukraine Weeks Before Mystery Virus Outbreak

**Date:** November 9, 2009

**Source:** [Conscious Ape](#)

**Abstract:** An international bio-terrorism 'table top' exercise was conducted in Ukraine and five other central and eastern European countries just four weeks before the outbreak of a deadly virus in Ukraine.

According to the Interpol Website, the exercise was carried out in conjunction with the World Health Organization under the premise that "the plague had just been unleashed ... by unknown evildoers". It was billed as "a Tabletop Exercise on Preventing Bioterrorism".

The website goes on to explain that the "event took place from 29-30 September in Warsaw, Poland", and that the countries involved included Belarus, Czech Republic, Finland, Poland, Slovakia... and Ukraine.

*A little over a month later Ukraine remains in the grip of a deadly and rapidly spreading virus which some believe is a form of pneumonic plague.*

Not that this in itself says anything other than that a bioterrorism exercise was carried out and that, coincidentally, one of the participating countries is now in a state of hysteria over a real outbreak.

But it is a remarkable coincidence that some four weeks later this particular region of the world should fall victim to what many fear could be a real bioterrorism attack, as deaths from the mystery virus in the Ukraine continue to rise at an alarming rate.

Schools and universities remain closed, many dare not leave their homes without a face mask and there is a ban on public gatherings which has been extended to at least the end of November. 155 deaths have been recorded in the past week, most from viral pneumonia.

Nearly a million Ukrainians have received treatment for 'flu-like' symptoms since the outbreak on October 29.

The country's presidential elections have been postponed until May 2010 ([Conscious Ape, 2009](#)).

**Title:** Zimbabwe Anthrax Outbreak Under Control

**Date:** December 31, 2009

**Source:** [Bio Prep Watch](#)

**Abstract:** The anthrax outbreak that hit two of Zimbabwe's districts is now under control, the nation's Veterinary Services Department has announced.

The announcement comes on the heels of increase vaccinations that inoculated more than 1,100 cattle in the Seke district over the last week.

The farming areas of Seke and Selous were hit by the anthrax outbreak, which killed one person and 25 cattle. Seke's outbreak is now under control and the vaccinations have moved to Selous and Mhondoro.

"We have finished vaccination of animals in the Seke area and have moved to Selous commercial farming area," Dr. Chenjerai Njagu, Department of Veterinary Services deputy director field services, told Xinhua. "Today we expect to start vaccinations in Mhondoro communal area where we expect to vaccinate 100,000 animals," he added.

Njagu said that a shortage of vehicles in the Karoi district impeded monitoring and disease surveillance exercises meant to curb the disease.

"Under normal circumstances the department is supposed to carry routine farm inspections meant to alert farmers and pick diseases outbreak before they get out of hand," Njagu said. "Because of transport shortages we have been forced to ask our farmers to provide transport for our officers to and from the farms."

The anthrax outbreak was not reported early, Njagu said, and occurred in communal areas and some farms.

Anthrax outbreaks are normally recorded in Zimbabwe during the rainy season as sprouting grass brings the soil-borne disease from the soil ([Bio Prep Watch, 2009](#)).

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**Title:** Mysterious Plague Outbreak Among Syrian Army

**Date:** July 6, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** An outbreak of plague, which is considered a potential bioweapon, among the Syrian military may be raising more questions than answers.

Syrian President Bashar al-Assad recently ordered the shutdown of all Syrian military exercises due to a plague that currently affects a large number of military personnel, according to Examiner.com.

The Syrian president has told Syrian news sources that food and drinking water in military bases, coupled with one of the country's worst droughts in over 40 years, are responsible for the outbreak of plague.

Hundreds of thousands of Syrians are experiencing food shortages, nearly 60,000 small livestock owners have lost all their animals and 50,000 others have lost 50 to 60 percent of their cattle.

The infectious bacterium *Yersinia pestis* causes the infectious disease plague, which is commonly found worldwide in rats and other rodents. Fleas often serve as common vectors of plague. There are three forms of human plague – bubonic, septicemic and pneumonic.

Humans may also be infected by direct contact with an infected animal, through inhalation and, if it is pneumonic plague, by person to person contact.

Drinking water, food and a heat wave are not common causes of plague, Examiner.com says, unless they have increased the contact between humans and plague carriers.

Because of this, the article says, questions should be raised about the true cause of the Syrian army plague ([Bio Prep Watch, 2010](#)).

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**Title:** Four More Anthrax Cases In Bangladesh

**Date:** June 16, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Four additional people were diagnosed with anthrax in Kenai village in the Faridpur upazila of Pabna, Bangladesh, on Wednesday, which brings the total number of infections to 14 during the last three days.

Dr. Khalilur Rahman, the upazila health and family planning officer, said that the four infected individuals arrived at the health complex on Wednesday afternoon for medical care. Three of the infected are in their 30s while one is a teenager, The Daily Star reports.

The four new infections resulted from the handling of raw meat of a diseased cow that was slaughtered on June 9. On June 11, 10 people from the same village contracted anthrax, which has infected a total of 31 people in the upazila in the past two months, Khalil said, according to the The Daily Star.

Cutaneous anthrax, the anthrax skin infection, infects humans when handling products from infected animals. This can become inhalation anthrax by breathing in anthrax spores from infected animal products or gastrointestinal anthrax by eating undercooked meat from infected animals, according to the Centers for Disease Control and Prevention.

Anthrax is classified as a Category A weapon of bioterrorism by the CDC. Anthrax was intentionally spread through the postal system by sending letters laced with powder containing anthrax in the United States in 2001, leading to 22 cases of anthrax infection ([Bio Prep Watch, 2011](#)).

**Title:** Cambodia Reports H5N1 Death, Zoo Outbreak

**Date:** July 29, 2011

**Source:** [CIDRAP](#)

**Abstract:** Cambodia's health ministry today announced today that a 4-year-old girl died from an avian influenza infection, a day after the country's animal health officials reported that the virus struck a zoo in a different province.

The girl, from Banteay Meanchey province in the northwestern part of the country, died Jul 20, the ministry and the World Health Organization (WHO) said in a joint statement, Agence France-Presse

(AFP) reported. Her death is Cambodia's seventh this year and pushes its number of H5N1 cases to 17, including 15 deaths.

The report did not mention if the girl had been exposed to sick or dead birds, but Cambodia's health minister, Mam Bun Heng, warned parents and guardians to keep children away from them, according to the AFP report.

Yesterday Cambodia's agriculture ministry reported an H5N1 outbreak that killed 19 wild birds at a Phnom Tamao zoo in Takeo province, located in the southern part of the country, according to a report to the World Organization for Animal Health (OIE).

The bird deaths started Jul 13 at the zoo's rescue center, where workers feed the wild birds fish distributed on the banks of a pond during the rainy season (June through December). Zoo workers originally suspected Newcastle disease or fowl cholera, and they buried the carcasses and disinfected the area.

The virus killed 19 birds, and 10 more sick ones were destroyed to control the spread of the virus, according to the report.

Investigators aren't sure where the birds are from, but they suspect the Tonle Sap River, which expands into a large lake during the rainy season, flooding nearby fields and forests. A team from the National Veterinary Research Institute and the zoo conducted an investigation and surveillance in neighboring villages ([CIDRAP, 2011](#)).

**Title:** Hospital Rooms Crawling With Drug-Resistant Germs: Study

**Date:** November 2, 2011

**Source:** [U.S. News](#)

**Abstract:** Nearly half of 50 hospital rooms tested by researchers were colonized or infected with a multidrug-resistant bacteria, a new study says.

University of Maryland School [of Medicine](#) researchers found *Acinetobacter baumannii* (MDR-AB) bacteria on multiple surfaces, including bedrails, supply carts and floors. This species of bacteria, which has caused infection outbreaks in health care facilities over the last decade, can survive on surfaces for long periods of time. MDR-AB infections mainly occur in patients who are very ill, wounded or have weakened [immune systems](#).

For the study, the researchers analyzed samples collected from 10 surfaces in each of 50 hospital rooms occupied by patients with a recent (less than two months prior to sampling) or remote (more than two months) history of MDR-AB.

The surfaces selected for sampling included bedrails, bedside table, door knob, vital sign monitor touchpad, nurse call button, sink, supply cart drawer handles, infusion pump, ventilator surface touch pad, and the floor on both sides of the bed.

The researchers found that 9.8 percent of the surface samples from 48 percent of the rooms showed evidence of MDR-AB. The surfaces most commonly contaminated were supply cart handles (20 percent), floors (16 percent), infusion pumps (14 percent), ventilator touchpads (11.4 percent), and bedrails (just over 10 percent).

These findings are a cause for concern because these surfaces are routinely touched by health care workers, the researchers said.



The study, published in the November issue of the *American Journal of Infection Control*, also found that patients with a recent history of MDR-AB were no more likely to contaminate their hospital room than those with a remote history.

"For patients with MDR-AB, the surrounding environment is frequently contaminated, even among patients with a remote history of MDR-AB," the researchers concluded in a [journal news release](#). "In addition, surfaces often touched by health care workers during routine patient care are commonly contaminated and may be a source of (hospital-based) transmission. The results of this study are consistent with studies of other important hospital pathogens such as methicillin-resistant [Staphylococcus aureus](#), vancomycin-resistant *Enterococcus* and *Clostridium difficile*."

However, the study does not show which came first -- MDR-AB or environmental contamination.

Also, the researchers noted that since they conducted their study, new methods of reducing transmission of MDR-AB have helped decrease infections ([U.S. News, 2011](#)).

**Title:** St. Louis Area Reaches 27 Cases Of E. Coli

**Date:** November 5, 2011

**Source:** [Fox News](#)

**Abstract:** State health officials say there are now 27 [E. coli](#) cases in the St. Louis area outbreak.

The [state Department](#) of Health and Senior Services also said Saturday that one new case is from a Boone County resident who had recently been in St. Louis. The department is trying to determine if two other cases in Boone County are connected to the St. Louis outbreak.

No deaths or life-threatening illnesses have been reported since the first cases were reported last week in St. Louis city and St. Louis, Jefferson and St. Charles counties in Missouri and St. Clair County, Ill.

The [health department](#) also says that no food samples tested have had E. coli, a group of bacteria that can cause [diarrhea](#) and other illnesses ([Fox News, 2011](#)).

**Title:** Report: Chinese Man Dies Of Bird Flu

**Date:** December 31, 2011

**Source:** [CNN](#)

**Abstract:** A 39-year-old man in southern China died Saturday from what appears to be a contagious strain of avian flu, state media reported Saturday.

The man -- identified by Xinhua as a bus driver with the surname Chen -- was hospitalized in Shenzhen on December 21 as he battled a fever. He tested positive for the H5N1 avian influenza virus, the provincial health department said in a statement, according to the official news agency.

The man had not traveled out of the city of Shenzhen, nor did he have direct contact with poultry in the month before he came down with the fever, according to the department.

Shenzhen borders Hong Kong, where more than 17,000 chickens were ordered culled on the same day that Chen was hospitalized. That decision came after a chicken carcass tested positive for avian flu.

The territory's director of Agriculture, Fisheries & Conservation declared the Cheung Sha Wan Temporary Wholesale Poultry Market an infected place, the government said then in a statement.

Farmers were told they could not send chickens to the market for 21 days.

The Hong Kong government said it was working to trace the origin of the chicken, which was infected with the H5N1 avian influenza virus. But, as of December 21, authorities did not know the source.

Meanwhile, the General Administration of Quality Supervision, Inspection and Quarantine has since suspended supplies of live poultry to Hong Kong, according to Xinhua.

As of mid-December, the World Health Organization calculated that 573 people had been infected -- and 336 had died -- after coming down with the H5N1 avian influenza virus since 2003. Twenty-six of those deaths had been in China, with the largest number of fatalities, 150, occurring in Indonesia. Vietnam and Egypt had more than 50 deaths each.

This summer, the United Nations warned of a possible resurgence of the virus -- which peaked in 2006, at one point infecting people in 63 countries -- saying there are indications a mutant strain may be spreading in Asia.

A variant strain of H5N1 -- which can apparently bypass the defenses of current vaccines -- had appeared as of late August in Vietnam and China, reported the Food and Agriculture Organization of the United Nations.

The group noted that the strain's movement around Vietnam threatened Thailand, Malaysia, Cambodia, Japan and the Korean peninsula. By then, eight people in Cambodia alone had died this year after becoming infected this year, the agency added.

In addition to the health impact, the avian flu outbreaks have also come at a steep economic cost -- with the United Nations estimating earlier this year that it had contributed to the killing of over 400 million poultry and caused losses estimated at \$20 billion ([CNN, 2011](#)).

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**Title:** Anthrax Found In 26 Drinking Wells In India

**Date:** January 10, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A group of students from Palamuru University in Andhra Pradesh, India, found deadly anthrax bacteria in the ground water of more than 26 habitations during research for a project.

Pawan Kumar, the head of the department of microbiology, sent the students to nearby villages to obtain water samples of colored water from open water bodies to test in the laboratory. After examining the water, Kumar suspected that the samples contained *Bacillus anthracis*, the bacteria that causes anthrax. The Center for Cellular and Molecular Biology confirmed his fears, the [Deccan Herald](#) reports.

"The water has *Bacillus anthracis* bacteria which causes anthrax, a zoonotic disease that is transmissible to humans through handling or consumption of contaminated animal products," Kumar said, according to the [Deccan Herald](#).

The water samples were collected from Kodangal, Midjil, Papireddyguda, Khillaghanapuram, Atmakur, Aamanagallu, Lingala, Devarakonda and Alampur. The water had been contaminated from raw sewage, animal and blood products.

"The villagers in these places, even in a tourist spot such as Alampur, drink this water day in and day out," Venkat Reddy, a student, said, the [Deccan Herald](#) reports. "They are suffering from unknown diseases, many with ulcers so we want to go further and seek protected water for our people."

Humans can become infected with anthrax by handling products or consuming undercooked meat from infected animals. Infections can also occur from inhaling spores in contaminated anthrax products or in the intentional release of spores during a bioterrorist attack ([Bio Prep Watch, 2012](#)).

**Title:** Anthrax Outbreak Hits National Park In Zimbabwe

**Date:** January 10, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** More than 165 animals are believed to have recently died in an ongoing anthrax outbreak in a Zimbabwe national park.

Caroline Washaya-Moyo, a public relations manager for the Zimbabwe Parks and Wildlife Management Authority, said that dozens of elephants, buffaloes and hippos have died in the Mana Pools National Park, according to AllAfrica.com.

"Our Chinhoyi office has since confirmed the anthrax outbreak following the death of the animals in Mana Pools," Washaya-Moyo said, AllAfrica.com reports. "The Authority engaged the Vet Offices who later collected samples from hippos for lab testing. The lab test confirmed that 88 hippopotamus died of anthrax."

Washaya-Moyo said that the situation was now under control, but also expressed concern that the outbreak might have spread to other areas of the protected reserve, which lies around the lower Zambezi River, according to DailyMail.co.uk.

Dr. Chris Foggin, a veterinary officer in the Department of Veterinary Services (Wildlife), confirmed the outbreak and detailed some of the measures that are being taken.

"A number of animals have died, but we have visited the area and we sealed it off and we are burning the carcasses to prevent any further spread, an action well considered now that the lab reports confirmed anthrax as the culprit," Dr Foggin said, AllAfrica.com reports ([Bio Prep Watch, 2012](#)).

**Title:** Fears Over Outbreak After 12 Infected With New Swine Flu Strain In U.S.

**Date:** January 12, 2012

**Source:** [Daily Mail](#)

**Abstract:** Twelve Americans have been reported infected with a mutating and now possibly human-to-human transmitted form of the H1N1 Swine Flu virus called H3N2v.

An investigation undertaken by the U.S. Center for Disease Control and Prevention found that human infections of these viruses followed contact with swine as well as through 'limited human-to-human transmission.'

'While there is no evidence that sustained human-to-human transmission is occurring, all influenza viruses have the capacity to change and it's possible that this virus may become widespread,' the CDC explained through their website.

Two of the 12 reported have been in Indiana, three in Iowa, two in Maine, three in Pennsylvania, and two in West Virginia.

Out of 10 diagnosed with the virus excluding West Virginia's two victims - reported in the CDC's November report - three were hospitalized.

The CDC stated that the severity in illness following diagnosis with the virus has been found similar to previous flu virus infections with mild illness.

In a report released by the CDC on November 22, the three Iowa victims were identified as three children, explained as all having the virus with the same 'matrix gene segment' that was in the previous H1N1 virus.

'Prior to the three cases in Iowa, most human infections with this virus were associated with exposure to swine,' the CDC's report reads.

'In Iowa, however, no swine exposure has been identified. At this time, it appears that unsustainable human-to-human transmission may have occurred,' it explains.

While those three children, who were described as in close contact to one another, recovered from the virus, the CDC cautioned in their later 2011 report that, 'These viruses are substantially different from

human influenza A (H3N2) viruses, so the seasonal vaccine is expected to provide limited cross-protection among adults and no protection to children.'

During the H1N1 outbreak between 2009 and mid-2010, over 17,000 victims died worldwide.

The swine flu strain's catastrophic impact deemed it a pandemic. A second Alamance County school may have a case of whooping cough, school system officials said Thursday.

This new suspected case involves a student at Western Middle School in Elon, school officials said. mic by the World Health Organization.

With the H1N1 virus, most of those hospitalized were younger adults and children rather than the elderly ([Daily Mail, 2012](#)).

**Title:** Possible Whooping Cough Case Found At Second Alamance Co. School

**Date:** January 12, 2012

**Source:** Fox 8 News

**Abstract:** A second Alamance County school may have a case of whooping cough, school system officials said Thursday.

This new suspected case involves a student at Western Middle School in Elon, school officials said.

The case has not yet been confirmed by lab results, but doctors told school system officials they're confident it is a pertussis case.

The case involves a girl who had contact with a confirmed pertussis case outside the school system, officials said. She rides a bus that is shared with Western High School, school system officials said.

The school system is contacting parents whose children may have been exposed at the school.

That news came on the same day Alamance County Health Department officials announced three more confirmed pertussis cases at B. Everett Jordan Elementary School, bringing the total to eight.

The first case was reported at the elementary school Dec. 14, and more than 600 people were interviewed and given antibiotics.

Health officials said there were also 23 probable pertussis cases at the elementary school. The "probable cases" are those showing symptoms similar to pertussis but have not been confirmed by testing.

Health officials said they will never know if those people were actually infected ([Fox News 8, 2012](#)).

**Title:** Study Of Freakish Mystery Illness Finds No Cause

**Date:** January 26, 2012

**Source:** [Guardian](#)

**Abstract:** Imagine having the feeling that tiny bugs are crawling on your body, that you have oozing sores and mysterious fibers sprouting from your skin. Sound like a horror movie? Well, at one point several years ago, government doctors were getting up to 20 calls a day from people saying they had such symptoms.

Many of these people were in California and one of that state's U.S. senators, Dianne Feinstein, asked for a scientific study. In 2008, federal health officials began to study people saying they were affected by this freakish condition called Morgellons.

The study cost nearly \$600,000. Its long-awaited results, released Wednesday, conclude that Morgellons exists only in the patients' minds.

"We found no infectious cause," said Mark Eberhard, a Centers for Disease Control and Prevention official who was part of the 15-member study team.

The study appears in PLoS One, one of the Public Library of Science journals.

Sufferers of Morgellons (mor-GELL-uns) describe a variety of symptoms, including fatigue, erupting sores, crawling sensations on their skin and — perhaps worst of all — mysterious red, blue or black fibers that sprout from their skin. Some say they've suffered for decades, but the syndrome wasn't named until 2002, when "Morgellons" was chosen from a 1674 medical paper describing similar symptoms.

Afflicted patients have documented their suffering on websites and many have vainly searched for a doctor who believed them. Some doctors believe the condition is a form of delusional parasitosis, a psychosis in which people believe they are infected with parasites.

Last May, Mayo Clinic researchers published a study of 108 Morgellons patients and found none of them suffered from any unusual physical ailment. The study concluded that the sores on many of them were caused by their own scratching and picking at their skin.

The CDC study was meant to be broader, starting with a large population and then went looking for cases within the group. The intent was to give scientists a better idea of how common Morgellons actually is.

They focused on more than 3 million people who lived in 13 counties in Northern California, a location chosen in part because all had health insurance through Kaiser Permanente of Northern California, which had a research arm that could assist in the project. Also, many of the anecdotal reports of Morgellons came from the area.

Culling through Kaiser patient records from July 2006 through June 2008, the team found — and was able to reach — 115 who had what sounded like Morgellons. Most were middle-aged white women. They were not clustered in any one spot.

That led to the finding that Morgellons occurred in roughly 4 out of every 100,000 Kaiser enrollees. "So it's rare," Eberhard said.

Roughly 100 agreed to at least answer survey questions, and about 40 consented to a battery of physical and psychological tests that stretched over several days.

Blood and urine tests and skin biopsies checked for dozens of infectious diseases, including fungus and bacteria that could cause some of the symptoms. The researchers found none that would explain the cases.

There was no sign of an environmental cause, either, although researchers did not go to each person's house to look around.

They took fibers from 12 people, which were tested at the Armed Forces Institute of Pathology. Nothing unusual there, either. Cotton and nylon, mainly — not some kind of organism wriggling out of a patient's body.

Skin lesions were common, but researchers concluded most of them were from scratching.

What stood out was how the patients did on the psychological exams. Though normal in most respects, they had more depression than the general public and were more obsessive about physical ailments, the study found.

However, they did not have an unusual history of psychiatric problems, according to their medical records. And the testing gave no clear indication of a delusional disorder.

So what do they have? The researchers don't know. They don't even know what to call it, opting for the label "unexplained dermopathy" in their paper.

But clearly, something made them miserable. "The absence of evidence is not evidence of absence," said Felicia Goldstein, an Emory University neurology professor and study co-author.

She said perhaps the patients could be helped by cognitive behavioral therapy that might help them deal with possible contributing psychological issues.

The study is not expected to be the last word on the subject.

Among those with additional questions is Randy Wymore, an Oklahoma State University pharmacologist who for years was the most reputable scientist to look into it and who has concluded Morgellons is not a psychiatric disorder.

On Wednesday, Wymore said he had not seen the CDC paper and was unable to comment on it. But when the study began, he questioned whether Kaiser patients with Morgellons would participate, especially if they were unhappy with how they were previously handled by their Kaiser doctors.

"There is always the question: How many of the study participants actually have Morgellons Disease?" he said, in an email.

The CDC is not planning additional study, however. The agency's expertise is in infectious diseases and environmental health problems, and the researchers saw no evidence of that.

"We're not mental health experts," one CDC spokeswoman said ([Guardian, 2012](#)).

**Title:** Antibiotic-Resistant Bacteria Found In 37 U.S. States

**Date:** January 31, 2012

**Source:** [U.S. News](#)

**Abstract:** Half a world away, doctors in India are fighting outbreaks of bacterial infections that are resistant to more than 15 types of antibiotics. But closer to home, a similarly scary bug is making the rounds in intensive care and other long-term units of American hospitals.

In at least 37 states, Washington, D.C., and Puerto Rico, doctors have identified bacteria, including *E. coli*, that produce *Klebsiella pneumoniae* carbapenemase, or KPC—an enzyme that makes bacteria resistant to most known treatments. It's much more prevalent in America than bacteria that produce NDM-1, the enzyme that has Indian doctors "[hell scared](#)," and, according to Alexander Kallen, a medical officer at the Centers for Disease Control in Atlanta, the final outcome isn't much different: superbacteria that are hard to kill.

"It's got a slightly different structure than [NDM-1]," he says of KPC. "But the bottom line is they're two different ways to produce bacteria that are resistant to a wide range of antibiotics."

That's bad news for infected patients—the mortality rate for patients infected with KPC-producing bacteria has been estimated to be as high as 50 percent. Doctors are advised to do their best to keep the bacteria from spreading, which explains why the problem is most prevalent in hospitals and other close-quarter medical units. Infected patients are often isolated.

KPC has been seen in a wide range of bacteria, including E. coli, Salmonella, and K. pneumonia, which often affects hospitalized patients.

These superbugs are resistant to nearly every weapon doctors can throw at them, including carbapenems, a class of antibiotic that the CDC calls the "last line of defense" against infections that are resistant to other types of antibiotics. There are a couple antibiotics that have been shown to kill these superbugs, but often at great risk to patients. In fact, the FDA has associated the use of these effective antibiotics with an "[increased risk of death](#)" in patients with pneumonia.

That leaves many doctors scratching their heads. KPC-bacteria often grow on medical equipment such as catheters and ventilators, so doctors can sometimes remove that equipment or perform surgery to try to eliminate the infection from a patient's body.

CDC researchers, including Kallen, say that hospitals who haven't been vigilant about isolating patients with KPC-producing bacteria may have missed their chance. According to a paper co-authored by Kallen released last year, "failure to recognize CRE infections when they first occur in a facility has resulted in a missed opportunity to intervene before these organisms are transmitted more widely."

The good news is that, at least for now, KPC-producing bacteria generally only infects people who already have compromised immune systems. "It can move into the wider community," says Kallen, "but we haven't seen much of that yet" ([U.S. News, 2012](#)).

**Title:** Vietnam Reports 2nd Bird Flu Death In A Month

**Date:** February 1, 2012

**Source:** [Fox News](#)

**Abstract:** Vietnam has confirmed its second human death from bird flu in nearly a month, after going nearly two years with no reported fatalities.

The director of the Health Department in southern Soc Trang province said Thursday that test results confirm that a 26-year-old woman died of the disease Jan. 28 after being hospitalized in the provincial hospital three days earlier.

Truong Hoai Phong says the woman, who recently had a baby in another hospital, had slaughtered and eaten dead chickens the family raised. He says dead and sick poultry were reported in the woman's neighborhood.

Phong says the woman's house has been disinfected and samples from poultry and people who were in contact with the woman were being tested ([Fox News, 2012](#)).

**Title:** Taco Bell Linked To Oct. Salmonella Outbreak

**Date:** February 1, 2012

**Source:** Reuters

**Abstract:** Yum Brand Inc's Taco Bell chain has been linked to a salmonella outbreak that sickened 68 people in 10 states late last year.



Taco Bell said in a statement on Wednesday that investigators found that some of the people who became ill ate at Taco Bell, while others did not.

"They believe that the problem likely occurred at the supplier level before it was delivered to any restaurant or food outlet. We take food quality and safety very seriously," Taco Bell said, echoing information from the Centers for Disease Control and Prevention's Jan. 19 final report on the outbreak.

The cluster of illness from salmonella enteritidis infections is believed to have begun in mid-October and ended by the time CDC issued its final report. Illnesses were reported in Texas, Oklahoma, Kansas, Iowa, Michigan, Missouri, Nebraska, New [Mexico](#), Ohio and Tennessee.

CDC said 31 percent of patients were hospitalized. No deaths were reported.

The outbreak had an air of mystery about it because CDC's final report said it was linked to a Mexican-style fast-food chain identified only as "Restaurant A."

Food Safety News was the first to identify Taco Bell as Restaurant A, citing a document from the Oklahoma State Department of Health's Acute Disease Service.

Taco Bell has been tied to two other outbreaks in the last six years.

In 2006, CDC identified contaminated lettuce served by Taco Bell restaurants in the northeastern United States as the source of an outbreak of a virulent strain of E. coli O157 that sickened 71 people.

Four years later, CDC confirmed that Taco Bell was linked to two outbreaks of rare strains of salmonella that made at least 155 people sick in 21 states. CDC originally linked that outbreak to an unnamed Mexican-style fast-food restaurant chain.

News of the 2011 outbreak comes as Taco Bell works to fully recover from a bogus, but ultimately sales-sending lawsuit over the contents of its seasoned ground beef.

Salmonella infections often cause diarrhea, fever and abdominal cramps. The illness usually last four to seven days and most people recover without treatment.

CDC estimates that one in six people in the United States gets sick from eating contaminated food each year. Food-borne illnesses are blamed for about 3,000 deaths annually ([Reuters, 2012](#)).

**Title:** Flesh-Eating Bug That You Can Catch On The Bus Or Train Is Spreading In The UK

**Date:** February 2, 2012

**Source:** [Daily Mail](#)

**Abstract:** A flesh-eating form of pneumonia that is easily passed between healthy people on public transport is spreading across the UK, experts have warned.

The deadly strain of MRSA called USA300 passes easily through skin-to-skin contact. It can also survive on surfaces and so has the potential to be picked up on crowded buses and tubes.

It was first seen in the U.S but cases are now being reported in the community and not just hospitals in Britain.

Dr Ruth Massey, from the Department of Biology and Biochemistry at the University of Bath, said extra vigilance was required around this and similar MRSA bugs known as PVL-positive community acquired strains.

USA300 is resistant to treatment by several front-line antibiotics and can cause large boils on the skin. In severe cases, USA300 can lead to fatal blood poisoning or a form of pneumonia that can eat away at lung tissue.

Dr Massey said there were 1,000 cases of PVL-positive community acquired MRSA in England in the last year, of which 200 were USA300 strains.

'These community-acquired strains seem to be good at affecting healthy people - they seem to be much better than the hospital ones at causing disease.

'They don't rely on healthcare workers moving them around, which the hospital ones seem to.'

Dr Massey said USA300 is 'a really big issue in the U.S. and it's starting to emerge here.

'But hopefully because we are aware of it and are working to understand it, it won't become as big of a problem (in the UK).'

In a new research paper published in the Journal of Infectious Diseases, Dr Massey and colleagues analyse the way community-acquired MRSA are able to adapt and fine tune themselves to spread outside of hospitals.

MRSA bacteria in hospitals has not been able to migrate into the community in the same way.

Dr Massey said: 'Our research found that the composition of the cell wall of the bacteria is critical to the community-acquired bacteria being more toxic.

'The ability of the MRSA bacteria to secrete toxins is one of the main ways it causes disease.

'Using a sensing system, it carefully controls when it switches on its ability to do this, so as not to cause disease until it is firmly established within the human.

'Many antibiotics target the cell walls of harmful bacteria, and to resist this, the bacteria have to make changes to their cell wall.'

Community-acquired MRSA strains have cell walls that are different to those seen in hospitals, allowing them to sense their environment and switch toxin expression on at the right time.

Justine Rudkin, a PhD student working on the project, said: 'The community-acquired bacteria has evolved further, and is able to maintain a higher level of toxicity while also resisting treatment from antibiotics, making it a much larger problem.'

She added: 'While we are constantly learning more about MRSA, there is a serious threat posed by this newer strain of bacteria capable of causing disease and even death in perfectly healthy people.

'We need to respond seriously to this threat as it reaches Britain from the United States.'

Chris Thomas, professor of molecular genetics at the University of Birmingham, said: 'The key message is that strains of MRSA that are spreading in the community are better able to infect the young and

healthy, precisely because they are not actually trying so hard to be resistant as the bugs that have been encountered in hospitals for many years.'

He said there was now a 'need to worry about community super bugs that are fine tuned to spreading outside of hospitals and we all need to be extra vigilant about hygiene and unnecessary use of antibiotics.'

A spokeswoman for the Health Protection Agency (HPA) said: 'The paper highlights some important observations which helps us understand at the molecular level why hospital strains of MRSA are less virulent than the so-called community MRSA strains.'

'We have known about community MRSA for over a decade and, whilst they are responsible for a high burden of disease in North America, this is not the case in the rest of the world.'

'In England we have seen sporadic cases of this type of MRSA most often causing boils and abscesses, but it has not emerged as a major public health issue in this country.'

'The HPA are carrying out active surveillance of this type of bacteria and advise healthcare professionals on correct infection control procedures to reduce the likelihood of spread' ([Daily Mail, 2012](#)).

**Title:** Malaria Deaths Hugely Underestimated - Lancet Study

**Date:** February 3, 2012

**Source:** [BBC](#)

**Abstract:** Worldwide malaria deaths may be almost twice as high as previously estimated, a study reports.

The research, [published in the British medical journal the Lancet](#), suggests 1.24 million people died from the mosquito-borne disease in 2010.

This compares to a World Health Organisation (WHO) estimate for 2010 of 655,000 deaths.

But both the new study and the WHO indicate global death rates are now falling.

The research was funded by the Bill and Melinda Gates Foundation. It used new data and new computer modelling to build a historical database for malaria between 1980 and 2010.

The conclusion was that worldwide deaths had risen from 995,000 in 1980 to a peak of 1.82 million in 2004, before falling to 1.24 million in 2010.

The rise in malaria deaths up to 2004 is attributed to a growth in populations at risk of malaria, while the decline since 2004 is attributed to "a rapid scaling up of malaria control in Africa", supported by international donors.

While most deaths were among young children and in Africa, the researchers noted a higher proportion of deaths among older children and adults than previously estimated. In total, 433,000 more deaths occurred among children over five and adults in 2010 than in the WHO estimate.

"You learn in medical school that people exposed to malaria as children develop immunity and rarely die from malaria as adults," said Dr Christopher Murray of the University of Washington in Seattle, who led the study.

"What we have found in hospital records, death records, surveys and other sources shows that just is not the case."

The researchers also concluded malaria eradication was not a possibility in the short-term.

"We estimated that if decreases from the peak year of 2004 continue, malaria mortality will decrease to less than 100,000 deaths only after 2020," they write.

### **Disturbing Numbers**

The Lancet's editor, Richard Horton, told the BBC: "Right now we don't actually have any reliable primary numbers for malaria deaths in some of the most malarious regions of the world, so what numbers we have come from estimates.

"What this paper reports is a new way of estimating the number of malaria deaths, where they've used additional data sets and improved mathematical models from calculating mortality."

But despite what he calls the "disturbing" number of deaths recorded, he believes the underlying message of the report is that the disease can and is being controlled.

"Since 2004, the number of malaria deaths has dropped by about a third, and that's really been the time when the Global Fund to Fight Aids, Tuberculosis and Malaria has swung into action" he said.

"Over the past decade, 230 million cases of malaria have been treated and the same number of bed nets have been distributed to people at risk of malaria, and the result of that has been this huge downturn. So what we know is that we're actually able to turn off malaria with our existing interventions."

Commenting on the new study, Professor David Schellenberg of the London School of Hygiene and Tropical Medicine said the researchers had "gone to great lengths to assemble information from a range of sources and to make adjustments for the inadequate data quality".

"We can argue about the strengths and weaknesses of their approach but should not be distracted by the details of the methods: however you look at it, far too many people are dying from malaria.

"The introduction of rapid diagnostic tests for malaria, recommended by the WHO in 2010 and increasingly available in endemic countries, affords an unprecedented opportunity to take the guesswork out of malaria diagnosis and to improve the reliability of information," he added.

The new survey involved a range of measures to try and obtain a better estimate of global malaria deaths. New data sets were examined and computer models built which factored in a host of elements such as transmission rates, healthcare access, drug resistance and bednet coverage.

The work also involved trying to judge the impact of the misclassification of deaths in the affected regions. This readjustment alone generated a rise of 21% in the number of malaria deaths ([BBC, 2012](#)).

**Title:** 100 Cruise Passengers Struck By Norovirus

**Date:** February 4, 2012

**Source:** [Boston.com](#)

**Abstract:** Officials with Princess Cruise Lines say a stomach virus affected nearly 100 passengers on a ship that arrived in South Florida. Meanwhile, passengers on another ship were complaining of gastrointestinal illness.

A total of 92 passengers and 13 crew members on the Ruby Princess were affected by the Norovirus, which causes vomiting, diarrhea and stomach pain. The ship returns to South Florida on Sunday.

Meanwhile, there has been an increase in the number of cases of gastrointestinal illness among passengers on Crown Princess, which docked Saturday at Port Everglades.

Spokeswoman Julie Benson says the cases do not appear to be related. The cause of the illness has not yet been determined.

All cabins and public areas on the ships are being disinfected, which will delay their next departures ([Boston.com, 2012](#)).

**Title:** 2 Florida Bound Cruise Ship Liners Hit By Fast Spreading Virus

**Date:** February 4, 2012

**Source:** Fox News

**Abstract:** Passengers on board two different Florida-bound [cruise ships](#) have been hit by a fast spreading norovirus, The Miami Herald reports.

The gastrointestinal sickness struck two Princess Cruise Lines ships, the Ruby Princess and the Crown Princess, both en route to Fort Lauderdale.

Ahead of the liners next departures this weekend, the cruise companies sent out an “emergency notification” to passengers notifying them that their trip will be delayed due to a norovirus attack.

“It will be necessary for the ship to undergo a prolonged and additional disinfection in [Port Everglades](#) on Sunday,” the line said in its message to passengers, The Miami Herald reports.

Aboard Crown Princess, a total of 140 passengers and 18 crew have been affected by the illness. A total of 81 passengers and nine crew have been affected by the illness aboard Ruby Princess, according to Karen Candy, [manager of media relations](#) for Princess, in an e-mailed statement Friday afternoon, The Miami Herald reports.

“The ship continues to undergo the highest level of sanitation to stop the spread of illness, and a comprehensive disinfection of the ship’s public areas and all passenger cabins will occur during turnaround this Sunday using additional cleaning crew who will be brought aboard. As a result, passenger embarkation will be delayed until 2 p.m” ([Fox News, 2012](#)).

**Title:** Virus Strikes Cruise Ship Out Of New Orleans

**Date:** February 5, 2012

**Source:** CBS

**Abstract:** A stomach virus outbreak delayed the departure of the cruise ship "Voyager of the Seas" from New Orleans in one of three outbreaks of illness aboard U.S.-based cruise ships reported over the weekend.

The 15-deck, 3,100-passenger Royal Caribbean Cruises ship was delayed in leaving Saturday for a seven-day trip by a couple of hours, Port of New Orleans spokesman Chris Bonura. He referred other questions to Royal Caribbean Cruises Ltd., which did not answer a call and email Sunday.

The Centers for Disease Control and Prevention notified Louisiana on Friday that a cruise ship might be coming in with a norovirus outbreak, state epidemiologist Raoult Ratard said Sunday.

The CDC did not say how many passengers were ill, Ratard said. "They let us know, but that's it. They don't give us details or anything. And we really don't need" details about norovirus, he said.

Agency spokesman Tom Skinner said he could not comment immediately because the CDC inspector who had been on the Voyager on Saturday was busy checking a cruise ship in Florida on Sunday. That ship was one of two homeported in Florida where weekend outbreaks were reported.

WDSU-TV reported that about 200 passengers on the New Orleans ship became ill from the virus, which causes vomiting and diarrhea and spreads rapidly in close quarters such as cruise ships and nursing homes.

To put things into perspective, Ratard said, on any given day about 10,000 people in the New Orleans area are likely to have diarrhea, about 30 percent of them — 3,000 — because of norovirus.

"In a closed space like a cruise ship, in a nursing home, in a hospital, you want to be extra careful. But the 3,000, they're all over the place," Ratard said ([CBS, 2012](#)).

**Title:** Chicken Salad Sandwiches Recall: 2,800 Sandwiches Have Possible Listeria Contamination

**Date:** February 7, 2012

**Source:** [Huffington Post](#)

**Abstract:** A South Carolina company is recalling about 2,800 of its chicken salad sandwiches because of concerns about possible listeria contamination.

The sandwiches, from the Grand Strand Sandwich Co. of Longs, S.C., were distributed in North Carolina, South Carolina and Virginia. They carried the following labels: Grand Strand Sandwich, Lunch Box Sandwiches and Country Harvest Sandwiches, and came in 4.5 ounce and 5 ounce packaging.

According to the company, the sandwiches may contain eggs that were part of a previous recall from Michael Foods in Minnesota. The company that made the chicken salad for Grand Strand bought some of the hard cooked eggs from Michael Foods and isn't sure whether they were used in the Grand Strand Sandwiches.

"Just to be safe," Grand Strand said it was recalling some of its sandwiches.

The company says it is likely that some of the sandwiches may have already been consumed. There are no reports of illnesses in connection with the sandwiches.

Consumers can call Grand Strand Sandwich at 800-758-0476 with questions ([Huffington Post, 2012](#)).

**Title:** Mugabe Calls Typhoid Outbreak "Biological Warfare"

**Date:** February 8, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Zimbabwe's President Robert Mugabe's Zanu-PF party has blamed a typhoid fever outbreak that has impacted 1,500 people in the country's capital Harare on biological warfare.

Claudious Mutero, a spokesperson for Zanu-PF, made the claim in Harare. Meanwhile, Henry Madzorera, the Health and Child Welfare minister, cautioned that the outbreak would spread to other areas due to collapsing sewer and water infrastructure, [Africa Review](#) reports.

"The sanctions induced typhoid does not discriminate whether one is MDC (Movement for Democratic Change) or Zanu-PF as it attacks all people irrespective of their sex, ethnic or religious background,"

Mutero said, according to [Africa Review](#). "We suspect biological warfare by imperialists who are using nationals worldwide as conduits. Councilors must unite and call for the removal of these sanctions."

Mugabe blamed the sanctions imposed on his inner circle for Zimbabwe's economic collapse and said that the West was interested in re-colonizing the continent. Critics of Mugabe said that these claims of renewed imperialism are attempts to mask a failed land grab that ravaged the country's economy, which is based on agriculture.

"This is not the first time that Zanu-PF has made ridiculous claims against foreign countries," Madzorera said, according to [Africa Review](#). "A few years ago, the struggling party alleged that the foreign countries were responsible for the abnormal rainfall in the country."

Madzorera said that the government must put more money into sanitation and water to prevent recurring outbreaks.

"As a country, we should not be suffering from medieval diseases," Mazdorera said, [Africa Review](#) reports. "The problem is that we are receivers of a failed economy" ([Bio Prep Watch, 2012](#)).

**Title:** With 40% Of Tests Positive For Latent TB, All Of Longmont High Will Be Tested

**Date:** February 9, 2012

**Source:** [Denver Post](#)

**Abstract:** About 40 percent of Longmont High School students and staff tested for tuberculosis have had positive results, a Denver Public Health official said Wednesday.

Dr. Randall Reves, director of the Denver Metro Tuberculosis Control Program, said that rate is unusual, but not unheard of.

Latent TB, unlike active TB, is not contagious. So far, the original case -- which was made public in early January -- is the only active case found in the school, Reves said.

TB cannot be transmitted unless a patient is actively ill, he said.

Because the rate of latent TB being found at the school has been higher than expected in the first two groups of students and staff tested, Reves has decided to test everyone at the school ([Denver Post, 2012](#)).

**Title:** Unusual Rate Of Latent TB Prompts More Testing At Longmont High School

**Date:** February 9, 2012

**Source:** [Times Call](#)

**Abstract:** About 40 percent of Longmont High School students and staff tested for tuberculosis have had positive results, a Denver Public Health official said Wednesday.

Dr. Randall Reves, director of the Denver Metro Tuberculosis Control Program, said that rate is unusual, but not unheard of.

"It just reflects that (the student's) particular case of TB was more infectious than average," Reves said.

Some types of sputum carry more bacteria than others, making those patients more contagious, he said.

Latent TB, unlike active TB, is not contagious. So far, the original case -- which was made public in early January -- is the only active case found in the school, Reves said.

TB cannot be transmitted unless a patient is actively ill, he said.

"They cough the bacteria into the air," Reves said. "It takes a lot of bacteria being coughed into the air to cause infection."

Because the rate of latent TB being found at the school has been higher than expected in the first two groups of students and staff tested, Reves has decided to test everyone at the school.

Beginning next week, public health officials will start testing ninth- and 10th-graders. To speed up the testing, skin tests will be given to most people, he said.

The following week, officials will test the 11th- and 12th-graders who have not yet been tested, he said.

Rob Spear, whose child transferred to Longmont High School a week ago, said talking to his family doctor eased his concerns, but thought testing all the students was a good idea.

Some parents, however, are not happy that the entire school population wasn't tested immediately after the first student was diagnosed with active TB.

"Why wasn't it done before?" asked parent Janet Sena, who worries about a 2-year-old grandchild at home. "They made it seem like it was nothing."

Testing all students in January would not have been productive, Reves said, because the body needs time to develop the antibodies needed to react to the tests. The students who were first tested will have to be re-tested later this month; had more students been tested early, more would have to be re-tested, he said.

Usually, when an entire school population is tested, few people are found to be infected, he said.

"You then spend a tremendous amount of resources testing people who are not at risk," Reves said.

Another complication of testing large groups of people is that about half the skin or blood tests show false-positive results, he said. That means more people have to be X-rayed or undergo other tests to see if they have latent TB, he said.

Reyne Messer, who has two children attending Longmont High School, said she feels school district and health officials didn't take the TB threat seriously.

"TB's not something to laugh about; it's dangerous," Messer said Wednesday afternoon as she waited to pick her children up from school.

She is afraid that even latent TB will spread -- something Reves said is not possible -- and has considered pulling her children out of school, she said.

"To put my kids in danger, it wasn't fair," Messer said ([Times Call, 2012](#)).

**Title:** CDC Warns Untreatable Gonorrhea Is On The Way

**Date:** February 13, 2012

**Source:** [U.S. News](#)

**Abstract:** Gonorrhea, one of the most common sexually transmitted diseases in the United States, is increasingly showing resistance to one of the last known effective antibiotic treatments, leading



researchers from the Centers for Disease Control to "sound the alarm" about potentially untreatable forms of the disease.

"During the past three years, the wily gonococcus has become less susceptible to our last line of antimicrobial defense, threatening our ability to cure gonorrhea," Gail Bolan, director of the CDC's sexually transmitted disease prevention program, wrote in *The New England Journal of Medicine* last week.

According to the CDC, gonorrhea has a long history of developing immunity to antibiotics, but doctors have always had a stronger medicine up their sleeves to treat patients. Not anymore—about 1.7 percent of gonorrhea is now resistant to cephalosporins, the last line of defense against gonorrhea. That might not seem like much, but it's a 17-fold increase since 2006, when about one tenth of one percent of gonorrhea was believed to have resistance to cephalosporins.

According to Bolan, the strains are showing up most often in the western states, where 3.6 percent of gonorrhea has shown resistance to cephalosporins, and in men who have sex with men, with nearly 5 percent of gonorrhea showing resistance.

The disease has been estimated to affect 600,000 Americans annually, causing burning with urination, abdominal pain, itching, and genital discharge.

Nikki Mayes, a spokesperson for the CDC, wrote in an email that by using a combination of cephalosporins and other antibiotics, American doctors have been able to prevent anyone from getting a completely untreatable case of gonorrhea. But she says it's only a matter of time.

"The trends in decreased susceptibility that we're seeing, coupled with the history of emerging resistance and reported treatment failures in other countries point to the likelihood of treatment failures on the horizon," she writes.

Not much help is on the way, according to both Mayes and Nicole Mahoney, senior officer of the antibiotics and innovation project at PEW Charitable Trusts.

"As far as gonorrhea goes, I'm not aware of any new drugs in the pipeline," says Mahoney. "This is just one more example of a bigger problem—bacteria are developing resistance faster than we're inventing new medicines to fight them."

Mahoney says Congress and the Food and Drug Administration should encourage and reward pharmaceutical companies to devise new antibiotics. According to a PEW report, only two new classes of antibiotics have been introduced since 1968 because antibiotics are difficult to produce and are less profitable than other drugs.

Bolan writes in the medical journal that a vaccine to prevent gonorrhea "remains key to prevention and control," but that it is a "distant goal."

"The threat of untreatable gonorrhea is emerging rapidly," she adds ([U.S. News, 2012](#)).

**Title:** German Health Experts Left Baffled By Village Where Almost Every Household Has Resident Suffering Cancer

**Date:** February 13, 2012

**Source:** [Daily Mail](#)

**Abstract:** Health experts in Germany are baffled by a small village where cancer has hit almost every household.

Wewelsfleth, which has a population of 1,500, has been labelled the 'village of the damned' as new cancer cases are 50 per cent above average.

Researchers from the University of Lubeck who investigated the phenomenon, which includes breast, lung, oesophageal, womb and stomach cancers, could find no defining cause – although residents are blaming three nearby nuclear power plants and a shipyard where vessels used to be sprayed with highly toxic paint.

The villagers are now demanding a government inquiry. They think authorities over the years have remained silent as wind and rain blew in cancer-causing particles into their homes.

But experts say this is not the case. Research by academics at the University of Lübeck probed the various cancers that had struck down the villagers.

As well as probing the nuclear plants it also looked into the nearby shipyard, asbestos sheeting used on garage roofs, electro-smog from power lines and the lifestyle of those who fell victim to the cancers.

The study could find no defining link to any one cause. The villagers are now asking health authorities in Berlin to commission another study to get to the bottom of the 'plague of cancers,' as they call it.

Wewelsfleth mayor Ingo Karstens, who lost both of his wives to cancer, said: 'It feels like a curse' ([Daily Mail, 2012](#)).

**Title:** Rio Faces Dengue Epidemic: Brazil Health Minister

**Date:** February 16, 2012

**Source:** [France 24](#)

**Abstract:** Brazilian Health Minister Alexandre Padilla on Thursday warned that Rio de Janeiro faced a major dengue epidemic, although he said the virus strain prevalent was not fatal.

"I believe that Rio could this year face one of the worst dengue epidemics in its history, in terms of number of cases," he said in a television interview.

Padilla said the dengue virus strain prevalent in Rio was not the most serious and was not fatal.

The official Agencia Brasil said since the start of the year, 3,499 dengue cases have been recorded in Rio, compared with 2,322 last year, but none were fatal.

The government said that nationally cases dropped 62 percent this year to 40,486.

Dengue affects between 50 and 100 million people in the tropics and subtropics each year, resulting in fever, muscle and joint ache.

But it can also be fatal, developing into hemorrhagic fever and shock syndrome, which is characterized by bleeding and a loss of blood pressure.

The news comes as Carnival frenzy sweeps Brazil and the South American powerhouse prepares for a week of sizzling samba dancing, glittering parades and unabashed merry-making in Rio and other cities ([France 24, 2012](#)).

**Title:** First Case Of Legionnaire's Disease Found At A Dentist

**Date:** February 17, 2012

**Source:** [GMA](#)

**Abstract:** Doctors on Friday reported the first known case of Legionnaire's disease, a rare infection usually linked to faulty air conditioning and hot-water systems, that was caused by a visit to the dentist.

The case report, published in The Lancet, describes an unnamed 82-year-old woman in Rome who was hospitalized with fever and breathing problems in February 2011.

Swiftly diagnosed with infection by the Legionella pneumophila germ, she died two days later of septic shock despite being given heavy doses of antibiotics.

During the two- to 10-day time it would have taken for the bacteria to incubate, the patient had only left her house twice, both times to attend appointments at the dentist.

Samples of water were taken from the dentist's tap, from the waterline—the tube that supplies water to tooth scalers and handpieces used by the dentist—and from the high-pressure pump supplying the waterline itself.

All three sources tested positive for L. pneumophila, but especially in water taken from the pump.

Genetic sequencing found that the germs there matched the bacteria which killed the patient. The bug turned out to be a particularly virulent sub-strain called Benidorm.

After cleaning with hydrogen peroxide solution and bleach, the water unit was free of contamination.

The case is unusual, as outbreaks of Legionnaire's disease are generally caused by air-conditioning systems, hot-water systems, spas and fountains that are not properly cleaned or maintained.

Warm temperatures and periods of water immobility provide a breeding ground for the bacteria. Distributed in fine droplets by a spray, the bacteria are then breathed in. Elderly people or individuals with poor immune systems are those most at risk.

Previous research has shown that dental waterlines can be contaminated by the germ, but this is the first known case where illness has occurred.

"As far as we are aware, no case of Legionnaire's disease has been associated with this source of infection," says the report, headed by Maria Luisa Ricci at the Istituta Superiore de Sanita in Rome.

"The case here shows that the disease can be acquired from a dental unit waterline during routine dental treatment. Aerosolized water from high-speed turbine instruments was most likely the source of the infection."

The case report puts down a series of recommendations, including use of filters, continuous circulation of disinfected water and using sterile water instead of tap water ([GMA, 2012](#)).

**Title:** NC Reports First Flu-Related Child Death Of Season

**Date:** February 20, 2012

**Source:** [WGHP 8 News](#)

**Abstract:** North Carolina has reported its first flu-related child death for the season.

A six-year-old died of complications from an influenza infection on Feb. 4, state health officials said Monday. The child, whose identity will not be released, was at-risk for complications from the flu due to underlying medical conditions, officials said.

"We extend our deepest sympathy to the family on the loss of their child," said Dr. Laura Gerald, NC Health Director. "Unfortunately, this reminds us that flu is a serious illness and can be potentially devastating to people at any age."

Influenza kills an estimated 25,000 in the U.S. each year and causes more than 220,000 hospitalizations.

Officials said about 1/2 of the children who died last season as a result of the flu were not at-risk for complications.

Officials said flu activity across the state has been mild for the season, although there has been a recent increase in the number of infections reported.

Most infections can be prevented with a flu vaccine, which is recommended for anyone over six-months-old ([WGHP 8 News, 2012](#)).

**Title:** Experts Fear Diseases 'Impossible To Treat'

**Date:** February 20, 2012

**Source:** [Independent](#)

**Abstract:** Britain is facing a "massive" rise in antibiotic-resistant blood poisoning caused by the bacterium E.coli – bringing closer the spectre of diseases that are impossible to treat.

Experts say the growth of antibiotic resistance now poses as great a threat to global health as the emergence of new diseases such as Aids and pandemic flu.

Professor Peter Hawkey, a clinical microbiologist and chair of the Government's antibiotic-resistance working group, said that antibiotic resistance had become medicine's equivalent of climate change.

The "slow but insidious growth" of resistant organisms was threatening to turn common infections into untreatable diseases, he said. Already, an estimated 25,000 people die each year in the European Union from antibiotic-resistant bacterial infections.

"It is a worldwide issue – there are no boundaries," he said. "We have very good policies on the use of antibiotics in man and in animals in the UK. But we are not alone. We have to think globally." Between 2005 and 2009 the incidence of E.coli "bacteraemias" [the presence of bacteria in the blood] rose by 30 per cent, from 18,000 to over 25,000 cases. Those resistant to antibiotics have risen from 1 per cent at the beginning of the century to 10 per cent.

"Only one in 20 of infections with [resistant] E.coli is a bacteraemia, so the above data are only the tip of an iceberg of infected individuals," says a report produced by Professor Hawkey's group, commissioned by the Department of Health and the Department for Environment, Food and Rural Affairs.

Dame Sally Davies, the Government's chief medical officer, has pledged £500,000 to fund research into the threat. Drug companies have lost interest in developing new antibiotics because it is increasingly difficult to find new agents and it is not commercially viable – antibiotics are taken for a few days, compared with, say, a heart drug which may be taken for life.

"There are only so many antibiotics available and as we lose them it becomes more and more difficult to replace them," Professor Hawkey said.

The rapid rise in E.coli blood poisoning is thought to be linked with the ageing of the population. E.coli is a common cause of urinary-tract infections but may also cause wound infections following surgery or injury. These are regarded as minor conditions, but if they became untreatable they would be life-threatening.

E.coli infections pose a much bigger problem than MRSA because the bacterium is more common. Only one in 10 people is a carrier of MRSA, but E.coli is present in everyone. "Those who get ill [with E.coli] are rare – but because it is so common it is a big problem," Professor Hawkey said.

Using standard antibiotic regimens, there is a one in 10 chance that treatment of an E.coli infection will fail because the bug is resistant. But, as numbers of resistant infections rise, there will be increasing pressure to use more powerful antibiotics, called carbapenems, which are the last line available. And resistance to those is already emerging. "In the last two or three years we have seen [organisms] develop which destroy carbapenems. That is a great worry," Professor Hawkey said. The warnings follow increasing reports from Europe of patients with infections that are almost impossible to treat. In November, the European Centre for Disease Control and Prevention (ECDC) said up to 50 per cent of cases of blood poisoning with the bacterium K.pneumoniae, a common cause of urinary and respiratory conditions, are resistant to carbapenems in some countries.

Across Europe, the percentage of carbapenem-resistant K.pneumoniae has doubled from 7 per cent to 15 per cent, the ECDC said. Marc Sprenger, the director, said: "The situation is critical. We need to declare a war against these bacteria."

Meanwhile, the UK Health Protection Agency warned doctors in October to abandon a drug usually used to treat a common sexually transmitted disease because it was no longer effective. The agency said that gonorrhoea – which caused 17,000 infections in 2009 – should be treated with two drugs instead of one.

### **Explained: how bugs adapt to beat antibiotics**

Bugs are like all other life forms: they must adapt to survive. Unlike human beings, however, for whom evolution is measured in millennia, reproduction is so rapid among bacteria that they can change in months or years.

With the introduction of a new antibiotic, natural selection goes to work. Most bacteria are killed by the new drug but the natural variation that occurs in any species means a few examples may, by chance, have some quirk in their genetic structure that allows them to survive.

These bacteria are then selected out by the antibiotic, which kills the rest. The mutant bacteria grow in numbers until they become the dominant species ([Independent, 2012](#)).

**Title:** Hepatitis C Surpasses AIDS As Killer, Hitting Baby-Boom Generations Hardest

**Date:** February 21, 2012

**Source:** [CBS](#)

**Abstract:** new study indicates that one in every 33 baby boomers has the Hepatitis C virus, and many don't even know they have this liver destroying disease.

Federal health officials say Hepatitis C is now killing more people than the AIDS virus, and most are over 45 years of age.

Dr. Robert Bettiker, associate professor of medicine in infectious diseases at Temple University School of Medicine, says that once symptoms appear, the liver is already damaged.

He says the major symptoms include “pain in the right upper quadrant (of your abdomen) that goes on for days or months. Your eyes might turn yellow, you might start bleeding a lot if you get a cut, and the veins in your esophagus can get really big and can rupture.”

Dr. Bettiker says if you had a blood transfusion before 1990 (when routine screening for hepatitis C in donated blood began) or have ever used intravenous drugs, you should tell your doctor. A blood test can determine if you’ve been exposed to the deadly virus, and early treatment could be effective ([CBS, 2012](#)).

**Title:** MRSA Staph Strain Developed Drug Resistance In Your Burger

**Date:** February 21, 2012

**Source:** [U.S. News](#)

**Abstract:** A bacteria strain that causes a hard-to-treat staph infection probably developed its [antibiotic resistance](#) in food animals, a team of scientists announced Tuesday.

The strain of staph, known as methicillin-[resistant Staphylococcus aureus](#), or MRSA CC398, most often infects farm workers who come in contact with infected pigs, turkeys, or cows. The bacteria has been found in about half of meat samples taken throughout the country. The researchers say that the copious use of antibiotics in livestock used for food is to blame for the infection's drug resistance.

"We can't blame nature or the germs. It is our inappropriate use of antibiotics that is now coming back to haunt us," Paul Keim, one of the study's authors, said in a statement. The researchers believe the bacteria was originally a human strain that was easily treated with tetracycline and methicillin, antibiotics that are regularly pumped into farm animals. Once in the animals, it developed the resistance and was passed back to humans.

The CDC has long said antibiotic use in livestock could be problematic, saying that "the food supply may be a source of antibiotic-resistant genes," but admitting that "quantifying the extent to which this contributes to a food safety problem is difficult."

Now, the researchers seem to have confirmed that without a doubt.

"We are watching this emerge in real time, and it's emerging really quickly," says Lance Price, lead author of the report that will be published in *mBio*. The strain is also showing the potential to pass from human to human, increasing the chance of an outbreak.

Price says it's unlikely this is the only strain that has developed an antibiotic resistance in animals. "I imagine this has happened multiple times in the past and it'll happen multiple times in the future," he says.

Doctors are beginning to prescribe fewer antibiotics for fear of creating superbugs, but their use in [food animals](#) isn't any less important to drug-resistance development, Price says.

"We have tons of messages out there to tell physicians to stop over prescribing, to tell parents not to ask for antibiotics every time their child has a stuffy nose," Price says. "Meanwhile, we're using 29 million pounds of antibiotics for food production. Those examples couldn't be more polar opposites."

In 2006, the European Union banned the use of antibiotics in livestock for non-therapeutic uses. In the United States, antibiotics are routinely used on livestock to promote their growth and to preemptively treat potential diseases acquired from cramped living conditions. Scientists estimate that approximately 80 percent of all antibiotics are used on livestock.

In Congress, Rep. Louise Slaughter has been pushing legislation that would regulate antibiotic use in animals to be used for food. "I cannot stress the urgency of this problem enough," she said in a statement last year. "When we go to the grocery store to pick up dinner, we should be able to buy our food without worrying that eating it will expose our family to potentially deadly bacteria that will no longer respond to our medical treatments."

Last week, she reiterated the importance of using restraint, asking more than 60 fast-food companies to voluntarily disclose whether they raise their animals with antibiotics or not.

"Very simply, consumers have a right to know what's in their food," she wrote. "It's like that old commercial, 'where's the beef?' We just want to know, 'what's in the beef?'" ([U.S. News, 2012](#)).

**Title:** Bird Flu Cases More Common Than Thought: Study

**Date:** February 23, 2012

**Source:** [AFP](#)

**Abstract:** Bird flu is believed to be a rare disease that kills more than half of the people it infects, but a US study out Thursday suggests it may be more common and less lethal than previously thought.

The research could help soothe concerns about the potential for a deadly pandemic that may kill many millions of people, sparked by the recent lab creation of a mutant bird flu that can pass between mammals.

Researchers at Mount Sinai School of Medicine in New York analyzed 20 previous international studies that tested the blood of nearly 13,000 participants worldwide, according to the study in the journal Science.

They found that between one and two percent of those tested showed evidence of a prior H5N1 avian flu infection, meaning millions of people may have been infected around the globe.

The World Health Organization's figures currently show just 573 cases in 15 countries since 2003, with 58.6 percent of those resulting in death.

The researchers said the WHO may be overlooking cases by focusing only on hospitalizations and severe illnesses, and recommended a new approach to calculating the true number of bird flu cases.

The findings could also mean that the death rate from bird flu is underestimated, largely because many of the people who get sick from it live in rural farming areas where medical care may be difficult to come by.

"We suggest that further investigation, on a large scale and by a standardized approach, is warranted to better estimate the total number of H5N1 infections that have occurred in humans," the authors wrote.

Researchers in the Netherlands and the United States have sparked international alarm with lab research that was successful in creating a mutant form of bird flu that was found to be transmissible among ferrets.

US health authorities have urged major science journals to publish only heavily edited forms of the studies in order to prevent the data from falling into terrorists' hands.

However, an international group of experts meeting at WHO headquarters in Geneva last week decided that the studies should eventually be published in full, but that a further risk assessment is needed before that can happen ([AFP, 2012](#)).



**Title:** More Than 80 Whooping Cough Cases In Alamance Co.

**Date:** February 23, 2012

**Source:** [My Fox 8](#)

**Abstract:** Twelve schools in the Alamance Burlington School System have confirmed or probable cases of whooping cough, or pertussis.

Alamance County health officials said they are looking at 82 cases in six elementary schools, six middle schools and two private child care centers.

The affected elementary schools are B. Everett Jordan, Audrey W. Garrett, Haw River, South Graham, Alexander Wilson and Eastlawn.

The affected middle schools are Western Alamance, Graham, Broadview, Turrentine, Hawfields and Woodlawn.

Health officials would not identify the two private child care centers.

The first confirmed case was reported Dec. 21 at B. Everett Jordan Elementary School. Health officials are still trying to figure out where the outbreak started.

The health department is now offering free Tdap vaccines, which normally cost \$35. The department is open from 8-11 a.m. and 1-4 p.m. Monday through Friday. They are allowing walk-ins.

Health department officials said they will probably offer the free vaccines for the next month.

A community-wide clinic will also take place at the Mebane Arts and Community Center on March 2 from 3-7 p.m.

Pertussis is a bacterial infection that often starts with typical cold symptoms before turning into prolonged bursts of coughing, which sounds like whooping, in one or two weeks. Some may simply have a cough that lasts for several weeks ([Bio Prep Watch, 2012](#)).

**Title:** Mystery Virus Kills Thousands Of Lambs

**Date:** February 25, 2012

**Source:** [Telegraph](#)

**Abstract:** The Schmallenberg virus causes lambs to be born dead or with serious deformities such as fused limbs and twisted necks, which mean they cannot survive.

Scientists are urgently trying to find out how the disease, which also affects cattle, spreads and how to fight it, as the number of farms affected increases by the day.

So far, 74 farms across southern and eastern England have been hit by the virus, which arrived in this country in January.

A thousand farms in Europe have reported cases since the first signs of the virus were seen in the German town of Schmallenberg last summer.

The National Farmers Union has called it a potential "catastrophe" and warned farmers to be vigilant. "This is a ticking time bomb," said Alastair Mackintosh, of the NFU. "We don't yet know the extent of the disease. We only find out the damage when sheep and cows give birth, and by then it's too late."



It is unclear exactly how the disease arrived in Britain, but the leading theory is that midges carried the virus across the Channel or North Sea in the autumn. However, scientists cannot yet rule out transmission of the disease from animal to animal.

Infected ewes do not show any symptoms of the virus until they give birth, with horrific results. Farmers have described delivering the deformed and stillborn animals as heartbreaking.

The lambing season has only just begun, which means that the full impact of the disease will not be felt until the weather warms up and millions more animals are born.

On the Continent, some farms have lost half of their lambs. So far the worst hit in Britain have lost 20 per cent, according to the Department for Environment, Food and Rural Affairs (Defra).

Approximately 16 million lambs are born in Britain every year and sell at market for about £100 each. The effect of the disease on farms that are already struggling in the downturn could be severe.

“For any business to lose 20 per cent of your stock would be a huge blow,” said Mr Mackintosh. “For a farmer to lose 20 per cent of your flock is catastrophic. If it was 50 per cent you would be put out of action.

“I was talking to one who has 10,000 sheep. If he loses even five per cent of the animals born this year, that’s a hell of a lot of lambs. I know another who says 10 per cent of his ewes have become barren. He has 6,000 ewes, so that is 600 animals producing nothing.”

The Food Standards Agency has sought to allay any fears about eating lamb, although little is known about the virus so far.

The Agency said: “Any risk to consumers through the food chain is likely to be low. No illness has been reported to date in humans exposed to animals infected with Schmallenberg virus.”

The worst affected counties are Norfolk, Suffolk, East Sussex and Kent, but the virus has spread all along the south coast to Cornwall.

Farmers fear the disease may spread to larger flocks in the north of England, Wales and Scotland. In Europe, Germany, Holland and France have suffered worst, while recent cases have been reported in Italy and Luxembourg.

John, a farmer from East Sussex who wanted to remain anonymous, said he had lost 40 out of 400 lambs so far, at a cost to his business of more than £4,000.

“I’ve had to put more lambs down in the past month than I have done in the past 20 years. Every one is a serious blow to our finances. But it’s an emotional thing too,” he said.

There are also fears that the virus may be seen later this year among cows, which have a longer gestation period.

Five of the British farms have seen cattle affected, with calves aborted at six months of pregnancy.

Cows are thought to be more robust than sheep and therefore more resistant, but Schmallenberg virus could still reduce milk yields and put pressure on a dairy industry that is already suffering, says Mr Mackintosh. “From what I hear, we are likely to see weak calves that take a lot of expense and nursing to get going again. Having to do that will hit a business hard.”

The last confirmed midge-borne virus to hit the British farming industry was bluetongue in 2007, but a series of trade restrictions and a vaccine averted disaster.

This time there is no vaccine, and Defra says a ban on imports would not work, because the disease “is already here”. A spokesman said: “Defra is taking this seriously. We track emerging diseases. There is work going on across Europe and the amount we know is improving rapidly. We are keeping everything under review.”

Its website says “farmers and vets should remain vigilant and report any suspicious cases to AHVLA [the Animal Health and Veterinary Laboratories Agency] for testing as part of our enhanced surveillance”. However, farmers are not yet legally required to notify authorities of an outbreak, leading some in the industry to fear it may already be much more widespread than figures suggest.

Nigel Miller, the president of the NFU in Scotland said: “The escalation and range of cases is deeply concerning and some experts are now suggesting that the volume of cases being seen is an indication that this is, in fact, the second year of infection.

“If that is the case then it raises the worrying prospect that the virus may have an effective overwintering mechanism.”

The AHVLA identifies Schmallenberg as one of a group of viruses “typically primarily spread by biting insect vectors, such as midges and mosquitoes, although the routes of Schmallenberg virus transmission have not yet been confirmed. The potential for direct transmission (ie direct from one animal to another) is therefore, as yet, unknown.”

It said: “There is unlikely to be a risk to human health from Schmallenberg virus; but this is not yet certain” ([Telegraph, 2012](#)).

**Title:** Cold And Flu May Be Responsible For Peak Mortality

**Date:** February 26, 2012

**Source:** [RTP](#)

Abstract: For the third consecutive week Portugal recorded a mortality peak between 13 and 19 February there were over three thousand deaths, the majority of cases in people over 65 years. The flu epidemic and low temperatures are likely causes, but the health minister revealed that the authorities are already investigating the cause of this mortality peak.

"They are data revealed by the Instituto Ricardo Jorge, who plays tight monitorização these cases mortality. There is an increase year on year and the institute is falling deeper into monitorização to know the causes, it is cold or other abnormal situations, "said Paulo Macedo.

According to him, "the important thing is that the situation was detected, is being monitored and will be subject to a review, in order to discover the reasons that led to an abnormal peak of mortality in recent weeks."

According to the Daily News, citing data provided by Instituto Nacional Ricardo Jorge, in the last three weeks of February the death toll was much higher than normal for this time of year.

More than three thousand people died in the week between 13 and 19 February, 90 percent of them aged 65 years or more. A scenario that was similar in previous weeks, and a peak of mortality that is not watched since the flu epidemic in 2008. In Portugal, the average number of deaths associated with influenza is around two thousand, but at the time there was almost double.

The health authorities are examining the situation in the country, but throughout Europe related mortality

exceed the flu this year, the average of 40 000 deaths from the flu.

Cases of pneumonia, hypothermia and cardiac complications have caused the rupture in many pre-hospital services, with runners served as shelter for many patients while health units have reorganized services for lack of beds for admission. Most had to open in other services and assistance to reorganize.

The World Health Organisation points out the social and economic inequality as a factor that exacerbates the situation, and points out the lack of heating their homes as a risk factor.

WHO data show that in Portugal 44 per cent of families with elderly people can not afford to keep homes heated properly ([RTP, 2012](#)).

**Title:** Frio E Gripe Podem Ser Responsáveis Por Pico De Mortalidade

**Date:** February 26, 2012

**Source:** RTP

**Abstract:** Pela terceira semana consecutiva Portugal registou um pico de mortalidade, entre 13 e 19 de fevereiro registaram-se mais de três mil mortes, a maioria dos casos em idosos com mais de 65 anos. A epidemia de gripe e as baixas temperaturas são causas prováveis, mas o ministro da Saúde revelou que as autoridades já estão a investigar a causa deste pico de mortalidade.

“São dados revelados pelo Instituto Ricardo Jorge, que faz a monitorização apertada destes casos de mortalidade. Há um aumento em termos homólogos e o instituto está a descer mais a fundo na monitorização para sabermos as causas, se é do frio anormal ou de outro tipo de situações”, afirmou Paulo Macedo.

Segundo o governante, “o importante é que a situação foi detetada, está a ser acompanhada e vai ser alvo de uma análise, para que se descubram os motivos que originaram um pico anormal de mortalidade nas últimas semanas”.

Segundo o Diário de Notícias, que cita dados disponibilizados pelo Instituto Nacional Ricardo Jorge, nas últimas três semanas de fevereiro o número de mortes ficou muito acima dos valores normais para esta época do ano.

Mais de três mil pessoas morreram na semana entre 13 e 19 de fevereiro, 90 por cento dos quais idosos com 65 anos ou mais. Um cenário que foi semelhante nas semanas anteriores, e um pico de mortalidade a que não se assistia desde a epidemia de gripe em 2008. Em Portugal a média de mortes associadas à gripe ronda as duas mil, no entanto na altura registou-se quase o dobro.

As autoridades de saúde estão a analisar a situação em todo o país, mas por toda a Europa a mortalidade ligada à gripe deve ultrapassar, este ano, a média dos 40 mil óbitos associados à gripe.

Os casos de pneumonias, hipotermias e complicações cardíacas já provocaram a pré ruptura em muitos serviços hospitalares, com os corredores a servirem de abrigo a muitos doentes enquanto as unidades de saúde reorganizaram os serviços por falta de camas para internamento. A maior parte teve de abrir vagas em outros serviços e reorganizar a assistência.

A Organização Mundial de Saúde aponta as desigualdades sociais e económicas como em fator que agudiza a situação, e aponta a falta de aquecimento das casas como um fator de risco.

Dados da OMS revelam que em Portugal 44 por cento das famílias com idosos não tem dinheiro para manter as habitações aquecidas adequadamente ([RTP, 2012](#)).

**Title:** CDC: Fatal Brain-Eating Amoebas In Nasal Washes

**Date:** March 1, 2012

**Source:** [24 Medica](#)

**Abstract:** The Centers for Disease Control and Prevention and National Jewish Health in Colorado both have issued a warning about nasal washes after two people have died from using tap water to do their sinus rinse.

Health experts say it's safe to use nasal washes. It's not about the rinse, it's about the water. They warn that a mixture from a faucet could be fatal.

Reading, writing — and sinus rinses. They're part of the curriculum for some students at Kunsberg School at National Jewish Health. Saltwater nasal washes can help asthma and allergy sufferers.

The saline rinses are highly recommended at National Jewish for children and adults.

"I do them at home if I have a bad cold," said Marie Fornof, Certified Infection Preventionist.

But Fornof says not to use tap water. It's because of a brain-eating amoeba called *Naegleria fowleri*. It's common in warm rivers and lakes, but if it travels up the nose to the brain it's usually deadly.

But somehow the US population is DrInKiNg this water?

"To give you perspective, over the past decade where the CDC has looked at it, the 32 cases they had 31 patients died," Fornof said.

The brain infections caused by the amoeba are rare, but the two most recent deaths in Louisiana were tied to the use of tap water in "neti pot"s to flush sinuses ([24 Medica, 2012](#)).

**Title:** Cuddling Dying Pets Gives Owners Scary Infections

**Date:** March 2, 2012

**Source:** [MSNBC](#)

**Abstract:** Comforting dying pets through their last days turned out to be dangerous for animal owners who wound up with life-threatening infections from the close contact, a new report finds.

A dog owner who licked honey from the dropper she used to feed her pooch, and two cat owners who cuddled and kissed their kitties for days were hospitalized with respiratory illnesses linked to common bacteria the pets harbor in their mouths.

The case studies, reported in the latest issue of the journal *Clinical Infectious Diseases*, highlight the rare hazards of animal intimacy in a country where nine in 10 owners regard pets as members of the family, says the study's lead author.

"I suspect this happens more often than we know," said Dr. Joseph Myers, chairman of the department of medicine at Summa Akron City Hospital in Akron, Ohio. "It'll put it on the radar so that doctors will ask about it."

Myers believes he's the first to report cases of *Pasteurella multocida* infections associated with palliative care by owners of dying pets. It's rare, of course, but it was striking to encounter three such incidents all within a year, he said.

Typically, *P. multocida* bacteria live in the mouths of 80 percent of cats and about 60 percent of dogs, Myers said. The bacteria lurk in the oral cavities of many wild and domesticated animals. They're usually passed along through bites, scratches or other unfriendly behavior, and are the most common cause of skin infections from such animal-related injuries.

It's not clear exactly how many infections occur each year, though health experts at the University of California at Los Angeles note that only about 5 percent of dog bites and 30 percent of cat bites become infected.

The infections can occur through normal affectionate interaction with animals, the routine licking or kissing that some pets and owners can't resist, Myers said. Babies, the elderly and people with compromised immune systems are most at risk because their immune systems can't fight infections as well.

In the cases of the three pet owners in the study, all women in their 50s or 60s, they were previously healthy, but Myers suspects that the sustained close contact simply increased their chances of infection.

The bacteria targeted their respiratory tracts, attacking one woman's epiglottis, another's uvula and the lungs of the third.

They showed up at hospital emergency rooms reporting fever, chills, sore and swollen throats and difficulty swallowing and breathing. Quick administration of antibiotics helped, and all three got better within days.

The tricky part was figuring out what caused the unusual bacterial infections. It took careful questioning on the part of doctors to determine that the transmission had come through such close pet care. The pet owners weren't available for interviews, but Myers' study offered details of how they likely became sick.

In the case of the dog, "the patient had co-consumed honey with the dog by licking the same dropper used to comfort-feed the dog," the report said.

Another patient "continuously held, caressed, hugged and kissed her cat during the last seven days of its life." The third "had provided palliative care to her dying cat by holding, hugging and kissing the head of the cat and allowing the cat to lick her hands and arms."

That doesn't surprise Anthony J. Smith, a veterinarian who runs Rainbow Bridge Vet Services, a pet hospice and palliative services business in Hercules, Calif.

In a country where two-thirds of households have pets and nine in 10 owners say they regard them as family members, according to a 2011 Harris poll, it makes sense to care for the animals at the end of life.

More pet owners -- Smith calls them "pet parents" -- are seeking to make their pets' deaths more comfortable and meaningful, even when they can't prevent them.

"There's a general increase in the closeness between people and their pets," said Smith, who treated 1,000 pet clients in the past two years. "They're wanting the same kind of services that they want for their human family members."

Smith, who helped co-found the [International Association of Animal Hospice and Palliative Care](#), understands the urge to closely care for pets and he doesn't want people to avoid physical contact with their animals. Still, he advises common sense.

"When you start licking your cat or dog or you start sharing utensils with your dog, you put yourself at risk for those things," he said. "Those probably weren't the best ideas from a human health perspective."

Myers, the doctor who wrote the study, agreed. "I would not recommend that."

But even Myers admitted the cases haven't altered how he cares for his three dogs.

Would it have changed the behavior of the women who got sick?

"I don't think so," Myers said. "These pets are so ingrained into the family" ([MSNBC, 2012](#)).

**Title:** Thirteen People Contract Anthrax In Peru

**Date:** March 12, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Thirteen people in Peru have contracted anthrax after people in the area handled a diseased animal.

The infection occurred in the Otuzco province of the La Libertad region of Peru. The confirmation of cutaneous anthrax infection, which occurs when anthrax comes into contact with the skin, happened on Tuesday at a clinic in the town of Sinsicap, the [Examiner](#) reports.

There is currently no known anthrax vaccination program for cattle or other animals in the town.

Anthrax can be found worldwide and is particularly problematic in countries without effective programs for public health. The areas that are high risk for anthrax are the Middle East, the Caribbean, Africa, Asia, Eastern and Southern Europe, and Central and South America.

Anthrax is caused by the *Bacillus anthracis* spore-forming bacterium, which affects wild animals and livestock such as cattle, deer, camels, horses, goats and sheep. Humans are infected primarily through incidental or occupational exposure with infected animals or their skins.

Anthrax infection can also occur when people consume undercooked meat of infected animals and when spores of the bacterium are intentionally released in an act of bioterrorism.

According to the Centers for Disease Control and Prevention, there are one to two cases of cutaneous anthrax annually in the United States ([Bio Prep Watch, 2012](#)).

**Title:** Greece On The Breadline: HIV And Malaria Make A Comeback

**Date:** March 15, 2012

**Source:** [Guardian](#)

**Abstract:** The incidence of HIV/Aids among intravenous drug users in central Athens soared by 1,250% in the first 10 months of 2011 compared with the same period the previous year, according to the head of Médecins sans Frontières [Greece](#), while [malaria](#) is becoming endemic in the south for the first time since the rule of the colonels.

Reveka Papadopoulos said that following savage cuts to the national health service budget, including heavy job losses and a 40% reduction in funding for hospitals, Greek social services were "[under very severe strain, if not in a state of breakdown](#)". What we are seeing are very clear indicators of a system that cannot cope."

The heavy, horizontal and "blind" budget cuts coincided last year with a 24% increase in demand for hospital services, she said, "largely because people could simply no longer afford private healthcare. The entire system is deteriorating."

The extraordinary increase in HIV/Aids among drug users, due largely to the suspension or cancellation of free needle exchange programmes, has been accompanied by a 52% increase in the general population.

"We are also seeing transmission between mother and child for the first time in Greece," she said. "This is something we are used to seeing in sub-Saharan Africa, not [Europe](#). There has also been a sharp increase in cases of tuberculosis in the immigrant population, cases of Nile fever – leading to 35 deaths in 2010 – and the reappearance of endemic malaria in several parts of Greece, notably the south."

According to Papadopoulos, such sharp increases in communicable diseases are indicative of a system nearing breakdown. "The simple fact of the reappearance of malaria, with 100-odd cases in southern Greece last year and 20 to 30 more elsewhere, shows barriers to healthcare access have risen," she said. "Malaria is treatable, it shouldn't spread if the system is working."

MSF has been active in Greece for more than 20 years, but until now has largely confined its activities to emergency interventions after natural disasters such as earthquakes, and providing care to the most vulnerable groups in the community, including immigrants.

It is now focusing on supporting the public health sector, providing emergency care in shelters for the homeless and improving the overall response to communicable diseases. Papadopoulos, who spent 17 years abroad with MSF and returned to her native Greece three years ago, sees hope among the rubble. "What keeps me going is an increasingly strong sense of solidarity among the Greek people," she said. "Donations to MSF, for example, have of course gone down with the crisis, but donors keep giving, they remain active."

She sees a refreshing new phenomenon of self-organisation and social action. "In the past year of this crisis I have seen really encouraging, really exciting things happening – people are seeing the power of organising themselves. We have to support them" ([Guardian, 2012](#)).

**Title:** CDC: US Illness Outbreaks From Imported Food Have Risen

**Date:** March 15, 2012

**Source:** [Fox News](#)

**Abstract:** Outbreaks of illness linked to imported food have risen since the late 1990s, casting a spotlight on federal inspection standards for fish, produce and other foods brought in from abroad.

The 39 outbreaks from imported food reported between 2005 and 2010 represent a small fraction of total cases of food-borne illnesses such as [salmonella](#) or E. coli, according to the data from the Centers for [Disease Control](#) and Prevention (CDC) presented Wednesday.

But the rise in imported-food outbreaks -- mostly from fish and spices -- highlights gaps in the food safety system that a sweeping new law is intended to address.

CDC researchers found 6.5 outbreaks from foreign foods a year, on average, between 2005 and 2010 -- more than double the average of 2.7 outbreaks annually between 1998 and 2004.

Of the 39 outbreaks between 2005 and 2010, nearly half -- 17 -- occurred in 2009 and 2010.

The foods, including fish, oysters, cheese, sprouts and seven other types of products, were shipped from 15 countries. Nearly 45 percent of those foods originated from Asia. Most people were sickened with salmonella or histamine fish poisoning, a bacterial disease contracted from eating spoiled dark-flesh fish that causes rashes, [diarrhea](#), sweating, headaches and vomiting. The outbreaks led to 2,348 cases of illness, the CDC said.

Among the largest of those outbreaks was one in 2008 linked to jalapeno and serrano peppers from [Mexico](#) contaminated with salmonella. More than 1,400 people were sickened and more than 280 were hospitalized with salmonella in 43 states.

Other major outbreaks reviewed in the study were a 2007 recall of Veggie Booty, a puffed rice snack that was found to contain contaminated raw materials from [China](#) that led to 52 cases of salmonella in 17 states, and a 2010 outbreak of typhoid fever tied to frozen fruit pulp that originated in [Guatemala](#).

The number of outbreaks reported is likely underestimated because of inconsistent country-of-origin labeling, Hannah Gould, a [CDC epidemiologist](#) and lead author of the study, said in a phone interview. "We don't always know where food comes from," Gould said.

The full study will be published later this year ([Fox News, 2012](#)).

**Title:** Foot-And-Mouth Disease Spreads In Egypt; Thousands Of Cattle Dead

**Date:** March 16, 2012

**Source:** [Washington Post](#)

**Abstract:** Egypt's veterinary authorities say foot-and-mouth disease has left more than 2,000 young cattle dead.

Egypt's local press on Friday quoted veterinary official Essam Abdel-Shakour as saying that 24,500 livestock have been infected with the disease over the past two weeks. Most of the infections have come in the Nile Delta provinces in northern Egypt.

Agriculture Minister Mohammed Ismail told parliament this week that the ministry has ordered the isolation of infected animals, the closure of cattle markets across the country and is working on providing a new vaccine for the highly contagious disease.

Egyptian farmers have accused the government of incompetence, and have thrown dead cows in front of the governors' offices during protests.

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**Title:** Three Farm Workers Die Of Anthrax In Namibia

**Date:** March 28, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Three farm workers from Farm Kroonster 448 in Namibia's Omaheke Region died from an anthrax-related illness in the Gobabis State Hospital last week.

It is believed that five workers from the farm contracted anthrax after eating meat of a cow that passed away on the farm. Two of the five workers are still being treated at the hospital for an anthrax-related disease, Nampa reports.

The two farm workers are still in critical condition and all movements from the ward have been restricted.



“You can confirm this with the hospital matron,” a registered nurse from the hospital speaking on the condition of anonymity, said, according to Nampa. “Even the remains of the deceased three farm workers are still being kept here in our mortuary for further laboratory investigations.”

George Ruhumba, the region’s chief animal health technician, said that the business at Farm Kroonster is under restriction for 21 days after a request from the Ministry of Health and Social Services to enact a ban. He said there is a suspected anthrax case at the commercial farm, which is located 100 kilometers east of Gobabis. While veterinary services has tested all 19 livestock at the farm and all tests came back negative, the restriction orders are still active.

The workers were said to have complained of stomach pains after eating the meat of a cow that had died in early March ([Bio Prep Watch, 2012](#)).

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**Title:** Anthrax Toll Rises To Five In Namibia

**Date:** March 29, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Five people have now died in the Omaheke region of Namibia from an illness that is believed to be either anthrax or Congo fever.

Initial test results proved to be inconclusive and new samples have since been sent to South Africa for more extensive analysis, according to [Namibian.com.na](#).

Dr. Jack Vries, the chairperson of the Namibian National Health Emergency Management Committee, said that he expects the results of the second round of testing within a week.

“We don’t know whether it is anthrax or not,” Vries said, [Namibian.com.na](#) reports.

Vries said that the victims had intestinal symptoms that included diarrhea and vomiting, which is atypical of anthrax.

Two of the victims worked together at a dairy farm and died after eating beef from the same cow. The owner of the farm, Japie Engelbrecht, said that his farm is doing poorly in the wake of reports about the outbreak. The dairy is currently under quarantine and Engelbrecht is denying reports that he might not have vaccinated his animals against anthrax.

Dr. John Shoopala, the acting chief veterinary officer in the Ministry of Agriculture, Water and Forestry, said that an investigation showed Engelbrecht had not properly vaccinated his livestock.

"They are lying," Engelbrecht said, [Namibia.com.na](http://Namibia.com.na) reports ([Bio Prep Watch, 2012](#)).

**Title:** Tuna Linked To Salmonella Outbreak In 20 States

**Date:** April 13, 2012

**Source:** [NPR](#)

**Abstract:** A yellowfin tuna product used to make dishes like sushi and sashimi sold at restaurants and grocery stores has been linked with an outbreak of salmonella that has sickened more than 100 people in 20 states and the District of Columbia, federal health authorities said Friday.

The Food and Drug Administration said 116 illnesses have been reported, including 12 people who have been hospitalized. No deaths have been reported.

Moon Marine USA Corp. of Cupertino, Calif., also known as MMI, is voluntarily recalling 58,828 pounds of frozen raw yellowfin tuna. It was labeled as Nakauchi Scrape AA or AAA when it was sold to grocery stores and restaurants and is scraped off the fish bones and looks like a ground product.

The product is not available for sale to individual consumers but may have been used to make sushi, sashimi, ceviche and similar dishes available in restaurants and grocery stores. Many of the people who became ill reported eating raw tuna in sushi as "spicy tuna," the FDA said.

Reports of the foodborne illness caused by *Salmonella bareilly* have mainly come from the Eastern Seaboard and South, though cases have been reported as far west as Missouri and Texas.

As of Friday, illness had been reported these states and the District of Columbia: Alabama (2), Arkansas (1), Connecticut (5), District of Columbia (2), Florida (1), As Georgia (5), Illinois (10), Louisiana (2), Maryland (11), Massachusetts (8), Mississippi (1), Missouri (2), New Jersey (7), New York (24), North Carolina (2), Pennsylvania (5), Rhode Island (5), South Carolina (3), Texas (3), Virginia (5), and Wisconsin (12).

The memo notes there is likely a 30-day lag time between when people become sick and when cases are reported to health officials.

The raw yellowfin tuna product may have passed through several distributors before reaching the restaurant and grocery market and may not be clearly labeled.

Previous outbreaks of salmonella bareilly have been linked to bean sprouts, which are grown in warm, damp conditions.

The most common symptoms of salmonella are diarrhea, abdominal cramps and fever within eight to 72 hours of eating the contaminated food. The illness can be severe or even life-threatening for infants, older people, pregnant women and people with weakened immune systems.

The FDA recommended that people be cautious about eating raw seafood, inquire about the source and "when in doubt, don't eat it" ([NPR, 2012](#)).

**Title:** Measles Cases Reached 15-year High In 2011: CDC

**Date:** April 20, 2012

**Source:** [Reuters](#)

**Abstract:** Measles cases in the United States hit a 15-year high in 2011, with 90 percent of the cases traced to other countries with lower immunization rates, the Centers for Disease Control and Prevention reported.

There were 222 cases of measles in the United States last year, more than triple the usual number, the CDC said. There had been only about 60 cases per year between 2001 and 2010.

No one has died of the disease in the United States since 2008. But approximately 20 million people contract the measles virus each year worldwide, and about 164,000 die from it, said Dr. Anne Schuchat, director of the health agency's National Center for Immunization and Respiratory Diseases.

The agency said in 2000 that home-grown measles had been eliminated, but cases continued to arrive in the United States from abroad.

There have been more than 25 measles cases reported so far in 2012, most of them imported, the CDC said. The virus can easily enter the country through foreign visitors or Americans traveling abroad who bring the disease back with them.

Measles is highly contagious and is transmitted when an infected person breathes, coughs or sneezes, Schuchat said. The disease can be spread even before an infected person has developed the rash from the virus.

"You can catch measles just by being in a room where a person with measles has been even after that person has left the room," Schuchat said on Thursday.

Measles cases were found in 31 states in 2011. Last year's count marked the highest number of cases since 1996, when there were 508 cases in the United States.

All but 22 of the 222 cases last year involved patients who had been infected overseas or caught the virus from someone who had been abroad, the CDC said. The source of the other 22 cases could not be determined.

Many of the cases were traced to Europe, where in some countries immunization rates are lower than in the United States. Europe suffered an outbreak of the disease in 2011, reporting more than 37,000 measles cases.

[France](#), Italy and Spain, popular destinations for U.S. tourists, were among the hardest hit, said Schuchat.

"It's very important for travelers heading off to Europe to make sure they are up to date on their immunizations and that their children are too," she said.

Those who have already had measles or have been inoculated are not considered at risk of contracting the virus, the CDC said. The CDC recommends children receive two doses of measles, mumps and rubella vaccine starting at 12-15 months of age.

More than 90 percent of U.S. children have been vaccinated against measles, the CDC said.

"We don't have to have this much measles," Schuchat said. "Measles is preventable. Unvaccinated people put themselves and other people at risk for measles and its complications" ([Reuters, 2012](#)).

**Title:** Anthrax Outbreak Kills Two In Ghana

**Date:** April 24, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** An anthrax outbreak in the Upper East region of Ghana has led to two deaths after the victims consumed a dead animal that may have been infected with the deadly disease.

The incident occurred in the community of Googo. Thomas Anyarikeya, the regional veterinary officer, said that anthrax particularly affects ruminants and can be transmitted to humans from them. Ruminants are a type of mammal and include goats, sheep and cattle, [GBC Ghana](#) reports.

Anthrax is a lethal disease caused by the *Bacillus anthracis* bacterium. The bacterium forms dormant spores that can come to life when surrounded by the proper conditions. The three types of anthrax are cutaneous, inhalation and gastrointestinal, the Centers for Disease Control and Prevention reports.

Humans can be infected by anthrax from handling products made from infected animals, by breathing in anthrax spores from animal products and by eating undercooked meat that comes from infected animals.

In 2001, anthrax was deliberately used as a weapon when it was spread through the United States postal service shortly after the September 11, 2001, terror attacks. The letters were laced with anthrax-containing powder and infected 22 people. Five people died as a result of the attacks, which targeted government and media offices ([Bio Prep Watch, 2012](#)).

**Title:** Illinois Swine Match 2011 Human H3N2v

**Date:** April 26, 2012

**Source:** [Recombinomics](#)

**Abstract:** The USDA has released another series of swine sequences from collections in late 2011 / early 2012. Included were five isolates (A/[swine/Illinois/A00857138a](#)/2011, A/[swine/Illinois/A00857138b](#)/2011, A/[swine/Illinois/A00857300](#)/2011, A/[swine/Illinois/A00857304a](#)/2012, A/[swine/Illinois/A00857304b](#)/2012) which were collected on October 20, 2011, November 28, 2011, and January 5, 2012, respectively, from lung tissues.

Like the two earlier matches from New York and Iowa (A/[swine/NY/A01104005](#)/2011 and A/[swine/Iowa/A01202640](#)/2011), the collections were after the spread of H3N2v in humans in 2011 and all matches are with the first 10 human isolates in 2011. Thus, there still have been no swine matches with the three most recent H3N2v human isolates (A/[West Virginia/06](#)/2011, A/[West Virginia/07](#)/2011, A/[Utah/10/2012](#)) which have an N2 from swine H3N2v.

The recent swine matches indicate this constellation is spreading in swine in Illinois, and increase concerns that these sequences have adapted to humans, and like H1N1pdm09, have jumped back to swine and are becoming increasingly common ([Recombinomics, 2012](#)).

**Title:** Mad Cow Disease Found In California Dairy Cow

**Date:** April 24, 2012

**Source:** [LA Times](#)

**Abstract:** Federal officials say a case of mad cow disease has been found in a dairy cow in the Central Valley.

The animal was found at a rendering facility, John Clifford, the USDA's chief veterinarian, told reporters Tuesday in a briefing in Washington. Its meat did not enter the food chain and the carcass will be destroyed, Clifford said.

This is the fourth confirmed case of the brain-wasting disease in the U.S. cattle herd since the first case was discovered in December 2003 in an animal that came from Canada.

**[Updated at 1 p.m.:** The carcass “was never presented for slaughter for human consumption, so at no time presented a risk to the food supply or human health,” Clifford [said in a](#) statement.]

[Mad cow disease](#), which humans can get by eating beef from infected cattle, has killed 171 people and been responsible for the deaths of more than 4 million cattle, slaughtered in attempts to eradicate the disease.

Officially known as variant Creutzfeldt-Jakob disease, the infection is caused by prion proteins that cause the brain to start breaking down ([LA Times, 2012](#)).

**Title:** Mad Cow Reemergence May Hamper California's Beef, Dairy Industries

**Date:** April 24, 2012

**Source:** [LA Times](#)

**Abstract:** The reemergence of mad cow disease, discovered in a California dairy cow, could have major implications for the state's meat industry, even though officials have said that the human food supply is unaffected.

Bovine spongiform encephalopathy hasn't been found in U.S. since 2006 and was discovered in only three instances before then. But [the disease](#) has dealt a crippling blow to the industry in the past, especially when foreign countries refused to import American beef when mad cow was first uncovered in 2003.

The U.S. Department of Agriculture tests about 40,000 cows a year in its effort to catch the disease.

In California, private and public ranching takes up about 38 million acres, according to the California Cattlemen's Assn. There are about 620,000 beef cows on 11,800 California ranches. The state also hosts 1.84 million dairy cows, according to information compiled by the California Beef Council.

The sale of cattle and calves was a \$1.82-billion industry in California 2008 and fifth among the state's top 20 commodities. Beef cattle are raised in nearly every California county.

Nationally, California ranks behind Texas, Kansas and Nebraska in total cattle numbers.

Karen Ross, secretary of the California Department of Food and Agriculture, quickly issued a statement stressing that mad cow “is not transmitted through milk.” She also pointed out that “milk and beef remain safe to consume.”

But food-related scares, such as the recent uproar over [pink slime](#) and various fruit and vegetable recalls, can be a publicity nightmare.

Americans are exceedingly sensitive about what they eat, and the perception of risk often exceeds the real danger, [experts have suggested](#) ([LA Times, 2012](#)).

**Title:** US Soldier Dies O Rabies After Dog Bite In Afghanistan

**Date:** May 3, 2012

**Source:** [Fox News](#)

**Abstract:** A 24-year-old American soldier died of rabies after being bitten by a dog last year in Afghanistan, US health officials said Thursday following an investigation into the rare case.

The otherwise healthy soldier started experiencing symptoms of shoulder and neck pain and tingling sensations in his hands soon after arriving at Fort Drum, N.Y., in mid-August 2011.

His condition escalated to include nausea, vomiting, anxiety and trouble swallowing. By the time he was admitted to an emergency room, he was dehydrated and hydrophobic, meaning he developed an intense fear of drinking liquids because of the painful muscle spasms he experienced while swallowing.

"He was lucid and described having received a dog bite on the right hand during January 2011 while deployed to Afghanistan," said the report by the US Centers for Disease Control and Prevention (CDC).

The soldier tested positive for a strain of rabies associated with dogs in Afghanistan and doctors attempted an experimental treatment to save him from certain death.

But within days, the patient was suffering from severe brain hemorrhaging and his family decided to take him off life support. He was the first US service member to die of rabies since 1974.

At the time of the bite, the soldier told family members and close friends that he had been bitten by a feral dog in Afghanistan and had sought medical treatment, "which he described as wound cleansing and injections," the report said.

But an investigation by the US Army turned up no documentation of a reported bite wound or treatment, nor any record of a dog tested for rabies, according to the report.

The soldier's case prompted a scare that he may have spread the disease other people and a CDC investigation tracked down about 190 individuals he interacted with while potentially infectious.

At least 22 of them received treatment as a preventive measure.

Rabies can spread through saliva, tears, spinal fluid or brain tissue that enters the body through a bite a broken skin. With the exception of transplantation, the CDC said "human-to-human rabies transmission has not been laboratory-documented" ([Fox News, 2012](#)).

**Title:** Salmonella In Dog Food Sickens 14 People In US

**Date:** May 4, 2012

**Source:** [CBS News](#)

**Abstract:** Fourteen people in at least nine states have been sickened by salmonella after handling tainted dog food from a South Carolina plant that a few years ago produced food contaminated by toxic mold that killed dozens of dogs, federal officials said Friday.

At least five people were hospitalized because of the dog food, which was made by Diamond Pet Foods at its plant in Gaston, S.C., the federal Centers for Disease Control and Prevention said. No pets were sickened, according to the Meta, Mo.-based company.

"People who became ill, the thing that was common among them was that they had fed their pets Diamond Pet Foods," said CDC spokeswoman Lola Russell.

Three people each were infected in Missouri and North Carolina; two people in Ohio; and one person each in Alabama, Connecticut, Michigan, New Jersey, Pennsylvania and Virginia, the CDC said.

"Our folks are really wanting people to be aware of it. They want to be aware that this is causing people to get sick because they may have the product in their homes. For every one that is reported, there may be 29 others," Russell said.

People can get salmonella by handling infected dog food, then not washing their hands before eating or handling their own food, health officials said.

The South Carolina plant temporarily was shut down April 8. Diamond Pet Foods has issued four rounds of recalls for food made at the plant, located outside of Columbia, S.C., between Dec. 9 and April 7. The latest recalls were announced Friday.

"We took corrective actions at the plant, and today the plant is up and running. Our mission is to produce safe pet foods for our customers and their pets in all Diamond facilities," the company said in a written statement Friday.

In 2005, a toxic mold called aflatoxin ended up in food made at the same Diamond Pet Foods plant in South Carolina and dozens of dogs died. The company offered a \$3.1 million settlement. The Food and Drug Administration determined the deadly fungus likely got into the plant when it failed to test 12 shipments of corn.

FDA officials were not immediately available for comment Friday on the most recent problems with the plant.

Agriculture officials in Michigan found the strain of salmonella during routine testing of dog food on April 2 and health investigators noticed there was a possible link to the food made by Diamond Pet Foods. An ill person still had some of the food, and authorities were able to link the cases to the food, the CDC said.

The recall covers a number of pet food brands made at the Gaston plant, including Canidae, Natural Balance, Apex, Kirkland, Chicken Soup for the Pet Lover's Soul, Country Value, Diamond, Diamond Naturals, Premium Edge, Professional, 4Health and Taste of the Wild ([CBS News, 2012](#)).

**Title:** Squirrel Tests Positive For Plague At California Campsite

**Date:** May 4, 2012

**Source:** [Fox News](#)

**Abstract:** A ground squirrel trapped at a popular campground in southern California has tested positive for plague. According to health officials, the rodent was tested during routine monitoring at the Cedar Grove Campground on Palomar Mountain, 75 miles (120km) northeast of San Diego.

The bacterial disease is sometimes carried by rodents, which can be transmitted to humans through infected flea bites, according to the Department of Environmental Health (DEH). DEH officials downplayed any serious threat to campers, however, saying there had never been any known human cases of plague contracted anywhere near the site.

"It is not unusual to find plague in our local mountains in the summer months, so campers should always avoid contact with squirrels and their fleas," DEH Director Jack Miller told KGTV Friday. "Set up tents away from squirrel burrows, do not feed the squirrels and warn your children not to play with squirrels" ([Fox News, 2012](#)).



# Bio & Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIO****TERROR****BIBLE.COM**: Based on the ancient and recent history of worldwide pandemics, there will likely be another one in the very near future.

**Title:** Pandemic

**Date:** 2012

**Source:** Wikipedia

**Abstract:** A pandemic (from [Greek](#) πᾶν *pan* "all" + δῆμος *demos* "people") is an [epidemic](#) of [infectious disease](#) that is spreading through human populations across a large region; for instance multiple [continents](#), or even worldwide. A widespread endemic disease that is stable in terms of how many people are getting sick from it is not a pandemic. Further, [flu pandemics](#) generally exclude recurrences of [seasonal flu](#). Throughout history there have been a number of pandemics, such as [smallpox](#) and [tuberculosis](#). More recent pandemics include the [HIV](#) pandemic and the [H1n1 pandemic](#).

### Definition and Stages

The [World Health Organization](#) (WHO) produce a six-stage classification that describes the process by which a novel influenza virus moves from the first few infections in humans through to a pandemic. This starts with the virus mostly infecting animals, with a few cases where animals infect people, then moves through the stage where the virus begins to spread directly between people, and ends with a pandemic when infections from the new virus have spread worldwide.

A disease or condition is not a pandemic merely because it is widespread or kills many people; it must also be infectious. For instance, [cancer](#) is responsible for many deaths but is not considered a pandemic because the disease is not infectious or contagious.

In a virtual press conference in May 2009 on the influenza pandemic Dr Keiji Fukuda, Assistant Director-General ad Interim for Health Security and Environment, WHO said "An easy way to think about pandemic ... is to say: a pandemic is a global outbreak. Then you might ask yourself: "What is a global outbreak"? Global outbreak means that we see both spread of the agent ... and then we see disease activities in addition to the spread of the virus."

In planning for a possible influenza pandemic the WHO published a document on pandemic preparedness guidance in 1999, revised in 2005 and in February 2009, defining phases and appropriate actions for each phase in an aide memoir entitled WHO pandemic phase descriptions and main actions by phase. The 2009 revision, including definitions of a pandemic and the phases leading to its declaration, were finalized in February 2009. The pandemic H1N1 2009 virus, was neither on the horizon at that time nor mentioned in the document. All versions of this document refer to influenza. The phases are defined by the spread of the disease; [virulence](#) and [mortality](#) are not mentioned in the current WHO definition, although these factors have previously been included ([Wikipedia, 2012](#)).



**Title:** Summary Of WHO Global Pandemic Phases (WHO Global Influenza Preparedness Plan, 2005)

**Date:** 2005

**Source:** [WHO](#)(World Health Organization)

**Abstract:**

**Interpandemic Period**

**Phase 1.** No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk of human infection or disease is considered to be low

**Phase 2.** No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease

**Pandemic Alert Period**

**Phase 3.** Human infection(s) with a new subtype but no human-to-human spread or at most rare instances of spread to a close contact

**Phase 4.** Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to humans

**Phase 5.** Larger cluster(s) but human-to-human spread is still localized, suggesting that the virus is becoming increasingly better adapted to humans but may not yet be fully transmissible (substantial pandemic risk)  
Pandemic Period

**Phase 6.** Pandemic phase: increased and sustained transmission in the general population

**Postpandemic Period**

Return to the Interpandemic Period (Phase 1) ([WHO, 2005](#)).

**Title:** Current WHO Phase Of Pandemic Alert For Pandemic (H1N1) 2009

**Date:** 2009

**Source:** [WHO](#)(World Health Organization)

**Abstract:** In nature, influenza viruses circulate continuously among animals, especially birds. Even though such viruses might theoretically develop into pandemic viruses, in **Phase 1** no viruses circulating among animals have been reported to cause infections in humans.

In **Phase 2** an animal influenza virus circulating among domesticated or wild animals is known to have caused infection in humans, and is therefore considered a potential pandemic threat.

In **Phase 3**, an animal or human-animal influenza reassortant virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks. Limited human-to-human transmission may occur under some circumstances, for example, when there is close contact between an infected person and an unprotected caregiver. However, limited transmission under such restricted circumstances does not indicate that the virus has gained the level of transmissibility among humans necessary to cause a pandemic.

**Phase 4** is characterized by verified human-to-human transmission of an animal or human-animal influenza reassortant virus able to cause "community-level outbreaks." The ability to cause sustained disease outbreaks in a community marks a significant upwards shift in the risk for a pandemic. Any country that suspects or has verified such an event should urgently consult with WHO so that the situation

can be jointly assessed and a decision made by the affected country if implementation of a rapid pandemic containment operation is warranted. Phase 4 indicates a significant increase in risk of a pandemic but does not necessarily mean that a pandemic is a forgone conclusion.

**Phase 5** is characterized by human-to-human spread of the virus into at least two countries in one WHO region. While most countries will not be affected at this stage, the declaration of Phase 5 is a strong signal that a pandemic is imminent and that the time to finalize the organization, communication, and implementation of the planned mitigation measures is short.

**Phase 6**, the pandemic phase, is characterized by community level outbreaks in at least one other country in a different WHO region in addition to the criteria defined in **Phase 5**. Designation of this phase will indicate that a global pandemic is under way.

During the **post-peak period**, pandemic disease levels in most countries with adequate surveillance will have dropped below peak observed levels. The post-peak period signifies that pandemic activity appears to be decreasing; however, it is uncertain if additional waves will occur and countries will need to be prepared for a second wave.

Previous pandemics have been characterized by waves of activity spread over months. Once the level of disease activity drops, a critical communications task will be to balance this information with the possibility of another wave. Pandemic waves can be separated by months and an immediate “at-ease” signal may be premature.

In the **post-pandemic period**, influenza disease activity will have returned to levels normally seen for seasonal influenza. It is expected that the pandemic virus will behave as a seasonal influenza A virus. At this stage, it is important to maintain surveillance and update pandemic preparedness and response plans accordingly. An intensive phase of recovery and evaluation may be required ([WHO, 2009](#)).

## **World Timeline & History of Pandemics:**

### **1. Plague of Athens (430-426 BC)**

**Title:** Plague of Athens

**Date:** 430-426 BC

**Agent:** Unknown

**Location:** Athens (Greece)

**Deaths:** Unknown

**Source:** [Wikipedia](#)

**Abstract:** The Plague of Athens was a devastating [epidemic](#) which hit the [city-state](#) of [Athens](#) in ancient [Greece](#) during the second year of the [Peloponnesian War](#) (430 BC), when an Athenian victory still seemed within reach. It is believed to have entered Athens through [Piraeus](#), the city's port and sole source of food and supplies. The city-state of [Sparta](#), and much of the eastern Mediterranean, was also struck by the disease. The plague returned twice more, in 429 BC and in the winter of 427/6 BC ([Wikipedia, 2012](#)).

### **2. Antonine Plague (165–180 AD)**

**Title:** Antonine Plague

**Date:** 165-180 AD

**Agent:** Unknown

**Location:** Rome (Italy)

**Deaths:** 5 Million

**Source:** [Wikipedia](#)

**Abstract:** The Antonine Plague, AD 165–180, also known as the Plague of [Galen](#), who described it, was an ancient [pandemic](#), either of [smallpox](#) or [measles](#), brought back to the [Roman Empire](#) by troops returning from campaigns in the [Near East](#). The epidemic may have claimed the life of [Roman emperor Lucius Verus](#), who died in 169 and was the co-regent of [Marcus Aurelius Antoninus](#), whose family name,

Antoninus, was given to the epidemic. The disease broke out again nine years later, according to the Roman historian [Dio Cassius](#), and caused up to 2,000 deaths a day in Rome, one quarter of those infected. Total deaths have been estimated at five million. The disease killed as much as one-third of the population in some areas and decimated the Roman army ([Wikipedia, 2012](#)).

### 3. Plague of Justinian (541-750 AD)

**Title:** Plague of Justinian

**Date:** 541-750 AD

**Agent:** Yersinia Pestis

**Location:** Constantinople (Turkey)

**Deaths:** 25 Million

**Source:** [Wikipedia](#)

**Abstract:** The Plague of Justinian was a [pandemic](#) that afflicted the [Eastern Roman Empire \(Byzantine Empire\)](#), including its capital [Constantinople](#), in 541–542 [AD](#). It was one of the greatest plagues in history. The most commonly accepted cause of the pandemic is [bubonic plague](#), which later became infamous for either causing or contributing to the [Black Death](#) of the 14th century. However, recent genetic studies of the bubonic plague germ, carried out from samples taken from skeletal remains in London by researchers from the University of Tübingen, suggest that the Justinian Plague (and others from antiquity) arose from either now-extinct strains of [Yersinia pestis](#) genetically distinct from the strain that broke out in the 14th century pandemic, or from pathogens entirely unrelated to bubonic plague. The plagues' social and cultural impact during this period is comparable to that of the Black Death. In the views of 6th century Western historians, it was nearly worldwide in scope, striking central and south Asia, North Africa and Arabia,[\[citation needed\]](#) and Europe as far north as Denmark and as far west as Ireland. Genetic studies point to [China](#) being the primary source of the contagion ([Wikipedia, 2012](#)).

### 4. Black Death (1348-1350)

**Title:** Black Death

**Date:** 1348-1350

**Agent:** Yersinia Pestis

**Location:** Europe

**Deaths:** 75-100 Million

**Source:** [Wikipedia](#)

**Abstract:** The Black Death was one of the most devastating [pandemics](#) in [human history](#), peaking in [Europe](#) between 1348 and 1350. While there were several competing theories as to the [etiology](#) of the Black Death it has been conclusively proven via analysis of ancient DNA from plague victims in northern and southern Europe that the pathogen responsible is the [Yersinia pestis](#) bacteria. The Black Death is estimated to have killed 30–60 percent of Europe's population, reducing [world population](#) from an estimated 450 million to between 350 and 375 million in the 14th century. The aftermath of the plague created a series of religious, social and economic upheavals, which had profound effects on the course of [European history](#). It took 150 years for Europe's population to recover. The plague returned at various times, killing more people, until it left Europe in the 19th century ([Wikipedia, 2012](#)).

### 5. English Sweat (1485-1551)

**Title:** Sweating Sickness

**Date:** 1485-1551

**Agent:** Unknown

**Location:** Europe

**Deaths:** Unknown (Likely Millions)

**Source:** [Wikipedia](#)

**Abstract:** Sweating sickness, also known as "English sweating sickness" or "English sweate" ([Latin](#): sudor anglicus), was a mysterious and highly virulent disease that struck [England](#), and later continental [Europe](#), in a series of epidemics beginning in 1485. The last outbreak occurred in 1551, after which the disease apparently vanished. The onset of symptoms was dramatic and sudden, with **death often**

occurring within hours. Its cause remains unknown ([Wikipedia, 2012](#)).

#### **6. Crusades Typhus Pandemic (1489)**

**Title:** Crusades Typhus Pandemic

**Date:** 1489

**Agent:** Typhus

**Location:** Europe

**Deaths:** 20,000

**Source:** [Wikipedia](#)

**Abstract:** Emerging during the [Crusades](#), it had its first impact in Europe in 1489, in Spain. During fighting between the Christian Spaniards and the Muslims in [Granada](#), the Spanish lost 3,000 to war casualties, and 20,000 to typhus ([Wikipedia, 2012](#)).

#### **7. South American Smallpox Pandemic (1518-1530)**

**Title:** South American Smallpox Pandemic

**Date:** 1518-1530

**Agent:** Smallpox

**Location:** Mexico & Peru

**Deaths:** 150,000

**Source:** [Wikipedia](#)

**Abstract:** Half the native population of [Hispaniola](#) in 1518 was killed by smallpox. Smallpox also ravaged [Mexico](#) in the 1520s, killing 150,000 in [Tenochtitlán](#) alone, including the emperor, and [Peru](#) in the 1530s, aiding the European conquerors ([Wikipedia, 2012](#)).

#### **8. French Typhus Pandemic (1528)**

**Title:** French Typhus Pandemic

**Date:** 1528

**Agent:** Typhus

**Location:** Italy

**Deaths:** 18,000

**Source:** [Wikipedia](#)

**Abstract:** In 1528, the French lost 18,000 troops in [Italy](#), and lost supremacy in Italy to the Spanish ([Wikipedia, 2012](#)).

#### **9. Cuba Measles Pandemic (1529)**

**Title:** Cuba Measles Pandemic

**Date:** 1529

**Agent:** Measles

**Location:** Cuba

**Deaths:** 2/3 of Cuban Population

**Source:** [Wikipedia](#)

**Abstract:** In 1529, a measles outbreak in [Cuba](#) killed two-thirds of the natives who had previously survived smallpox ([Wikipedia, 2012](#)).

#### **10. Balkans Typhus Pandemic (1542)**

**Title:** Balkans Typhus Pandemic

**Date:** 1542

**Agent:** Typhus

**Location:** Balkans (Eastern Europe)

**Deaths:** 30,000

**Source:** [Wikipedia](#)

**Abstract:** In 1542, 30,000 soldiers died of typhus while fighting the [Ottomans](#) in the Balkans ([Wikipedia, 2012](#)).

### 11. South American Measles Pandemic (1600-1699)

**Title:** South American Measles Pandemic

**Date:** 1600-1699

**Agent:** Measles

**Location:** Mexico

**Deaths:** 2 Million

**Source:** [Wikipedia](#)

**Abstract:** Measles killed a further two million Mexican natives in the 17th century. ([Wikipedia, 2012](#)).

### 12. Native American Smallpox Pandemic (1618-1619)

**Title:** Native American Smallpox Pandemics

**Date:** 1618-1619

**Agent:** Smallpox

**Location:** North America

**Deaths:** Millions

**Source:** [Wikipedia](#)

**Abstract:** In 1618–1619, smallpox wiped out 90% of the Massachusetts Bay Native Americans ([Wikipedia, 2012](#)).

### 13. Thirty Years War (1618-1648)

**Title:** Thirty Years War

**Date:** 1618-1648

**Agent:** Yersinia Pestis & Typhus

**Location:** Germany

**Deaths:** 8 Million

**Source:** [Wikipedia](#)

**Abstract:** During the [Thirty Years' War](#) (1618–1648), about 8 million Germans were killed by bubonic plague and typhus fever. [Pestilence](#) of several kinds raged among combatants and civilians in Germany and surrounding lands from 1618 to 1648. Many features of the war spread disease. These included troop movements, the influx of [soldiers](#) from foreign countries, and the shifting locations of battle fronts. In addition, the displacement of [civilian](#) populations and the overcrowding of [refugees](#) into cities led to both disease and famine. Information about numerous [epidemics](#) is generally found in local chronicles, such as [parish](#) registers and [tax](#) records, that are often incomplete and may be exaggerated. The chronicles do show that epidemic [disease](#) was not a condition exclusive to war time, but was present in many parts of Germany for several decades prior to 1618. However, when the Danish and Imperial armies met in [Saxony](#) and [Thuringia](#) during 1625 and 1626, disease and infection in local communities increased. Local chronicles repeatedly referred to "head disease", "Hungarian disease", and a "spotted" disease identified as [typhus](#). After the [Mantuan War](#), between France and the Habsburgs in Italy, the northern half of the Italian peninsula was in the throes of a [bubonic plague](#) epidemic (see [Italian Plague of 1629–1631](#)). During the unsuccessful [siege of Nuremberg](#), in 1632, civilians and soldiers in both the Swedish and Imperial armies succumbed to typhus and [scurvy](#). Two years later, as the Imperial army pursued the defeated Swedes into southwest Germany, deaths from epidemics were high along the [Rhine](#) River. [Bubonic plague](#) continued to be a factor in the war. Beginning in 1634, [Dresden](#), [Munich](#), and smaller German communities such as [Oberammergau](#) recorded large numbers of plague casualties. In the last decades of the war, both [typhus](#) and [dysentery](#) had become endemic in Germany ([Wikipedia, 2012](#)).

### 14. Italian Plague (1629–1631)

**Title:** Italian Plague

**Date:** 1629–1631

**Agent:** Yersinia Pestis

**Location:** Milan (Italy)

**Deaths:** 280, 000

**Source:** [Wikipedia](#)

**Abstract:** The Italian Plague of 1629–1631 was a series of outbreaks of [bubonic plague](#) which occurred from [1629](#) through [1631](#) in northern [Italy](#). This [epidemic](#), often referred to as Great Plague of Milan, claimed the lives of approximately 280,000 people, with the cities of the [Lombardy](#) and [Veneto regions](#) experiencing particularly high death rates. This episode is considered one of the last outbreaks of the centuries-long [pandemic](#) of bubonic plague which began with the [Black Death](#). [German](#) and [French](#) troops carried the plague to the city of [Mantua](#) in 1629, as a result of troop movements associated with the [Thirty Years' War](#) (1618–1648).<sup>[[citation needed](#)]</sup> [Venetian](#) troops, infected with the disease, retreated into northern and central Italy, spreading the infection. In October 1629, the plague reached [Milan](#), Lombardy's major commercial center. Although the city initiated effective public health measures, including [quarantine](#) and limiting the access of German soldiers and trade goods, the plague smoldered. A major outbreak in March 1630 was due to relaxed health measures during the [carnival](#) season. This was followed by a second wave in the spring and summer of 1631. Overall, Milan suffered approximately 60,000 fatalities out of a total population of 130,000. East of Lombardy, the Republic of Venice was infected in 1630–31. The city of [Venice](#) was severely hit, with recorded casualties of 46,000 people out of a population of 140,000. Some historians believe the drastic loss of life, and its impact on commerce, ultimately resulted in the downfall of Venice as a major commercial and political power. The [papal](#) city of [Bologna](#) lost an estimated 15,000 citizens to the plague, with neighboring smaller cities of [Modena](#) and [Parma](#) also being heavily affected. This outbreak of plague also spread north into [Tyrol](#), an alpine region of western [Austria](#) and northern Italy. Later outbreaks of bubonic plague in Italy include the city of [Florence](#) in 1630–33 and the areas surrounding [Naples](#), [Rome](#) and [Genoa](#) in 1656–57 ([Wikipedia, 2012](#)).

### 15. The Great Plague of London (1665–1666)

**Title:** Great Plague of London

**Date:** 1665-1666

**Agent:** Yersinia Pestis

**Location:** England (United Kingdom)

**Deaths:** 100, 000

**Source:** [Wikipedia](#)

**Abstract:** The Great Plague was the last major epidemic of the [bubonic plague](#) to occur in the [Kingdom of England](#) (modern day [United Kingdom](#)). It happened within the centuries-long time period of the Second pandemic, an extended period of intermittent bubonic plague epidemics which began in Europe in 1347, the first year of the "[Black Death](#)" and lasted until 1750. The Great Plague killed an estimated 100,000 people, about 20% of London's population. [Bubonic plague](#) is a disease caused by the [Yersinia pestis bacterium](#) which is usually transmitted through the bite of an infected flea, the prime [vector](#) for Y. pestis ([Wikipedia, 2012](#)).

### 16. Great Plague of Marseille (1720)

**Title:** Great Plague of Marseille

**Date:** 1720

**Agent:** Yersinia Pestis

**Location:** France

**Deaths:** 100,000

**Source:** [Wikipedia](#)

**Abstract:** The Great Plague of Marseille was the last of the significant European outbreaks of [bubonic plague](#). Arriving in [Marseille, France](#) in 1720, the disease killed 100,000 people in the city and the surrounding provinces. However, Marseille recovered quickly from the plague outbreak. Economic activity took only a few years to recover, as trade expanded to the West Indies and Latin America. By 1765, the growing population was back at its pre-1720 level. ([Wikipedia, 2012](#)).



## 17. Australia & New Zealand Smallpox Pandemics (1770)

**Title:** Australia & New Zealand Smallpox Pandemics

**Date:** 1770

**Agent:** Smallpox

**Location:** Australia & New Zealand

**Deaths:** 1/2 of Native Population (Admitted)

**Source:** [Wikipedia](#)

**Abstract:** Smallpox devastated the native population of [Australia](#), killing around 50% of [Indigenous Australians](#) in the early years of British colonisation.<sup>[33]</sup> It also killed many [New Zealand Māori](#) ([Wikipedia, 2012](#)).

## 18. Russian Plague (1770-1772)

**Title:** Russian Plague

**Date:** 1770-1772

**Agent:** Yersinia Pestis

**Location:** Russia

**Deaths:** 1/3 of Moscow

**Source:** [Wikipedia](#)

**Abstract:** The [Russian plague](#) epidemic of 1770—1772, also known as the Plague of 1771, was the last massive outbreak of plague in central [Russia](#), claiming between 52 and 100 thousand lives in Moscow alone (1/6 to 1/3 of its population). The [bubonic plague epidemic](#) that originated in the [Moldovan](#) theatre of the [1768–1774 Russian-Turkish war](#) in January 1770 swept northward through [Ukraine](#) and central Russia, peaking in Moscow in September 1771 and causing the [Plague Riot](#). The epidemic reshaped the map of Moscow, as new cemeteries were established beyond the 18th century city limits ([Wikipedia, 2012](#)).

## 19. North American Smallpox Epidemic (1775-1782)

**Title:** North American Smallpox Epidemic

**Date:** 1775-1782

**Agent:** Smallpox

**Location:** North America

**Deaths:** Unknown (Likely Millions)

**Source:** [Wikipedia](#)

**Abstract:** The 1775–1782 North American smallpox epidemic was a [smallpox epidemic](#) that spread across most of the continent of North America. The epidemic coincided with the years of the [American Revolutionary War](#) (1775–1782), which was gripping much of the continent from the colonies, western frontiers, and southern Canada. By its end the epidemic had spread as far west as the pacific coast, as far north as Alaska and as far south as Mexico, infecting virtually every part of the continent. Though no certain statistics exist it is estimated to have killed more than 145,000 people.

It is not known how or where the outbreak began, but in 1775 it was already raging through British-occupied [Boston](#) and among the Continental Army [invasion of Canada](#). During Washington's [siege of Boston](#) the disease broke out among both Continental and British camps. Many escaped slaves who had fled to the British lines in the South likewise contracted the virus and died.

The epidemic was not limited to the colonies on the Eastern seaboard, nor to the areas ravaged by hostilities. The outbreak spread deep into the South, including Texas. From 1778-1779 New Orleans was especially hard hit due to its densely populated urban area. By 1779 the disease had spread to Mexico and would cause the deaths of tens of thousands. The epidemic spread through the Great Plains, likely through the travels of the [Shoshone](#) Indian tribes. Beginning in 1780 it had reached the [Pueblos](#) of the territory comprising present day [New Mexico](#). It also showed up in the interior trading posts of the [Hudson's Bay Company](#) in 1782. It reached nearly every corner of the Continent, including the Far West

and northwestern coast, Western Canada, and even Alaska. It is estimated to have killed nearly 11,000 Native Americans in the Western area of present-day [Washington](#), reducing the population from 37,000 to 26,000 in just seven years ([Wikipedia, 2012](#)).

## **20. Yellow Fever Epidemic of 1793 (1793)**

**Title:** Yellow Fever Epidemic

**Date:** 1793

**Agent:** Yellow Fever

**Location:** Philadelphia, Pennsylvania

**Deaths:** 4,044

**Source:** [Wikipedia](#)

**Abstract:** During the Yellow Fever Epidemic of 1793 in [Philadelphia](#), [Pennsylvania](#), there were 4044 people listed in the official register of deaths between August 1 and November 9. The vast majority of them died of the fever, making the epidemic in the city of 50,000 people one of the most severe in United States' history ([Wikipedia, 2012](#)).

## **21. Spanish Yellow Fever Pandemic (1800-1899)**

**Title:** Spanish Yellow Fever Pandemic

**Date:** 1800-1899

**Agent:** Yellow Fever

**Location:** Spain

**Deaths:** 300, 300

**Source:** [Wikipedia](#)

**Abstract:** Approximately 300,000 people are believed to have died from yellow fever in Spain during the 19th century ([Wikipedia, 2012](#)).

## **22. Worldwide Tuberculosis Pandemic (1800-1899)**

**Title:** Worldwide Tuberculosis Pandemic

**Date:** 1800-1899

**Agent:** Tuberculosis

**Location:** Worldwide

**Deaths:** 1/4 of Europe (Hundreds of Millions)

**Source:** [Wikipedia](#)

**Abstract:** In the 19th century, tuberculosis killed an estimated one-quarter of the adult population of Europe; by 1918 one in six deaths in France were still caused by TB. By the late 19th century, 70 to 90% of the urban populations of Europe and North America were infected with M. tuberculosis, and about 40% of working-class deaths in cities were from TB ([Wikipedia, 2012](#)).

## **23. Napoleonic Wars (1812-1813)**

**Title:** Napoleonic Wars

**Date:** 1812-1813

**Agent:** Typhus

**Location:** France & Russia

**Deaths:** 1 Million?

**Source:** [Wikipedia](#)

**Abstract:** Typhus played a major role in the destruction of [Napoleon's Grande Armée](#) in Russia in 1812. Felix Markham thinks that 450,000 soldiers crossed the [Neman](#) on 25 June 1812, of whom less than 40,000 recrossed in anything like a recognizable military formation. In early 1813 Napoleon raised a new army of 500,000 to replace his Russian losses. In the campaign of that year over 219,000 of Napoleon's soldiers were to die of typhus ([Wikipedia, 2012](#)).



#### 24. First Cholera Pandemic (1816-1826)

**Title:** First Cholera Pandemic

**Date:** 1817-1824

**Agent:** Cholera

**Location:** Asia

**Deaths:** Unknown (Likely Millions)

**Source:** [Wikipedia](#)

**Abstract:** Previously restricted to the [Indian subcontinent](#), the pandemic began in [Bengal](#), then spread across India by 1820. 10,000 British troops and countless Indians died during this pandemic. It extended as far as [China](#), Indonesia (where more than 100,000 people succumbed on the island of [Java](#) alone) and the [Caspian Sea](#) before receding. Deaths in [India](#) between 1817 and 1860 are estimated to have exceeded 15 million persons. Another 23 million died between 1865 and 1917. [Russian](#) deaths during a similar period exceeded 2 million. The first cholera pandemic (1817-1824), also known as the first Asiatic cholera pandemic or Asiatic cholera, began near [Calcutta](#) and spread throughout Southeast Asia to the Middle East, eastern Africa and the Mediterranean coast. While [cholera](#) had spread across India many times previously, this outbreak went further; it reached as far as [China](#) and the [Mediterranean Sea](#) before receding. Hundreds of thousands of people died as a result of this [pandemic](#), including many [British](#) soldiers, which attracted European attention. This was the first of several cholera pandemics to sweep through Asia and Europe during the 19th and 20th centuries. This first pandemic spread over an unprecedented range of territory, affecting almost every country in Asia ([Wikipedia, 2012](#)).

#### 25. Second Cholera Pandemic (1829-1849)

**Title:** Second Cholera Pandemic

**Date:** 1829-1849

**Agent:** Cholera

**Location:** India, Europe & North America

**Deaths:** Unknown (Likely Millions)

**Source:** [Wikipedia](#)

**Abstract:** The second cholera pandemic (1829-1849), also known as the Asiatic Cholera Pandemic, was a [cholera](#) pandemic that reached from India to Europe, Great Britain and the Americas. This pandemic began, like the first, with outbreaks along the [Ganges River](#) delta in India. From there the disease spread along trade routes to cover most of India. By 1828 the disease had traveled to China and reached the southern tips of the [Ural Mountains](#) in 1829. It reached England in December 1831: appearing in [Sunderland](#), [Gateshead](#) and [Newcastle](#). In London, the disease claimed 6,536 victims; in Paris, 20,000 died (out of a population of 650,000), with about 100,000 deaths in all of France. In 1832 the epidemic reached Russia (see [Cholera Riots](#)), [Quebec](#), [Ontario](#), [Detroit](#) and [New York](#). It reached the Pacific coast of North America between 1832 and 1834. The Second Cholera Pandemic reached Russia (see [Cholera Riots](#)), Hungary (about 100,000 deaths) and Germany in 1831, London in 1832 (more than 55,000 persons died in the United Kingdom), France, Canada (Ontario), and United States (New York) in the same year, and the Pacific coast of North America by 1834. A two-year outbreak began in England and Wales in 1848 and claimed 52,000 lives. It is believed that over 150,000 Americans died of cholera between 1832 and 1849 ([Wikipedia, 2012](#)).

#### 26. North American Smallpox Epidemic (1837–1838)

**Title:** N. American Smallpox Epidemic

**Date:** 1837–1838

**Agent:** Smallpox

**Location:** North America

**Deaths:** Unknown (Likely Millions)

**Source:** [Wikipedia](#)

**Abstract:** The smallpox epidemic that ravaged the people of the [Great Plains](#) in 1837 and 1838 was believed to have begun in spring of 1837 when a deckhand became ill aboard an [American Fur Company](#)

[steamboat](#), the S.S. St. Peter. The steamboat traveling up the Missouri River to [Fort Union](#) from St. Louis, docked at [Fort Clark](#) near the two earth-lodge villages of the [Mandan](#) people on June 18, 1837. The disease spread to the Mandan people.<sup>[2]</sup> In July 1837, the Mandan numbered no more than 2,000, by October that number had dwindled to 138. On August 11, Francis Chadron, a trader at Fort Clark, wrote, "I Keep no a/c of the dead, as they die so fast it is impossible." By the time the S.S. St. Peter made it to Fort Union several deck hands had died, but only Jacob Halsey, an American Fur Company clerk, showed visible signs of the disease. In an attempt to stop the spread of the disease fort personnel performed primitive inoculations. Pus from Halsey's skin eruptions were used to inoculate approximately thirty Native American women and several white men living in or around the fort. **Within two weeks, the women who received the inoculations began dying from the disease.** As the disease reached a peak at Fort Union bands of Native Americans continued to arrive at the fort for trade. Later, a longboat was sent to [Fort McKenzie](#) via the [Marias River](#). At Fort McKenzie the disease spread among the [Blackfoot](#) people housed there. The epidemic continued to spread into the Great Plains killing thousands during the fall of 1837, but largely died out that winter. In the end, it is estimated that two-thirds of the Blackfoot population died along with half of the [Assiniboines](#) and [Arikaras](#), a third of the [Crows](#), and a quarter of the [Pawnees](#). Later, a longboat was sent to [Fort McKenzie](#) via the [Marias River](#). At Fort McKenzie the disease spread among the [Blackfoot](#) people housed there. The epidemic continued to spread into the Great Plains killing thousands during the fall of 1837, but largely died out that winter. In the end, it is estimated that two-thirds of the Blackfoot population died along with half of the [Assiniboines](#) and [Arikaras](#), a third of the [Crows](#), and a quarter of the [Pawnees](#).

### Claims by Churchill

The Investigative Committee of the Standing Committee on Research Misconduct at the [University of Colorado at Boulder](#) reviewed a claim by [Ward Churchill](#), comparing to the cited source his claim that in 1837 the [United States Army](#) deliberately infected [Mandan](#) Indians by distributing blankets that had been exposed to smallpox, and reported "Professor Churchill therefore misrepresents what Thornton says." Most other historians who have looked at the same event disagree with Churchill's interpretation of the historical evidence, and believe no deliberate introduction of smallpox occurred at the time and place Churchill claimed it had ([Wikipedia, 2012](#)).

### 27. Canadian Typhus Epidemic (1847)

**Title:** Typhus Epidemic of 1847

**Date:** 1847

**Agent:** Typhus

**Location:** Canada

**Deaths:** 20,000+

**Source:** [Wikipedia](#)

**Abstract:** The typhus epidemic of 1847 was an outbreak of [epidemic typhus](#) caused by a massive [Irish emigration](#) in 1847, during the [Great Famine](#), aboard crowded and disease-ridden "[coffin ships](#)". In [Canada](#), more than 20 000 people died from 1847 to 1848, with many quarantined in [fever sheds](#) in [Grosse Isle](#), [Montreal](#), [Kingston, Ontario](#), [Toronto](#) and [St. John, New Brunswick](#) ([Wikipedia, 2012](#)).

### 28. Hawaiian Pandemics (1848-1849)

**Title:** Hawaiian Pandemics

**Date:** 1848-1849

**Agent:** Measles, Whooping Cough & Yersinia Pestis

**Location:** Hawaii (South Pacific)

**Deaths:** 40,000

**Source:** [Wikipedia](#)

**Abstract:** As late as 1848–49, as many as 40,000 out of 150,000 [Hawaiians](#) are estimated to have died of [measles](#), [whooping cough](#) and [influenza](#). ([Wikipedia, 2012](#)).

### 29. Third Cholera Pandemic (1852-1860)

**Title:** Third Cholera Pandemic

**Date:** 1852-1860

**Agent:** Cholera

**Location:** North America, Europe, Middle East, India & Asia

**Deaths:** Unknown (Likely Millions)

**Source:** [Wikipedia](#)

**Abstract:** The Third Cholera Pandemic (1852-1860) was the third major outbreak of [cholera](#) originating in India in the nineteenth century that reached far beyond its borders. In Russia, more than one million people died of cholera. In 1853-1854, the epidemic in London claimed over 10,000 lives, and there were 23,000 deaths for all of Great Britain. This pandemic was considered to have the highest fatalities of the 19th-century epidemics. Like the earlier pandemics, cholera spread from the Ganges delta of India. It had high fatalities among populations in Asia, Europe, Africa and North America. In 1854, which was considered the worst year, 23,000 people died in Great Britain. That year, the British physician [John Snow](#), who was working in a poor area of London, identified contaminated water as the means of transmission of the disease. He had mapped the cases of cholera in the [Soho](#) area in London, and noted a cluster of cases near a water pump in one neighborhood. To test his theory, he convinced officials to remove the pump handle, and the number of cholera cases in the area immediately declined. His breakthrough helped eventually bring the epidemic under control. Because of his insight and patient testing, he is considered the father of epidemiology. The Third Cholera Pandemic mainly affected [Russia](#), with over a million deaths. In 1852, cholera spread east to [Indonesia](#) and later invaded China and [Japan](#) in 1854. The Philippines were infected in 1858 and [Korea](#) in 1859. In 1859, an outbreak in Bengal again led to the transmission of the disease to [Iran](#), [Iraq](#), [Arabia](#) and Russia. Throughout [Spain](#), cholera caused more than 236,000 deaths in 1854–55. It claimed 200,000 lives in [Mexico](#) ([Wikipedia, 2012](#)).

### 30. Third Plague Pandemic (1855-1959)

**Title:** Third Plague Pandemic

**Date:** 1855-1959

**Agent:** Yersinia Pestis

**Location:** China & India

**Deaths:** 12 Million

**Source:** [Wikipedia](#)

**Abstract:** Third Pandemic is the designation of a major [Bubonic plague pandemic](#) that began in the [Yunnan](#) province in [China](#) in 1855. This episode of bubonic plague spread to all inhabited continents, and ultimately killed more than 12 million people in [India](#) and China alone. According to the [World Health Organization](#), the pandemic was considered active until 1959, when worldwide casualties dropped to 200 per year. [Bubonic plague](#) is an infectious disease that is widely thought to have caused several [epidemics](#) or [pandemics](#) throughout history, including two previous pandemics commonly designated as the [Plague of Justinian](#) and the [Black Death](#) ([Wikipedia, 2012](#)).

### 31. Fourth Cholera Pandemic (1863-1879)

**Title:** The Fourth Cholera Pandemic

**Date:** 1863-1879

**Agent:** Cholera

**Location:** Europe & Africa

**Deaths:** Unknown (Likely Millions)

**Source:** [Wikipedia](#)

**Abstract:** The Fourth Cholera Pandemic (1863-1879) was the fourth major pandemic of [cholera](#) in the century. It began in the Ganges delta of the Bengal region, from where Muslim pilgrims carried it to Mecca. That year 30,000 of the 90,000 Mecca pilgrims died in the epidemic. Cholera spread throughout the Middle East. It also was carried to Russia, Europe, Africa and North America, in each case spreading from port cities and along inland waterways.

The Fourth Cholera Pandemic spread mostly in Europe and [Africa](#). At least 30,000 of the 90,000 [Mecca](#)

pilgrims fell victim to the disease. Cholera claimed 90,000 lives in Russia in 1866. In 1866, there was an outbreak in North America. It killed some 50,000 Americans ([Wikipedia, 2012](#)).

### 32. Fiji Measles Pandemic (1875)

**Title:** Fiji Measles Pandemic

**Date:** 1875

**Agent:** Measles

**Location:** Fiji (South Pacific)

**Deaths:** 40,000

**Source:** [Wikipedia](#)

**Abstract:** In 1875, measles killed over 40,000 [Fijians](#) ([Wikipedia, 2012](#)).

### 33. Fifth Cholera Pandemic (1881-1896)

**Title:** Fifth Cholera Pandemic

**Date:** 1881-1896

**Agent:** Cholera

**Location:** India, Asia, Africa & Europe

**Deaths:** Unknown (Likely Millions)

**Source:** [Wikipedia](#)

**Abstract:** The fifth cholera pandemic (1881-1896) was the fifth major international outbreak of [cholera](#) in the nineteenth century starting in India. It spread throughout Asia and Africa, and reached parts of France, Germany, Russia, and South America. The [1892](#) outbreak in [Hamburg, Germany](#) was the only major [European](#) outbreak; about 8,600 people died in that city. Although many residents held the city government responsible for the virulence of the epidemic, it continued with practices largely unchanged. This was the last serious European cholera outbreak of the century. The epidemic was so serious in [Rome](#) that [Pope Leo XIII](#) authorized building a [hospice](#) inside the [Vatican](#) for afflicted residents. That building was torn down in 1996 to make way for construction of the [Domus Sanctae Marthae](#). The Fifth Cholera Pandemic cost 250,000 lives in Europe and at least 50,000 in [Americas](#). Cholera claimed 267,890 lives in [Russia](#) (1892); 120,000 in Spain; 90,000 in [Japan](#) and 60,000 in [Persia](#). In 1892, cholera contaminated the water supply of [Hamburg](#), and caused 8606 deaths ([Wikipedia, 2012](#)).

### 34. Asiatic Flu (1889-1890)

**Title:** Asiatic Flu

**Date:** 1889-1890

**Agent:** Influenza

**Location:** Asia & North America

**Deaths:** 1 Million

**Source:** [Wikipedia](#)

**Abstract:** The "[Asiatic Flu](#)", 1889–1890, was first reported in May 1889 in [Bukhara](#), Uzbekistan. By October, it had reached [Tomsk](#) and the [Caucasus](#). It rapidly spread west and hit [North America](#) in December 1889, South America in February–April 1890, India in February–March 1890, and Australia in March–April 1890. It was purportedly caused by the [H2N8](#) type of flu virus. It had a very high attack and [mortality rate](#). About 1 million people died in this pandemic" ([Wikipedia, 2012](#)).

### 35. Sixth Cholera Pandemic (1899-1923)

**Title:** Sixth Cholera Pandemic

**Date:** 1899-1923

**Agent:** Cholera

**Location:** India, Middle East, North Africa, Europe & Russia

**Deaths:** Unknown (Likely Millions)

**Source:** [Wikipedia](#)

**Abstract:** Sixth Cholera Pandemic(1899-1923) was a major outbreak of [cholera](#) beginning in India, where

it killed more than 800,000 people, and spreading to the Middle East, North Africa, Eastern Europe and Russia. The last cholera outbreak in the United States was in 1910-1911 when the steamship [Moltke](#) brought infected people to New York City from [Naples](#). Vigilant health authorities isolated the infected on [Swinburne Island](#), built in the nineteenth century as a quarantine facility. Eleven people died, including a health care worker at the island hospital. The Sixth Cholera Pandemic had little effect in Europe because of advances in [public health](#), but Russia was badly affected again (more than 500,000 people dying of cholera during the first quarter of the 20th century). The sixth pandemic killed more than 800,000 in India. The 1902-1904 cholera epidemic claimed over 200,000 lives in the [Philippines](#). 27 epidemics were recorded during pilgrimages to [Mecca](#) from the 19th century to 1930, and more than 20,000 pilgrims died of cholera during the 1907–08 Hajj ([Wikipedia, 2012](#)).

### **36. Worldwide Tuberculosis Pandemic (1900-1999)**

**Title:** Worldwide Tuberculosis Pandemic

**Date:** 1900-1999

**Agent:** Tuberculosis

**Location:** Worldwide

**Deaths:** 100 Million

**Source:** [Wikipedia](#)

**Abstract:** During the 20th century, tuberculosis killed approximately 100 million people ([Wikipedia, 2012](#)).

### **37. World War I (1914-1918)**

**Title:** World War I Typhus Pandemic

**Date:** 1914-1918

**Agent:** Typhus

**Location:** Europe

**Deaths:** 150,000

**Source:** [Wikipedia](#)

**Abstract:** During [World War I](#), typhus epidemics killed over 150,000 in [Serbia](#) ([Wikipedia, 2012](#)).

### **38. Russian Typhus Pandemic (1918-1922)**

**Title:** Russian Typhus Pandemic

**Date:** 1918-1922

**Agent:** Typhus

**Location:** Russia

**Deaths:** 3 Million

**Source:** [Wikipedia](#)

**Abstract:** There were about 25 million infections and 3 million deaths from [epidemic typhus](#) in [Russia](#) from 1918 to 1922. Typhus also killed numerous prisoners in the [Nazi concentration camps](#) and Soviet prisoner of war camps during World War II. More than 3.5 million [Soviet POWs](#) died in the Nazi custody out of 5.7 million ([Wikipedia, 2012](#)).

### **39. The Spanish Flu (1918-1919)**

**Title:** 1918 Flu Pandemic

**Date:** 1918-1919

**Agent:** Influenza

**Location:** North America, Pacific Islands & Arctic

**Deaths:** 50-100 Million

**Source:** [Wikipedia](#)

**Abstract:** The 1918 flu pandemic (the "Spanish flu") was an [influenza pandemic](#), and the first of the two pandemics involving [H1N1 influenza virus](#) (the second was the [2009 flu pandemic](#), an outbreak of [swine flu](#)). It was an unusually severe and deadly pandemic that spread across the world. Historical and [epidemiological](#) data are inadequate to identify the geographic origin. Most victims were healthy young

adults, in contrast to most influenza outbreaks, which predominantly affect juvenile, elderly, or weakened patients. The flu pandemic was implicated in the outbreak of [encephalitis lethargica](#) in the 1920s. The pandemic lasted from June 1918 to December 1919, spreading even to the [Arctic](#) and remote Pacific islands. Between 50 and 100 million died, making it one of the deadliest [natural disasters](#) in human history. Even using the lower estimate of 50 million people, 3% of the world's population (which was 1.86 billion at the time) died of the disease. Some 500 million, or 27%, were infected. Tissue samples from frozen victims were used to reproduce the virus for study. This research concluded, among other things, that the virus kills through a [cytokine storm](#) (overreaction of the body's [immune system](#)), which perhaps explains its unusually severe nature and the concentrated age profile of its victims. The strong immune system reactions of young adults ravaged the body, whereas the weaker immune systems of children and middle-aged adults resulted in fewer deaths. The "[Spanish flu](#)", 1918–1919. First identified early in March 1918 in US troops training at [Camp Funston, Kansas](#). By October 1918, it had spread to become a worldwide pandemic on all continents, and eventually infected about one-third of the [world's population](#) (or 500 million persons). Unusually deadly and virulent, it ended nearly as quickly as it began, vanishing completely within 18 months. In six months, some 50 million were dead; some estimates put the total of those killed worldwide at over twice that number. About 17 million died in India, 675,000 in the United States and 200,000 in the [UK](#). The virus was recently reconstructed by scientists at the [CDC](#) studying remains preserved by the Alaskan [permafrost](#). The [H1N1](#) virus has a small, but crucial structure that is similar to the Spanish Flu ([Wikipedia, 2012](#)).

#### 40. Asian Flu (1957-1958)

**Title:** Influenza A Virus Subtype H2N2

**Date:** 1957-1958

**Agent:** Influenza

**Location:** North America & Asia

**Deaths:** 2 Million

**Source:** [Wikipedia](#)

**Abstract:** The "[Asian Flu](#)", 1957–58. An H2N2 virus caused about 70,000 deaths in the United States. First identified in China in late February 1957, the Asian flu spread to the United States by June 1957. It caused about 2 million deaths globally. The [category 2](#) Asian flu pandemic outbreak of influenza A virus originated in [China](#) in early 1956, and lasted until 1958. Some authors believe it originated from a mutation in [wild ducks](#) combining with a pre-existing human strain. Other authors are less certain. The virus was first identified in [Guizhou](#). It spread to [Singapore](#) in February 1957, [\[9\]](#) reached [Hong Kong](#) by April, and the US by June. The death toll in the US was about 69,800. Estimates of worldwide deaths caused by this pandemic varies widely depending on source, ranging from one to four million, with WHO settling on "about two million". Asian flu was of the H2N2 subtype (a notation that refers to the configuration of the [hemagglutinin](#) and [neuraminidase proteins](#) in the virus) of type A influenza, and an [influenza vaccine](#) was developed in 1957 to contain its outbreak. The Asian flu strain later evolved via [antigenic shift](#) into [H3N2](#), which caused a milder pandemic from 1968 to 1969. Both the H2N2 and H3N2 pandemic strains contained avian influenza virus RNA segments. "While the pandemic human influenza viruses of 1957 (H2N2) and 1968 (H3N2) clearly arose through reassortment between human and avian viruses, the influenza virus causing the 'Spanish flu' in 1918 appears to be entirely derived from an avian source (Belshe 2005)" ([Wikipedia, 2012](#)).

#### 41. Seventh Cholera Pandemic (1961-1991)

**Title:** Seventh Cholera Pandemic

**Date:** 1961-1991

**Agent:** Cholera

**Location:** India, North Africa, Europe & Russia

**Deaths:** Unknown (Likely Millions)

**Source:** [Wikipedia](#)

**Abstract:** The seventh cholera pandemic was the seventh major outbreak of [cholera](#) and occurred from the years 1961 to the 1970s and has continued (though much diminished) to the present. The outbreak began in [Indonesia](#), called [El Tor](#) after the strain, and reached [Bangladesh](#) in 1963, [India](#) in 1964, and the



[USSR](#) in 1966. From [North Africa](#) it spread into [Italy](#) by 1973. In the late 1970s, there were small outbreaks in [Japan](#) and in the [South Pacific](#). There were also many reports of a cholera outbreak near [Baku](#) in 1972, but information about it was suppressed in the USSR. In 1971, the number of reported cases reported worldwide was 155,000. In 1991, it reached 570,000. The spread of the disease was helped by modern transportation and mass migrations. Mortality rates, however, dropped markedly as governments began modern curative and preventative measures. The usual mortality rate of 50% dropped to 10% by the 1980s and less than 3% by the 1990s. The Seventh Cholera Pandemic was the seventh major outbreak of [cholera](#) and occurred from the years 1961 to the 1970s and has continued (though much diminished) to the present. The outbreak began in [Indonesia](#), called [El Tor](#) after the strain, and reached [Bangladesh](#) in 1963, [India](#) in 1964, and the [USSR](#) in 1966. From [North Africa](#) it spread into [Italy](#) by 1973. In the late 1970s, there were small outbreaks in [Japan](#) and in the [South Pacific](#). There were also many reports of a cholera outbreak near [Baku](#) in 1972, but information about it was suppressed in the USSR. In 1971, the number of reported cases reported worldwide was 155,000. In 1991, it reached 570,000 ([Wikipedia, 2012](#)).

#### 42. Hong Kong Flu (1968-1969)

**Title:** Hong Kong Flu

**Date:** 1968-1969

**Agent:** Influenza

**Location:** Hong Kong (China)

**Deaths:** 1 Million

**Source:** [Wikipedia](#)

**Abstract:** The Hong Kong Flu was a [category 2 flu pandemic](#) whose outbreak in 1968 and 1969 killed an estimated one million people worldwide. It was caused by an [H3N2](#) strain of the [influenza A virus](#), descended from [H2N2](#) through [antigenic shift](#), a [genetic](#) process in which [genes](#) from multiple subtypes [reassorted](#) to form a new virus. The first record of the outbreak in [Hong Kong](#) appeared on 13 July 1968. By the end of July 1968, extensive outbreaks were reported in Vietnam and Singapore. Despite the fatality of the 1957 [Asian Flu](#) in China, little improvement had been made regarding the handling of such [epidemics](#). [The Times](#) newspaper was actually the first source to sound alarm regarding this new possible [pandemic](#). By September 1968, the flu reached [India](#), [Philippines](#), northern Australia and Europe. That same month, the virus entered California from returning [Vietnam War troops](#) but did not become widespread in the US until December 1968. It would reach Japan, Africa and South America by 1969. The outbreak in Hong Kong, where density is about 500 people per acre, reached maximum intensity in 2 weeks, lasting 6 weeks in total from July to December 1968, however worldwide deaths from this virus peaked much later, in December 1968 and January 1969. By that time, public health warnings and virus descriptions were issued in the scientific and medical journals. In comparison to other pandemics, the Hong Kong flu yielded a low death rate, with a [case-fatality ratio](#) below 0.5% making it a category 2 disease on the [Pandemic Severity Index](#). The pandemic infected an estimated 500,000 Hong Kong residents, 15% of the population. In the United States, approximately 33,800 people died. The same virus returned the following years: a year later, in late 1969 and early 1970, and in 1972. The "[Hong Kong Flu](#)", 1968–69. An H3N2 caused about 34,000 deaths in the United States. This virus was first detected in Hong Kong in early 1968, and spread to the United States later that year. This pandemic of 1968 and 1969 killed approximately one million people worldwide. Influenza A ([H3N2](#)) viruses still circulate today ([Wikipedia, 2012](#)).

#### 43. Swine Flu Pandemic (2009)

**Title:** 2009 Flu Pandemic

**Date:** 2009

**Agent:** Influenza

**Location:** Worldwide

**Deaths:** 14, 286

**Source:** [Wikipedia](#)

**Abstract:** The 2009 flu pandemic or swine flu was an [influenza pandemic](#), and the second of the two pandemics involving [H1N1 influenza virus](#) (the first of them was the [1918 flu pandemic](#)), albeit in a new

version. First described in April 2009, the virus appeared to be a new strain of H1N1 which resulted when a previous triple [reassortment](#) of bird, swine and human flu viruses further combined with a Eurasian pig flu virus, leading to the term "[swine flu](#)" to be used for this pandemic. Unlike most strains of influenza, H1N1 does not disproportionately infect adults older than 60 years; this was an unusual and characteristic feature of the H1N1 [pandemic](#). Even in the case of previously very healthy persons, a small percentage will develop [pneumonia](#) or [acute respiratory distress syndrome](#) (ARDS). This manifests itself as increased breathing difficulty and typically occurs 3–6 days after initial onset of flu symptoms.[\[5\]\[6\]](#) The pneumonia caused by flu can be either direct viral pneumonia or a secondary bacterial pneumonia. In fact, a November 2009 [New England Journal of Medicine](#) article recommends that flu patients whose chest X-ray indicates pneumonia receive both antivirals and antibiotics. In particular, it is a warning sign if a child (and presumably an adult) seems to be getting better and then relapses with high fever, as this relapse may be bacterial pneumonia. Initially coined an "outbreak", the stint began in the state of [Veracruz](#), Mexico, with evidence that there had been an ongoing epidemic for months before it was officially recognized as such. The Mexican government closed most of [Mexico City](#)'s public and private facilities in an attempt to contain the spread of the virus; however, it continued to spread globally, and clinics in some areas were overwhelmed by infected people. In June, the [World Health Organization](#) (WHO) and the [U.S. Centers for Disease Control and Prevention](#) (CDC) stopped counting cases and declared the outbreak a [pandemic](#). Despite being informally called "swine flu", the H1N1 flu virus cannot be spread by eating pork or pork products; similar to other influenza viruses, it is typically contracted by person to person transmission through respiratory droplets. Symptoms usually last 4–6 days. [Antivirals](#) ([oseltamivir](#) or [zanamivir](#)) were recommended for those with more severe symptoms or those in an at-risk group. The pandemic began to taper off in November 2009, and by May 2010, the number of cases was in steep decline. On 10 August 2010, the Director-General of the World Health Organization, [Margaret Chan](#), announced the end of the H1N1 pandemic, and announced that the H1N1 influenza event has moved into the post-pandemic period. According to the latest WHO statistics (July 2010), the virus has killed more than 18,000 people since it appeared in April 2009, however they state that the total mortality (including deaths unconfirmed or unreported) from the H1N1 strain is "unquestionably higher". Critics claimed the WHO had exaggerated the danger, spreading "fear and confusion" rather than "immediate information". The WHO began an investigation to determine whether it had "frightened people unnecessarily". A flu followup study done in September 2010, found that "the risk of most serious complications was not elevated in adults or children." In an August 5, 2011 PLoS ONE article, researchers estimated that the 2009 H1N1 global infection rate was 11% to 21%, lower than what was previously expected ([Wikipedia, 2012](#)).



# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** Despite the number of high-profile bio-terror plots and patsies, the historical record indicates that 99% of all bio-terror plots, attacks, "tests", "accidents" and drills are conducted by the government who has the means, the motive and the opportunity.

**Title:** 1984 Rajneeshee Bioterror Attack

**Date:** 2012

**Source:** [Wikipedia](#)

**Abstract:** The 1984 Rajneeshee [bioterror](#) attack was the [food poisoning](#) of 751 individuals in [The Dalles, Oregon](#), United States, through the deliberate contamination of [salad bars](#) at ten local restaurants with [salmonella](#). A leading group of followers of [Bhagwan Shree Rajneesh](#) (now known as Osho) had hoped to incapacitate the voting population of the city so that their own candidates would win the 1984 [Wasco County](#) elections. The incident was the first, and single largest [bioterrorist](#) attack in United States history. The attack is one of only two confirmed terrorist uses of [biological weapons](#) to harm humans.

Having previously gained political control of [Antelope, Oregon](#), Rajneesh's followers based in nearby [Rajneeshpuram](#), Oregon, sought election to two of the three seats on the Wasco County Circuit Court that were up for election in November 1984. Fearing they would not gain enough votes, Rajneeshpuram officials decided to incapacitate voters in The Dalles, the largest population center in Wasco County. The chosen biological agent was [Salmonella enterica](#) Typhimurium, which was first delivered through glasses of water to two County Commissioners and then, on a larger scale, at salad bars and in salad dressing.

751 people contracted [salmonellosis](#) as a result of the attack; 45 of whom were hospitalized. There were no fatalities. Although an initial investigation by the [Oregon Public Health Division](#) and the [Centers for Disease Control](#) did not rule out deliberate contamination, the actual source of the contamination was only discovered a year later. On February 28, 1985, Congressman [James H. Weaver](#) gave a speech in the [United States House of Representatives](#) in which he "accused the Rajneeshees of sprinkling salmonella culture on salad bar ingredients in eight restaurants". At a press conference in September 1985, Rajneesh accused several of his followers of involvement in this and other crimes, including an [aborted plan](#) to [assassinate](#) a [United States Attorney](#); and he asked State and Federal authorities to investigate. [Oregon Attorney General David B. Frohn](#) set up an Interagency Task Force, composed of [Oregon State Police](#) and the [Federal Bureau of Investigation](#), and executed [search warrants](#) in [Rajneeshpuram](#). A sample of [bacteria](#) matching the contaminant that had sickened the town residents was found in a Rajneeshpuram medical laboratory. Two leading Rajneeshpuram officials were [indicted](#) and served 29 months in a minimum-security [federal prison](#).

### Planning

Several thousand of Rajneesh's followers had moved onto the "Big Muddy Ranch" in rural [Wasco County](#), and established a city called [Rajneeshpuram](#). They had taken political control of the small nearby town of

[Antelope](#), Oregon (population: 75), whose name they changed to "Rajneesh". The group had started on friendly terms with the local population, but relations soon turned negative because of the unenthusiastic response from locals to the commune's expansion. After being denied building permits for Rajneeshpuram, the commune leadership sought to gain political control over the rest of the County by influencing the November 1984 County election. Their aim was to win two of three seats on the Wasco County Circuit Court, and the Sheriff's Office. Their attempts to influence the election included the "Share-a-Home" program, in which thousands of homeless people were transported to Rajneeshpuram to inflate the constituency of voters for the group's candidates. The Wasco County Clerk countered this attempt by enforcing a regulation that required all new voters to submit their qualifications when registering to vote.

The commune leadership planned to sicken and incapacitate voters in [The Dalles](#), where most of the voters resided, in continuation of their efforts to rig the election. Approximately twelve people were involved in the plots to employ biological agents, and at least eleven were involved in the planning process. No more than four appear to have been involved in development at the Rajneeshpuram medical laboratory, although not all of them were necessarily aware of the objectives their work served. At least eight individuals were involved with the actual distribution of the bacteria. The main planners of the attack included [Sheela Silverman](#) (Ma Anand Sheela), Rajneesh's chief lieutenant, and Diane Yvonne Onang (Ma Anand Puja), a nurse practitioner and secretary-treasurer of the Rajneesh Medical Corporation. Salmonella bacteria were purchased from a medical supply company in [Seattle, Washington](#), and cultured in labs located inside the commune. Contamination of the salad bars was considered a "trial run". The group also attempted to introduce [pathogens](#) into The Dalles' water system. If successful, the same techniques were to be used closer to [Election Day](#). This second part of the plan was never implemented because the commune decided to boycott the election when it became clear that those brought in through the "Share-a-Home" program would not be allowed to vote.

### **Salmonella Poisoning**

Two visiting Wasco County commissioners were poisoned with glasses of water containing salmonella bacteria during a visit to Rajneeshpuram on August 29, 1984. Both men fell ill as a result, and one was hospitalized. Afterward, members of Sheela's team spread salmonella on [produce](#) in grocery stores and on doorknobs and urinal handles in the county courthouse, but this did not produce the desired effects. In September and October 1984, they contaminated the salad bars of 10 local restaurants with salmonella, infecting 751 people. Forty-five people received hospital treatment; all survived.

The primary delivery tactic involved one member concealing a plastic bag containing a light brown liquid with the salmonella bacteria, and either spreading it over the food at a salad bar, or pouring its contents into salad dressing. The perpetrators referred to the contaminated liquid as "salsa". By September 24, 1984, more than 150 people were violently ill. By the end of September, 751 cases of acute [gastroenteritis](#) were documented; lab results showed that all of the victims were infected with Salmonella enterica Typhimurium. Symptoms included diarrhea, fever, chills, nausea, vomiting, headaches, abdominal pain, and bloody stools. Victims ranged in age from an infant, born two days after his mother's infection and initially given a five-percent chance of survival, to an 87-year-old.

Local residents suspected that Rajneesh's followers were behind the poisonings, and turned out in droves on election day to prevent the organization from winning any county positions, thus rendering the terrorist plot unsuccessful. The Rajneeshes eventually withdrew their candidate from the November 1984 ballot. Only 239 of the commune's 7,000 residents voted. The outbreak cost local restaurants hundreds of thousands of dollars and health officials shut down the salad bars of the affected establishments. Some residents would not go out alone out of fear of further attacks. One resident stated: "People were so horrified and scared. People wouldn't go out, they wouldn't go out alone. People were becoming

prisoners."

### Investigation

Officials and investigators from a number of different agencies were dispatched to The Dalles to investigate the cause of the outbreak. Dr. Michael Skeels, Director of the Oregon State Public Health Laboratory at the time, explained that the incident provoked such a large public health investigation because "it was the largest food-related outbreak in the U.S. in 1984". The investigation identified the bacteria responsible as [Salmonella enterica](#) Typhimurium and concluded that the outbreak had been due to food handlers' poor personal hygiene, as workers preparing food at the affected restaurants had fallen ill before most patrons had.

Oregon [Democratic](#) Congressman [James H. Weaver](#) continued to investigate because he felt the officials' conclusion did not adequately explain the facts. He contacted physicians at the [CDC](#) and other agencies and urged them to investigate Rajneeshpuram. According to Lewis F. Carter's *Charisma and Control in Rajneeshpuram*, "many treated his concern" as paranoid or as an example of "Rajneeshee bashing". On February 28, 1985, Weaver gave a speech on the floor of the [United States House of Representatives](#) in which he accused the Rajneeshees of sprinkling salmonella culture on salad bar ingredients in eight restaurants. As events later showed, Weaver had presented a well-reasoned, if only circumstantial, case, whose circumstantial elements were confirmed by evidence when investigators gained access to Rajneeshpuram several months later.

In the week starting Monday, September 16, 1985, Rajneesh, who had recently emerged from a four-year period of public silence and self-imposed isolation at the commune, convened press conferences where he stated that Sheela and 19 other commune leaders, including Puja, had left Rajneeshpuram over the weekend and gone to Europe. Following their departure, he said, he had received information from residents that Sheela and her team had committed a number of serious crimes. Calling them a "gang of fascists", he said they had attempted to poison his doctor and his female companion, as well as the [Jefferson County](#) district attorney and the water system in The Dalles. He added that he believed they had poisoned a county commissioner and Judge William Hulse, that they may have been responsible for the salmonella outbreak in The Dalles, and invited state and federal law enforcement officials to come to the Ranch and investigate. His allegations were initially greeted with skepticism by outside observers.

[Oregon Attorney General Dave Frohnmayer](#) established a task force among local and [Oregon State Police](#), the [Federal Bureau of Investigation](#), the Sheriff's office, the [Immigration and Naturalization Service](#) and the [National Guard](#) that set up headquarters on the Ranch to investigate the allegations. Feeling they would need greater authority to perform an effective search, and fearing that evidence might be destroyed, they obtained [search warrants](#) and subpoenas; 50 investigators entered the Ranch on October 2, 1985. Dr. Skeels found glass vials containing salmonella "bactrol disks" in the laboratory of a Rajneeshpuram medical clinic. Analysis by the CDC lab in Atlanta confirmed that the bacteria at the Rajneesh laboratory were an exact match to those that sickened individuals who had eaten at local restaurants. The investigation also revealed prior experimentation at Rajneeshpuram with poisons, chemicals and bacteria, in 1984 and 1985. Dr. Skeels described the scene at the Rajneesh laboratory as "a bacteriological freezer-dryer for large-scale production" of microbes. Investigators found a copy of [The Anarchist Cookbook](#), and literature on the manufacture and usage of explosives and military biowarfare. Investigators also believed that similar attacks had previously been carried out in [Salem](#), [Portland](#), and other cities in Oregon. According to testimony, the plotters boasted that they had attacked a nursing home and a salad bar at the [Mid-Columbia Medical Center](#), but no such attempts were ever proven in court. As a result of the bioterrorism investigation, law enforcement officials discovered that there had been an [aborted plot](#) by Rajneeshees to murder [Charles Turner](#), a former [United States Attorney](#) for

Oregon.

### Prosecution

The mayor of Rajneeshpuram, David Berry Knapp (known as Swami Krishna Deva or KD), [turned state's evidence](#) and gave an account of his knowledge of the salmonella attack to the [Federal Bureau of Investigation](#). He claimed that Sheela said "she had talked with [Rajneesh] about the plot to decrease voter turnout in The Dalles by making people sick. Sheela said that [Rajneesh] commented that it was best not to hurt people, but if a few died not to worry." In Miller's [Germs: Biological Weapons and America's Secret War](#), this statement is attributed to Sheela: According to KD's testimony, she played doubters a muffled tape of Rajneesh's voice saying that "if it was necessary to do things to preserve [his] vision, then do it" and interpreted this to mean that killing people in his name was fine, telling doubters "not to worry" if a few people had to die. The investigation uncovered a September 25, 1984, invoice from the [American Type Culture Collection](#) of microbes, showing an order received by the Rajneeshpuram laboratory for Salmonella Typhi, the bacterium that causes the life-threatening illness [typhoid fever](#).

According to a 1994 study published in the journal Sociology of Religion, "[m]ost sannyasins indicated that they believed that [Rajneesh] knew about Ma Anand Sheela's illegal activities." [Frances FitzGerald](#) writes in *Cities on a Hill* that most of Rajneesh's followers "believed [him] incapable of doing, or willing, violence against another person", and that almost all of them thought the responsibility for the criminality was Sheela's – according to FitzGerald they believed he had not known anything about it. Carus writes in *Toxic Terror* that "There is no way to know to what extent [Rajneesh] participated in actual decision-making. His followers believed he was involved in every important decision that Sheela made, but those allegations were never proven." Rajneesh insisted that Sheela, who he said was his only source of information during his period of isolation, used her position to impose "a fascist state" on the commune. He acknowledged that the key to her actions was his silence.

Rajneesh left Oregon by plane on October 27, 1985, and was [arrested](#) when he landed in [Charlotte](#), North Carolina, and charged with 35 counts of deliberate [violations of immigration laws](#). As part of a plea bargain arrangement, he pled guilty to two counts of [making false statements](#) to immigration officials. He received a 10-year suspended sentence and a fine of US\$400,000, and was deported and barred from reentering the United States for a period of five years. He was never prosecuted for crimes related to the salmonella poisoning.

Sheela and Puja were arrested in Germany on October 28, 1985. After protracted negotiations, they were extradited to the United States and arrived in Portland on February 6, 1986. They were charged with attempting to murder Rajneesh's personal physician, first-degree assault for poisoning Judge William Hulse, second-degree assault for poisoning The Dalles Commissioner Raymond Matthews, and product tampering for the poisonings in The Dalles, as well as wiretapping and immigration offenses. The U.S. Attorney's office handled the prosecution of the poisoning cases related to the 10 restaurants, and the Oregon Attorney General's office prosecuted the poisoning cases of Commissioner Matthews and Judge Hulse.

On July 22, 1986, both women entered no-contest ("[Alford](#)") pleas for the salmonella poisoning and the other charges, and received sentences ranging from three to 20 years, to be served concurrently. Sheela received 20 years for the attempted murder of Rajneesh's physician, 20 years for first-degree assault in the poisoning of Judge Hulse, 10 years for second-degree assault in the poisoning of Commissioner Matthews, four and a half years for her role in the salmonella poisoning, four and a half years for the wiretapping conspiracy, and five years' probation for immigration fraud; Puja received 15, 15, seven and a half, and four and a half years, respectively, for her role in the first four of these crimes, as well as three

years' probation for the wiretapping conspiracy. Both Sheela and Puja were released early for good behavior, after serving 29 months of their sentences in a minimum-security [federal prison](#). Sheela was deported, and went on to run two [nursing homes](#) in Switzerland.

The Rajneeshees committed the most significant crimes of their kind in the history of the United States ... The largest single incident of fraudulent marriages, the most massive scheme of wiretapping and bugging, and the largest mass poisoning. ~[Oregon Attorney General Dave Frohnmayer](#)

### Aftermath

[The Oregonian](#) ran a 20-part series on Rajneesh's movement, beginning in June 1985, which included an investigation into the salmonella incident. As a result of a follow-up investigation, The Oregonian learned that Leslie L. Zaitz, one of their [investigative journalists](#), had been placed as number three on a top-ten hit list by Sheela's group. Then [Oregon Attorney General Dave Frohnmayer](#) commented on the poisoning incident and other acts perpetrated by the group, stating: "The Rajneeshees committed the most significant crimes of their kind in the history of the United States ... The largest single incident of fraudulent marriages, the most massive scheme of wiretapping and bugging, and the largest mass poisoning." Looking back on the incident, Skeels stated, "We lost our innocence over this ... We really learned to be more suspicious ... The first significant biological attack on a U.S. community was not carried out by foreign terrorists smuggled into New York, but by legal residents of a U.S. community. The next time it happens it could be with more lethal agents ... We in public health are really not ready to deal with that."

Milton Leitenberg noted in the 2005 work *Assessing the Biological Weapons and Bioterrorism Threat*, "there is apparently no other 'terrorist' group that is known to have successfully cultured any pathogen." Federal and state investigators requested that details of the incident not be published in the [Journal of the American Medical Association](#) (JAMA) for 12 years, for they feared a description of the events could spark [copycat crimes](#), and JAMA complied. No repeat attacks or [hoaxes](#) subsequently occurred, and a detailed account of the incident and investigation was published in JAMA in 1997. A 1999 empirical analysis in the journal *Emerging Infectious Diseases* published by the [CDC](#) described six motivational factors associated with bioterrorism, including: charismatic leadership, no outside constituency, apocalyptic ideology, loner or splinter group, sense of paranoia and grandiosity, and defensive aggression. According to the article, the "Rajneesh Cult" satisfied all motivational factors except for an "apocalyptic ideology". An analysis in the book *Cults, Religion and Violence* disputes the link to [charismatic leadership](#), pointing out that in this and other cases, it was organizational lieutenants who played a pivotal role in the initiation of violence. Arguing for a contextual rather than decisive view of charisma, the authors state that the attribution of outcomes to the personality of a single individual, even a charismatic leader, usually camouflages a far more complex field of social relationships.

The media revisited the incident during the [2001 anthrax attacks](#) in the United States. The 2001 publication of [Judith Miller's](#) *Germs: Biological Weapons and America's Secret War*, which contained an analysis and detailed description of the events, also brought discussion of the incident back into the news. Residents of The Dalles commented that they have an understanding of how bioterrorism can occur in the United States. The incident had spread fear in the community, and drained the local economy. All but one of the restaurants affected went out of business. In 2005, the [Oregon State Land Board](#) agreed to sell 480 acres (1.9 km<sup>2</sup>) of Wasco County, including Rajneeshpuram, to the Colorado-based youth ministry [Young Life](#). On February 18, 2005, [Court TV](#) aired an episode of [Forensic Files](#) about the incident, entitled: "'Bio-Attack' – Oregon Cult Poisonings". The salmonellosis outbreak was also discussed in the media within the context of the [2006 North American E. coli outbreak](#).

The book *Emerging Infectious Diseases: Trends and Issues* cites the 1984 Rajneeshee bioterror attack, along with the [Aum Shinrikyo](#) group's attempts to use anthrax and other agents, as exceptions to the belief "that only foreign-state supported groups have the resources to execute a credible bioterrorism event". According to *Deadly Cultures: Biological Weapons Since 1945*, these are the only two confirmed uses of [biological weapons](#) for terrorist purposes to harm humans. The incident was the single largest bioterrorist attack in United States history. In the chapter titled: "Influencing An Election: America's First Modern Bioterrorist Attack" in his 2006 book *Terrorism on American Soil: A Concise History of Plots and Perpetrators from the Famous to the Forgotten*, author Joseph T. McCann concludes: "In every respect, the salmonella poisoning carried out by the cult members was a major bioterrorist attack that fortunately failed to achieve its ultimate goal and resulted in no fatalities" ([Wikipedia, 2012](#)).



# Bio & Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** Despite the number of high-profile bio-terror plots and patsies, the historical record indicates that 99% of all bio-terror plots, attacks, “tests”, “accidents” and drills are conducted by the government who has the means, the motive and the opportunity.

**Title:** Sarin Gas Attack On The Tokyo Subway

**Date:** 2012

**Source:** [Wikipedia](#)

**Abstract:** The Sarin attack on the Tokyo subway, usually referred to in the [Japanese](#) media as the Subway Sarin Incident, was an act of [domestic terrorism](#) perpetrated by members of [Aum Shinrikyo](#) on March 20, 1995. In five coordinated attacks, the perpetrators released [sarin](#) on several lines of the [Tokyo Metro](#), killing thirteen people, severely injuring fifty and causing temporary vision problems for nearly a thousand others. The attack was directed against trains passing through [Kasumigaseki](#) and [Nagatachō](#), home to the Japanese government. It is the most serious attack to occur in Japan since the end of [World War II](#)

### Background

[Aum Shinrikyo](#) is the former name of a controversial group now known as [Aleph](#). The Japanese police initially reported that the attack was the cult's way of hastening an [apocalypse](#). The prosecution said that it was an attempt to bring down the government and install [Shoko Asahara](#), the group's founder, as the "emperor" of Japan. Asahara's defense team claimed that certain senior members of the group independently planned the attack, but their motives for this were left unexplained.

Aum Shinrikyo first began their attacks on June 27, 1994 in [Matsumoto](#), Japan (see [Matsumoto incident](#)). With the help of a converted refrigerator truck, members of the cult released a cloud of sarin which floated near the homes of judges who were overseeing a lawsuit concerning a real-estate dispute which was predicted to go against the cult. From this one event, 500 people were injured and seven people died.

### Main Perpetrators

Ten men were responsible for carrying out the attacks; five released the sarin, while the other five served as get-away drivers.

#### Assigned Train

[Chiyoda Line](#), train  
A725K

[Marunouchi Line](#), train  
A777

[Marunouchi Line](#), train  
B801

[Hibiya Line](#), train  
B711T

[Hibiya Line](#), train  
A720S

#### Perpetrator

[Ikuo Hayashi](#) (林 郁夫 *Hayashi Ikuo*?)

Kenichi Hirose (広瀬 健一 *Hirose Ken'ichi*?)

Toru Toyoda (豊田 亨 *Toyoda Tōru*?)

Masato Yokoyama (横山 真人 *Yokoyama Masato*?)

Yasuo Hayashi (林 泰男 *Hayashi Yasuo*?)

#### Driver

[Tomomitsu Niimi](#) (新実 智光 *Niimi Tomomitsu*?)

Koichi Kitamura (北村 浩一 *Kitamura Kōichi*?)

Katsuya Takahashi (高橋 克也 *Takahashi Katsuya*?)

Kiyotaka Tonozaeki (外崎 清隆 *Tonozaeki Kiyotaka*?)

Shigeo Sugimoto (杉本 繁郎 *Sugimoto Shigeo*?)

## **Ikuo Hayashi**

Main article: [Ikuo Hayashi](#)

Prior to joining Aum, Hayashi was a senior medical doctor with "an active 'front-line' track record" at the [Ministry of Science and Technology](#). Himself the son of a doctor, Hayashi graduated from [Keio University](#), one of [Tokyo](#)'s top schools. He was a heart and artery specialist at [Keio Hospital](#), which he left to become head of Circulatory Medicine at the [National Sanatorium Hospital](#) in [Tokai, Ibaraki](#) (north of Tokyo). In 1990, he resigned his job and left his family to join Aum in the monastic order Sangha, where he became one of Asahara's favorites and was appointed the group's Minister of Healing, as which he was responsible for administering a variety of "treatments" to Aum members, including [sodium pentothal](#) and [electric shocks](#) to those whose loyalty was suspect. These treatments resulted in several deaths. Hayashi was later sentenced to [life imprisonment](#).

[Tomomitsu Niimi](#), who was his get-away driver, received the death sentence due to his involvement in other crimes perpetrated by Aum members.

## **Kenichi Hirose**

Hirose was thirty years old at the time of the attacks. Holder of a postgraduate degree in Physics from prestigious [Waseda University](#), Hirose became an important member of the group's Chemical Brigade in their Ministry of Science and Technology. He was also involved in the group's Automatic Light Weapon Development scheme.

Hirose teamed up with Koichi Kitamura, who was his get-away driver. After releasing the sarin, Hirose himself showed symptoms of sarin poisoning. He was able to inject himself with the antidote ([atropine sulphate](#)) and was rushed to the Aum-affiliated Shinrikyo Hospital in [Nakano](#) for treatment. However, medical personnel at the given hospital had not been given prior notice of the attack and were consequently clueless regarding what treatment Hirose needed. When Kitamura faced the fact that he had driven Hirose to the hospital in vain, he instead drove to Aum's headquarter in Shibuya where [Ikuo Hayashi](#) gave Hirose first aid.

Hirose's appeal of his death sentence was rejected by the [Tokyo High Court](#) on Wednesday, July 28, 2003. The sentence was upheld by the [Supreme Court of Japan](#) on November 6, 2009.

Kitamura was sentenced to life imprisonment.

## **Toru Toyoda**

Toyoda was twenty-seven at the time of the attack. He studied Applied Physics at [University of Tokyo](#)'s Science Department and graduated with honors. He also holds a [master's degree](#), and was about to begin [doctoral studies](#) when he joined Aum, where he belonged to the Chemical Brigade in their Ministry of Science and Technology.

Toyoda was sentenced to death. The appeal of his death sentence was rejected by the Tokyo High Court on Wednesday, July 28, 2003, and was upheld by the Supreme Court on November 6, 2009.

[Katsuya Takahashi](#) was his get-away driver and is still at large.

## **Masato Yokoyama**

Yokoyama was thirty-one at the time of the attack. He was a graduate in Applied Physics from [Tokai University](#)'s Engineering Department. He worked for an electronics firm for three years after graduation before leaving to join Aum, where he became Undersecretary at the group's Ministry of Science and Technology. He was also involved in their Automatic Light Weapons Manufacturing scheme. Yokoyama was [sentenced to death](#) in 1999.



[Kiyotaka Tonozaiki](#), a high school graduate who joined the group in 1987, was a member of the group's Ministry of Construction, and served as Yokoyama's [getaway driver](#). Tonozaiki was sentenced to life imprisonment.

### **Yasuo Hayashi**

Yasuo Hayashi was thirty-seven years old at the time of the attacks, and was the oldest person at the group's Ministry of Science and Technology. He studied [Artificial Intelligence](#) at [Kogakuin University](#); after graduation he traveled to [India](#) where he studied [yoga](#). He then became an Aum member, taking vows in 1988 and rising to the number three position in the group's Ministry of Science and Technology.

Asahara had at one time suspected Hayashi of being a spy. The extra packet of sarin he carried was part of "ritual character test" set up by Asahara to prove his allegiance, according to the prosecution.

Hayashi went on the run after the attacks; he was arrested twenty-one months later, one thousand miles from Tokyo on [Ishigaki Island](#). He was later sentenced to death and has appealed.

Shigeo Sugimoto was his get-away driver. His lawyers argued that he played only a minor role in the attack, but the argument was rejected, and he has been sentenced to death.

### **Attack**

On Monday March 20, 1995, five members of [Aum Shinrikyo](#) launched a chemical attack on the [Tokyo Metro](#), one of the world's busiest commuter transport systems, at the peak of the morning [rush hour](#). The chemical agent used, liquid [sarin](#), was contained in plastic bags which each team then wrapped in newspaper. Each perpetrator carried two packets of sarin totaling approximately 900 millilitres of sarin, except Yasuo Hayashi, who carried three bags. Aum originally planned to spread the sarin as an aerosol but did not follow through with it. A single drop of sarin the size of a pinhead can kill an adult.

Carrying their packets of sarin and umbrellas with sharpened tips, the perpetrators boarded their appointed trains. At prearranged stations, the sarin packets were dropped and punctured several times with the sharpened tip of the umbrellas. The men then got off the train and exited the station to meet his accomplice with a car. By leaving the punctured packets on the floor, the sarin was allowed to leak out into the train car and stations. This sarin affected passengers, subway workers, and those who came into contact with them. Sarin is the most volatile of the nerve agents, which means that it can quickly and easily evaporate from a liquid into a vapor and spread into the environment. People can be exposed to the vapor even if they do not come in contact with the liquid form of sarin. Because it evaporates so quickly, sarin presents an immediate but short-lived threat.

### **Chiyoda Line**

The team of Ikuo Hayashi and Tomomitsu Niimi were assigned to drop and puncture two sarin packets on the [Chiyoda Line](#). Hayashi was the perpetrator and Niimi was his get-away driver. On the way to the station, Niimi purchased newspapers to wrap the sarin packets in—the [Japan Communist Party's Akahata](#) and the [Sōka Gakkai's Seikyo Shimbun](#). Hayashi eventually chose to use *Akahata*. Wearing a [surgical mask](#) commonly worn by the Japanese during cold and flu season, Hayashi boarded the first car of southwest-bound 07:48 Chiyoda Line train number A725K. As the train approached [Shin-Ochanomizu Station](#), the central business district in [Chiyoda](#), he punctured one of his two bags of sarin, leaving the other untouched and exited the train at Shin-Ochanomizu.

The train proceeded down the line with the punctured bag of sarin leaking until 4 stops later at [Kasumigaseki Station](#). There, the bags were removed and eventually disposed of by station attendants, of whom two died. The train continued on to the next station where it was completely stopped, evacuated and cleaned. There were a total of 2 deaths and 231 serious injuries from this attack.

## Marunouchi Line

### Ogikubo-Bound

Two men, Kenichi Hirose and Koichi Kitamura, were assigned to release two sarin packets on the westbound [Marunouchi Line](#) destined for [Ogikubo Station](#). The pair left Aum headquarters in [Shibuya](#) at 6:00 am and drove to [Yotsuya Station](#). There Hirose boarded a westbound Marunouchi Line train, then changed to a northbound [JR East Saikyō Line](#) train at [Shinjuku Station](#) and got off at [Ikebukuro Station](#). He then bought a sports tabloid to wrap the sarin packets in and boarded the second car of Marunouchi Line train A777.

As he was about to release the sarin, however, Hirose believed the loud noises caused by the newspaper-wrapped packets had caught the attention of a [schoolgirl](#). To avoid further suspicion, he got off the train at either [Myogadani](#) or [Korakuen Station](#) and moved to the third car instead of the second. As the train approached [Ochanomizu Station](#), Hirose dropped the packets to the floor, repeated an Aum mantra and punctured the sarin packets with so much force that he bent the tip of his sharpened umbrella. Both packets were successfully broken, and all 900 mL of sarin was released onto the floor of the train. Hirose then departed the train at Ochanomizu and left via Kitamura's car waiting outside the station.

At [Nakano-sakaue Station](#), 14 stops later, two severely injured passengers were carried out of the train car, while station attendant Sumio Nishimura removed the sarin packets (one of these two passengers would end up being the only fatality from this attack). The train continued on, however, with sarin still on the floor of the third car. Five stops later, at 8:38 am, the train reached [Ogikubo Station](#), the end of the [Marunouchi Line](#), all the while passengers boarding the train. The train continued eastbound until it was finally taken out of service at [Shin-Kōenji Station](#) two stops later. The entire ordeal resulted in one passenger's death with 358 being seriously injured.

### Ikebukuro-Bound

Masato Yokoyama and his driver Kiyotaka Tonozaiki were assigned to release sarin on the [Ikebukuro-bound Marunouchi Line](#). On the way to [Shinjuku Station](#), Tonozaiki stopped to allow Yokoyama to buy a copy of [Nihon Keizai Shimbun](#), the paper he would use to wrap the two sarin packets. When they arrived at the station, Yokoyama put on a wig and fake glasses and boarded the fifth car of the Ikebukuro-bound 07:39 Marunouchi Line train number B801.

As the train approached [Yotsuya Station](#), Yokoyama began poking at the sarin packets. When the train reached the next station, he fled the scene with Tonozaiki, leaving the sarin packets on the train car. The packets, however, were not fully punctured. During his drop, Yokoyama accidentally left one packet fully intact, while the other packet was only punctured once resulting in the sarin being released relatively slowly.

The train reached the end of the line, Ikebukuro, at 8:30 am where it would head back in the opposite direction. However, before it departed the train was evacuated and searched, but the searchers failed to discover the sarin packets. One passenger attributes this oversight to the fact that the search was conducted by a part-time employee instead of a full-time train assistant. Nevertheless, the train departed Ikebukuro Station at 8:32 am as the Shinjuku-bound A801. Passengers soon became ill and alerted station attendants of the sarin soaked newspapers at [Kōrakuen Station](#). One station later, at [Hongō-sanchōme](#), staff removed the sarin packets and mopped the floor, but the train continued on to Shinjuku. After arriving at 9:09 am, the train once again began to make its way back to Ikebukuro as the B901. The train was finally put out of service at [Kokkai-gijidō-mae Station](#) in Chiyoda at 9:27 am, one hour and forty minutes after Yokoyama punctured the sarin packet. The attack resulted in no fatalities, but over 200 people were left in serious condition.

## Hibiya Line

### Tōbu Dōbutsu Kōen-Bound

Toru Toyoda and his driver Katsuya Takahashi were assigned to release sarin on the northeast-bound [Hibiya Line](#). The pair, with Takahashi driving, left Aum headquarters in Shibuya at 6:30 am. After purchasing a copy of [Hochi Shimbun](#) and wrapping his two sarin packets, Toyoda arrived at [Naka-Meguro Station](#) where he boarded the first car of northeast-bound 07:59 Hibiya Line train number B711T. Sitting close to the door, he set the sarin packets on the floor. When the train arrived at the next station, [Ebisu](#), Toyoda punctured the packets and got off the train. He was on the train for a total of two minutes, by far the quickest sarin drop out of the five attacks that day.

Two stops later, at [Roppongi Station](#), passengers in the train's first car began to feel the effects of the sarin and began to open the windows. By [Kamiyacho Station](#), the next stop, the passengers in the car had begun panicking. The first car was evacuated and several passengers were immediately taken to a hospital. Still, with the first car empty the train continued down the line for one more stop until it was completely evacuated at [Kasumigaseki Station](#). This attack killed one person and seriously injured 532 others.

### Naka-Meguro-Bound

Yasuo Hayashi and Shigeo Sugimoto were the team assigned to drop sarin on the southwest-bound Hibiya Line departing [Kita-Senju Station](#) for [Naka-Meguro Station](#). Unlike the rest of the attacks, Hayashi carried three sarin packets onto the train instead of two. Prior to the attack, Hayashi asked to carry a flawed leftover packet in addition to the two others in an apparent bid to allay suspicions and prove his loyalty to the group. After Sugimoto escorted him to [Ueno Station](#), Hayashi boarded the third car of southwest-bound 07:43 Hibiya Line train number A720S and dropped his sarin packets to the floor. Two stops later, at [Akihabara Station](#), he punctured the packets, left the train and arrived back at Aum headquarters with Sugimoto by 8:30 am. Hayashi made the most punctures of any of the perpetrators.

By the next stop, passengers in the third car began to feel effects from the sarin. Noticing the large, liquid soaked package on the floor and assuming it was the culprit, one passenger kicked the sarin packets out of the train and onto [Kodenmachō Station](#)'s subway platform. Four people in the station died as a result.

A puddle of sarin, however, remained on the floor of the passenger car as the train continued to the next station. At 8:10 am, after the train pulled out of [Hatchōbori Station](#), a passenger in the third car pressed the emergency stop button. The train was in a tunnel at the time, and was forced to proceed to [Tsukiji Station](#) where passengers stumbled out and collapsed on the station's platform and the train was taken out of service.

The attack was originally believed to be an explosion and was thus labeled as such in media reports. Eventually, station attendants realized that the attack was not an explosion, but rather a chemical attack. At 8:35 am, the Hibiya Line was completely shut down and all commuters were evacuated. Between the five stations affected in this attack, 8 people died and 275 were seriously injured.

### Aftermath

On the day of the attack, ambulances transported 688 patients and nearly five thousand people reached hospitals by other means. Hospitals saw 5,510 patients, seventeen of whom were deemed critical, thirty-seven severe and 984 moderately ill with vision problems. Most of those reporting to hospitals were the "worried well," who had to be distinguished from those who were ill.

By mid-afternoon, the mildly affected victims had recovered from vision problems and were released from hospital. Most of the remaining patients were well enough to go home the following day, and within a week only a few critical patients remained in hospital. The death toll on the day of the attack was eight that eventually rose to at least a dozen.

## The Injured

Witnesses have said that subway entrances resembled battlefields. In many cases, the injured simply lay on the ground, many with breathing difficulties.[\[citation needed\]](#) Several of those affected by sarin went to work in spite of their symptoms, most of them not realizing that they had been exposed to sarin. Most of the victims sought medical treatment as the symptoms worsened and as they learned of the actual circumstances of the attacks via news broadcasts.

Several of those affected were exposed to sarin only by helping those who had been directly exposed. Among these were passengers on other trains, subway workers and health care workers. A 2008 law enacted by the Japanese government authorized payments of damages to victims of the gas attack, because the attack was directed at the government of Japan. As of December 2009, 5,259 people have applied for benefits under the law. Of those, 47 out of 70 have been certified as disabled and 1,077 of 1,163 applications for serious injuries or illnesses have been certified.

Surveys of the victims (in 1998 and 2001) showed that many were still suffering from [post-traumatic stress](#) disorder. In one survey, twenty percent of 837 respondents complained that they felt insecure whenever riding a train, while ten percent answered that they tried to avoid any nerve-attack related news. Over sixty percent reported chronic eyestrain and said their vision had worsened.

## Emergency Services

[Emergency services](#) including police, fire and [ambulance](#) services were criticised for their handling of the attack and the injured, as were the [media](#) (some of whom, though present at subway entrances and filming the injured, hesitated when asked to transport victims to the hospital) and the Subway Authority, which failed to halt several of the trains despite reports of passenger injury. Health services including hospitals and health staff were also criticised: one hospital refused to admit a victim for almost an hour, and many hospitals turned victims away.

Sarin poisoning was not well known at the time, and many hospitals only received information on diagnosis and treatment because a professor at [Shinshu University](#)'s school of medicine happened to see reports on television. Dr. [Nobuo Yanagisawa](#) had experience with treating sarin poisoning after the [Matsumoto incident](#); he recognized the symptoms, had information on diagnosis and treatment collected, and led a team who sent the information to hospitals throughout Tokyo via fax.

St. Luke's Hospital at Tsukiji was one of very few hospitals in Tokyo at that time to have the entire building wired and piped for conversion into a "Field Hospital" in the event of a major disaster. This proved to be a very fortunate coincidence as the hospital was able to take in most of the 600+ victims at Tsukiji station, resulting in no fatalities at that station.

As there was a severe shortage of antidotes in Tokyo, sarin antidote stored in rural hospitals as an antidote for herbicide/insecticide poisoning were delivered to nearby [Shinkansen](#) stations, where it was collected by a Ministry of Health official on a train bound for Tokyo.

## Defended by New Religions Scholars

In May 1995, after the sarin attack on the Tokyo subway, American scholars [James R. Lewis](#) and [J. Gordon Melton](#) flew to Japan to hold a pair of press conferences in which they announced that the chief suspect in the murders, religious group [Aum Shinrikyo](#), couldn't have produced the [sarin](#) that the attacks had been committed with. They had determined this, Lewis said, from photos and documents provided by the group.

However, the Japanese police had already discovered at Aum's main compound back in March a sophisticated chemical weapons laboratory that was capable of producing thousands of kilograms a year of the poison. Later investigation showed that Aum not only created the sarin used in the subway attacks, but had committed previous chemical and biological weapons attacks, including a [previous attack with sarin](#) that had killed eight and injured 144.

During the [Aum Shinrikyo](#) incident Lewis and Melton's bills for travel, lodging and accommodations were paid for by Aum, according to [The Washington Post](#). Lewis openly disclosed that "Aum [...] arranged to provide all expenses [for the trip] ahead of time", but claimed that this was "so that financial considerations would not be attached to our final report".

### **Murakami Book**

Popular contemporary novelist [Haruki Murakami](#) wrote [Underground: The Tokyo Gas Attack and the Japanese Psyche](#) (1997). He was critical of the Japanese media for focusing on the sensational profiles of the attackers and ignoring the lives of the victimized average citizens. The book contains extensive interviews with the survivors in order to tell their stories. Murakami would later add a second part to the work, *The Place That Was Promised*, which focuses on Aum Shinrikyo.

### **Aum/Aleph Today**

Main article: [Aum Shinrikyo#Current activities](#)

The sarin attack was the most serious terrorist attack in Japan's modern history. It caused massive disruption and widespread fear in a society that had previously been perceived as virtually free of crime.

Shortly after the attack, Aum lost its status as a religious organization, and many of its assets were seized. However, the [Diet](#) (Japanese parliament) rejected a request from government officials to outlaw the group. The [National Public Safety Commission](#) received increased funding to monitor the group. In 1999, the Diet gave the commission broad powers to monitor and curtail the activities of groups that have been involved in "indiscriminate mass murder" and whose leaders are "holding strong sway over their members", a bill custom-tailored to Aum Shinrikyo.

Asahara was [sentenced to death](#) by [hanging](#) on February 27, 2004, but lawyers immediately appealed the ruling. The Tokyo High Court postponed its decision on the appeal until results were obtained from a court-ordered psychiatric evaluation, which was issued to determine whether Asahara was fit to stand trial. In February 2006, the court ruled that Asahara was indeed fit to stand trial, and on March 27, rejected the appeal against his death sentence. Japan's Supreme Court upheld this decision on September 15, 2006. (Japan does not announce dates of executions, which are by hanging, in advance of them being carried out.)

On November 21, all the Aum trials concluded as the death sentence of Seiiichi Endo was upheld by Japan's Supreme Court. As a result, among a total of 189 members indicted, 13 were sentenced to death, five were sentenced to life in prison, 80 were given prison sentences of various lengths, 87 were received suspended sentences, two were fined, and one was found not guilty.

The group reportedly still has about 2,100 members, and continues to recruit new members under the name "Aleph" as well as other names. Though the group has renounced its violent past, it still continues to follow Asahara's spiritual teachings. Members operate several businesses, though boycotts of known Aleph-related businesses, in addition to searches, confiscations of possible evidence and picketing by protest groups, have resulted in closures ([Wikipedia, 2012](#)).

**Title:** Last Death Sentence Upheld In 1995 Tokyo Subway Gas Attack

**Date:** December 13, 2012

**Source:** [Reuters](#)

**Abstract:** Japan's Supreme Court upheld a death sentence handed down on a member of the doomsday cult that staged gas attacks on the Tokyo subway in 1995, a court spokesman said on Tuesday, ending the trials of cult followers charged in a series of assaults.

Seiichi Endo, 51, was the 13th member of the Aum Shinri Kyo cult to have his death sentence confirmed in a ruling issued on Monday. First sentenced in 2002, Endo had joined the cult in 1987, when he was studying virology at the University of Kyoto.

Local media said none of those found guilty had been executed. Justice Minister Hideo Hiraoka last month said he would make no comment on the cases but would "cautiously decide" on whether to apply the death penalty.

The cult's founder, Shoko Asahara, whose real name is Chizuo Matsumoto, had his death sentence confirmed in 2006. Three cult members are still on the run.

Simultaneous attacks with sarin nerve gas on five Tokyo subway trains during the rush hour on March 20, 1995, killed 12 people and made thousands ill.

The attacks, with images of bodies lying across platforms and soldiers in gas masks sealing off subway stations, shattered the country's self-image as a haven of public safety.

Asahara was found guilty of the 1989 murder of a lawyer who opposed the cult as well as his wife and child. He was also convicted of conspiracy in a 1994 sarin attack in central [Japan](#).

Aum Shinri Kyo claimed responsibility for the Tokyo attack and later changed its name to Aleph, which still has 1,000 members, according to the Public Security Intelligence Agency ([Reuters, 2012](#)).

**Title:** Tokyo Sarin Gas Attack Fugitive Apprehended

**Date:** January 2, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Makoto Hirata, one of three remaining fugitive members of a religious cult in Japan, has surrendered himself to police after 16 years on the run following the deadly 1995 sarin gas attack in Tokyo.

Japan's Aum Shinrikyo cult was behind the March 1995 attack on the Tokyo subway that used the nerve agent sarin to kill 13 people and injure 6,000. Hirata surrendered himself just before midnight on December 31. He was one of the three fugitives from the cult still wanted by police, Digital Journal reports.

"(I) wanted a sense of closure after being on the run for such a long time," Hirata said to police, according to ABC Net Australia.

According to the BBC, 189 members of the cult have been tried and 13 have received the death sentence. Among those who have been sentenced to death is the founder of the cult, Shoko Asahara. The cult members were obsessed with producing biological and chemical weapons and experimented with botulin, Ebola and anthrax before perfecting the nerve agent sarin.

When the Tokyo sarin attack occurred, the cult had attracted a worldwide membership of as many as 40,000 people and had a net worth of \$1.5 billion, according to Wired ([Bio Prep Watch, 2012](#)).



# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** Despite the number of high-profile bio-terror plots and patsies, the historical record indicates that 99% of all bio-terror plots, attacks, "tests", "accidents" and drills are conducted by the government who has the means, the motive and the opportunity.

**Title:** 2001 Anthrax Attacks

**Date:** 2012

**Source:** [Wikipedia](#)

**Abstract:** The 2001 anthrax attacks in the United States, also known as Amerithrax from its [Federal Bureau of Investigation](#) (FBI) case name, occurred over the course of several weeks beginning on Tuesday, September 18, 2001, one week after the [September 11 attacks](#).

Letters containing [anthrax spores](#) were mailed to several news media offices and two [Democratic U.S. Senators](#), killing five people and infecting 17 others. According to the FBI, the ensuing investigation became "one of the largest and most complex in the history of law enforcement."

A major focus in the early years of the investigation was a [bio-weapons](#) expert named [Steven Hatfill](#), who was eventually exonerated. Another suspect, [Bruce Edwards Ivins](#), became a focus of investigation around April 4, 2005. Ivins was a scientist who worked at the government's biodefense labs at [Fort Detrick](#) in [Frederick, Maryland](#). On April 11, 2007, Ivins was put under periodic surveillance and an FBI document stated that "Bruce Edwards Ivins is an extremely sensitive suspect in the 2001 anthrax attacks". On July 27, 2008, Ivins killed himself with an overdose of [acetaminophen](#).

On August 6, 2008, despite having no direct evidence of his involvement, federal prosecutors declared Ivins to be the sole culprit of the crime. Two days later, Senator [Charles Grassley](#) and Rep. [Rush Holt](#) called for hearings into the DOJ and FBI's handling of the investigation. On February 19, 2010, the FBI formally closed its investigation. A review of the scientific methods used in the investigation at the [National Academy of Sciences](#), published in February 2011, cast doubt on the US government's conclusion that Ivins was the perpetrator. The review found that, although the type of anthrax used in the letters was correctly identified as the [Ames strain](#) of the bacterium, there was insufficient scientific evidence for the FBI's assertion that it originated from Ivins' laboratory. The FBI responded by pointing out that the review panel asserted that it would not be possible to reach a definite conclusion based on science alone, and said that a combination of factors led the FBI to conclude that Ivins would have been the perpetrator. Some information about the case related to Ivins' mental problems is still "under seal." Lawsuits filed by the widow of victim Bob Stevens have not yet been settled ([Wikipedia, 2012](#)).

### Overview

The attacks followed a week after the [September 11 terror attacks](#) which had caused the destruction of the [World Trade Center](#) in [New York City](#), damage to [The Pentagon](#) in [Arlington, Virginia](#) and the crash of an airliner in [Shanksville, Pennsylvania](#). The anthrax attacks came in two waves. The first set of [anthrax](#) letters had a [Trenton, New Jersey postmark](#) dated September 18, 2001. Five letters are believed to have been mailed at this time to: [ABC News](#), [CBS News](#), [NBC News](#) and the [New York Post](#), all located in New York City and to the [National Enquirer](#) at [American Media, Inc.](#) (AMI) in [Boca Raton, Florida](#).<sup>[15]</sup> [Robert Stevens](#), the first person who died from the mailings, worked at a tabloid called [Sun](#), also published by AMI, died on October 6, 2001, four days after entering a Florida hospital with an undiagnosed illness that caused him to vomit and be short of breath. Only the [New York Post](#) and [NBC News](#) letters were found; the existence of the other three letters is inferred because



individuals at ABC, CBS and AMI became infected with anthrax. Scientists examining the anthrax from the New York Post letter said it appeared as a coarse brown granular material looking like [Purina Dog Chow](#).

Two more anthrax letters, bearing the same Trenton postmark, were dated October 9, three weeks after the first mailing. The letters were addressed to two Democratic Senators, [Tom Daschle](#) of South Dakota and [Patrick Leahy](#) of Vermont. At the time, Daschle was the Senate Majority leader and Leahy was head of the Senate Judiciary Committee. The Daschle letter was opened by an aide, Grant Leslie, on October 15, and the government mail service was shut down. The unopened Leahy letter was discovered in an impounded mail bag on November 16. The Leahy letter had been misdirected to the State Department mail annex in [Sterling, Virginia](#), due to a misread [ZIP code](#); a postal worker there, David Hose, contracted inhalational anthrax.

More potent than the first anthrax letters, the material in the Senate letters was a highly refined dry powder consisting of about one gram of nearly pure spores. USAMRIID scientists' lack of familiarity with powdered anthrax resulted in initial reports that the powders had been "weaponized" with [silica](#). [19] Bioweapons experts who later viewed images of the attack anthrax saw no indication of "weaponization." Tests by Sandia National Laboratories in early 2002 confirmed that the attack powders were not weaponized.

At least 22 people developed anthrax infections, with 11 of the especially life-threatening inhalational variety. Five died of inhalational anthrax: Stevens; two employees of the Brentwood mail facility in Washington, D.C., Thomas Morris Jr. and Joseph Curseen; and two whose source of exposure to the bacteria is still unknown: Kathy Nguyen, a [Vietnamese](#) immigrant resident in the borough of the Bronx who worked in New York City, and Otilie Lundgren, a 94-year old widow of a prominent judge from [Oxford, Connecticut](#), who was the last known victim.

Because it took so long to identify a culprit, the 2001 anthrax attacks have been compared to the [Unabomber](#) attacks which took place from 1978 to 1995.

### **The Letters**

The anthrax letters are believed to have been mailed from [Princeton, New Jersey](#). [24] In August 2002, investigators found anthrax spores in a city street mailbox located at 10 [Nassau Street](#) near the [Princeton University](#) campus. About 600 mailboxes that could have been used to mail the letters were tested for anthrax, and the Nassau Street box was the only one to test positive.

The [New York Post](#) and [NBC News](#) letters contained the following note:

09-11-01  
THIS IS NEXT  
TAKE PENACILIN NOW  
DEATH TO AMERICA  
DEATH TO ISRAEL  
ALLAH IS GREAT

The second note that was addressed to Senators [Daschle](#) and [Leahy](#) read:

09-11-01  
YOU CAN NOT STOP US.  
WE HAVE THIS ANTHRAX.  
YOU DIE NOW.  
ARE YOU AFRAID?  
DEATH TO AMERICA.  
DEATH TO ISRAEL.  
ALLAH IS GREAT.

All the letters were copies made by a copy machine. The originals were never found. Each letter was trimmed to a slightly different size. The senate letter uses punctuation. The media letter does not. The

handwriting on the media letter (and envelopes) is roughly twice the size of the handwriting on the senate letter (and envelopes).

The envelopes addressed to Senators Daschle and Leahy had the return address:

4th Grade  
Greendale School  
Franklin Park NJ 08852

The address is fictitious. [Franklin Park, New Jersey](#), exists, but the [ZIP code](#) 08852 is for nearby [Monmouth Junction, New Jersey](#). There is no Greendale School in Franklin Park or Monmouth Junction, New Jersey, though there is a Greenbrook Elementary School in adjacent [South Brunswick Township, New Jersey](#), of which Monmouth Junction is a part.

### Hidden Message

In the letters sent to the media, the characters 'A' and 'T' were sometimes bolded or highlighted by tracing over, suggesting that the letters contained a hidden code.

The letters to The New York Post and Tom Brokaw contained a "hidden message" in such highlighted characters. Below is the media text with the highlighted A's and T's:

09-11-01  
THIS IS NEXT  
TAKE PENACILIN NOW  
DEATH TO AMERICA  
DEATH TO ISRAEL  
ALLAH IS GREAT

According to the [FBI](#) Summary Report issued on February 19, 2010, following the search of Ivins' home, cars, and office on November 1, 2007, investigators began examining his trash. A week later, just after 1 a.m. on the morning of November 8, Ivins was observed throwing away a copy of "a book entitled [Gödel, Escher, Bach: An Eternal Golden Braid](#), published by Douglas Hofstadter in 1979" and "a 1992 issue of American Scientist Journal which contained an article entitled 'The Linguistics of DNA,' and discussed, among other things, [codons](#) and hidden messages."

The book Gödel, Escher, Bach contains a lengthy description of the encoding/decoding procedures, including an illustration of hiding a message within a message by bolding certain characters. According to the FBI Summary Report, "[w]hen they lifted out just the bolded letters, investigators got TTT AAT TAT – an apparent hidden message." The 3-letter groups are codons, "meaning that each sequence of three nucleic acids will code for a specific amino acid."

TTT = Phenylalanine (single-letter designator **F**)  
AAT = Asparagine (single-letter designator **N**)  
TAT = Tyrosine (single-letter designator **Y**)

The FBI Summary Report proceeds to say: "From this analysis, two possible hidden meanings emerged: (1) 'FNY' – a verbal assault on New York, and (2) PAT – the nickname of [Dr. Ivins'] Former Colleague #2." Ivins was known to have a dislike for New York City, and four of the media letters had been sent to New York. The report states that it "was obviously impossible for the Task Force to determine with certainty that either of these two translations was correct," however, "the key point to the investigative analysis is that there is a hidden message, not so much what that message is." Ivins showed a fascination with codes and also had an interest in secrets and hidden messages. He also was familiar with biochemical codons.

### White House Precautions

On September 11, the president and [White House](#) staff began taking a regimen of [Cipro](#), a powerful antibiotic. The public interest group [Judicial Watch](#) filed lawsuits in June 2002 against federal agencies to obtain information about how, what and when the White House knew on 9/11 about the danger of anthrax weeks before the first known victim of the anthrax attacks. The issue, therefore, is

on what grounds governmental officials were alerted to prepare for the coming anthrax attacks, which were later traced to a U.S. army medical research institute.

### **Other Letters Reported in the Media**

The Amerithrax investigation involved many leads which took time to evaluate and resolve. Among them were numerous letters which initially appeared to be related to the anthrax attacks but were never directly linked to the anthrax attacks.

For example, before the New York letters were found, [hoax](#) letters mailed from St. Petersburg, Florida, were thought to be the anthrax letters or related to them. A letter received at the Microsoft offices in Reno, NV, after the discovery of the Daschle letters gave a [false positive](#) in a test for anthrax. Later, because the letter had been sent from Malaysia, Marilyn Thompson of the Washington Post connected the letter to [Steven Hatfill](#), whose girlfriend was from Malaysia. The letter merely contained a check and some pornography, and was neither a threat nor a hoax.

Also unconnected to the anthrax attacks was a large envelope received at [American Media, Inc.](#) in Boca Raton, Florida (which was among the victims of the attacks) in September 2001. It was addressed "Please forward to Jennifer Lopez c/o The Sun", containing a metal cigar tube with a cheap cigar inside, an empty can of chewing tobacco, a small detergent carton, pink powder, a Star of David pendant, and "a handwritten letter to Jennifer Lopez. The writer said how much he loved her and asked her to marry him." In his book "Amerithrax: The Hunt For The Anthrax Killer," Robert Graysmith suggested it was the "holy grail" for solving the case. Yet another letter, which mimicked the original anthrax letter to Senator Daschle, was mailed to Daschle from London in November 2001, at a time when Hatfill was in England, not far from London. Shortly before the discovery of the anthrax letters, someone sent a letter to authorities stating, "Dr. Assaad is a potential biological terrorist." No connection to the actual anthrax letters was ever found.

During the first years of the FBI's investigation, Don Foster, a professor of English at Vassar College, attempted to connect the anthrax letters and various hoax letters from the same period to Steven Hatfill. Foster's beliefs were published in Vanity Fair and Readers' Digest. Hatfill sued and was later exonerated. The lawsuit was settled out of court.

### **Anthrax Letter to Chile**

Shortly after the anthrax attacks in the United States, another letter containing traces of a second strain of anthrax was mailed to a pediatrician in Santiago, Chile. The letter was postmarked in Switzerland and sent via DHL, which used a Swiss bulk mail shipper in New York. This letter had an Orlando, Florida return address. No one is known to have been infected from it.

### **Anthrax Material**

The letters sent to the media contained a coarse brown material, while the letters sent to the two U.S. Senators contained a fine powder. The brown granular anthrax mostly caused skin infections, cutaneous [anthrax](#), although Kathy Nguyen's case of inhalation anthrax occurred at the same time and in the same general area as two cutaneous cases and several other exposures. The AMI letter which caused inhalation cases in Florida appears to have been mailed at the same time as the other media letters. The fine powder anthrax sent to the senators mostly caused the more dangerous form of infection known as inhalational anthrax. Postal worker Patrick O'Donnell and accountant Linda Burch contracted cutaneous anthrax from the Senate letters.

All of the material was derived from the same bacterial [strain](#) known as the [Ames strain](#). Prior to the attacks, the Ames strain was believed to be a common strain isolated from a cow in Iowa. After the attacks, the investigation discovered that it was a relatively rare strain isolated from a cow in Texas in 1981 - a critical fact in the investigation. First researched at the [United States Army Medical Research Institute of Infectious Diseases](#) (USAMRIID), Fort Detrick, Maryland, the Ames strain was then distributed to sixteen bio-research labs within the U.S. and three other locations (Canada, Sweden and the United Kingdom).

DNA sequencing of the anthrax taken from Robert Stevens (the first victim) was conducted at [The Institute for Genomic Research](#) (TIGR) beginning in December 2001. Sequencing was finished within a month and the analysis was published in the journal Science in early 2002.

[Radiocarbon dating](#) conducted by the [Lawrence Livermore National Laboratory](#) in June 2002 established that the anthrax was [cultured](#) no more than two years before the mailings. In October 2006 it was reported that the water used to process the anthrax spores came from a source in the northeastern United States.

### **Mutations**

Early in 2002, it was noted that there were variants or mutations in the anthrax powders from the attacks. Once the mutations were identified as Ames, TIGR became involved to help further identify the mutations. Most of their work was completed between 2002 and late 2003. Other experts in biodefense were contracted to assist in developing the assays. The assays were validated over the many years of the investigation, and the repository of Ames samples was also being built. From roughly 2003 to 2006 the repository and the screening of the 1,070 Ames samples in that repository were completed.

Based on the testing, the FBI concluded that flask RMR-1029 was the parent material of the anthrax spore powder. Ivins had sole control over that flask.

### **Controversy over coatings and additives**

On October 24, 2001, USAMRIID scientist Peter Jahrling was summoned to the White House after he reported signs that silicon had been added to anthrax recovered from the letter addressed to Daschle. Silicon would make the anthrax more capable of penetrating the lungs. Seven years later, Jahrling told the Los Angeles Times on September 17, 2008, "I believe I made an honest mistake," adding that he had been "overly impressed" by what he thought he saw under the microscope.

Richard Preston's book provides details of conversations and events at USAMRIID during the period from October 16, 2001 to October 25, 2001. Key scientists described to Preston what they were thinking during that period. When the Daschle spores first arrived at USAMRIID, the key concern was that smallpox viruses might be mixed with the spores. "Jahrling met [John] Ezzell in a hallway and said, in a loud voice, 'Goddamn it, John, we need to know if the powder is laced with smallpox.'" Thus, the initial search was for signs of smallpox viruses. On October 16, USAMRIID scientists began by examining spores that had been "in a milky white liquid" from "a field test done by the FBI's Hazardous Materials Response Unit." Liquid chemicals were then used to deactivate the spores. When scientists turned up the power on the electron beam of the Transmission Electron Microscope (TEM), "The spores began to ooze." According to Preston,

"'Whoa,' Jahrling muttered, hunched over the eyepieces. Something was boiling off the spores. 'This is clearly bad stuff,' he said. This was not your mother's anthrax. The spores had something in them, an additive, perhaps. Could this material have come from a national bioweapons program? From Iraq? Did al-Qaeda have anthrax capability that was this good?"

On October 25, 2001, the day after senior officials at the White House were informed that "additives" had been found in the anthrax, USAMRIID scientist Tom Geisbert took a different, irradiated sample of the Daschle anthrax to the Armed Forces Institute of Pathology (AFIP) to "find out if the powder contained any metals or elements." AFIP's energy dispersive X-ray spectrometer found "that there were two extra elements in the spores: silicon and oxygen. Silicon dioxide is glass. The anthrax terrorist or terrorists had put powdered glass, or silica, into the anthrax. The silica was powdered so finely that under Geisbert's electron microscope it had looked like fried-egg gunk dripping off the spores."

The "goop" Peter Jahrling had seen oozing from the spores was not seen when AFIP examined different spores killed with radiation.

The controversy began the day after the White House meeting. The New York Times reported, "Contradicting Some U.S. Officials, 3 Scientists Call Anthrax Powder High-Grade - Two Experts say the anthrax was altered to produce a more deadly weapon," and The Washington Post reported, "Additive Made Spores Deadlier." Countless news stories discussed the "additives" for the next eight years, continuing into 2010.

Later, the FBI claimed a "lone individual" could have created the anthrax spores for as little as \$2,500,

using a makeshift basement laboratory.

A number of press reports appeared suggesting the Senate anthrax had coatings and additives. [Newsweek](#) reported the anthrax sent to Senator Leahy had been coated with a chemical compound previously unknown to bioweapons experts. On October 28, 2002, The Washington Post reported, "FBI's Theory on Anthrax is Doubted" suggesting that the senate spores were coated with fumed silica. Two bioweapons experts utilized as consultants by the FBI, [Kenneth Alibek](#) and [Matthew Meselson](#), were shown electron micrographs of the anthrax from the Daschle letter. In a November 5, 2002 letter to the editors of the [Washington Post](#) they stated that they saw no evidence the anthrax spores had been coated with fumed silica.

The November 28, 2003, issue of Science magazine contained an article by Gary Mastumoto titled, "Anthrax Powder: State of the Art?" It suggests that the senate anthrax "was a diabolical advance in biological weapons technology." The article describes "a technique used to anchor silica nanoparticles to the surface of spores" using "polymerized glass." According to Stuart Jacobsen, "polymerized glass" is "a silane or siloxane compound that's been dissolved in an alcohol- based solvent like ethanol." It leaves a thin glassy coating that helps bind the silica to particle surfaces.

The August 2006 issue of Applied and Environmental Microbiology contained an article written by Douglas Beecher of the FBI labs in Quantico, VA. The article, titled "Forensic Application of Microbiological Culture Analysis to Identify Mail Intentionally Contaminated with Bacillus anthracis spores," states "Individuals familiar with the compositions of the powders in the letters have indicated that they were comprised simply of spores purified to different extents." The article also specifically criticizes "a widely circulated misconception" "that the spores were produced using additives and sophisticated engineering supposedly akin to military weapon production." The harm done by this misconception is described this way: "This idea is usually the basis for implying that the powders were inordinately dangerous compared to spores alone. The persistent credence given to this impression fosters erroneous preconceptions, which may misguide research and preparedness efforts and generally detract from the magnitude of hazards posed by simple spore preparations." Critics of the article complained that it did not provide supporting references.

### **False Report of Bentonite**

In late October 2001, [ABC](#) chief investigative correspondent [Brian Ross](#) linked the anthrax sample to [Saddam Hussein](#) because of its purportedly containing the unusual additive [bentonite](#). On October 26, Ross said, "sources tell ABCNEWS the anthrax in the tainted letter sent to Senate Majority Leader Tom Daschle was laced with [bentonite](#). The potent additive is known to have been used by only one country in producing biochemical weapons — Iraq. . . . [I]t is a trademark of Iraqi leader Saddam Hussein's biological weapons program . . . The discovery of bentonite came in an urgent series of tests conducted at Fort Detrick, Maryland, and elsewhere." On October 28, Ross said that "despite continued White House denials, four well-placed and separate sources have told ABC News that initial tests on the anthrax by the US Army at Fort Detrick, Maryland, have detected trace amounts of the chemical additives bentonite and silica", a charge that was repeated several times on October 28 and 29.

On October 29, 2001, White House spokesman Scott Stanzel "disputed reports that the anthrax sent to the Senate contained bentonite, an additive that ha[d] been used in Iraqi President Saddam Hussein's biological weapons program." Stanzel said, "Based on the test results we have, no bentonite has been found." The same day, Major General John Parker at a White House briefing stated, "We do know that we found silica in the samples. Now, we don't know what that motive would be, or why it would be there, or anything. But there is silica in the samples. And that led us to be absolutely sure that there was no aluminum in the sample, because the combination of a silicate, plus aluminum, is sort of the major ingredients of bentonite." Just over a week later, [Homeland Security](#) Director [Tom Ridge](#) in a White House press conference on November 7, 2001 stated, "The ingredient that we talked about before was silicon." Neither Ross at ABC nor anyone else publicly pursued any further claims about bentonite, despite Ross's original claim that "four well-placed and separate sources" had confirmed its detection.

### **Dispute over Silicon Content**

Some of the anthrax spores (65% - 75%) in the anthrax attack letters contained silicon inside their spore coats. Silicon was even found inside the natural spore coat of a spore that was still inside the



"mother germ," confirming that the element was not added after the spores were formed and purified, i.e., the spores were not "weaponized."

In 2010, a Japanese study reported, "silicon (Si) is considered to be a "quasiessential" element for most living organisms. However, silicate uptake in bacteria and its physiological functions have remained obscure." The study showed that spores from some species can contain as much as 6.3% dry weight of silicates. "For more than 20 years, significant levels of silicon had been reported in spores of at least some *Bacillus* species, including those of *Bacillus cereus*, a close relative of *B. anthracis*." According to spore expert Peter Setlow, "Since silicate accumulation in other organisms can impart structural rigidity, perhaps silicate plays such a role for spores as well."

The FBI lab concluded that 1.4% of the powder in the Leahy letter was silicon. Stuart Jacobson, a small-particle chemistry expert stated that:

"This is a shockingly high proportion [of silicon]. It is a number one would expect from the deliberate weaponization of anthrax, but not from any conceivable accidental contamination."

Scientists at the [Lawrence Livermore National Labs](#) conducted experiments in an attempt to determine if the amount of silicon in the growth medium was the controlling factor which caused silicon to accumulate inside a spore's natural coat. The Livermore scientists tried 56 different experiments, adding increasingly high amounts of silicon to the media. All of their results were far below the 1.4% level of the actual attack anthrax, some as low as .001%. The conclusion was that something other than the level of silicon controlled how much silicon was absorbed by the spores.

[Richard O. Spertzel](#), a microbiologist who led the United Nations' biological weapons inspections of Iraq, wrote that the anthrax used could not have come from the lab where Ivins worked. Spertzel said he remained skeptical of the Bureau's argument despite the new evidence presented on August 18, 2008 in an unusual FBI briefing for reporters. He questioned the FBI's claim that the powder was less than military grade, in part because of the presence of high levels of silica. The FBI had been unable to reproduce the attack spores with the high levels of silica. The FBI attributed the presence of high silica levels to "natural variability." This conclusion of the FBI contradicted its statements at an earlier point in the investigation, when the FBI had stated, based on the silicon content, that the anthrax was "weaponized," a step that made the powder more airy and required special scientific know-how.

"If there is that much silicon, it had to have been added," stated Jeffrey Adamovicz, who supervised Ivins's work at Fort Detrick. Adamovicz explained that the silicon in the attack anthrax could have been added via a large fermentor, which [Battelle](#) and some other facilities use" but "we did not use a fermentor to grow anthrax at USAMRIID . . . [and] We did not have the capability to add silicon compounds to anthrax spores." Ivins had neither the skills nor the means to attach silicon to anthrax spores. Richard Spertzel explained that the Fort Detrick facility did not handle anthrax in powdered form. "I don't think there's anyone there who would have the foggiest idea how to do it."

### **Investigation**

Authorities traveled to six different continents, interviewed over nine thousand people, conducted 67 searches and issued over 6,000 subpoenas. "Hundreds of FBI personnel worked the case at the outset, struggling to discern whether the Sept. 11 al-Qaida attacks and the anthrax murders were connected before eventually concluding that they were not." In September 2006, there were still 17 FBI agents and 10 [postal inspectors](#) assigned to the case, including FBI Special Agent [C. Frank Figliuzzi](#) who was the on-scene commander of the evidence recovery efforts.

### **Anthrax Archive Destroyed**

The FBI and Centers for Disease Control and Prevention both gave permission for Iowa State University to destroy the Iowa anthrax archive, and the archive was destroyed on October 10 and 11, 2001.

The FBI and [Centers for Disease Control and Prevention](#) (CDC) investigation has been hampered by the destruction of a large collection of anthrax spores collected over more than seven decades and kept in more than 100 vials at [Iowa State University](#), Ames, IA. Many scientists claim that the quick destruction of the anthrax spores collection in Iowa have eliminated crucial evidence useful for the investigation. A precise match between the strain of anthrax used in the attacks and a strain in the

collection would have offered hints as to when bacteria had been isolated and, perhaps, as to how widely it had been distributed to researchers. Such genetic clues could have given investigators the evidence necessary to identify the perpetrators.

### **Al Qaeda and Iraq Blamed for Attacks**

Immediately after the anthrax attacks, [White House](#) officials repeatedly pressured [FBI Director Robert Mueller](#) to prove that they were a second-wave assault by [Al Qaeda](#) following the [September 11 attacks](#). During the president's morning intelligence briefings, Mueller was "beaten up" for not producing proof that the killer spores were the handiwork of terrorist mastermind [Osama Bin Laden](#), according to a former aide. "They really wanted to blame somebody in the Middle East," the retired senior FBI official stated. The FBI knew early on that the anthrax used was of a consistency requiring sophisticated equipment and was unlikely to have been produced in some "cave". At the same time, both President Bush and Vice President Cheney in public statements speculated about the possibility of a link between the anthrax attacks and Al Qaeda. [The Guardian](#) reported in early October that American scientists had implicated Iraq as the source of the anthrax, and the next day the [Wall St. Journal](#) editorialized that Al Qaeda perpetrated the mailings, with Iraq the source of the anthrax. A few days later, [John McCain](#) suggested on the [David Letterman Show](#) that the anthrax may have come from Iraq, and the next week [ABC News](#) did a series of reports stating that three or four (depending on the report) sources had identified [bentonite](#) as an ingredient in the anthrax preparations, implicating Iraq.

Statements by the White House and public officials quickly proved that there was no bentonite in the attack anthrax. "No tests ever found or even suggested the presence of bentonite. The claim was just concocted from the start. It just never happened." But, a few journalists repeated ABC's bentonite report for several years, even after the invasion of Iraq, as evidence that Saddam not only possessed ["weapons of mass destruction"](#), but had used them in attacks on the United States.

### **"Person of interest" - Steven Jay Hatfill**

In October 2001, as soon as it became known that the Ames strain of anthrax had been used in the attacks, [Barbara Hatch Rosenberg](#) and others began suggesting that the attack might be the work of a "rogue CIA agent," and they provided the name of the "most likely" person to the FBI. On November 21, 2001, she made similar statements to the Biological and Toxic Weapons convention in Geneva. In December 2001, she published "A Compilation of Evidence and Comments on the Source of the Mailed Anthrax" via the web site of [The Federation of American Scientists](#) (FAS) suggesting the attacks were "perpetrated with the unwitting assistance of a sophisticated government program." She discussed the case with reporters from the [New York Times](#). On January 4, 2002, [Nicholas Kristof](#) of the New York Times published a column titled "Profile of a Killer" stating "I think I know who sent out the anthrax last fall." For months, Rosenberg gives speeches and states her beliefs to many reporters from around the world. She posted "Analysis of the Anthrax Attacks" to the FAS web site on January 17, 2002. On February 5, 2002 she published "Is the FBI Dragging Its Feet?" In response, the FBI stated, "There is no prime suspect in this case at this time." The Washington Post reported, "FBI officials over the last week have flatly discounted Dr. Rosenberg's claims." On June 13, 2002, Rosenberg posted "The Anthrax Case: What the FBI Knows" to the FAS site. On June 18, 2002, Rosenberg presented her theories to senate staffers working for Senators Daschle and Leahy. One week later, on June 25, the FBI publicly searched Hatfill's apartment. He becomes a household name. "The FBI also pointed out that Hatfill had agreed to the search and is not considered a suspect." American Prospect and Salon.com report, "Hatfill is not a suspect in the anthrax case, the FBI says." On August 3, 2002, Rosenberg tells the media that the FBI asked her if "a team of government scientists could be trying to [frame](#) Steven J. Hatfill." In August 2002, [Attorney General John Ashcroft](#) labeled [Steven Hatfill](#) a "person of interest" in a press conference, no charges were brought against him. Hatfill, a [virologist](#), vehemently denied he had anything to do with the anthrax (bacteria) mailings and sued the FBI, the Justice Department, John Ashcroft, [Alberto Gonzales](#), and others for violating his [constitutional](#) rights and for violating the [Privacy Act](#). On June 27, 2008, the Department of Justice announced it would settle Hatfill's case for \$5.8 million.

He has also sued [The New York Times](#) and its columnist [Nicholas D. Kristof](#) and, separately, [Donald Foster](#), [Vanity Fair](#), [Reader's Digest](#), and [Vassar College](#), for [defamation](#). The case against The New York Times was initially dismissed, but it was reinstated on appeal. The dismissal was upheld by the appeals court on July 14, 2008 on the basis that Hatfill was a "public figure" and malice had not been proven. The case was appealed to the U.S. Supreme Court and was rejected by the Supreme Court



on December 15, 2008. Hatfill's lawsuit against [Vanity Fair](#) and [Reader's Digest](#) was settled out of court in February 2007. No details of the financial settlement were made public. The statement released by Hatfill's lawyers only says "Dr. Hatfill's lawsuit has now been resolved to the mutual satisfaction of all the parties."

### **Bruce Edwards Ivins**

On August 1, 2008 the Associated Press reported that [Bruce E. Ivins](#), 62, who worked for the past 18 years at the government's bio defense labs at [Fort Detrick](#), had apparently committed suicide. Ivins was a top U.S. biodefense researcher who worked at Ft. Detrick. It was widely reported the FBI was about to lay charges on him, but the evidence was largely circumstantial and the grand jury in Washington reported it was not ready to issue an indictment. Rep. [Rush Holt](#), who represents the district where the anthrax letters were mailed, said circumstantial evidence was not enough and asked FBI Director [Robert S. Mueller](#) to appear before Congress to provide an account of the investigation. Ivins's death leaves two unanswered puzzles. Scientists familiar with germ warfare said there was no evidence that he had the skills to turn anthrax into an inhalable powder. According to Alan Zelicoff who aided the F.B.I. investigation "I don't think a vaccine specialist could do it . . . This is aerosol physics, not biology".

W. Russell Byrne, a colleague who worked in the bacteriology division of the Fort Detrick research facility, said Ivins was "hounded" by FBI agents who raided his home twice, and he was hospitalized for depression during that time. According to Byrne and local police, Ivins was removed from his workplace out of fears that he might harm himself or others. "I think he was just psychologically exhausted by the whole process," Byrne said. "There are people who you just know are ticking bombs," Byrne said. "He was not one of them."

On August 6, 2008, federal prosecutors declared Ivins to be the sole culprit of the crime when [Jeffrey Taylor](#), the U.S. attorney for the [District of Columbia](#) laid out the case against Ivins to the public. The main evidence is already in dispute. Taylor stated "The genetically unique parent material of the anthrax spores . . . was created and solely maintained by Dr. Ivins." But other experts disagree, including biological warfare and anthrax expert, [Meryl Nass](#), who stated: "Let me reiterate: No matter how good the microbial forensics may be, they can only, at best, link the anthrax to a particular strain and lab. They cannot link it to any individual." At least 10 scientists had regular access to the laboratory and its anthrax stock, and possibly quite a few more, counting visitors from other institutions, and workers at laboratories in Ohio and New Mexico that had received anthrax samples from the flask.

### **Mental Health Issues**

More than a year before the anthrax attacks of 2001 that killed five people, Bruce E. Ivins told a mental health counselor that he was interested in a young woman who lived out of town and that he had "mixed poison" that he took with him when he went to watch her play in a soccer match.

"If she lost, he was going to poison her," said the counselor, who treated Ivins at a Frederick clinic four or five times during the summer of 2000. She said Ivins emphasized that he was a skillful scientist who "knew how to do things without people finding out."

The counselor "was so alarmed by her client's emotionless description of a specific, homicidal plan that she immediately alerted the head of her clinic and a psychiatrist who had treated Ivins, as well as the Frederick Police Department. She said the police told her that nothing could be done because she did not have the woman's address or last name."

Nine years later, when Ivins told a different therapist that he planned to kill his co-workers and "go out in a blaze of glory," that therapist stated in an application for a restraining order that Ivins had a "history dating to his graduate days of homicidal threats, actions, plans, threats & actions towards therapist [sic]. Dr. David Irwin his psychiatrist called him homicidal, sociopathic with clear intentions".

### **Evidence of Consciousness of Guilt**

According to the report on the Amerithrax investigation published by the Department of Justice, Ivins engaged in actions and made statements that indicate a consciousness of guilt. He took environmental samples in his laboratory without authorization and decontaminated areas in which he had worked without reporting his activities. He also threw away a book about secret codes, which

described methods similar to those used in the anthrax letters. Ivins threatened other scientists, made equivocal statements about his possible involvement in a conversation with an acquaintance, and put together outlandish theories in an effort to shift the blame for the anthrax mailings to people close to him.

The FBI found that Ivins' justifications for his actions after the environmental sampling, as well as his explanations for a subsequent sampling, contradicted his explanation for the motives for the sampling.

According to the Department of Justice, flask RMR-1029, which was created and controlled by Ivins, was used to create "the murder weapon."[\[](#)

When Ivins was first asked to provide samples from flask RMR-1029 in February 2002, he submitted samples which were improperly prepared and which would therefore not be usable as evidence in court. When this was realized by the FBI in April 2002, they subpoenaed him for new samples from flask RMR-1029 and provided instructions on how the samples were to be prepared. The new samples submitted by Ivins in April did not contain the mutations that were known to be in flask RMR-1029 due to the testing of samples from RMR-1029 that had been submitted from another lab. "Thus, the evidence suggested that Dr. Ivins obstructed the investigation either by providing a submission which was not in compliance with the subpoena, or worse, that he deliberately submitted a false sample."

"At a group therapy session on July 9, 2008, Dr. Ivins was particularly upset. He revealed to the counselor and psychologist leading the group, and other members of the group, that he was a suspect in the anthrax investigation and that he was angry at the investigators, the government, and the system in general. He said he was not going to face the death penalty, but instead had a plan to 'take out' co-workers and other individuals who had wronged him. He noted that it was possible, with a plan, to commit murder and not make a mess. He stated that he had a bullet-proof vest, and a list of co-workers who had wronged him, and said that he was going to obtain a Glock firearm from his son within the next day, because federal agents were watching him and he could not obtain a weapon on his own. He added that he was going to 'go out in a blaze of glory.'"

While in a mental hospital, Ivins made menacing phone calls to his social worker Jean Duley on July 11 and 12. Intimidation of witnesses is another example of "consciousness of guilt."

#### Ivins's "Non-Denial Denials"

"The letters accompanying the anthrax read like the work of a jihadist, suggesting that their author was an Arab extremist—or someone masquerading as one — yet also advised recipients to take antibiotics, implying that whoever had mailed them never really intended to harm anyone." Experts have suggested that the anthrax mailings included a number of indications that the mailer was trying to avoid harming anyone with his warning letters. Examples: (1) None of the intended recipients of the letters were infected. (2) The seams on the backs of the envelopes were taped over as if to make certain the powders couldn't escape through open seams. (3) The letters were folded with the "pharmaceutical fold," which was used for centuries to safely contain and transport doses of powdered medicines (and currently to safely hold trace evidence). (4) The media letters provided "medical advice": "TAKE PENACILIN NOW." (5) The senate letters informed the recipient that the powder was anthrax: "WE HAVE THIS ANTHRAX." And, (6) at the time of the mailings, it was generally believed that such powders could not escape from a sealed envelope - except through the two open corners where a letter opener is inserted, and those corners had been taped shut.

"On June 5, 2008, Dr. Ivins had a conversation with a witness, during which he made a series of statements about the anthrax mailings that could best be characterized as '[non-denial denials](#).'" When asked about the anthrax attacks and whether he could have had anything to do with them, here are parts of some of Ivins' responses:

"I can tell you I don't have it in my heart to kill anybody"  
"I do not have any recollection of ever have doing anything like that"  
"I can tell you, I am not a killer at heart"  
"If I found out I was involved in some way, and, and . . ."  
"I don't think of myself as a vicious, a, a nasty evil person."

"I don't like to hurt people, accidentally, in, in any way. And [several scientists at USAMRIID] wouldn't do that. And I, in my right mind wouldn't do it [laughs] . . . But it's still, but I still feel responsibility because it [RMR-1029] wasn't locked up at the time . . ."

In an interview with a Confidential Human Resource (CHR) which took place on January 8, 2008, the CHR told FBI agents that since Ivins' last interview with the FBI (on November 1, 2007), Ivins has "on occasion spontaneously declared at work, "I could never intentionally kill or hurt someone."

### **Doubts about FBI Conclusions**

After the [FBI](#) announced that Ivins acted alone, many people with a broad range of political views, some of whom were colleagues of Ivins, expressed doubts. Reasons cited for these doubts include that Ivins was only one of 100 people who could have worked with the vial used in the attacks, and that the FBI was unable either to find any anthrax spores at Ivins' house or on his other belongings nor place him near the New Jersey mailbox from which the anthrax was mailed.

Alternative theories proposed include FBI incompetence, that [Syria](#) or [Iraq](#) directed the attacks, or that similar to some [9/11 conspiracy theories](#) the U.S. government knew in advance that the attacks would occur. [Senator Patrick Leahy](#) who is Senate Judiciary Committee chairman and who had received an anthrax-tainted letter, said the FBI has not produced convincing evidence in the case. [The Washington Post](#) called for an independent investigation in the case saying that reporters and scientists were poking holes in the case.

On September 17, 2008, Senator Patrick Leahy told FBI Director Robert Mueller during testimony before his the Judiciary Committee Leahy chairs, that he did not believe Army scientist Bruce Ivins acted alone in the 2001 anthrax attacks, stating:

"I believe there are others involved, either as accessories before or accessories after the fact. I believe that there are others out there. I believe there are others who could be charged with murder."

Tom Daschle, the other Democratic senator targeted, believes Ivins was the sole culprit.

Although the FBI matched the genetic origin of the attack spores to the spores in Ivins' flask RMR-1029, the spores within flask RMR-1029 did not have same silicon chemical "fingerprint" as the spores in the attack letters. The implication is that spores taken out of flask RMR-1029 had been used to grow new spores for the mailings.

On April 22, 2010, the National Academy of Sciences review committee heard testimony from Henry Heine, a microbiologist who was formerly employed at the Army's biodefense laboratory in Maryland where Ivins had worked. Heine told the panel that it was impossible that the deadly spores had been produced undetected in Ivins's laboratory, as maintained by the F.B.I. He testified that using the equipment at the army lab, at least a year of intensive work would have been required to produce the quantity of spores contained in the letters, and that such an intensive effort could not have escaped the attention of colleagues. Heine also told the panel that lab technicians who worked closely with Ivins have told him they saw no such work. He stated further that where Ivins worked biological containment measures were inadequate to prevent the Anthrax spores from floating out of the laboratory into animal cages and offices. "You'd have had dead animals or dead people," Heine said. According to Science Magazine, "Heine caveated his remarks by saying that he himself had no experience making anthrax stocks." Science magazine provides additional comments by Adam Driks of Loyola who stated that the amount of anthrax in the letters could be made in "a number of days." Emails by Ivins state, "We can presently make  $1 \times 10^{12}$  [one trillion] spores per week." And The New York Times reported on May 7, 2002, that the Leahy letter contained .871 grams of anthrax powder [equivalent to 871 billion spores]

In a technical article to be published in the [Journal of Bioterrorism & Biodefense](#) in 2011, three scientists argued that the preparation of the spores did require a high level of sophistication, contrary to the position taken by federal authorities that the material would have been unsophisticated. The paper is largely based on the high level of [tin](#) found in the anthrax mailed, and the tin may have been used to encapsulate the spores, which required processing not possible in laboratories to which Ivins had access. According to the scientific article, this raises the possibility that Ivins was not the perpetrator or did not act alone. Earlier in the investigation, the FBI had named tin as a substance "of

interest" but the final report makes no mention of it and fails to address the high tin content. The chairwoman of the [National Academy of Science](#) panel that reviewed the FBI's scientific work and the director of a separate review by the [Government Accountability Office](#) said that the issues raised by the paper should be addressed. Other scientists, such as Johnathan L. Kiel, a retired Air Force scientist who worked on anthrax for many years, did not agree with the authors' assessments – saying that the tin might be a random contaminant rather than a clue to complex processing. Kiel said that tin might simply be picked up by the spores as a result of the use of metal lab containers, although he had not tested that idea. A spokesman for the Justice Department said that the investigators continue to believe that Ivins acted alone.

### **Evidence of 9/11 Link to Anthrax**

Experts at the [Johns Hopkins Center for Civilian Biodefense Strategies](#) (CCBS) concluded that one of the nineteen 9/11 hijackers, [Ahmed al-Haznawi](#), likely had been exposed to anthrax. Alhaznawi and another man arrived in the emergency room of a Fort Lauderdale, Florida, hospital presenting an ugly, dark lesion on his leg that he said he developed after bumping into a suitcase two months earlier. Christos Tsonas thought the injury was curious, cleaned it and prescribed an antibiotic. After September 11 federal investigators found the medicine prescribed by Tsonas among the possessions of Alhaznawi.

Tsonas came to believe that Alhaznawi's lesion "was consistent with cutaneous anthrax," a disease that causes skin lesions. The experts at the Johns Hopkins Center for Civilian Biodefense Strategies interviewed Tsonas and prepared a memorandum that was circulated among top government officials. The memorandum found that the diagnosis of cutaneous anthrax was "the most probable and coherent interpretation of the data available" and that "such a conclusion of course raises the possibility that the hijackers were handling anthrax and were the perpetrators of the anthrax letter attacks."

Several 9/11 hijackers, including Alhaznawi, lived in Boca Raton, Florida, near American Media Inc. workplace of the first victim of the anthrax attacks. They also attended flight school there. Some of the hijackers rented apartments from a real estate agent who was the wife of an editor of The Sun, a publication of American Media. Further, a pharmacist in Delray Beach, Florida, stated he had told the F.B.I. that two of the 9/11 hijackers, [Mohamed Atta](#) and [Marwan al-Shehhi](#), entered the pharmacy seeking medicine to treat irritations on Mr. Atta's hands.

If the 9/11 hijackers were involved in the anthrax attacks they would probably have needed an accomplice to mail the tainted letters since the four recovered anthrax letters were postmarked on September 18 and October 9.

### **Congressional Oversight**

Congressman Rush Holt, whose district in New Jersey includes a mailbox from which anthrax letters are believed to have been mailed, called for an investigation of the anthrax attacks by Congress or by an independent commission he proposed in a bill entitled the Anthrax Attacks Investigation Act (H.R. 1248). Other members of Congress have also called for an independent investigation.

An official of the U.S. administration said in March 2010 that President Barack Obama probably would veto legislation authorizing the next budget for U.S. intelligence agencies if it called for a new investigation into the 2001 anthrax attacks, as such an investigation "would undermine public confidence" in an FBI probe. In a letter to congressional leaders, [Peter Orszag](#), the director of the [Office of Management and Budget](#) at the time, wrote that an investigation would be "duplicative", and expressed concern about the appearance and precedent involved when Congress commissions an agency Inspector General to replicate a criminal investigation, but did not list the anthrax investigation as an issue that was serious enough to advise the President to veto the entire bill.

### **National Academy of Sciences Review**

In what appears to have been a response to lingering skepticism, on September 16, 2008, the FBI asked the [National Academy of Sciences](#) (NAS) to conduct an independent review of the scientific evidence that led the agency to implicate U.S. Army researcher Bruce Ivins in the anthrax letter attacks of 2001. However, despite taking this action, Director Mueller said that the scientific methods applied in the investigation had already been vetted by the research community through the involvement of several dozen nonagency scientists.

The NAS review officially got underway on April 24, 2009. While the scope of the project included the consideration of facts and data surrounding the investigation of the 2001 *Bacillus anthracis* mailings, as well as a review of the principles and methods used by the FBI, the NAS committee was not given the task to "undertake an assessment of the probative value of the scientific evidence in any specific component of the investigation, prosecution, or civil litigation," nor to offer any view on the guilt or innocence of any of the involved people.

In mid-2009, the NAS committee held public sessions, in which presentations were made by scientists, including scientists from the FBI laboratories. In September 2009, scientists, including [Paul Keim](#) of Northern Arizona University, Joseph Michael of Sandia National Laboratory and Peter Weber of Lawrence Livermore National Laboratory, presented their findings. In one of the presentations, scientists reported that they did not find any silica particles on the outside of the spores (i.e., there was no "weaponization"[\[citation needed\]](#)), and only that only some of the spores in the anthrax letters contained [silicon](#) inside their spore coats. One of the spores was still inside the "mother germ", yet it already had silicon inside its spore coat.

The NAS committee released its report on February 15, 2011, concluding that it was "impossible to reach any definitive conclusion about the origins of the anthrax in the letters, based solely on the available scientific evidence". The report also challenged the FBI and U.S. Justice Department's conclusion that a single-spore batch of anthrax maintained by Ivins at his laboratory at Fort Detrick in Maryland was the parent material for the spores in the anthrax letters.

## **Aftermath**

### **Contamination and Cleanup**

Dozens of buildings were contaminated with anthrax as a result of the mailings. AMI moved to a different building. The decontamination of the Brentwood postal facility took 26 months and cost \$130 million. The [Hamilton, New Jersey postal facility](#)[\[172\]](#) remained closed until March 2005; its cleanup cost \$65 million. The [United States Environmental Protection Agency](#) spent \$41.7 million to clean up government buildings in Washington, D.C. One FBI document said the total damage exceeded \$1 billion.

The principal means of decontamination is [fumigation](#) with [chlorine dioxide](#) gas. This was done by an Albany, NY-based company called Sabre.

### **Political Effects**

The anthrax attacks, as well as the September 11, 2001 attacks, have spurred significant increases in U.S. government funding for biological warfare research and preparedness. For example, biowarfare-related funding at the [National Institute of Allergy and Infectious Diseases](#) (NIAID) increased by \$1.5 billion in 2003. In 2004, Congress passed the [Project Bioshield Act](#), which provides \$5.6 billion over ten years for the purchase of new vaccines and drugs.

A theory that Iraq was behind the attacks, based upon the evidence that the powder was weaponized and some reports of alleged meetings between 9/11 conspirators and Iraqi officials, may have contributed to the momentum which ultimately led to the 2003 war.

After the 9/11 attacks and the subsequent anthrax mailings, lawmakers were pressed for legislation to combat further terrorist acts. Under heavy pressure from then [Attorney General John D. Ashcroft](#), a bipartisan compromise in the House Judiciary Committee allowed legislation for the [Patriot Act](#) to move forward for full consideration later that month.

### **Health**

Years after the attack, several anthrax victims reported lingering health problems including fatigue, shortness of breath and memory loss. The cause of the reported symptoms is unknown.

A 2004 study proposed that the total number of people harmed by the anthrax attacks of 2001 should be raised to 68.

A [postal inspector](#), William Paliscak, became severely ill and disabled after removing an anthrax-



contaminated air filter from the [Brentwood](#) mail facility on October 19, 2001. Although his doctors, [Tyler Cymet](#) and [Gary Kerkvliet](#), believe that the illness was caused by anthrax exposure, blood tests did not find anthrax bacteria or [antibodies](#), and therefore the [CDC](#) does not recognize it as a case of inhalational anthrax ([Wikipedia, 2012](#)).

**Title:** Anthrax Hits White House Annex

**Date:** October 23, 2001

**Source:** [Wired](#)

**Abstract:** The nation's anthrax scare hit the White House on Tuesday with the discovery of a small concentration of spores at an offsite mail processing center. ``We're working hard at finding out who's doing this," President Bush said as bioterrorism claimed fresh victims along the East Coast.

Bush said the executive mansion was safe - and twice said ``I don't have anthrax"- despite the discovery of spores on a machine at the mail site a few miles from the White House. Spokesman Ari Fleischer said all employees at the site as well as mailroom workers in the White House itself were being ``swabbed and tested" for the disease.

The startling disclosure capped a rapidly unfolding series of events in which officials announced additional confirmed and suspected cases of inhalation anthrax, Congress returned to work, and the administration pledged a more aggressive testing and treatment program if additional tainted letters are discovered.

Before the current outbreak, ``We had had no cases of inhalation anthrax in a mail sorting facility," said Jeffrey Koplan, head of the Centers for Disease Control and Prevention. ``There was no reason to think this was a possibility."

For his part, Health and Human Services Secretary Tommy Thompson pushed Bayer Corp. to lower its price for Cipro, a front-line anti-anthrax drug.

Outside the White House, House Democratic Leader Dick Gephardt said ``weapons-grade material" was responsible for spreading infections. And overseas, the State Department issued a worldwide alert warning U.S. citizens to be mindful of the risk of anthrax or other biological or chemical agents.

Six weeks after terrorists killed thousands in Washington and New York, administration officials drew a rhetorical connection to the outbreak of anthrax. The FBI released the text of three anthrax-tainted letters - each of them dated Sept. 11, the date that hijackers flew planes into the World Trade Center in New York and the Pentagon.

Bush believes the spread of anthrax ``is another example of how this is a two-front war: that there are people who would seek to do evil to this country; that there are people who mean us harm," Fleischer said. ``And they have mailed letters, obviously, to high impact places - the news media, to Majority Leader (Tom) Daschle, perhaps, in this case, to the White House."

The administration has been buffeted by criticism for waiting several days after the discovery of the letter addressed to Daschle before ordering testing at the central postal facility for the nation's capital. Without acknowledging any shortcomings, several officials pointed to changes in their outlook.

``We're going to err on the side of caution in making sure people are protected," said Thompson.

``When a case of anthrax does emerge we will immediately move in at any and all postal facilities that might have handled that piece of mail," he said. He spoke as the U.S. Postal Service offered antibiotics as a precaution to 7,000 employees of six Manhattan post offices that may have been in the path of anthrax-contaminated letters.

Koplan, appearing before a separate panel, said, ``the public health system of the United States is severely challenged at this moment."

The latest evidence of that was in the Washington area and New Jersey, at postal facilities known to have processed one or more anthrax-tainted letters in the past few weeks. Both were closed after the presence of anthrax was detected.

Postal Service Vice President Deborah Willhite said of the Washington facility: ``It's a crime scene because someone has been murdered."

There, officials confirmed two postal worker deaths due to anthrax, and said the disease had sent more to the hospital. Thousands more mail employees were undoing tests and taking antibiotics.

District of Columbia Mayor Anthony Williams said final laboratory results confirmed inhalation anthrax as the cause of death of two men who worked at the city's main Brentwood postal facility. Other officials said two more employees remain hospitalized with the disease, and said anthrax was suspected in an additional four cases. Anthrax-laced mail delivered last week to Daschle's office was postmarked in Trenton, N.J., and went through the Brentwood facility.

``We do not need further testing," said Dr. Ivan Walks, the city's top health official. ``But we need to treat. And we need to treat quickly." He urged anyone who visited the back area of the central mail facility to come in for antibiotics.

Earlier, New Jersey officials announced that a woman had been hospitalized in the Trenton area and was presumed to be suffering from the inhalation form of the disease. ``She's holding her own," said Dr. Eddy Bresnitz, the state epidemiologist.

The woman, whose name was not released, works at a Trenton-area postal facility believed to have processed at least three anthrax-laced letters - one to Daschle, the second to NBC News anchorman Tom Brokaw and the third to the New York Post.

Still later, officials in Montgomery County, Md., said they suspected anthrax in the case of two postal workers from Brentwood, both of whom were being treated at a local hospital. and state officials in Towson, Md., said one patient at a separate hospital is suspected to have the disease.

The FBI released copies of the spiked letters mailed to Daschle, Brokaw and the New York Post. All three contained anti-American and anti-Israeli messages.

``You can not stop us. We have this anthrax. You die now. Are you afraid? Death to America. Death to Israel. Allah is great," said the letter to Daschle.

The discovery of that letter last week touched off the anthrax scare on Capitol Hill that has yet to abate.

The House and Senate reopened for business Tuesday, but the office buildings that house lawmakers and their aides were shut, some of them possibly for days.

``I think we have to assume there is a possibility that other mail could be contaminated," said Daschle, D-S.D. He said some of the mail that has been piling up since last Monday may have to be destroyed.

At day's end, Senate leaders announced plans to reopen one of the three office buildings on their side of the Capitol on Wednesday. Two sources, speaking on condition of anonymity, said the decision overruled an initial recommendation from scientists and health officials who wanted it to remain closed while decontamination proceeded in nearby buildings ([Wired, 2001](#)).

**Title:** Anthrax Vaccine To Go To 'High Risk Workers'

**Date:** October 28, 2001

**Source:** [CNN](#)

**Abstract:** The Centers for Disease Control and Prevention will administer anthrax vaccine to "high



risk" laboratory workers and decontamination specialists and may later expand the program to some postal workers, the federal agency said Friday.

Dr. David Fleming, the CDC's deputy director of science and public health, said the agency decided to vaccinate those involved in the anthrax investigation because they were "constant exposure" to the anthrax bacteria.

He also said a CDC task force is assessing whether some postal workers and others should also be vaccinated, and expects to announce a decision within two weeks.

Traces of anthrax found at a CIA mail sorting facility are "medically insignificant," an official said, but the building in Langley, Virginia, has joined other federal buildings, such as the U.S. Supreme Court, that have been closed for environmental testing and cleaning.

The CIA, like many U.S. agencies, gets its mail from Washington's main processing center on Brentwood Road, where two postal workers have died from inhalation anthrax and a number of others are being treated in hospitals.

How the contamination is being handled at postal facilities appears headed for court. The New York metro postal union has given officials until Monday to close the contaminated Manhattan processing center. The Miami, Florida-area union said it plans to ask a federal judge for "expedited arbitration" with the Postal Service. The union wants to address grievances stemming from the three-week series of anthrax-in-the-mail investigations and reports, according to a union representative and an attorney for the union.

### **Case History**

Florida -- Robert Stevens, dead of inhalation anthrax

Washington -- Two postal workers from the Brentwood facility, dead from inhalation anthrax.

Washington -- Two Capitol Hill postal workers, inhalation anthrax

Washington area -- U.S. State Department mailroom employee, inhalation anthrax

Florida -- Ernesto Blanco, diagnosed with inhaled anthrax infection, was released from the hospital on October 24

New Jersey -- A Hamilton Township postal worker, inhalation anthrax

New Jersey, New York -- five cases of cutaneous anthrax

Exposures -- 32

Washington -- 28 people in the Hart Senate Office Building

Florida -- Stephanie Dailey, an American Media Inc. employee

New York -- One police officer, two lab technicians who were investigating NBC News facility

### **Bottom Line**

As the anthrax contamination spreads, health officials are changing the way they are handling the investigation and treatment of the bacterial threat. Weeks after the probe of anthrax threats began, those on the front lines of the investigation will get the anthrax vaccine. With anthrax spreading through the mail, some postal workers are angry that more has not been done to protect them from the potentially deadly bacteria ([CNN, 2001](#)).

**Title:** New York Hospital Worker Dies From Anthrax

**Date:** October 31, 2001

**Source:** [Guardian](#)

**Abstract:** A 61-year-old New York hospital worker today became the fourth person in the US to die of inhalation anthrax, and the first death not connected with the postal service, government or media.

Kathy Nguyen worked in a storage supply room in the basement of the Manhattan Eye, Ear and Throat Hospital, which was located next to the mailroom until a few days ago, but no suspicious letter has been found in the hospital.

Only one other case, a 51-year-old accountant from New Jersey suffering from skin anthrax, has had no connection to the obvious "targets": large news organisations, the government or the postal workers who sort and carry infected mail. Both cases raised the possibility that anthrax letters are contaminating other mail or that the spores are reaching people by means other than the mail.

Hundreds of the Ms Nguyen's fellow hospital workers were being given antibiotics as a precaution.

Dr Anthony Fauci of the National Institutes of Health said worries about "cross-contamination" - anthrax spores sticking to pieces of mail at postal facilities - have grown with the new cases.

Dr Fauci said investigators are now wondering if people have been infected from a piece of mail that went to their home.

Dr Fauci added that preliminary tests show no anthrax at the hospital where she works and "that's part of the mystery".

"So all bets are off and we - the public health officials, the forensic group - have to do a real full court press on trying to track this down. This is critical," he told NBC television.

Officials were trying to retrace the woman's movements but the process was "somewhat limited because she cannot participate in this discussion", the surgeon general, David Satcher, told CBS television.

The spread of the disease - from mail carriers in New Jersey and Washington to media employees in New York and Florida and now to apparently unrelated people - is giving investigators and researchers a painful real-world case study. Contamination of postal facilities in Washington, New Jersey and Florida has altered investigators' assumptions about how easily the spores can be spread. Postal service equipment and procedures, too, are under re-examination.

"It's been an eye-opener, to me at least, the amount of contamination possible from these letters," said Martin Hugh-Jones, an epidemiologist at Louisiana State University.

Officials at the Centres for Disease Control and Prevention nationwide are now keeping an open mind about cross-contamination, a spokesman said - a stark change from a week earlier.

Last week, Dr Jeffrey Koplan, the CDC director, said cross-contamination was "highly unlikely to virtually impossible". Yesterday he described it as a "possibility".

The latest victims raised the number of confirmed anthrax cases to 16 in the US since the outbreak began in early October. Ten of the victims have the inhaled form, and four have died. Six others have less severe skin infections.

\* Meanwhile two Northwest Airlines flights from Tokyo's Narita airport were this evening grounded in Seattle and San Francisco over fears that someone carrying anthrax could be on board.

Two passengers on the plane held at Seattle were detained and questioned, while the aircraft were both given the all clear after searches showed no evidence of anthrax or other biohazards ([Guardian, 2001](#)).

**Title:** Anthrax Attack Bug "Identical" To Army Strain

**Date:** May 9, 2002

**Source:** [New Scientist](#)

**Abstract:** The DNA sequence of the anthrax sent through the US mail in 2001 has been revealed and confirms suspicions that the bacteria originally came from a US military laboratory.

The data released uses codenames for the reference strains against which the attack strain was compared. But **New Scientist** can reveal that the two reference strains that appear identical to the attack strain most likely originated at the US Army Medical Research Institute for Infectious Diseases at Fort Detrick (USAMRIID), Maryland.

The new work also shows that substantial genetic differences can emerge in two samples of an anthrax culture separated for only three years. This means the attacker's anthrax was not separated from its ancestors at USAMRIID for many generations.

The new genetic sequencing work was done by the Institute for Genomic Research in Rockville, Maryland (TIGR), and Paul Keim's team at the University of Northern Arizona at Flagstaff. Before the attacks, TIGR had started sequencing a non-pathogenic derivative of the "Ames" strain of anthrax from the UK biodefence establishment at Porton Down.

It happened that the anthrax attacker used a pathogenic Ames strain. So in January, TIGR added the bacteria isolated from the first victim of the attack, Florida journalist Robert Stevens, to its sequencing effort.

### **Incriminating Evidence**

The idea was to tease out subtle differences between the two genomes that might identify the source of the attack strain. Full-blown sequencing seemed necessary, as genetic differences in anthrax are notoriously hard to find.

The teams found plenty of differences between the two strains, as they now report in the journal *Science*. They then took these "marker" stretches of DNA and tested them against five other samples of Ames anthrax, looking for differences - or incriminating similarities.

One, from a goat that died of anthrax in Texas in 1997, differed at four markers, proving that the markers can reveal divergence among anthrax lineages.

But ironically, none of the other four - identified only as A, B, C and D - differed at all from the attack strain at any of the new markers revealed by sequencing. However, two, A and D, did differ at one marker - a stretch of repeated adenines on pXO2, one of the two DNA plasmids that give anthrax its virulence.

That marker had already been discovered by Keim and reported at a meeting in June 2001. "It may be the most polymorphic site in the genome," Keim told *New Scientist*. Strain A can immediately be ruled out as the attack strain as it is missing a plasmid, and is non-pathogenic.

The identity of the strains apparently identical to the attack strain - B and C - and strain D can be deduced as follows. In February, Keim told *New Scientist*: "We can distinguish among different Ames accessions. These are from collaborative laboratories and related to genetic work we have been performing over the years."

### **Doubly Sure**

The strains from the collaborative labs appear certain to be strains B, C and D. In that case, one was the reference Ames in Keim's collection that came from a freezer at Porton Down, which in turn had got it from USAMRIID. Another was a culture that came directly from USAMRIID, and the last was from the US Army's Dugway proving ground in Utah.

TIGR spokesmen and other sources have stated that Keim could find no differences between the attack strain and the reference Ames in his collection at any marker tested in his lab. The tests reported in *Science* are no better at doing this. So one of B and C is Keim's Porton Down/USAMRIID reference strain. The other is likely to be the culture directly from USAMRIID, as the reference strain originated there and had since languished in a freezer.

So strain D seems to have come from Dugway. The difference between D and the attack strain is not great - there are 36 adenines in a row, instead of 35 - but Keim's team made doubly sure by sequencing that part of the D strain's genome.

However, the new work does not prove irrefutably that the attacker got his anthrax directly from USAMRIID because it is possible that untested Ames cultures from other labs might also be identical. Those tests are now underway ([New Scientist, 2002](#)).

**Title:** Anthrax Killer 'Is US Defence Insider'

**Date:** August 18, 2002

**Source:** [BBC](#)

**Abstract:** An FBI forensic linguistics expert believes the US [anthrax attacks](#) were carried out by a senior scientist from within America's biological-defence community.

Professor Don Foster - who helped convict Unabomber Ted Kaczynski and unveiled Joe Klein as the author of the novel Primary Colors - says the evidence points to someone with high-ranking military and intelligence connections.

Speaking about the investigation for the first time, Prof Foster told the BBC he had identified two suspects who had both worked for the CIA, the US Army Medical Research Institute of Infectious Diseases (USAMRIID) and other classified military operations.

Controversially, Prof Foster says the killer is likely to be highly patriotic individual who wanted to demonstrate that the US was badly prepared for an act of biological terrorism.

The weapons-grade anthrax was posted in letters just days after the 11 September terror attacks, leaving five people dead, 18 injured and 35,000 forced to take precautionary antibiotics.

The professor says he does not believe the killer will strike again as he has achieved his goal.

He explained: "To that end his misplaced patriotism has worked. Today millions of government dollars have gone into research and anthrax antibiotics are now available to the public."

### **Agency Rivalry?**

However, he fears the investigation is now being hampered in its gathering of vital documents that could lead to the killer.

Prof Foster says investigators need examples of the suspects writing to analyse their style and use of language - which the professor believes is as unique as DNA and could unveil the perpetrator.

He said: "It's very frustrating. Ordinarily with the FBI if there's some documents needed - known writings - boom, they're on my desk the next day.

"My two suspects both appear to have CIA connections. These two agencies, the CIA and the FBI, are sometimes seen as rivals.

"My anxiety is that the FBI agents assigned to this case are not getting full and complete co-operation from the US military, CIA and witnesses who might have information about this case."

### **Killer 'Diverting Suspicion'**

Prof Foster was given four letters recovered by investigators to analyse for clues to the killer's identity.

"As I worked through these documents it became apparent that USAMRIID was ultimately the best place for the FBI to begin looking for a suspect," he said.

All of the letters contain the following messages "Death to America" and "Death to Israel". All were dated 11 September, a clear reference to the terror attacks.

But while investigators searched for links between the anthrax attacks and al-Qaeda, Prof Foster immediately suspected that dating the letters 11 September was merely a ruse to throw the authorities off the scent.

He says: "When an offender gives you some piece of information that's just completely unnecessary and that, in this case, is inaccurate, it becomes immediately suspect.

"It becomes a statement of 'Here's what I want you to believe about this document'."

Prof Foster also says the killer seems to have tried implicating two former USAMRIID scientists who had left the laboratory in unhappy circumstances by posting the letters from near their homes in New Jersey.

He says only someone in contact with a senior insider at USAMRIID would have known how the two scientists left the lab and that they would then be likely targets for the FBI investigation.

He says: "They are looking at someone who's a little bit higher up the food chain, who would have to have access to personnel information."

### **Deliberate Mistakes**

The professor also identified a number of mistakes and misspellings in the letters which he suspects are a deliberate ploy to confuse investigators.

The author of the anthrax letters tells his victims to take penicillin. Not only is penicillin the wrong antibiotic to take, the killer also misspells the word.

Prof Foster says: "You mean to tell me this guy is dealing with anthrax, a trillion spores a gram, and he thinks penicillin is going to be the antibiotic of choice?"

"There's something very fishy about that misspelling there, that this particular word should be misspelled and it should be misspelled in such an unconvincing way.

"It looks like an attempt on the offender to say 'Hey, don't think I'm a scientist, don't think I know anything about antibiotics'."

The FBI have placed a number of scientists under intense scrutiny and recently questioned US scientist Dr [Steven Hatfill](#) in connection with the attacks.

Dr Hatfill strenuously denies any involvement in the attacks saying: "I have never worked with anthrax; I know nothing about this matter."

The FBI's investigation continues ([BBC, 2002](#)).

**Title:** US Government Biological Weapons Legislator Says 2001 Anthrax Attacks Part Of Government Bio-Warfare Program

**Date:** December 13, 2006

**Source:** [Infowars](#)

**Abstract:** The real culprits behind the 2001 anthrax attack on Congress were most likely US government scientists at the army's Ft. Detrick, MD., bioterrorism lab according to a former government biological weapons legislator and University of Illinois Professor.

Dr Francis A. Boyle says the FBI covered up these facts and has also quite clearly stated that he doubts the official government story that 19 arabs with boxcutters perpetrated the attacks of 9/11.

Boyle is a leading American professor, practitioner and advocate of international law. He was responsible for drafting the Biological Weapons Anti-Terrorism Act of 1989, the American implementing legislation for the 1972 Biological Weapons Convention. He served on the Board of Directors of Amnesty International (1988-1992), and represented Bosnia- Herzegovina at the World Court. Professor Boyle teaches international law at the University of Illinois, Champaign. He holds a Doctor of Law Magna Cum Laude as well as a Ph.D. in Political Science, both from Harvard University.

"I believe the FBI knows exactly who was behind these terrorist anthrax attacks upon the United States Congress in the Fall of 2001, and that the culprits were US government-related scientists involved in a criminal US government bio-warfare program," Boyle says in his new book [Biowarfare and Terrorism](#).

Only a "handful" of scientists had the means to carry out the attack, yet the FBI ordered the destruction of the anthrax culture collection at Ames, IA., from which the Ft. Detrick lab got its pathogens. Boyle states that only top level scientists with access to "moonsuits" that enabled them to safely process and manufacture super-weapons-grade anthrax could have carried out the attacks.

"The trail of genetic evidence would have led directly back to a secret but officially-sponsored US government biowarfare program that was illegal and criminal" , Boyle said. However, impartial scientists were not allowed to perform genetic reconstruction of the anthrax found in letters mailed to Senators Daschle (D-S.D.) and Patrick Leahy, (D -Vt.) in late 2001.

We have [previously exposed](#) how leading members of the Bush administration and White House staff were on the anthrax-treating antibiotic Cipro up to six weeks before the attacks occurred. It is also documented that the anthrax strain used was military grade. This was widely reported in 2002 in publications such as the [New Scientist](#). However, this fact has recently been [totally changed](#) with the FBI now suggesting that common anthrax, not military grade anthrax was used.

The whole thing "appears to be a cover-up orchestrated by the FBI." according to Dr Boyle.

Boyle goes on to inquire, "Could the real culprits behind the terrorist attacks on 11 September 2001, and the immediately following terrorist anthrax attacks upon Congress ultimately prove to be the same people? Could it truly be coincidental that two of the primary intended victims of the terrorist anthrax attacks - Senators Daschle and Leahy - were holding up the speedy passage of the pre-planned USA Patriot Act ... an act which provided the federal government with unprecedented powers in relation to US citizens and institutions?"

Clearly Dr Boyle has a hard time believing what the government says happened on 9/11 ([Infowars, 2006](#)).

**Title:** Suicide Of Anthrax Scientist Raises Questions

**Date:** August 1, 2008

**Source:** [Science Mag](#)

**Abstract:** One of the greatest criminal mysteries of the decade has taken a dramatic new turn with the suicide last Tuesday of Bruce Ivins, an anthrax researcher at the U.S. Army Medical Research Institute of Infectious Disease (USAMRIID) in Fort Detrick, Maryland. According to news reports, federal prosecutors were preparing to file charges against Ivins, 62, for plotting the anthrax letter attacks which killed five people and sickened 17 others in October and November 2001.

Biodefense researchers were pondering today whether there might be a backlash to their field if the worst bioterror crime in U.S. history was indeed committed by a scientist who had spent a career developing countermeasures against anthrax. But the fact that Ivins won't face trial also raised the uncomfortable specter that the full truth about the case may never come out. "We may never know for sure whether he did it or not," says virologist Thomas Geisbert, a former USAMRIID researcher now at Boston University. Ivins's lawyer, Paul Kemp of Rockville, Maryland, issued a statement quoted by *The New York Times* declaring his client innocent and alleging that mounting pressure from the Federal Bureau of Investigation (FBI) had "led to his untimely death."

According to the *Los Angeles Times*, which broke the story this morning, Ivins committed suicide by taking an overdose of painkillers. Ivins had worked at USAMRIID for 18 years, focusing primarily on anthrax. Most of his published work was on anthrax vaccines. Ivins produced and used anthrax spores of the Ames strain, the type used in the letter attacks, to infect animals.

In a statement issued this afternoon, the FBI did not mention Ivins's name but said it would reveal more information about the case after victims' families had been informed. The bureau said that "substantial progress" has been made in the case, thanks in part to "new and sophisticated scientific tools"--but it didn't give specifics.

The FBI has been under immense pressure from politicians and the public to find the perpetrators of the 2001 attacks, and some are worried that Ivins's death may provide a premature opportunity to declare the case solved. In a statement today, Alan Pearson of the Center for Arms Control and Non-Proliferation in Washington, D.C., called on the bureau to continue its investigation. "The need for a thorough investigation and a full accounting to the American people remains." Ivins's inability to defend himself makes it even more important that scientists be able to pore over the complete scientific evidence, says R. John Collier, an anthrax researcher at Harvard University. "I would love to see what they have," Collier says.

Just this summer, the government agreed to pay \$4.6 million to Steven Hatfill, a biodefense researcher whose life was turned upside down in 2002 after then-Attorney General John Ashcroft called him a "person of interest" in the anthrax attacks. Geisbert wonders whether Ivins's death was the result of "another Hatfill situation, and was he just unable to handle the pressure."

The death--and presumed involvement in the anthrax letters--puts the biodefense research community in a tight spot, says Gerald Epstein, a biosecurity expert at the Center for Strategic and International Studies in Washington, D.C. "From the very beginning, there has been speculation that the attacks were carried out by a biodefense zealot who wanted to prove that bioterrorism was a serious problem," says Epstein. If true, that could give the public the impression that "biodefense research is a giant fraud," he says. "It would be unfortunate if the message people take away from this is that the only individuals we should be concerned about are deranged biodefense scientists."

Geisbert worries that Ivins's potential involvement will give new ammunition to local groups that have tried to stop the wave of new biosafety labs. In Boston, "we have had a lot of opposition--and this is not going to help," he says. Still, Geisbert points out, none of the anthrax victims lived in or near USAMRIID, and there's no reason to believe local residents are at greater risk when a biodefense researcher becomes a bioterrorist himself.

Jonathan Tucker, a specialist on biological weapons control, says the incident is bound to evoke new concerns about "insider threats" at government and university labs. Officials may be compelled to further scrutinize researchers who work with select agents, Tucker says, adding that some questions have already been raised about "the adequacy of the screening process" used by the FBI to determine if a scientist should be allowed to work with a dangerous pathogen ([Science Mag, 2008](#)).

**Title:** Anthrax Case Renews Questions On Bioterror

**Date:** August 3, 2008

**Source:** [New York Times](#)



**Abstract:** Until the [anthrax](#) attacks of 2001, [Bruce E. Ivins](#) was one of just a few dozen American bioterrorism researchers working with the most lethal biological pathogens, almost all at high-security military laboratories.

Today, there are hundreds of such researchers in scores of laboratories at universities and other institutions around the United States, preparing for the next bioattack.

But the revelation that [F.B.I.](#) investigators believe that the anthrax attacks were carried out by Dr. Ivins, an Army biodefense scientist who committed suicide last week after he learned that he was about to be indicted for murder, has already re-ignited a debate: Has the unprecedented boom in biodefense research made the country less secure by multiplying the places and people with access to dangerous germs?

"We are putting America at more risk, not less risk," said Representative Bart Stupak, Democrat of Michigan and chairman of a House panel that has investigated recent safety lapses at biolabs.

F.B.I. investigators have long speculated that the motive for the attacks, if carried out by a biodefense insider like Dr. Ivins, might have been to draw public attention to a dire threat, attracting money and prestige to a once-obscure field.

If that was the motive, it succeeded. In the years since anthrax-laced letters were sent to members of Congress and news organizations in late 2001, killing five people, almost \$50 billion in federal money has been spent to build new laboratories, develop vaccines and stockpile drugs.

After the attacks, for example, an experimental vaccine Dr. Ivins had spent years working on moved from the laboratory to a proposed \$877 million federal contract, though the deal collapsed two years later. Federal documents suggest that Dr. Ivins, along with several colleagues, might have earned royalties had the contract gone forward, but the deal ultimately collapsed.

Dr. Ivins's lawyer, Paul F. Kemp, and some of the scientist's colleagues insist that he was innocent. Mr. Kemp said by e-mail on Saturday that news reports that his client had considered agreeing to a plea bargain were "entirely spurious." And a senior law enforcement official said that discussions between investigators and Mr. Kemp were "preliminary" and routine and did not represent any active discussion of a plea bargain.

But officials at the Justice Department and the Federal Bureau of Investigation on Saturday appeared confident that they had the right man. They said they were still weighing how and when to seek an end to the grand jury investigation.

"That's not a decision we're going to make lightly," said one Justice Department official who spoke on condition of anonymity because he was not authorized to discuss internal deliberations. "There won't be a rush to judgment."

As prosecutors consider how to proceed in the wake of Dr. Ivins's death, federal officials say they are convinced that the increase in biodefense spending has brought real gains.

"Across the spectrum of biothreats we have expanded our capacity significantly," said Craig Vanderwagen, an assistant secretary at the [Department of Health and Human Services](#) who oversees the biodefense effort. Systems to detect an attack, investigate it and respond with drugs, vaccines and cleanup are all hugely improved, Dr. Vanderwagen said. "We can get pills in the mouth," he said.

Supporters of the spending increase cite studies that project apocalyptic tolls from a large-scale biological attack. One 2003 study led by a Stanford scholar, for instance, found that just two pounds of anthrax spores dropped over an American city could kill more than 100,000 people, even if [antibiotic](#) distribution began quickly.

And there is ample evidence that Qaeda leaders have shown interest in using biological weapons. Yazid Sufaat, a Malaysian-born Qaeda biochemist who trained in the United States, spent several months in 2001 trying to cultivate anthrax in Kandahar, Afghanistan.

Yet nearly seven years have passed without another biological attack, which has reduced the sense of urgency about the bioterrorist threat, even among some specialists.

"I think it's an important risk, but frankly I'm more concerned about bombs and guns, which are easily available and can be very destructive," said Randall S. Murch, a former F.B.I. scientist who has studied ways to trace a bioterrorist attack to its source.

And Congressional investigators recently warned that the proliferation of biodefense research laboratories presents real threats, too.

More people in more places handling toxic agents create more opportunities for an accident or intentional misuse by an insider, Keith Rhodes, an investigator with the [Government Accountability Office](#), said at a Congressional hearing in October.

Nationwide, an estimated 14,000 people work at about 400 laboratories and have permission to work with so-called select agents, which could be used in a bioterror attack, although not all are authorized to handle the most toxic substances, like anthrax. With so many people involved, there is insufficient federal oversight of biodefense facilities to make sure the laboratories follow security rules and report accidents that might threaten lab workers or lead to a release that might endanger the public, Mr. Rhodes testified.

In effect, the government may be providing the tools that a would-be terrorist could use, said Richard H. Ebright, a [Rutgers University](#) biochemist and vocal critic of the federal increase in biodefense spending.

"One well-placed student, technician or senior scientist — no cost, with the salary being provided courtesy of the U.S. taxpayer — and no risk, no difficulty," Mr. Ebright said. "That is all it takes."

Heightening the concern has been a string of accidents at certain new or expanded biodefense laboratories, several of which were not properly reported to the authorities when they took place.

One of the first accidents was in Dr. Ivins's lab in late 2001, when he and his colleagues were aiding the federal investigation of the anthrax attacks and spores accidentally spilled outside the secure area. He failed to report the event to his superiors and instead tried to disinfect the contaminated areas, according to an Army report, which concluded, "Adherence to institute safety procedures by laboratory personnel is lax."

In early 2006, at [Texas A&M University](#), a worker was infected with Brucella bacteria, a pathogen common in livestock that can cause flulike symptoms like [fever](#), fatigue and [joint pain](#), although it is rarely fatal. Later, three researchers at the same lab were infected with [Q fever](#), another cattle-borne disease that can cause serious but generally not fatal illness in humans.

After the two incidents belatedly became public, federal officials temporarily shut down the laboratory, citing a series of safety shortcomings, like unapproved experiments and staff members given access to the dangerous agents even though they had not been approved to handle them.

Apart from the insider threat, some public health experts believe money used to study obscure pathogens that are not a major disease problem could be better directed to study known killers like [influenza](#) or [AIDS](#).

Partly in response to this criticism, government officials now often talk about how strengthening the systems necessary to respond to a terror attack would also prepare the country for a natural epidemic like avian [flu](#).

As experts debate threats, nervous neighbors of expanding biodefense facilities have repeatedly rallied to try to defeat them. At Fort Detrick in Maryland, some residents have opposed the construction of a “national biodefense campus” slated to include a new building to house the [United States Army](#) Medical Research Institute of Infectious Diseases, where Dr. Ivins worked for many years before his suicide. Three other new laboratories on the campus will be operated by the Departments of Homeland Security, Health and Human Services, and Agriculture.

Proponents say clustering the laboratories on a military base will encourage safe scientific collaboration and save money through sharing of some facilities.

The buildup, and the related increase in research, has brought some important advances, federal officials argue, like promising new experimental vaccines or therapies to treat [smallpox](#) or Ebola virus.

The country now also has an expanded stockpile of vaccines and drugs to treat anyone exposed in a future attack, including enough antibiotics to treat more than 40 million Americans who might be exposed to anthrax and nearly five million bottles of a special potassium iodide liquid that helps protect infants from harm caused by nuclear fallout.

The deal for the \$877 million contract that included Dr. Ivins’s vaccine collapsed in 2006 after the contractor, VaxGen of Brisbane, Calif., missed deadlines. VaxGen, in a licensing agreement with the Army to produce the vaccine, listed two patents held by Dr. Ivins and his colleagues. The possibility that Dr. Ivins could earn royalties from the patents was first reported by The Los Angeles Times.

Arthur Friedlander, one of Dr. Ivins’s collaborators in the work that led to the anthrax vaccine patent in 2002, declined to comment when asked Saturday if he and others who had worked on the project stood to gain financially. He referred the question to an Army spokeswoman, who did not respond to a request for comment.

Dr. Ivins’s lawyer, Mr. Kemp, said he could not comment on the notion that Dr. Ivins stood to earn royalties from vaccine patents because of attorney-client privilege.

VaxGen had agreed to pay royalties to the Army in exchange for the license to produce the new anthrax vaccine, according to federal financial disclosure it filed. And Army policy would allow the inventor to receive up to \$150,000 a year “of any royalties/payments resulting from commercial licensure.”

It is unclear what the deal in this case might have been, or how the royalties might have been split among the five researchers whose names were on the patent.

Addressing the issue of bioterrorism spending, Michael Greenberger, director of the Center for Health and Homeland Security at the [University of Maryland](#), said he was convinced that the increase had left the nation better prepared for an attack, without creating significant new vulnerabilities.

“You can never say that the system is 100 percent secure,” Mr. Greenberger said. “But the research ethic today is one of much greater discipline and focus on security than was true prior to the anthrax attacks.”

Mr. Stupak, the congressman from Michigan, remains concerned.

“You have all these universities tripping over each other trying to be high-level biosecurity labs,” he said. “What the nation gets is a very expensive bill, less security and a greater risk to the surrounding communities” ([New York Times, 2008](#)).

**Title:** Army Researcher’s Alleged Anthrax Attack Raises Concerns Over Biodefense Labs

**Date:** August 4, 2008

**Source:** [Discovery](#)

**Abstract:** Last week's suicide by a government biodefense researcher who had been linked to the mailing of anthrax-laced letters in 2001 has raised thorny questions about whether the benefits of biodefense research outweigh the risks. Researcher Bruce Ivins had reportedly been informed by the FBI that he was about to be indicted for murder in the incident that killed five people and sent 17 more to the hospital.

Some observers point out that biodefense research has vastly increased since the terrorist attacks of 2001, and raise the question: Has the unprecedented boom in biodefense research made the country less secure by multiplying the places and people with access to dangerous germs? ... Nationwide, an estimated 14,000 people work at about 400 laboratories and have permission to work with so-called select agents, which could be used in a bioterror attack, although not all are authorized to handle the most toxic substances, like anthrax.

Yet Ivins may have been motivated by the desire to spur a further increase of biodefense spending and research, former acquaintances said. One former senior official with Ivins' employer ... said he believed his former colleague wanted more attention — and resources — shifted to biological defense. "It had to have been a motive," said the former official, who suspects that Ivins was the culprit. "I don't think he ever intended to kill anybody. He just wanted to prove 'Look, this is possible.' He probably had no clue that it would aerosolize through those envelopes and kill those postal workers".

Ivins' biography is full of contradictions. He was a trusted researcher for the U.S. Army for 35 years and received a commendation from the Department of Defense, yet his therapist described him as a "revenge killer" who had been diagnosed by several psychiatrists as "a sociopathic, homicidal killer". The news of Ivins' apparent instability is likely to draw more attention to the possibility of "insider threats" at government and university labs. Officials may be compelled to further scrutinize researchers who work with select agents, [biological weapons expert Jonathan] Tucker says, adding that some questions have already been raised about "the adequacy of the screening process" used by the FBI to determine if a scientist should be allowed to work with a dangerous pathogen ([Discovery, 2008](#)).

**Title:** Government Biological Weapons Legislator: Anthrax Inside Job Cover Up Continuing

**Date:** August 22, 2008

**Source:** [Infowars](#)

**Abstract:** A former government biological weapons legislator appeared on the nationally syndicated Alex Jones show yesterday to discuss his detailed knowledge of the cover up of the 2001 anthrax attacks, which he is adamant were perpetrated by criminal elements of the US government in an attempt to foment a police state by killing off opposition to hardline post 9/11 legislation.

Dr Francis A. Boyle literally helped write the law with regards to terrorism, as he was responsible for drafting the Biological Weapons Anti-Terrorism Act of 1989 that was passed unanimously by both Houses of Congress and signed into law by President Bush Snr. Professor Boyle teaches international law at the University of Illinois, Champaign. He holds a Doctor of Law Magna Cum Laude as well as a Ph.D. in Political Science, both from Harvard University. He has also served on the Board of Directors of Amnesty International (1988-1992), and represented Bosnia- Herzegovina at the World Court.

In light of the latest developments with the FBI Anthrax investigation, the professor joined Alex Jones on air to re-cap the story that [made waves in late 2006](#). In October 2001 when the anthrax attacks took place and it was revealed that the spores were super weapons grade anthrax at one trillion spores per gram created with special electro-static treatment, Dr Boyle says it became obvious to him that there was nowhere it could have come from other than a government lab.

Dr Boyle proceeded to call a very high level official in the FBI who deals with terrorism and counter-terrorism, Spike Bowman, whom he had met at a terrorism conference at the University of Michigan Law School. Dr Boyle went through all the names, the contractors and the labs for Anthrax work with the FBI's Bowman. Bowman then informed Dr Boyle that the FBI was working with bio-lab Fort Detrick on the matter, to which he responded that Fort Detrick could really be the main problem.

"I told Mr Bowman in October of 2001 that the only people that had the capability to do this would be those individuals working at either United States Government labs, or private contractors and things of this nature, and it obviously seemed to me that this was U.S. government related." the University of Illinois Professor told listeners. It was documented at the time that the anthrax strain used was military grade. This was later widely reported in 2002 in publications such as the [New Scientist](#).

"At that point I assumed good faith on the part of the FBI in this investigation because it had killed several people, it had shut down the United States Congress, which I think was probably the greatest political crime ever inflicted on our Republic in its history. But then I read that the FBI had authorized the destruction of the U.S. government's Ames strain collection." Boyle continued.

The destruction of the anthrax culture collection at Ames, IA., from which the Ft. Detrick lab got its pathogens for U.S. biowarfare programs, was blatant destruction of evidence as it meant that there was no way of finding out which strain was sent to who to develop the larger breed of anthrax used in the attacks. The trail of genetic evidence would have led directly back to a secret but officially-sponsored US government biowarfare program that was illegal and criminal.

"I knew a cover up was underway because legitimate scientific researchers could have taken that collection and used it to genetically re-construct precisely where and when and how the weapon came from. This was clearly a federal crime in its own right." Boyle stated.

The Professor explained that the motive behind the attacks was clear: "I believe the first anthrax attack was designed to ram through the PATRIOT ACT because Senators Daschle and Leahy were holding it up and once the anthrax occurred it rammed right through, indeed, on the renewal of the USA PATRIOT ACT, Senator Feingold was holding it up and all of sudden out of nowhere some white powdered substance appeared at one of the Senate office buildings, and all of a sudden the renewal of the PATRIOT ACT went through."

The evidence becomes more compelling when you [take into consideration](#) the fact that the White House was on anthrax fighting antibiotics weeks prior to the attacks. The professor stressed that a criminal cover up took place and that it is ongoing: "They are still doing it today, if you read the investigation, the press conference they heard the other day, it does not add up, if you read the article in today's New York Times it does not add up, it appears that the FBI set the investigation up by scientists in such a way that no one knew exactly what they were doing, they could not communicate with anyone else and only communicated with and took samples from the FBI."

"There is today in existence a stock pile of super weapons grade anthrax that is under the control of the original perpetrators of the anthrax attacks of October 2001 and that stock pile can and will be used again when their masters decide it would be politically convenient to scare and terrorize the American people." "They could launch another attack on us, including Congress, the Judiciary, the media." The professor warned. "I think what we need to do now is insist upon a full scale Congressional investigation, not some type of presidential commission cover up along the lines of the 9/11 report." Professor Boyle concluded.

Dr Boyle also covered the new evidence suggesting that Dr Ivins, the man the FBI named as the leading suspect in their investigation two weeks ago, has been used as a patsy in the cover up. "Ivins is only the latest dead microbiologist." Boyle stated, "You also have to tie into this the large numbers of dead microbiologists that have appeared since around the summer before these events, when the New York Times revealed the existence of the covert anthrax weapons programs run by the CIA, and that too is in the public record." Boyle stressed ([Infowars, 2008](#)).

**Title:** Senator Demands Answers On Government Anthrax Investigation Mystery

**Date:** September 6, 2011

**Source:** [Infowars](#)

**Abstract:** A ranking Republican Senator has written to the Justice Department demanding to know why it quickly retracted court papers that called into serious question a key pillar of the criminal case against Bruce Ivins, the FBI's prime suspect in the 2001 anthrax mail attacks.

Sen. Charles Grassley of Iowa, who has long questioned the legitimacy of the FBI's findings in the case, [wrote Attorney General Eric Holder and FBI Director Robert Mueller this week](#), regarding [a filing](#) by Justice Department civil lawyers in July that noted that the Army's biodefense center at Fort Detrick, Md., "did not have the specialized equipment in a containment laboratory that would be required to prepare the dried spore preparations that were used in the letters."

In other words, the filing noted that Ivins' lab, often referred to as the "hot suite", did not contain the equipment needed to turn liquid anthrax into the refined powder that ended up being mailed to members of the Senate and reporters in the fall of 2001.

Ivins, who was found dead in 2008 from an apparent suicide at the same time the government was about to indict him, was identified by the FBI's ["Amerithrax Task Force"](#) as the lone perpetrator of the attacks that killed five people and infected 17 others in the weeks immediately following 9/11.

The FBI based its entire case against Ivins on the fact that the microbiologist had access to the necessary equipment in the government lab at the U.S. Army Medical Research Institute of Infectious Diseases where he worked.

When the Justice Department realized that its recent court filing cast serious doubt on these claims, following media coverage, it did a 180 flip flop and [sent the court a "list of corrections"](#) to conform with the FBI's conclusion that Ivins did have equipment available to do the job.

In his letter, Sen Grassley notes that this turn of events "has produced a new set of questions regarding this unsolved crime."

"My concern is accentuated by the apparent contradiction of the DOJ court documents to the original FBI investigation, the subsequent attempt to retract that information and the federal judge's ruling that the DOJ Civil Division "show good cause" to justify a modification to the original court filing." Grassley writes.

"The DOJ original court filing seemingly eliminated the FBI's previous circumstantial evidence associated with Dr. Ivins without providing any additional insight as to the means and methodology he may have used to create the anthrax powder." The Senator adds.

Grassley, the most senior Republican on the Senate Judiciary Committee, also called for a briefing to "determine why it appears, at the least, that the right hand and left hand of the (Justice Department) do not know what the other is doing."

The July court filing was made as part of a government defense against a lawsuit brought by the family of Robert Stevens, Photo Editor of The Sun in Florida and the first victim who died as a result of the Anthrax attack. The court papers containing the Justice Department contradiction were discovered and [reported](#) by a researcher for the PBS program Frontline, which is working on a forthcoming documentary on the case with McClatchy Newspapers and ProPublica.

What the filing should have said, the department wrote in its retraction, was that while the Army lab did not have a lyophilizer, a freeze-drying machine, in the space where Dr. Ivins usually worked, there was a lyophilizer and other equipment in the building that he could have used to dry the anthrax into powder.

Even if this was the case, which is still highly questionable, it still significantly weakens the case against Ivins as the lone assailant, because it means he would have had to have access different areas of the building and use the equipment in those areas for some time without being noticed.

It also means that the fact that others who worked in the lab were not sickened becomes even more of a key indicator that Ivins did not prepare the anthrax spores as the FBI and the government has claimed he did.



Paul Kemp, Ivins' lead defense attorney, noted that the department's concession that the equipment wasn't available "is at direct variance to the assertions of the government on July 29, 2008," the day Ivins died, thus "invalidating one of the chief theories of their prosecution case."

This latest contradiction adds to the already voluminous unanswered questions and contradictory evidence surrounding the case.

Earlier this year a report produced by a panel of independent scientists [asserted that there was not enough scientific evidence](#) for the FBI to convict Ivins, vindicating those who have consistently pointed to a deeper conspiracy behind the case.

The \$1.1 million report, commissioned by the FBI and produced by [The National Academies of Sciences](#), concluded that the FBI overstated the science in its investigation into the microbiologist.

Senator Grassley writes in his letter to the Attorney general that this report coupled with the latest botched attempt by the government to tie up loose ends in the case is "particularly troubling" to him.

The report cast doubt on the supposed link between a flask of anthrax found in Ivins' office and letters containing the bacterial spores that were mailed to NBC News, the New York Post, and the offices of then-Sen. Tom Daschle and Sen. Patrick Leahy.

"The scientific link between the letter material and flask number RMR-1029 is not as conclusive as stated in the DOJ Investigative Summary," the 190 page report stated.

"Although the scientific evidence was supportive of a link between the letters and that flask, it did not definitively demonstrate such a relationship, for a number of reasons," said Dr. David Relman, a bioterrorism expert at Stanford University School of Medicine who served as vice chair of the review committee. "Our overarching finding was that it is not possible to reach a definitive conclusion about the origins of the B. anthracis in the mailings based on the available scientific evidence alone."

"This shows what we've been saying all along: that it was all supposition based on conjecture based on guesswork, without any proof whatsoever," lawyer Paul Kemp told [The Washington Post](#).

"For years, the FBI has claimed scientific evidence for its conclusion that anthrax spores found in the letters were linked to the anthrax bacteria found in Dr. Ivins's lab," said Sen. Charles E. Grassley (R-Iowa). The report "shows that the science is not necessarily a slam-dunk. There are no more excuses for avoiding an independent review."

Of course, there will not be an independent review any time in the near future because, as [Glenn Greenwald of Salon](#) has pointed out, all efforts to move in that direction have been aggressively blocked by the Obama Administration:

President Obama — in what I think is one of his most indefensible acts — actually [threatened to veto the entire intelligence authorization bill](#) if it included a proposed bipartisan amendment (passed by the House) that would have [mandated an independent inquiry into the FBI's anthrax investigation](#).

Indeed, the [veto threat issued by the Obama White House](#) was refreshingly (albeit unintentionally) candid about why it was so eager to block any independent inquiry: " **The commencement of a fresh investigation would undermine public confidence in the criminal investigation and unfairly cast doubt on its conclusions.**"

Ivins' death provided a neat tie up to the case, which was officially closed last year by The Justice Department. However, a clear motive was never determined, and no one ever reported seeing Ivins prepare anthrax spores or mail the supposed letters.



Previous assertions by a former colleague and friend of Bruce Ivins, and the original suspect in the FBI's investigation into the attacks, have also raised serious questions.

Shortly after Ivins' death, Dr. Ayaad Assaad, an Egyptian-born toxicologist at the U.S. Environmental Protection Agency, declared that Ivins did not kill himself and was not behind the attack at all.

Assaad made the comments in an interview with a local Fort Detrick newspaper in September 2008.

The [Frederick News Post](#) reported:

Assaad, who worked in a U.S. Army Medical Research Institute of Infectious Disease lab at Fort Detrick from 1989 to 1997 developing a vaccine for ricin, said in an interview Saturday he does not believe Ivins was guilty.

"He's a great man. He's honorable, sincere, honest and most important, he didn't kill five people and *he didn't kill himself*," Assaad told the newspaper.

Assaad knew Ivins well, not only were they colleagues but their four children were all classmates in Frederick.

Assaad was extensively questioned by the FBI on October 1, 2001, a fortnight after the first anthrax letters were mailed. It later emerged that the FBI's lead, a letter from an unidentified person who claimed Assaad was planning a biological terrorist attack, was false.

The mystery letter identified Assaad as a former USAMRIID microbiologist and also pinpointed his time at the U.S. Army Medical Research Institute of Chemical Defense at Aberdeen Proving

Ground in Harford County, indicating that whoever sent it had access to detailed army records.

The anonymous letter was sent shortly after 9/11 but before anyone knew about the anthrax-laced letters. On October 5, 2001, about 10 days after the anonymous letter was mailed, Robert Stevens became the first of five individuals to die from an anthrax infection, indicating that someone had wanted to frame Assaad for the attacks.

"This anthrax issue is part of a much bigger issue," Assaad also commented. "The roots of corruption are so deep in (USAMRIID), and this is the thing that the people in Frederick don't understand."

Former government biological weapons legislator [Dr Francis Boyle](#) shares Assaad's view that Ivins has been used as a patsy in a larger cover up.

"Ivins is only the latest dead microbiologist." Boyle has previously stated, "You also have to tie into this the large numbers of dead microbiologists that have appeared since around the summer before these events, when the New York Times revealed the existence of the covert anthrax weapons programs run by the CIA, and that too is in the public record."

In September 2007, Ivins sent an e-mail to himself, in which he said he knew of the identity of the anthrax killer, without actually stating who he believed it to be. It is not known why he did this. Prior to his death in 2008, he told friends that government agents were hounding him and his family ([Infowars, 2011](#)).

**Title:** Scientists' Analysis Disputes F.B.I. Closing of Anthrax Case

**Date:** October 9, 2011

**Source:** [New York Times](#)

**Abstract:** A decade after wisps of anthrax sent through the mail killed 5 people, sickened 17 others and terrorized the nation, biologists and chemists still disagree on whether federal investigators got the right man and whether the [F.B.I.](#)'s long inquiry brushed aside important clues.

Now, three scientists argue that distinctive chemicals found in the dried anthrax spores — including the unexpected presence of tin — point to a high degree of manufacturing skill, contrary to federal reassurances that the attack germs were unsophisticated. The scientists make their case in a coming issue of the *Journal of Bioterrorism & Biodefense*.

F.B.I. documents reviewed by The New York Times show that bureau scientists focused on tin early in their eight-year investigation, calling it an “element of interest” and a potentially critical clue to the criminal case. They later [dropped their lengthy inquiry](#), never mentioned tin publicly and never offered any detailed account of how they thought the powder had been made.

The new paper raises the prospect — for the first time in a serious scientific forum — that the Army biodefense expert identified by the F.B.I. as the perpetrator, [Bruce E. Ivins](#), had help in obtaining his germ weapons or conceivably was innocent of the crime.

Both the chairwoman of a National Academy of Science panel that spent a year and a half reviewing the F.B.I.’s scientific work and the director of a new review by the [Government Accountability Office](#) said the paper raised important questions that should be addressed.

Alice P. Gast, president of Lehigh University and the head of the academy panel, said that the paper “points out connections that deserve further consideration.”

Dr. Gast, a chemical engineer, said the “chemical signatures” in the mailed anthrax and their potential value to the criminal investigation had not been fully explored. “It just wasn’t pursued as vigorously as the microbiology,” she said, alluding to the analysis of micro-organisms. She also noted that the academy panel suggested a full review of classified government research on anthrax, which her panel never saw.

In interviews, the three authors said their analysis suggested that the F.B.I. might have pursued the wrong suspect and that the case should be reopened. Their position may embolden calls for a national commission to investigate the first major bioterrorist attack in American history.

But other scientists who reviewed the paper said they thought the tin might be a random contaminant, not a clue to complex processing. And the Justice Department has not altered its conclusion that the deadly letters were mailed by Dr. Ivins, an Army anthrax specialist who worked at Fort Detrick, Md., and killed himself in 2008 as prosecutors prepared to charge him.

Dean Boyd, a Justice Department spokesman, said the paper provided “no evidence whatsoever that the spores used in the mailings were produced” at a location other than Fort Detrick. He said investigators believe Dr. Ivins grew and dried the anthrax spores himself.

“Speculation regarding certain characteristics of the spores is just that — speculation,” Mr. Boyd said. “We stand by our conclusion.”

The tin is surprising because it kills micro-organisms and is used in antibacterial products. The authors of the paper say its presence in the mailed anthrax suggests that the germs, after cultivation and drying, got a specialized silicon coating, with tin as a chemical catalyst. Such coatings, known in industry as microencapsulants, are common in the manufacture of drugs and other products.

“It indicates a very special processing, and expertise,” said Martin E. Hugh-Jones, lead author of the paper and a world authority on anthrax at Louisiana State University. The deadly germs sent through the mail to news organizations and two United States senators, he added, were “far more sophisticated than needed.”

In addition to Dr. Hugh-Jones, the authors of the new paper are Barbara Hatch Rosenberg, a biologist, and Stuart Jacobsen, a chemist; both have speculated publicly about the case and criticized the F.B.I. for years.

In 2008, days after Dr. Ivins's suicide, the bureau made public a [sweeping but circumstantial case](#) against him. Last year, the bureau formally closed the case, acknowledging that some scientific questions were unanswered but asserting that the evidence against Dr. Ivins was overwhelming.

Investigators found that the microbiologist had worked unusual late-night hours in his lab in the days before each of the two known anthrax mailings in September and October 2001; that he often mailed letters and packages under assumed names; that he had a history of homicidal threats and spoke of "Crazy Bruce" as a personality that did things he later could not remember.

Dr. Ivins had hidden from family and friends an obsession with a sorority — Kappa Kappa Gamma — with an office near the Princeton, N.J., mailbox where the letters were mailed. The F.B.I. recorded Dr. Ivins's speaking ambiguously to a friend that he did "not have any recollection" of mailing the letters, that he was "not a killer at heart" and that "I, in my right mind, wouldn't do it."

Yet no evidence directly tied Dr. Ivins to the crime. Some of the scientist's former colleagues have argued that he could not have made the anthrax and that investigators hounded a troubled man to death. They noted that the F.B.I. pursued several other suspects, most notoriously another former Army scientist, Dr. Steven J. Hatfill, whom the bureau eventually exonerated and paid a \$4.6 million legal settlement.

In its report last February, the [National Academy of Sciences](#) panel sharply criticized some of the F.B.I.'s scientific work, saying the genetic link between the attack anthrax and a supply in Dr. Ivins's lab was "not as conclusive" as the bureau asserted.

If the authors of the new paper are correct about the silicon-tin coating, it appears likely that Dr. Ivins could not have made the anthrax powder alone with the equipment he possessed, as the F.B.I. maintains. That would mean either that he got the powder from elsewhere or that he was not the perpetrator.

If Dr. Ivins did not make the powder, one conceivable source might be classified government research on anthrax, carried out for years by the military and the Central Intelligence Agency. Dr. Ivins had ties to several researchers who did such secret work.

The Government Accountability Office, the investigative arm of Congress, is conducting its own review of the anthrax evidence. Nancy Kingsbury, the official overseeing the project, said the agency had spoken with the paper's authors and judged that "their questions are reasonable."

Beyond the world of forensics, tin is a humdrum additive used to kill micro-organisms in products like paint, wood preservatives and even toothpaste. But microbiologists say that the nutrients and additives used to grow *Bacillus anthracis*, the anthrax bacterium, are typically free of tin.

So in late 2002, when the F.B.I. found significant quantities of tin in the mailed powders, it set out to find its source. By 2003, the bureau was calling tin "an element of interest" — echoing its terminology for human suspects — according to disclosures culled from 9,600 pages of F.B.I. documents by The Times.

Over the years, the bureau performed hundreds of tests to explore tin's use in microbiology and significance in the attack germs. It also hunted for clues to how the spores had become laced with silicon, which the United States had used decades ago as a coating in germ weapons. In 2005, scientists at an internal F.B.I. symposium called tin a possible fingerprint of the attack germs.

After that, the forensic clue disappeared from public discussion, except for a passing mention in a 2009 press release. "Although the chemical fingerprint of the spores is interesting," the release said, "it was not relevant to the investigation."

In the end, the F.B.I. — without alluding to its private tin labors — declared publicly that the attack germs had no special coating, saying that conclusion supported its finding that Dr. Ivins had grown and dried the spores alone, using standard equipment in his lab at Fort Detrick.

Several anthrax scientists who reviewed the new paper at the request of The Times said they believed it neglected the possibility that the tin and silicon were meaningless contaminants rather than sophisticated additives.

Johnathan L. Kiel, a retired Air Force scientist who worked on anthrax for many years, said that the spores “pick up everything” and that the silicon might be residue of a commercial product used on laboratory glassware to keep spores from sticking. He said tin might even be picked up from metal lab containers, though he has not tested that idea.

“It doesn’t have to be some super-secret process,” Dr. Kiel said. Other experts suggested that the tin might have come from anti-foam products, disinfectants or water.

The trouble with such conjecture is that the F.B.I. spent years testing for tin in microbiology lab supplies — and reported none, according to bureau documents.

Dr. Gast, the head of the National Academy of Sciences panel, noted that her group strongly recommended that future investigations of the attacks examine the government’s classified work on anthrax.

She called access to secret records “an important aspect of providing more clarity on what we know and what we don’t know” ([New York Times, 2011](#)).

# Bio & Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIO TERROR BIBLE.COM:** The Africa Anthrax attacks occurred roughly a month after the 9/11 Anthrax Attacks in America and exhibits the earmarks of a false-flag/state sponsored terror operation. Despite the number of high-profile bio-terror plots and patsies, the historical record indicates that 99% of all bio-terror plots, attacks, "tests", "accidents" and drills are conducted by the government who has the means, the motive and the opportunity.

**Title:** Anthrax, Smallpox, Vx: The Inferno Next Time

**Date:** October 17, 2001

**Source:** [All Africa](#)

**Abstract:** Recriminations have started in America following the worst terrorist attack in the history of any nation. The only consolation is that this could have been a thousand times worse not only for America but for the whole world.

As the true extent of the tragedy sinks in - perhaps 20,000, perhaps 30,000 dead (half the number of young Americans who perished in Vietnam) - the world's most powerful nation could turn inwards again and become introverted vis-a-vis Africa, the most neglected continent ([All Africa, 2001](#)).

**Title:** Anthrax In Parcel Sent To Nairobi Doctor

**Date:** October 17, 2001

**Source:** [High Beam](#)

**Abstract:** An anthrax alert was flashed to health headquarters in Nairobi yesterday after a white powder feared to contain the deadly bacteria was found at the United Nations in Gigiri.

The powder was in a parcel sent from Pakistan, one source said.

Another parcel mailed from Georgia in the United States also contained the suspect powder, it was believed.

The parcels were detected by security staff at the United Nations Environment Programme headquarters and were immediately put in polythene bags and taken to the Ministry of Health.

The discoveries sent ministry officials into a crisis meeting which went on late into the evening ([High Beam, 2001](#)).

**Title:** Anthrax In Parcel Sent To Nairobi Doctor

**Date:** October 19, 2001

**Source:** [Telegraph](#)

**Abstract:** A Kenyan doctor has been sent a package containing anthrax bacteria, authorities in Nairobi said yesterday.

It is the first such attack outside America and heightens fears that biological weapons could be used anywhere in the world.

The anthrax was in a package sent to the doctor in Nairobi by his brother in America. It had been tampered with while in transit in Florida.

Tests were being carried out on two other suspicious letters, one of which was sent to the United Nations Environment Programme, which has its headquarters in Nairobi, from Pakistan. Up to 10 of its employees were being treated with antibiotics as a precaution.

Kenya's health minister, Sam Ogeri, said all three packages contained a powdery substance. He declared a state of alert. Officials linked the cases and said they believed Osama bin Laden was a likely suspect.

"It is bio-terrorism," Julius Meme, Kenya's director of health, said. "We are under attack again.

"Kenya was bombed in 1998 by terrorists and now this attack seems to follow in the pattern of what is happening in the United States."

Four men linked to bin Laden were sentenced to life imprisonment in New York yesterday for their roles in the bombings of the American embassies in Nairobi and Dar es Salaam in 1998, in which 224 people were killed, 202 of them Kenyans.

This is the only trial so far of any of bin Laden's followers. It would not have taken place without the help of Kenyan intelligence during the investigation.

President Daniel arap Moi of Kenya has pledged total support for America's war on global terrorism and has agreed to provide logistical help to the US military.

His stance has provoked fierce opposition from the country's Muslims, 2,000 of whom held a pro-bin Laden demonstration in Nairobi a week ago.

The doctor who received the letter containing anthrax bacteria has not been named but officials said he and three other people who came into contact with it were being treated with antibiotics. It is not yet known whether they have developed the disease.

The package, containing cloth samples, was posted in Atlanta by a relative of the doctor on Sept 8, three days before [the attacks on New York and Washington](#).

According to Prof Meme, the package, posted express, was diverted through Miami in Florida "at a time when some of the September 11 hijackers were known to be in the state". He said the bacteria were probably put in after it was posted.

The parcel did not arrive in Kenya until Oct 9 and was opened by the doctor's secretary two days later.

"She handed it to him and it was soggy and mouldy," Prof Meme said. "He took the envelope home and after a day or so he became suspicious and brought it to a hospital for analysis."

White powder was also found in a parcel sent to the UN from Pakistan. It was removed in polythene bags and taken to the Health Ministry for further analysis.

The third parcel was sent to a businessman in the town of Nyeri. It was allegedly posted in Nairobi. Mr Ongeri said it contained a pink powder ([Telegraph, 2001](#)).

**Title:** Top Security Lab Established To Deal With Terrorists' Bugs

**Date:** October 19, 2001

**Source:** [High Beam](#)

**Abstract:** A high security laboratory has been set up at the Kenya Medical Research Institute to deal with biological weapons attacks more serious than the anthrax one.

The institute is also stockpiling testing reagents for such germ-based diseases spread by terrorists.

According to Dr Gabriel Mbugua, director of Kemri's Centre for Microbiology Research and head of the laboratory team in charge of testing suspect samples in the current anthrax scare, the country has enough capacity to test any number of anthrax samples.

"Anthrax is a fairly ordinary organism and we have the necessary personnel, lab equipment, reagents and know-how to test..."([High Beam, 2001](#)).

**Title:** Kenya No Stranger To Anthrax

**Date:** October 19, 2001

**Source:** [High Beam](#)

**Abstract:** Kenya is no stranger to anthrax. There has been a recent resurgence in the disease - commonly found among domestic animals and wild game - due to a breakdown in vaccination services. What is new in the bioterrorism scare is the use of powder anthrax bacteria to deliberately infect people...([High Beam, 2001](#)).

**Title:** Deputy Speaker In Anthrax Fear At Mystery Mail

**Date:** October 19, 2001

**Source:** [High Beam](#)

**Abstract:** Parcels to Kenya's Deputy Speaker and a doctor at a leading hospital were among nine feared to contain anthrax spores. Deputy Speaker Joab Omino's and five of the others were cleared by scientists at the Kenya Medical Research Institute - but the Nairobi Hospital doctor's packet was found to contain the potentially deadly bacteria. The scientists were last night checking two other letters which were received in the capital only hours before. Mr Omino said he decided not to open his letter because he could not tell where it had come from. Instead, it was handed to the police. The alert came as an increasing number of...([High Beam, 2001](#)).

**Title:** Parcel Taken For Tests as Firms Step Up Security

**Date:** October 20, 2001

**Source:** [All Africa](#)

**Abstract:** The envelope businessman Martin Njoroge Nduati received from Barclays Bank containing a white powder looked substandard because it did not bear the bank's logo, he said. However, another envelope inside the larger parcel was complete with the logo, and was self-addressed to the bank's Nairobi Area Manager ([All Africa, 2001](#)).

**Title:** Govt Bodies Form Anthrax Task Force

**Date:** October 20, 2001

**Source:** [All Africa](#)

**Abstract:** Health and security departments have formed a joint task force to deal with Anthrax, the bioterrorism threat. The move comes a day after a Kenyan businessman received a letter stuffed with



anthrax germs. Three other members of his family were exposed to the germs ([All Africa, 2001](#)).

**Title:** Union Wants Anthrax Vaccine For Workers

**Date:** October 22, 2001

**Source:** [High Beam](#)

**Abstract:** The Union of Posts and Telecommunications workers want mail handlers vaccinated as the anthrax scare spreads. The protective gear given to workers by the Postal Corporation of Kenya was not enough, the Nairobi branch of the Union of Posts and Telecommunications said yesterday. Mr Abel Nandwa, the branch secretary, said "Vaccination against anthrax is considered more effective than body protective gear." The vaccination, he said, should extend to employees of DHL, UPS, TNT Express and other courier service organisations. Mr Nandwa said workers have been scared by the threat of bioterrorism. He called for the setting u...([High Beam, 2001](#)).

**Title:** Anthrax Scares Kampala

**Date:** October 23, 2001

**Source:** [All Africa](#)

**Abstract:** The National task force on bioterrorism is investigating two anthrax scares reported in Kampala yesterday, health ministry officials have said.

Dr. Sam Okware, the commissioner for community health, said samples from two suspicious parcels had been taken for testing and results would be out today ([All Africa, 2001](#)).

**Title:** Personal Vendetta Blamed For Grahamstown Anthrax Scares

**Date:** October 24, 2001

**Source:** [All Africa](#)

**Abstract:** A personal vendetta was blamed for anthrax letter scares at two co-owned businesses in Grahamstown yesterday afternoon.

Two addressed envelopes containing palm-full amounts of a mystery white powder were received at the popular Fruit & Veg City off Church Square and Marvics fruit and vegetable wholesalers in Beaufort Street near the Grahamstown police station ([All Africa, 2001](#)).

**Title:** State Truth On Anthrax

**Date:** October 25, 2001

**Source:** [High Beam](#)

**Abstract:** What we really need is a terse statement once and for all whether or not Kenya has been invaded by human anthrax.

A spokesman yesterday insisted on the Government's earlier affirmation that powder contained in external mail contained the deadly germs.

He was commenting on a claim by the local office of the US Centres for Disease Control (CDC) that its own tests had proved wrong the Government's earlier finding.

Yet there may be a common denominator. Kenya's statement was referring specifically to powder posted from the US. Powder posted from Pakistan and elsewhere had proved harmless.

That was what raised doubts in...([High Beam, 2001](#)).

**Title:** US And Kenya Experts Clash Over Anthrax

**Date:** October 25, 2001

**Source:** [High Beam](#)

**Abstract:** Experts in Kenya and the US have differed sharply over whether a parcel sent to a Kenyan doctor actually contained anthrax.

Less than a week after Health Minister Sam Ongeru announced that the parcel did contain anthrax, the US said yesterday that its own tests showed no trace of the deadly bacteria.

The Kenya government however insisted that tests by the Kenya Medical Research Institute (Kemri) which showed the presence of anthrax spores "were 100 per cent correct".

The parcel - one of 43 examined by Kemri but the only one to test positive - was sent to Dr Samuel Mwinzi of Nairobi Hospital by his daughter who lives in Atlanta, Georgia. It contained cloth samples and a polythene envelope in which was...([High Beam, 2001](#)).

**Title:** Uganda, Kenya Free Of Anthrax Scourge

**Date:** October 25, 2001

**Source:** [High Beam](#)

**Abstract:** Two parcels that caused an anthrax scare in Kampala on Monday have both tested negative for the dreaded germ, health ministry officials said yesterday.

Meanwhile, the AFP yesterday quoted reports from Paris, France as saying that both anthrax attacks reported outside the United States proved to be false alarms.

A letter which Kenyan authorities had said contained anthrax spores later tested negative for the bacterium, a US official said, while an Argentinian official said that anthrax found in a letter there was from a harmless strain.

Uganda's commissioner for community health, Dr. Sam Okware, said preliminary results from...([High Beam, 2001](#)).

**Title:** Governments Brace For Bioterrorist Attacks

**Date:** November 9, 2001

**Source:** [High Beam](#)

**Abstract:** Following the confirmation of one anthrax case and several suspected others in Nairobi last week, the governments of the three East African states are pulling all stops to pre-empt bioterrorist attacks.

Kenya and Tanzania are still smarting from the 1998 bomb attacks on the American embassies in Nairobi and Dar es Salaam, which left over 250 people dead and about 5,000 others injured.

The action by the three countries follows the suicide hijack attacks in New York and Washington, in which over 6,000 people, including 25 Africans, are believed to have perished ([High Beam, 2001](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** Despite the number of high-profile bio-terror plots and patsies, the historical record indicates that 99% of all bio-terror plots, attacks, “tests”, “accidents” and drills are conducted by the government who has the means, the motive and the opportunity.

**Title:** Moscow Theater Hostage Crisis

**Date:** 2012

**Source:** [Wikipedia](#)

**Abstract:** The Moscow theater hostage crisis, also known as the 2002 [Nord-Ost](#) siege, was the seizure of the crowded Dubrovka Theater on 23 October 2002 by some 40 to 50 armed [Chechens](#) who claimed allegiance to the [Islamist militant separatist movement in Chechnya](#). They took 850 hostages and demanded the withdrawal of [Russian](#) forces from [Chechnya](#) and an end to the [Second Chechen War](#). The siege was officially led by [Movsar Barayev](#). After a two-and-a-half day siege, Russian [Spetsnaz](#) forces pumped an [unknown chemical agent](#) (thought to be fentanyl, or [3-methylfentanyl](#)), into the building's [ventilation](#) system and raided it.

39 of the attackers were killed by Russian forces, along with at least 129 of the hostages (including nine foreigners). All but a few of the hostages who died during the siege were killed by the toxic substance pumped into the theater to subdue the militants. The use of the gas was widely condemned as heavy handed, but Moscow insisted it had little room for manoeuvre — faced with the prospect of 50 heavily armed rebels prepared to kill themselves and their hostages. Physicians in Moscow condemned the refusal to disclose the identity of the gas that prevented them from saving more lives. However, some reports said the drug [naloxone](#) was successfully used to save some hostages. Roughly 170 people died in all.

### Initial Siege

The hostages were seized on October 23 at the House of Culture (DK) of State Ball-Bearing Plant Number 1 in the [Dubrovka](#) area of Moscow about four kilometres south-east of the [Moscow Kremlin](#). During Act II of a sold-out performance of [Nord-Ost](#) a little after 9:00 PM, some 40-50 heavily armed and masked men and women drove in a bus to the theater and entered the main hall firing [assault rifles](#) in the air.

The black-and camouflage-clad [Chechens](#) took approximately 850-900 people hostage, including members of the audience and performers, among them an [MVD](#) general. The reaction of spectators inside the theater to the news that the theater was under terrorist attack was not uniform: some people remained calm, some reacted hysterically, while others fainted. Some performers who had been resting backstage escaped through an open window and called police; in all, some 90 people managed to flee the building or hide.

The militant leader told the hostages that the attackers (who identified themselves as a [suicide squad](#) from "the 29th Division") had no grudge against foreign nationals (about 75 in number from 14 countries, including [Australia](#), [Germany](#), [Netherlands](#), [Ukraine](#), [United Kingdom](#) and the [United States](#)) and promised to release anyone who showed a foreign [passport](#). The Russian [negotiators](#), however, refused to accept this offer and instead insisted that everybody be released, without any distinction between foreigners and Russians.

### Demands

The gunmen were led by Movsar Barayev, nephew of slain Chechen rebel [militia](#) commander [Arbi Barayev](#), and threatened to kill the hostages unless Russian forces were immediately and

unconditionally withdrawn from Chechnya. They said the [deadline](#) was one week, after which they would start killing the hostages.

A [videotaped](#) statement was acquired by the media in which the gunmen declared their willingness to die for their cause. The statement contained the following text:

"Every nation has the right to their fate. Russia has taken away this right from the Chechens and today we want to reclaim these rights, which Allah has given us, in the same way he has given it to other nations. Allah has given us the right of freedom and the right to choose our destiny. And the Russian occupiers have flooded our land with our children's blood. And we have longed for a just solution. People are unaware of the innocent who are dying in Chechnya: the sheikhs, the women, the children and the weak ones. And therefore, we have chosen this approach. This approach is for the freedom of the Chechen people and there is no difference in where we die, and therefore we have decided to die here, in Moscow. And we will take with us the lives of hundreds of sinners. If we die, others will come and follow us—our brothers and sisters who are willing to sacrifice their lives, in Allah's way, to liberate their nation. Our nationalists have died but people have said that they, the nationalists, are terrorists and criminals. But the truth is Russia is the true criminal."

According to the Kremlin's aide [Sergei Yastrzhembsky](#), "when they were told that the withdrawal of troops was unrealistic within the short period, that it was a very long process, the terrorists put forward the demand to withdraw Russian troops from anywhere in the Republic of Chechnya without specifying which area it was". The hostage-takers demanded termination of the use of [artillery](#) and [air forces](#) in Chechnya starting the next day (Russian forces ceased using heavy weapons until September 28), a halt to the notorious [zachistka](#) ("mopping-up") operations, and that [President of Russia Vladimir Putin](#) should publicly declare that he was striving to stop the war in Chechnya. By the time of the hostage-taking, the conflict in the embattled republic was killing an average of three federal troops daily.

Cell phone conversations between the hostages trapped in the building and their family members revealed that the hostage-takers had [grenades](#), [mines](#) and [improvised explosive devices](#) strapped to their bodies, and had deployed more explosives throughout the theater. A majority of these explosives (including all those worn by the female fighters) were later found to be [military dummies](#). The remaining ones had no detonators or the batteries were taken out. Russian negotiators and special forces were unable to be certain at the time, but prior to the siege while the explosives were being prepared, an FSB agent who had infiltrated the Chechen Jihadist shipping network had sabotaged many of the devices with drained batteries and insufficient accelerator or booster charges for the main charges to detonate.<sup>[[citation needed](#)]</sup> The militants used Arabic names among themselves, and the female terrorists wore Arab-style [burqa](#) clothes which are highly unusual in the [North Caucasus](#) region.

A spokesman for the Chechen separatist leadership said he had no information about who the attackers were and condemned attacks on civilians. The pro-Moscow Islamic leader of Chechnya also condemned the attack.

All hostages were kept in the [auditorium](#) and the [orchestra](#) pit was used as a [lavatory](#). The situation in the hall was nervous and it frequently changed depending on the mood of the hostage-takers, who were following reports in the [mass media](#). Any kind of [misinformation](#) caused hopelessness among the hostages and new aggression among their captors, who would threaten to shoot hostages and blow up the building; however, no major disasters took place during the siege. The gunmen had let members of the audience make phone calls. One hostage used her mobile phone to plead with authorities not to storm the auditorium, as truckloads of police and soldiers accompanied by [armored vehicles](#) surrounded the building.

### **First Night - 23 October**

The attackers released some 150 to 200 people, including children, [pregnant](#) women, [Muslims](#), some foreign-born theater-goers and people requiring health treatment in the hours after they invaded. Two women managed to escape (one of them was injured during the escape). The terrorists said they were ready to kill 10 hostages for any of their number killed if the security forces intervened.

## **Olga Romanova**

Unprovoked, at 1:30am, a young woman, Olga Romanova (26), entered the theatre, crossing the police cordon by herself. She entered the theatre and began urging the hostages to stand up to their captors. There was considerable confusion in the auditorium. The guerrillas believed she was a [Federal Security Service](#) (FSB) agent and she was shot and killed several seconds later. Olga's body was later removed from the building by a Russian medical team, incorrectly reported by the Moscow police as the body of the first hostage who was killed while trying to escape. Romanova was described as 'strong-willed', and lived near the theatre. It is unknown how she crossed the police lines.

## **Day Two - 24 October**

The Russian government offered the hostage-takers the opportunity to leave for any third country. The suborned hostages made an appeal, possibly under orders or duress, to Putin to cease hostilities in Chechnya and asked him to refrain from assaulting the building. Because of the crisis, Putin canceled an overseas trip that would have included meetings with [U.S. President George W. Bush](#) and other world leaders.

Well-known public and political figures such as [Aslambek Aslakhonov](#), [Irina Khakamada](#), [Ruslan Khasbulatov](#), [Iosif Kobzon](#), [Boris Nemtsov](#) and [Grigory Yavlinsky](#)<sup>[24]</sup> took part in negotiations with the hostage-takers. Ex-President of the [Soviet Union Mikhail Gorbachev](#) also announced his willingness to act as an intermediary in the course of negotiations. Militants also demanded that representatives of the [International Red Cross](#) and [Médecins Sans Frontières](#) come to the theater to lead negotiations. FSB [Colonel](#) Konstantin Vasilyev attempted to enter the patio of the TC, but was shot at while approaching the building and forced to retreat.

According to the FSB, 39 hostages were set free by the terrorists on 24 October 2002, but they repeated via one of the hostages an earlier threat to start shooting their captives if Russia failed to take their demands seriously. Negotiations on the release of non-Russian nationals were conducted by various [embassies](#) and the Chechens promised to release all foreign hostages. The kidnappers claimed they were ready to release 50 Russian hostages if [Akhmad Kadyrov](#), head of Chechnya's pro-Moscow administration, would come to the theater, but Kadyrov did not respond, and the release did not take place.

A hot water pipe had burst overnight and was flooding the ground floor. The hostage-takers called the flooding a "[provocation](#)" and no agreement had been reached on having the pipe repaired, the FSB spokesman said. It later turned out that the [sewer system](#) was utilized by the Russian special forces for listening purposes.

## **Day Three - 25 October**

Over the course of the next day, the following people took part in negotiations with the militants: journalists [Anna Politkovskaya](#),<sup>[26]</sup> [Sergei Govorukhin](#) and [Mark Franchetti](#) and such public figures as [Yevgeny Primakov](#), [Ruslan Aushev](#) and again Aslambek Aslakhonov. The terrorists demanded negotiation with an official representative of Vladimir Putin. Relatives of the hostages staged anti-war demonstrations outside the theater and in central Moscow.

The guerrillas agreed to release 75 foreign citizens in the presence of diplomatic representatives of their states. Russian authorities reportedly insisted that the hostages not be separated into foreign and Russian categories. 15 Russian citizens were released, including eight children (aged 7 to 13). After a meeting with Putin, the FSB head [Nikolai Patrushev](#) offered to spare the lives of the Chechens if they released the remaining hostages unharmed.

A group of Russian doctors including Dr. [Leonid Roshal](#), head of the Medical Centre for Catastrophes, entered the theater to bring medicine for the hostages and said the terrorists were not beating or threatening their captives. He said most of the hostages were calm and that only "two or three" of the hostages were hysterical. Some hot food, warm clothes and medicine had also been taken in by the Red Cross.

[NTV](#) channel journalists recorded an interview with Movsar Barayev, in which he sent a message to the Russian government:

We have nothing to lose. We have already covered 2,000 kilometres by coming here. There is no way back... We have come to die. Our motto is freedom and [paradise](#). We already have freedom as we've come to Moscow. Now we want to be in paradise.

He also said the group had come to Moscow not to kill the hostages or to fight with Russia's elite troops, as they had had enough fighting in Chechnya over the years: "We came here with a specific aim — to put an end to the war and that is it."

At 9:55 p.m., four hostages (citizens of [Azerbaijan](#)) were released, bringing the total number of hostages that were set free on this day to 19.

### **Gennady Vlach**

After dusk, a man identified as Gennady Vlach ran across the square and managed to gain entry into the theater. He said that his son was among the hostages, but his son did not seem to be present and the man was led away and shot by the Chechens. There is considerable confusion surrounding this incident, and in addition, Vlach's body was cremated before it was identified.

### **Denis Gribkov**

Around midnight, a gunfire incident took place as Denis Gribkov, a 30 year-old male hostage, ran over the backs of theater seats toward the female insurgents who were sitting next to a large improvised explosive device. A male hostage-taker shot at him and missed, but stray bullets hit and severely wounded Tamara Starkova and fatally wounded Pavel Zakharov, who were evacuated from the building soon after. Gribkov was removed from the auditorium and later found dead from gunshot wounds.

### **Morning of 26 October**

During the night, [Akhmed Zakayev](#), a Chechen envoy and associate of the separatist President [Aslan Maskhadov](#), appealed to the extremists and asked them to "refrain from rash steps". The hostage takers told the BBC that a special representative of President Putin planned to come to the theater for talks the next day. Two members of the [Spetsnaz Alpha Group](#) moving around in the [no-man's land](#) were seriously wounded by a grenade fired from the building by the terrorists, which was blamed by the Moscow police chief [Vladimir Pronin](#) on the media [news leak](#).

According to an officer in the Russian special forces cited by [The Guardian](#), the leak was controlled: "We leaked the information that the storming would take place at three in the morning. The [Chechen](#) fighters were on their guard. They began shooting, but there was no raid. Then there was the natural reaction — a relaxation. And at 5 a.m. we stormed the place."

### **Special Forces Raid**

Early Saturday morning, 26 October, forces from Russia's [Spetsnaz](#) (Special Forces, literally "special purpose") from the FSB ([Alpha Group](#) and [Vympel](#)), with the assistance of the [Russian Ministry of Internal Affairs](#) (MVD) [SOBR](#) unit, surrounded and stormed the theater, first through the [gay club](#) Central Station that had opened a month prior in the underground level of the building; all were heavily armed and masked. According to the November 2002 [Kommersant](#) report, the gay club housed the commandos' and special services' "headquarters" and had been equipped with "its own ventilation system (the club's special pride)".

Deputy [Interior Minister Vladimir Vasilyev](#) stated that the raid was prompted by a panic among the captives due to the execution of two female hostages. The raid was planned shortly after the hostages were initially seized and the shooting cited as a proximate cause had occurred about three hours before the operation began.

### **Chemical Attack**

Main article: [Moscow hostage crisis chemical agent](#)

Early in the morning before dawn, at around 5:00 a.m. Moscow time, the [searchlights](#) that had been illuminating the main entrance to the theater went out.

Inside, although many hostages at first took the gas to be smoke from a fire, it soon became apparent to gunmen and hostages alike that a mysterious gas had been pumped into the building. Different



reports said it came either through the specially-created hole in the wall, that it was pumped through the theater's ventilation system, or that it emerged from beneath the stage. It is thought that the security services pumped an [aerosol anaesthetic](#), later conjectured to be weaponized [fentanyl](#), into the theater through the [air conditioning](#) system. The discovery caused panic in the auditorium. Hostage Anna Andrianova, a correspondent for [Moskovskaya Pravda](#), called [Echo of Moscow](#) radio studio and told on-air in a [live broadcast](#) interview that the government forces had begun an operation by pumping gas into the hall:

It seems to us that the Russians have started something. Please, give us a chance. If you can do anything, please do! ... I don't know which gas it is. But I see [the Chechens'] reactions. They don't want our deaths, and our officials want none of us to leave alive! I don't know. We see it, we feel it, we are breathing through our clothes. ... It began from outside. That's what our government has decided — that no one should leave from here alive. ...."

### Assault

The Chechens, some of whom were equipped with [gas masks](#), responded with firing blindly at the Russian positions outside. After thirty minutes, when the gas had taken effect, a physical assault on the building commenced. The combined forces entered through numerous building openings, including the roof, the basement, and finally the front door.

When the shooting began, the terrorists told their hostages to lean forward in the theater seats and cover their heads behind the seats. Hostages reported that some people in the audience fell asleep, and some of the gunmen put on [respirators](#). As the terrorists and hostages alike began to fall unconscious, several of the female terrorists made a dash for the balcony but passed out before they reached the stairs. They were later found shot dead. Two of the [Alpha Group](#) assaulters were also overcome by the gas, while the [SOBR](#) men were "floored". Even a vice-[mayor](#) of Moscow had to be treated for gas poisoning.

After nearly one and a half hours of sporadic gun battles, the Russian special forces blew open the doors to the main hall and poured into the auditorium. In a fierce firefight, the federals gunned down the guerrillas, both those still awake and those who had succumbed to the gas.

According to the Russian government, fighting between the troops and the still-conscious Chechen fighters continued in other parts of the building for another 30 minutes to one hour. Initial reports stated that three terrorists were captured alive (the [BBC](#) reported that a "handful of surviving fighters were led away in [handcuffs](#)") and two of them managed to escape. Later, the government claimed that all hostage-takers had been killed in the storming.

Because the real action was invisible to the public, the operation was immediately (even as the rescue action was going on) re-enacted in the same building in order to be shown on Russian television. Alpha team troops said that "this is our first successful operation for years". [Moskovskij Komsomolets](#) cited a Russian special forces operative saying that "if it were a usual storming, we'd have had 150 casualties among our men, added to the hostages."

### Evacuation

At 7:00 a.m., rescuers began carrying the bodies of hostages out of the building. Bodies were laid in rows on the [foyer](#) and the pavement at the main entrance to the TC, unprotected from falling rain and snow. None of the bodies witnessed by The Guardian correspondent had bullet wounds or showed signs of bleeding, but "their faces were waxy, white and drawn, their eyes open and blank." Shortly, the entire space was filled with bodies of the dead and those unconscious from the gas but still alive.

Few [ambulances](#) were standing by and ordinary city buses were brought in. Medical workers were expecting to treat victims of explosions and gunfire but not a secret chemical agent. The drug [naloxone](#) counteracts the chemical agent's effects, but would have to have been administered by rescue workers immediately. Some reports said the drug was used to save some hostages.

The bodies of dead hostages were stowed in two buses which were parked at the TC. Nevertheless, initial reports said nothing about casualties among the hostages. The crisis HQ representatives went to the college hall, where relatives of the hostages had been waiting, and told them that allegedly there were no fatalities among the hostages. The first official report of fatalities among the hostages



came at about 9:00 a.m. (despite the death of five children which had been already reported by medical personnel, the official statement claimed there were no children among the dead).

At 1:00 p.m., Vasilyev announced at a press conference a "definitive" death toll of 67 hostages, who he said were killed by Chechens, but again said no children nor foreigners were among those killed. Armed guards were posted at the hospitals where victims were taken and doctors were ordered not to release any of the theater [patients](#) in case militants had concealed themselves among the hostages. The survivors were cut off from any communication with the outside world and their relatives were not allowed inside the hospitals.[\[citation needed\]](#)

The hostages' family members panicked as the government refused to release any information about which hospitals their loved ones had been taken to, or even whether their relatives were among the dead. The official number of the dead rose to 90, including 25 children, while it was still claimed that the final attack was provoked by the terrorists executing their captives. Later the same day, the official death toll among hostages had risen to at least 118 and the officials had not specified exactly what killed them. By 28 October, of the 646 former hostages who remained hospitalized, 150 were still in [intensive care](#) and 45 were in critical condition.

Seventy-three hostages (including six minors) were rendered no medical aid. There were several Chechens among the hostages and it is believed that some of them were not treated because of their Chechen names. In addition, money and other valuables belonging to the victims vanished; official reports stated that the valuables were stolen by an FSB officer who was later killed in a car crash. The Russian authorities initially maintained that none of the deaths among the hostages occurred through poisoning. They spoke of health problems that were exacerbated by the three day ordeal with very little food or water, or indeed, medical attention. The office of the Kremlin's human rights commissioner [Sergei Mironov](#) said: "Even if it is proven that some people died from the gas, it should not change the public attitude. Storming the building was the only way to handle that situation, and the casualties were minimal."

### Casualties

At least 33 rebels and 129 hostages died during the raid or in the following days. Doctor Andrei Seltsovsky, Moscow's health committee chairman, announced that all but one of the hostages killed in the raid had died of the effects of the unknown gas rather than from gunshot wounds. The cause of death listed for all hostages was declared to be "terrorism", claiming they died from [heart attacks](#) or other physical ailments. Among the fatalities, 17 were Nord-Ost cast members, including two child actors. Of the foreign nationals, three were from Ukraine, one was American, and the others were citizens of [Austria](#), [Armenia](#), Belarus, Kazakhstan and the [Netherlands](#). About 700 surviving hostages were poisoned by gas, and some of them received injuries leading to [disabilities](#) of the second and third class (by the Russian/ex-Soviet disability classification system; indicate medium- and maximum-severity and debilitation). Several Russian special forces operatives were also poisoned by the gas during the operation. According to court testimony from Prof. A. Vorobiev, Director of the Russian Academic Germology Center, most, if not all, of the deaths were caused by suffocation when hostages collapsed on chairs with heads falling back or were transported and left lying on their backs by rescue workers; in such a position, tongue prolapse causes blockage of breathing venues. Thus, some of the casualties can be attributed to accident, but at least some to unprofessional rescue efforts.[\[citation needed\]](#) The terrorists were reportedly all shot to death while unconscious by the police during the first wave of assault on the building, which was evidenced by gunshot wounds in their heads, seen in initial unedited footage of the crisis.[\[citation needed\]](#)

Some estimates have put the civilian death toll at more than 200, with 204 names on one list. Some former hostages and relatives of the victims claim that the [death toll](#) from the chemical agent is being kept secret.

### Responsibility

The Chechen radical militant groups the [Special Purpose Islamic Regiment](#) (SPIR), the [International Islamic Peacekeeping Brigade](#) (IIPB) and the [Riyadus-Salikhin Reconnaissance and Sabotage Battalion of Chechen Martyrs](#) took part in the operation. In 2003, the [United States](#) designated the three groups as terrorist organizations, describing them as violent, responsible for numerous acts of terrorism and with links to the [al-Qaeda](#) network. The same U.S. statement also reaffirmed [Washington](#)'s support for a political settlement to the Chechen conflict and urged Russia to pursue

such a solution.

Military commander [Shamil Basayev](#) posted a statement on his website claiming ultimate responsibility for the incident, resigning all official positions within the Chechen government and promising new attacks. He also apologized to Chechnya's elected President and separatist leader Aslan Maskhadov for not informing him of the planned raid and asked him for forgiveness. Basayev defended the hostage-taking for giving "all Russians a first-hand insight into all the charms of the war unleashed by Russia and take it back to where it originated from" and said that his next "main goal will be destroying the enemy and exacting maximum damage" and "the next time, those who come won't make any demands, won't take hostages." A series of suicide bombings aimed at civilian targets in Russia followed in 2003 and 2004.

The Russian government claimed that [wiretapped](#) phone conversations prove that Maskhadov knew of the plans in advance, which he denied. Aslan Maskhadov and his representatives in the West condemned the attack which they said had nothing to do with official policy. Maskhadov said he felt responsible for those "who resorted to self-sacrifice in despair", but also said the "barbaric and inhumane policies" of the Russian leadership were ultimately to blame and criticised the storming of the theatre. He offered to start unconditional peace talks with the Russian government to find a political solution to the conflict in Chechnya.

While the siege was seen as a [public relations](#) disaster for Maskhadov, his more radical Islamic field commanders have correspondingly benefited. Some commentators have suggested that [Movladi Udugov](#) was in charge from behind the scenes. Russian military expert [Pavel Felgenhauer](#) has suggested that the aim of the extremist leaders seemed to have been to provoke the Russian government forces "to kill ethnic Russians in Moscow on a large scale", which happened. According to the report by Russian investigators, [Zura Barayeva](#), the widow of Arbi Barayev, led the female members of the group, while a man known as Yasir, identified by his documents as Idris Alkhazurov, was said to be the group's "ideologist" believed to be trained in [Saudi Arabia](#). Russian officials said Chechen militants received financing from groups based in [Turkey](#) and that they intercepted telephone calls from the captors to unidentified embassies in Moscow, as well as to Turkey and unidentified [Arab states](#). There was also one foreign (Arab) fighter among the Chechens.

### Aftermath

After the raid, Moscow Mayor [Yuri Luzhkov](#) said that "the operation was carried out brilliantly by special forces"; he claimed he had wanted a negotiated end to the crisis, but the final attack was made necessary by the reported killing of hostages. The Russian presidential special envoy for [human rights](#) in Chechnya, [Abdul-Khakim Sultygov](#), said the bloody outcome was "a good lesson to the terrorists and their accomplices."

Deputy Interior Minister Vasilyev launched a Moscow-wide operation to catch anyone who may have helped the militants, while his boss, Interior Minister [Boris Gryzlov](#), urged people to be [vigilant](#) and to report anyone acting suspiciously to police. On 29 October, Vasilyev said he only had the authority to state that special chemical agents had been used and that some 30 suspected militants and their collaborators, including several civil servants and security officers, had been arrested around the theater and in other parts of the city in what Gryzlov called an "unprecedented operation" to identify what he described as a vast terrorist network in Moscow and the surrounding region.

Russian President Vladimir Putin defended the scale and violence of the assault in a televised address later on the morning of 26 October, stating that the government had "achieved the near impossible, saving hundreds, hundreds of people" and that the rescue "proved it is impossible to bring Russia to its knees". Putin thanked the special forces as well as the Russian citizens for their "bravery" and the [international community](#) for the support given against the "common enemy". He also asked forgiveness for not being able to save more of the hostages, and declared Monday a [national day of mourning](#) for those who died. He vowed to continue fighting "[international terrorism](#)".

On 29 October, Putin released another televised statement, saying: "Russia will respond with measures that are adequate to the threat to the Russian Federation, striking on all the places where the terrorists themselves, the organizers of these crimes and their ideological and financial inspirers are. I stress, wherever they may be located." It was commonly assumed Putin was threatening the former Soviet Republic of [Georgia](#). Putin's comments came as British [Prime Minister Tony Blair](#)

phoned him to congratulate him on the ending of the siege.

President Putin was unhappy with the coverage of the hostage crisis by [NTV](#), the last nationwide TV channel effectively independent of the government. In January 2003 the management of NTV was replaced, resulting in a profound effect on its editorial policy.

### Long-Term Consequences

The attacks prompted Putin's government to tighten Russia's grip on Chechnya. On 28 October, two days after the crisis, he announced that unspecified "measures adequate to the threat" would henceforth be taken in response to terrorist activity, with reports of 30 fighters killed near the Chechen capital [Grozny](#). The [Russian Ministry of Defence](#) canceled plans to reduce the 80,000 troop presence in the tiny breakaway republic.

In early November, [Defence Minister Sergei Ivanov](#) announced Russian troops had launched large-scale operations against separatists throughout Chechnya. The actions of the military caused a new wave of [refugees](#), according to the pro-Moscow Chechen official and the hostage crisis negotiator Aslanbek Aslakhonov.

On 29 May 2008, the [European Court of Human Rights](#) (ECHR) unanimously condemned Russia for enforced disappearances in five cases from Chechnya, including the disappearance of two young women in [Ulus-Kert](#) (the prosecutor's office initially stated to media that Aminat Dugayeva and Kurbika Zinabdiyeva had been arrested on suspicion of involvement with the Moscow siege).

President Maskhadov's unconditional offer for peace talks with Russia was dismissed, as Russian [Foreign Minister Sergei Lavrov](#) compared such calls with the suggestion that Europe should conduct such talks with the former al-Qaeda leader [Osama bin Laden](#). Russia also accused Akhmed Zakayev of involvement in the attack. When he visited [Denmark](#) for a peace congress in October 2002 (the [World Chechen Congress](#) event in [Copenhagen](#)), the Russians demanded his arrest and [extradition](#); Zakayev was held for over a month, but was released after Danish authorities stated they were not convinced that sufficient evidence had been provided. The Kremlin also accused the Danish authorities of "solidarity with terrorists" by allowing the meeting of about 100 Chechens, Russian human rights activists and lawmakers from Russia and other European countries to gather and discuss ways to end the fighting.

In early November, the Russian [Duma](#) approved a broad array of anti-terrorism [legislation](#) ranging from far-reaching restrictions on media coverage of terrorism-related incidents to secret burials for slain terrorists (one lawmaker proposed wrapping terrorists' corpses in pigskin and another suggested "carting them around the city with their legs dangling"). The new media law severely restricted the media's reporting of anti-terrorist operations, banning publication or broadcast of "any statement that hinders an operation to break such a siege, or attempts to justify the aims of the hostage-takers". These new policies prompted renewed fears in Russia that Putin was systematically taking control of all Russian media.<sup>[80]</sup> [Sergei Yushenkov](#), whose [Liberal Russia](#) party voted against the change, was quoted by [Reuters](#) as saying: "On a wave of emotion, we have in fact legitimised [censorship](#) and practically banned [criticism](#) of the authorities in [emergency](#) situations." Coverage of Chechnya had already been severely restricted, needing the cooperation of both the Russian military and the Moscow-backed Chechen administration (see [Russian government censorship of Chechnya coverage](#)). A law by which corpses of people convicted or accused of terrorism would not be released to their families, but disposed of in secret was approved, applying to the bodies of the militants killed in the Moscow crisis, and later applying even to President Maskhadov, who was killed in 2005.

In 2003, [Human Rights Watch](#) reported Chechens in Moscow were subjected to increased police [harassment](#) after the hostage crisis. Moscow's Chechens swelled in numbers from about 20,000 in the Soviet period to an estimated 80,000 in 2002.

Many in the Russian press and in the international media warned that the death of so many hostages in the special forces' rescue operation would severely damage President Putin's popularity. However, shortly after the siege had ended, the Russian president was enjoying record public approval ratings—in December 2002, 83% of Russians reportedly declared themselves satisfied with Putin's rule and his handling of the siege.

## Investigation

The official investigation that the Moscow City Prosecutor's Office has been carrying out for three and a half years failed to provide positive information on the gas agent that killed hostages, possible antidote to that agent, the number of hostages released by the operation, the number of militants who had seized the theater (hostages claimed that they saw more than 50 militants, whereas only 40 hostage takers were in the building according to the official version), and the names of officials who had made the decision about the assault. On 1 June 2007, news came that the official investigation had been suspended. The reason provided was that the "culprit had not been located".

The same month, Tatiana Karpova, co-chair of the [Nord-Ost Organization](#) of former hostages and families of the dead, demanded a new criminal investigation. She claimed the authorities failed to meet their obligations related to right to life. She claimed to have proof that "69 of the injured were given no medical care" and that "80 percent of the surviving hostages are potential future invalids, including [possible] future (occurrence of) [cancers](#), (and there is a possibility that) women who were subjected to the gas attack (could) give birth to [defective](#) babies". In July 2007, relatives of those who died in the hostage-taking urged the Office of the [Prosecutor General of Russia](#) to investigate whether senior officials were responsible for the deaths.

## Claims of FSB Involvement

The Duma refused to consider a proposal by the [liberal democratic Union of Right Forces](#) party to form an investigative commission charged with probing the government's actions in the theater siege.

An independent investigation of the event was undertaken by Russian politicians Sergei Yushenkov, [Sergei Kovalev](#), journalist [Anna Politkovskaya](#), [Hoover Institute](#) scholar [John B. Dunlop](#), and former FSB officers [Aleksander Litvinenko](#) and [Mikhail Trepashkin](#). According to their version, FSB knew about the terrorist group's arrival in Moscow and directed them to the theater through their [agent provocateur Khanpasha Terkibayev](#) ("Abu Bakar"), whose name was in list of hostage takers and who left the theater alive. In April 2003 Litvinenko gave information about Terkibayev ("the Terkibayev file") to Sergei Yushenkov when he visited [London](#). Yushenkov passed this file to Politkovskaya and she was able to interview Terkibayev in person. A few days later, Yushenkov was assassinated by gunfire in Moscow. Terkibayev was later killed in an apparent car crash in Chechnya.

In June 2003, Litvinenko stated in an interview with the Australian television programme [Dateline](#), that two of the Chechen militants involved in the siege—whom he named "[Abdul](#) the Bloody" and "Abu Bakar"—were working for the FSB, and that the agency manipulated the terrorists into staging the attack. Litvinenko said: "[w]hen they tried to find [Abdul the Bloody and Abu Bakar] among the rotting corpses of dead terrorists, they weren't there. The FSB got its agents out. So the FSB agents among Chechens organized the whole thing on FSB orders, and those agents were released". "Abu Bakar" (presumably Terkibayev) was also described as FSB agent and actual organizer of the theater siege by [Anna Politkovskaya](#), [Alexander Khinshtein](#) and other journalists.

## Moscow Lawsuit and the European Court Complaint

After the siege, 61 former hostages started seeking [compensation](#) for physical and emotional suffering totalling almost \$60m from Moscow city authorities (according to Russia's then-new anti-terrorism law, the region where an act of terror occurs should pay compensation for moral and material damages). Moscow mayor Yuri Luzhkov's office denounced the suits, saying it could not be held responsible as "the Chechen issue and its consequences are not within the jurisdiction of the Moscow authorities in any way." The Moscow administration earlier agreed to pay 50,000 roubles (\$1,570) in compensation to each former hostage and 100,000 roubles (\$3,140) to relatives of those killed. In all but one of the cases, Moscow city courts rejected the compensation claims.

In July 2003, 80 plaintiffs from Russia, Ukraine, the Netherlands and Kazakhstan turned to the European Court for Human Rights, claiming that their right to life had been violated by Russia authorities' handling of the standoff. In April 2007, Igor Trunov, the claimants' advocate, reported that the ECHR had finally begun hearings into a complaint filed in 2003 by the victims against the Russian government. Trunov added that not only Russian citizens, but also those from Ukraine, the Netherlands and Kazakhstan, filed complaints in the [Strasbourg](#) Court. The plaintiffs demand €50,000 each in compensation for the violation of their human rights. The case was accepted by the court in December 2007.

On July 8, 2008, [The Moscow Times](#) reported that the hearings at the European Court for Human Rights will be closed to the public at the request of Russian authorities as, according to Igor Trunov, they "have promised full disclosure on how they handled the crisis", including "the makeup of the knockout gas used in the storming of the theater by commandos."

### **The Chemical Agent Mystery**

Main article: [Moscow hostage crisis chemical agent](#)

It was reported that efforts to treat victims were complicated because the Russian government refused to inform doctors what type of gas had been used. In the records of the official investigation, the agent is referred to as a "gaseous substance". In other cases it is referred to as an "unidentified chemical substance". Based on the gas' effects and examinations of victims, it appears to have been an FSB-made aerosol version of [3-methylfentanyl](#), an artificial, powerful [opium](#)-like substance. Government officials still treat its contents as a [state secret](#).

The Russian Federation, as a member-state of the [Chemical Weapons Convention](#), undertook "never and under no circumstances to carry out any activities prohibited to member-states of this Convention" to develop, to accumulate, to stockpile and to use chemical weapons that can cause death, temporary incapacitation, or permanent harm to humans or animals. The Convention obliges the states to fulfill the conditions of toxic chemicals' use that allow to exclude or considerably reduce the degree of injury and gravity of consequences. However, during the special operation in Dubrovka this provision was disregarded, i.e. neither the type, nor the quantity of the chemical agent helped to attain the set purpose—to neutralize the terrorists so as to rescue the hostages. (The Convention allows the use of some chemical agents like [tear gas](#) for "law enforcement including domestic [riot control](#)", but requires that "riot control agents" have effects that "disappear within a short time following termination of exposure.")

### **International Reaction**

[United Nations](#) In unanimously adopting [Resolution 1440](#) (2002), the [United Nations Security Council](#) condemned the "heinous" act and demanded the immediate and unconditional release of all hostages. The Council also demanded immediate and unconditional release of all hostages of that terrorist act and expressed the deepest sympathy and condolences to the people and the government of the Russian Federation and to the victims of the terrorist attack and their families. In addition, the Council urged all states to cooperate with the Russian Federation authorities in their efforts to find and bring to justice the perpetrators, organizers and sponsors of that terrorist attack.

[Iraq](#) In a statement read on Iraqi state television, former Iraqi President [Saddam Hussein](#) said the hostage-taking would eventually benefit the United States and [Israel](#) in undermining [Islam](#): "It's not wise for the Chechens to lose the sympathy of Russia and the Russian people. The [tyrant](#) of our era is [Zionism](#) and America, and not Russia, [China](#) or [India](#)."

[United Kingdom](#) British Prime Minister Tony Blair publicly backed the Russian action, arguing the Russian authorities had needed to act when the Chechens "started to kill the hostages." In his speech for the [Parliament](#), Blair linked the Moscow siege to the wider war on terrorism and such events as the [2002 Bali bombings](#).

[United States](#) U.S. President George W. Bush felt "very strongly that the people to blame here are the terrorists. The people who caused this tragedy to take place are terrorists who took hostages and endangered the lives of others," the [White House](#)'s spokesman, [Ari Fleischer](#), told reporters aboard [Air Force One](#).

### **In Popular Culture**

A documentary by the [BBC's Horizon](#) in 2004 investigated the gas that was pumped into the theater.

In 2003, HBO broadcast *Terror In Moscow*, a documentary directed by Dan Reed. Interviews with hostages and footage taken inside and outside of the theater during the crisis are shown in the documentary.

In September 2006, *In Your Hands*, a play based on the events of the Moscow theatre siege, written by [Natalia Pelevine](#), opened in London at the [New End Theatre](#). In April 2008 Pelevine said that



Russian authorities have banned the play following its Russian debut in the city of [Makhachkala](#), the capital of [Dagestan](#) near Chechnya. Another play, We Declare You a Terrorist by Tim J. Lord, about the incident premiered at the 2009 [Summer Play Festival](#).

The crisis was also featured as a 45-minute episode of [Situation Critical](#) (a [National Geographic Channel docudrama](#) television series), which contained actual video footage from the crisis along with a reenactment ([Wikipedia, 2012](#)).

**Title:** Moscow Hostage Crisis Chemical Agent

**Date:** 2012

**Source:** [Wikipedia](#)

**Abstract:** The chemical agent used in the [Moscow theatre hostage crisis](#) has never been definitively revealed by the [Russian](#) authorities, though many possible identities have been speculated. An [incapacitating agent](#) of some kind was used by the Russian authorities in order to subdue the [Chechen terrorists](#) who had taken control of a crowded theatre.

It was reported that efforts to treat victims were complicated because the Russian government refused to inform doctors what type of gas had been used. In the records of the official investigation of the terrorist act, the agent is referred to as a certain "gaseous substance", in other cases it is referred to as an "unidentified chemical substance" (conclusions of forensic examination commission, Volumes 30-33 of the criminal case).

At the time, the gas was surmised to be some sort of surgical [anesthetic](#) or [chemical weapon](#). Immediately after the siege, Western media speculated widely as to the identity of the substance that was used to end the siege, and chemicals such as the [tranquilizer diazepam](#) (Valium), the [anticholinergic BZ](#), the highly potent [oripavine](#)-derived Bentley-series opioid [etorphine](#), another highly potent opioid, such as a [fentanyl](#) or an analogue thereof, such as [3-methylfentanil](#), and the [anaesthetic halothane](#) were proposed. Foreign embassies in Moscow issued official requests for more information on the gas to aid in treatment, but were publicly ignored. While still refusing to identify the gas, on October 28, 2002 the Russian government informed the [U.S. Embassy](#) of some of the gas's effects. Based on this information and examinations of victims, doctors concluded the gas was a [morphine](#) derivative. The Russian media reported the drug was [Kolokol-1](#), either [mefentanyl](#) or [α-methylfentanil](#) dissolved in a [halothane](#) base.

Two days after the incident, on October 30, 2002, Russia responded to increasing domestic and international pressure with a statement on the unknown gas by Health Minister [Yuri Shevchenko](#). He identified it as a [fentanyl](#) derivative, an extremely powerful [opioid](#). Boris Grebenyuk, the All-Russia Disaster Relief Service chief, said the services used trimethyl phentanylum ([3-methylfentanyl](#), a fentanyl analog that is about 1000 times more potent than morphine, which was manufactured and abused in the former USSR); [New Scientist](#) pointed out that 3-methylfentanyl is not a gas but an [aerosol](#). The research made by American scientists into fentanyl derivatives shows that their lethality level surpasses the efficiency of traditional lethal methods: the lethality degree of the [chemical weapons](#) used in [World War I](#) was 7%, while in the Dubrovka theater it exceeded 15%.

A German [toxicology](#) professor who examined several German hostages said that their blood and urine contained [halothane](#), a once-common inhalation anaesthetic which is now seldom used in Western countries, and that it was likely the gas had additional components. No other unusual chemical substances have been detected. However, halothane has a strong odor (although often defined as "pleasant" by comparison with other [anesthetic gases](#)). Thus, by the time the whole theatre area would be filled with halothane to a [concentration](#) compatible with loss of consciousness (0.5% - 3%), it is likely that terrorists inside would have realized they were being attacked. Additionally, recovery of consciousness is rapid after the flow of gas is interrupted, unlike with high-dose fentanyl administration. Therefore, although halothane might have been a component in the aerosol, it was probably not a major component, or perhaps it was a [metabolite](#) of another drug.

Writing in the Moscow daily [Komsomolskaya Pravda](#), Viktor Baranets, a former Russian Defense Ministry official, stated that the Ministry of the Interior knew that any normal [riot control agent](#), such as [pepper spray](#) or [tear gas](#), would allow the terrorists time to harm the hostages. They decided to use the strongest agent available. The paper identified the material as a [KGB](#)-developed "psycho-

chemical gas" known as [Kolokol-1](#), and reported that "the gas had such an influence on [Chechen siege leader Movsar] [Barayev](#) that he couldn't get up from [his] desk". Russian doctors who helped hostages in the first minutes after the siege used a common [antidote](#) to fentanyl, [naloxone](#), by injection. But the effects of the fentanyl derivative's application, which can cause [chronic diseases](#), grew acute for the hostages, who had stayed in a closed space without water and food for several days.

Prof. Thomas Zilker and Dr. Mark Wheelis, interviewed in the [BBC](#)'s "Horizon" documentary series, dispute that the gas could have been based on fentanyl.

Prof. Thomas Zilker: It seems to be different from fentanyl, [carfentanil](#) and [sufentanil](#) but it has to be, it has to have the potency of carfentanil at least because otherwise it wouldn't work in these circumstance. So the Russians obviously have designed a new fentanyl which we can not detect in the west.

Dr. Mark Wheelis: The fact that the Russians did it and got away with a lethality of less than twenty percent suggests to me that very likely there may have been a novel agent with a higher safety margin than normal fentanyl.

Although the exact nature of the active chemical has not been verified, the Russian language newspaper [Gazeta](#) claimed that the chemical used had been [3-methylfentanyl](#), attributing this information to "experts from the Moscow State University chemistry department" ([Wikipedia, 2012](#)).

**Title:** US National Academies Withholds Key Information On The Moscow Theater Tragedy

**Date:** October 30, 2002

**Source:** [Sunshine Project](#)

**Abstract:** The US National Academies of Science holds key unclassified US military research documents that shed light on the Moscow theater tragedy; but is refusing to release them despite repeated, urgent requests. (A selected bibliography of the documents is included at the end of this release.)

Said the Sunshine Project's Edward Hammond "*The world has an urgent need to better understand what happened in Moscow and what other countries, including the US, are doing with these kinds of weapons. The National Academies ongoing refusal to release the documents is very troubling.*" Hammond adds "*NAS has critical information for understanding the chemical agents used in Moscow; but is refusing to release it because it wants to avoid embarrassing the Pentagon, which denies that this type of research exists in the United States.*"

The documents are a series of papers written in 1994 by US Army chemical warfare experts on so-called "calmative" chemical weapons. The set of reports includes a paper on synthetic opiate weapons of the class reported to have killed more than 100 people in the Moscow theater. In 2001, these documents were deposited at the National Academies by the US Marine Corps, which asked NAS to evaluate this kind of weapon. The documents are deposited in a public archive which, according to US law, should be available for inspection by journalists and members of the public.

The US Army documents describe research and testing of chemical agents at Edgewood Research and Development Center at Aberdeen Proving Grounds north of Baltimore, Maryland. In addition, NAS is withholding documents from the US Joint Non-Lethal Weapons Directorate (JNLWD), a Pentagon agency exploring calmative chemical weapons. These include the report of a "non-lethal" weapons policy seminar held in 2001 between US and United Kingdom officials, in which they discussed military operations with chemical weapons like those used in the theater.

The Sunshine Project has been seeking the release of this information since well before the Moscow tragedy. It began its investigation a year and half ago, and first asked NAS for the documents in March.

NAS is trying to defuse the situation by forestalling release until November 5th, US election day, when it hopes that nobody will notice. NAS must place public interest and law before its desire to ingratiate



itself with the Pentagon. *"Anything less,"* says Hammond *"would call into question the Academies role as an independent scientific advisor an chemical and biological weapons issues"* ([Sunshine Project, 2002](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** Despite the number of high-profile bio-terror plots and patsies, the historical record indicates that 99% of all bio-terror plots, attacks, "tests", "accidents" and drills are conducted by the government who has the means, the motive and the opportunity.

**Title:** Chemical Bomb Plot Uncovered

**Date:** April 7, 2004

**Source:** [Guardian](#)

**Abstract:** Terrorist suspects discussed a plan to use a dangerous chemical in a bomb attack which could have harmed many people, sources familiar with the plot said last night.

The toxic chemical, osmium tetroxide, a substance which could be used to boost an explosion, was mentioned in conversations intercepted by GCHQ, the government's electronic eavesdropping centre.

In large doses, the substance, which can be obtained on the internet but is mainly used in chemical experiments, can be fatal.

Most experts suggested that its most likely use would have been as a booster for a bomb made with more common explosives.

If osmium tetroxide was used in this way, the result would not be a particularly "dirty bomb" since its harmful effects would be largely destroyed in the explosion, experts said.

It is possible the substance could have been "piggy-backed" on to a bomb, though chemical weapons experts said it would not be an obvious choice.

But it could have caused considerable harm and panic in a confined or crowded space, such as the London Underground or an airport.

Al-Qaida bombmakers have previously added small quantities of booster explosive, detonators and timers to ammonium nitrate to trigger huge blasts including the recent attacks on the British embassy in Istanbul and the British compounds in Saudi Arabia.

Scotland Yard refused to comment on the alleged "chemical plot" or say whether it was connected to the seizure of half a tonne of ammonium nitrate fertiliser and the arrests of nine men in a counter-terror operation last week.

However, a source familiar with the intelligence operation said yesterday: "Nothing's been found. It's talk of stuff rather than the stuff itself."

The alleged plot - intercepted by GCHQ, possibly with the help of its American equivalent, the National Security Agency - was first revealed early yesterday by America's ABC News.

It claimed the chemical could have been used by terrorists to target the tube in London, Gatwick airport or a busy shopping centre.

GCHQ's role may explain the unusual reticence yesterday of the police and security services. The product of its intercepts are treated with much more sensitivity than human surveillance operations.

Last week's arrests - a number of which were near Gatwick airport - involved all three of Britain's security and intelligence agencies, MI5, MI6 (which operates abroad) and GCHQ.

The youngest of the men arrested last week, a 17-year-old, from Crawley, West Sussex, was charged last night with conspiracy to cause explosions with intent to injure or damage property. He will appear at Bow Street magistrates court today.

Detectives are continuing to question the other eight, aged between 18 and 32, at the high security Paddington Green police station in central London and have extensions to hold them until tomorrow.

More than 700 police officers were involved in the initial eight arrests in London and south-east England last Tuesday, and a 27-year-old man was seized on Thursday. Under anti-terrorist legislation, each of the suspects can be held for 14 days from the time of their arrest.

All are British citizens and eight, including the 17-year-old, are of Pakistani descent, and one is of Algerian origin.

Momin Khawaja, a 29-year-old Canadian, appeared in court in Ottawa on Friday on related charges, and his father, Mahboob Khawaja, is believed to have been detained by the Saudi Arabian authorities in connection with the bomb plot ([Guardian, 2004](#)).

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**Title:** Chlorine Bombings In Iraq

**Date:** February 21, 2007

**Source:** [Wikipedia](#)

**Abstract:** Chlorine bombings in Iraq began as early as October 2006, when insurgents in [Al Anbar](#) province started using [chlorine](#) gas in conjunction with conventional vehicle-borne explosive devices.

The inaugural chlorine attacks in [Iraq](#) were described as poorly executed, probably because much of the chemical agent was rendered nontoxic by the heat of the accompanying explosives. Subsequent, more refined, attacks resulted in hundreds of injuries, but have proven not to be a viable means of inflicting massive loss of life. Their primary impact has therefore been to cause widespread panic, with large numbers of civilians suffering non life-threatening, but nonetheless highly traumatic, injuries.

Chlorine was used as a [poison gas in World War I](#), but was delivered by [artillery shell](#), unlike the modern stationary or car bombs. Still, its function as a weapon in both instances is similar. Low level exposure results in burning sensations to the eyes, nose and throat, usually accompanied by dizziness, nausea and vomiting. Higher levels of exposure can cause fatal lung damage; but because the gas is heavier than air it will not dissipate until well after an explosion, it is generally considered ineffective as an improvised [chemical weapon](#).

### Attacks

1. October 21, 2006: A car bomb carrying 12 120 mm mortar shells and two 100-pound chlorine tanks detonated, wounding three Iraqi policemen and a civilian in [Ramadi](#).
2. January 28, 2007: A [suicide bomber](#) drove a dump truck carrying explosives and a chlorine tank into an emergency response unit compound in [Ramadi](#). 16 people were killed by the explosives, but none by the chlorine.
3. February 19, 2007: A suicide bombing in Ramadi involving chlorine killed two Iraqi security forces and wounded 16 other people.
4. February 20, 2007: A bomb blew up a tanker carrying chlorine north of [Baghdad](#), killing nine and emitting fumes that made 148 others ill, including 42 women and 52 children.
5. February 21, 2007: A pickup truck carrying chlorine gas cylinders exploded in Baghdad, killing at least five people and hospitalising over 50.

6. March 16, 2007: Three separate suicide attacks on this day used chlorine. The first attack occurred at a checkpoint northeast of Ramadi, when a truck bomb wounded one US service member and one Iraqi civilian. A second truck bomb detonated in [Falluja](#), killing two policemen and leaving a hundred Iraqis showing signs of chlorine exposure. Forty minutes later, yet another chlorine-laden truck bomb exploded at the entrance to a housing estate south of Falluja, this time injuring 250 and according to some reports killing six.

7. March 28, 2007: Suicide bombers detonated a pair of truck bombs, one containing chlorine, as part of a sustained attack aimed at the Fallujah Government Center. The initial bombings along with a subsequent gun battle left 14 American forces and 57 Iraqi forces wounded.

8. April 6, 2007: A chlorine-laden suicide truck bomb detonated at a police checkpoint in Ramadi, leaving 27 dead. Thirty people were hospitalized with wounds from the explosion, while many more suffered breathing difficulties attributed to the chlorine gas.

9. April 25, 2007: A chlorine truck bomb detonated at a military checkpoint on the western outskirts of Baghdad, killing one Iraqi and wounding two others.

10. April 30, 2007: A tanker laden with chlorine exploded near a restaurant west of Ramadi, killing six people and wounding 10.

11. May 15, 2007: A chlorine bomb [exploded in an open-air market](#) in the village of Abu Sayda in [Diyala](#) province, killing 32 people and injuring 50.

12. May 20, 2007: A suicide truck bomber exploded his vehicle Sunday near an Iraqi police checkpoint outside Ramadi, Zangora district west of Ramadi, killing two police officers and wounding 11 others.

13. June 3, 2007: A car bomb exploded outside a U.S. military base in Diyala, unleashing a noxious cloud of chlorine gas that sickened at least 62 soldiers but caused no serious injuries ([Wikipedia, 2012](#)).

**Title:** Scores Choke In Poison Gas Attack

**Date:** February 21, 2007

**Source:** [CNN](#)

**Abstract:** A cloud of deadly toxic gas engulfed an Iraqi town Tuesday, killing six people and leaving dozens of others choking on fumes after a tanker carrying chlorine exploded outside a restaurant.

An Iraqi Interior Ministry official said the blast in the town of Taji, 12 miles (20 km) north of Baghdad, was caused by a bomb on board the tanker.

There were contrasting figures on the casualty toll. Baghdad security plan spokesman Gen. Qassim Atta told state-run al-Iraqiya TV that five people died in the blast and 148 were poisoned by the gas ([CNN, 2007](#)).

**Title:** Iraqi Militants Use Chlorine In 3 Bombings

**Date:** February 21, 2007

**Source:** [New York Times](#)

**Abstract:** A truck bomb that combined explosives with chlorine gas blew up in southern Baghdad on Wednesday, and officials said it may represent a new and deadly tactic by insurgents against Iraqi civilians.

It was at least the third truck bomb in a month to employ chlorine, a greenish gas also used in World War I, which burns the skin and can be fatal after only a few concentrated breaths. The bomb killed at least two people and injured 32 others, police and medical officials said.

Iraqi and American officials said the use of chlorine seems aimed at bringing a new level of fear and havoc to [Iraq](#) as a new security plan for Baghdad takes shape.

Lt. Col. Christopher Garver, an American military spokesman, said the attacks highlighted the evolving fluidity of insurgent tactics in Iraq, dominated by militant groups who often notice and mimic attacks that attract the most attention and cause the most suffering.

Insurgents have shifted tactics to focus on helicopters, and on Wednesday one group forced down an American Black Hawk helicopter, the eighth such incident since Jan. 20. Roadside bombs have been adapted to become deadlier, punching through heavily armored Humvees. Attacks on American soldiers also now include coordinated assaults from multiple locations, with a mix of weapons and in at least one case, counterfeit American uniforms and vehicles.

“The enemy is adaptive,” Colonel Garver said. “The enemy wants to win.”

The Black Hawk attacked on Wednesday was forced into a “hard landing” after taking fire from heavy machine guns and rocket-propelled grenades in Diyala Province, north of Baghdad, the United States military said. There were no injuries. A Sunni insurgent group, the Mujahedeen Army, claimed credit for the attack in an Internet posting, according to the SITE Institute, which tracks postings by insurgent groups.

The bombing involving chlorine gas on Wednesday followed an explosion on Tuesday north of Baghdad of a tanker filled with chlorine that had been rigged to explode, killing nine people and wounding 148, including 42 women and 52 children. At least one other attack with chlorine also took place on Jan. 28, according to the American military’s statements. Sixteen people were killed in that attack, in the Sunni-dominated Anbar Province, when a dump truck with explosives and a chlorine tank blew up in Ramadi.

The attacks seem to have been poorly executed, burning the chemical agent rather than dispersing it, but more sophisticated weapons involving chlorine could injure hundreds and cause mass panic.

Though it is widely used in water purification and sewage treatment, chlorine is dangerous because it reacts with water in moist tissue, such as eyes and the respiratory tract, to create acid, which essentially burns tissue. A few breaths of air containing chlorine at a thousand parts per million can be lethal.

Nine people were killed and 250 injured in 2005 after a train crash in South Carolina in which 60 tons of liquefied chlorine was released — about six times more than what is contained in a home heating fuel truck like the one used in the attack on Tuesday.

Exposures at far lower concentrations, down to two parts per million, cause coughing, shortness of breath, chest pain, burning in the throat, nose and eyes, nausea and swelling of the lungs.

A few hours after the attack, American Humvees and an American military vehicle with a nozzle that appeared to be testing the air encircled the scene. Soldiers were not wearing masks, but officials at Yarmouk hospital said they determined through interviews and tests that chlorine was the chemical used in the attack.

Brig. Qasim Atta, an Iraqi government spokesman for the new Baghdad security plan, described chlorine attacks as a “filthy way” to target vulnerable Iraqis, especially children.

Colonel Garver said that the chemical attacks could soon appear again. “It’s no surprise that anti-Iraqi forces or terrorists or whoever is doing this are trying to replicate this kind of attack,” he said. “They perceive that it’s working.”

The attacks on Tuesday and Wednesday also indicated that the Baghdad security plan has pushed the violence beyond the city’s central neighborhoods, the focus of the new plan.

Maj. Gen. William B. Caldwell IV, a United States military spokesman in Baghdad, said that the “belt around Baghdad” had experienced an increase in attacks as Iraqi and American forces concentrate on neighborhoods within. At a briefing in the Green Zone, he said that top commanders were considering assigning at least one brigade to the ring around the city, and perhaps another to Diyala Province, which has been the site of vicious battles between Sunni insurgents and American and Iraqi troops.

The witnesses to the helicopter crash, also in Diyala Province, said that three helicopters, including a double-rotor Chinook, were flying at tree level, when gunmen began firing anti-aircraft machine guns from an area near an oil pipeline. A resident who would give his name only as Ali said the back of one helicopter burst into flame, leading the aircraft to turn sideways and plunge into the ground. Two other witnesses said they saw fire coming from the helicopter as it crashed around 1 p.m. local time.

Violence broke out on Wednesday in the southern Shiite holy city of Najaf, when a suicide car bomber detonated his payload as Iraqi security forces checked the car for weapons at a checkpoint into the center of city. The explosion occurred about a half a mile from the Imam Ali mosque, one of Shiite Islam’s holiest shrines, and killed at least 11 people, the police said. Another 34 were wounded.

The American military also said that a soldier was killed by gunfire in a northern neighborhood of Baghdad and that a marine died from combat in Anbar Province, where American troops have been battling Sunni insurgents for months. Both died Tuesday.

Meanwhile, despite the increased military effort, 20 bodies were found Wednesday in the capital, an Interior Ministry official said. In addition to the chlorine attack, four bombs ripped through areas of the city, killing at least six people, while mortar shells rained down on a Sunni neighborhood of western Baghdad, leaving three people dead.

The deadliest explosion occurred at about 5:30 p.m. local time, when an abandoned car exploded in Sadr City, the largest Shiite area of the capital, killing at least four people, witnesses said.

It was the second car bomb inside the neighborhood since the Iraqi government announced the start of the security plan one week ago. Two others have exploded at checkpoints on its edge.

Fatma al-Saiedi, 35, who was wounded in the explosion, said the attacks were a result of the new security plan, which has replaced the Mahdi Army, a Shiite militia, with what she and some other residents say are incompetent Iraqi policemen and soldiers.

“We trusted the Mahdi Army,” she said. “The Americans have arrested so many of them and now this happens — every day, another car bomb. We expect there to be more of them” ([New York Times, 2007](#)).



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**Title:** Denver Man Arrested For Mailing White Powder To Senators And Representatives

**Date:** March 2, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A Denver man suspected of mailing white powder to Colorado and Alabama senators and representatives has been arrested by the FBI.

Jay DeV Vaughn, who is also alleged to have threatened Argentinian diplomats, was charged with mailing threatening communication. More charges are expected.

DeVaughn, who works at Community College of Aurora as a librarian, is also accused of sending the harmless white powder to the offices of Sen. Mark Udall, Sen. Micahael Bennet, Rep. Mike Coffman and Rep. Diana DeGette. DeV Vaughn is also suspected of sending numerous Alabama senators and representatives letters filled with white powder.

The current charges are a result of a letter sent to Jill Karber that contained the threat, "Jill Karber RIP."

Nathan Karber, the wife of Jill Karber, was the name DeV Vaughn used as the return addressee on the letters to Bennet, Udall, DeGette and Coffman.

DeVaughn was described by the president of Community College of Aurora as well respected, according to The Denver post. President Linda Bowman went on to say that DeV Vaughn is a good employee but noted that he has been placed on unpaid leave pending the investigation's outcome.

Bowman also revealed that a background check performed for the university by a national firm upon hiring DeV Vaughn came back clean ([Bio Prep Watch, 2010](#)).

**Title:** English Man Pleads Guilty To Ricin Possession

**Date:** March 9, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A white supremacist in England has pleaded guilty to the production of the deadly poison ricin for use in acts of terrorism.

Ian Davison, a truck driver, and his teenage son Nicky were arrested in northern England in June. According to police, traces of ricin were found in a jam jar in the kitchen of Davison's home.

In pleading guilty on Monday at Newcastle Crown County to the production of a chemical weapon, Davison also admitted three charges of possessing a record containing information that was likely to be useful to a person committing or preparing acts of terrorism.

The three possession charges pertain to possession of The Anarchist's Handbook, Kitchen Complete and Mudgahein's Explosives Handbook. The three books all contain information and instructions on the production and use of explosives.

Davison also admitted to the possession of a prohibited weapon in relation to the a spray canister found during the search of his residence.

Sentencing for Davison has been delayed until after the trial of his teenage son, who is currently scheduled to be tried on April 12 for two charges of possessing material that contains information likely to be useful to a person preparing or committing acts of terrorism ([Bio Prep Watch, 2010](#)).

**Title:** Alabama Man Sentenced For Anthrax Hoax

**Date:** April 22, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A Haleyville, Alabama man has been sentenced by a federal judge to seven months in prison for sending a letter filled with white powder and photos of the September 11, 2001 terrorist attacks to the Social Security Administration in Cullman.

Patrick Bryant Wilson, in addition to the seven month sentence, was also sentenced by U.S. District Judge Karon Bowdre to three years of supervised release and seven months of home confinement.

Wilson entered a plea agreement in December with the government.

Before the sentence was handed down, Judge Bowdre noted that Wilson's threats caused terror even though they did not cause physical harm. Such threats, Judge Bowdre said, are on the rise.

"People need to understand these are not silly, adolescent pranks," Judge Bowdrew said according to The Birmingham News. "They have very serious consequences for the individuals that receive them."

According to the December plea agreement, Wilson took a letter to the Cullman post office on Aug. 25 addressed to the Social Security Administration. Wilson's home was listed as the return address.

A postal worker saw that the letter was leaking white powder that was later determine to be baby powder. The letter also included two photos of the Twin Towers in flames.

Wilson's attorney, Don Colee, said that Wilson had applied for disability and was denied. Wilson was also unemployed at the time after losing his job as a regional manager when he got hurt.

"He became frustrated dealing with Social Security Disability Office and acted as he reflected in a 'stupid' manner by not only mailing the matters in the envelope but also making several phone calls as well," Colee said in a court filing ([Bio Prep Watch, 2010](#)).

**Title:** Alabama Men Indicted For Multiple Anthrax Threats

**Date:** April 29, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Two Alabama men were indicted on Wednesday by a federal grand jury in connection with a series of anthrax hoax letters mailed in Alabama this month and in March.

Clifton Lamar "Cliff" Dodd was charged with mailing 15 hoax letters between March 6 and April 5. The letters allegedly contained a threat in the form of white powder.

One of Dodd's letters was sent to U.S. Sen. Richard Shelby's office in Birmingham, Alabama's Robert S. Vance Federal Building on March 8. Other recipients of the hoax letters from Dodd include Alabama Sen. Jim Preuitt of Talladega, two Talladega County state court judges, Talladega County Sheriff Jerry Studdard, two inmates of the Talladega County Jail when Dodd served time, a Lincoln and Oxford police department investigators who had previously interviewed Dodd.

Dodd and Milstead Earl "Mickey" Darden were charged with eight other counts of mailing hoax anthrax letters on April 24.

A 24th indictment charges Dodd and Darden with conspiring to send threatening hoax letters that were mailed April 24. Dodd and Darden were arrested by postal inspectors on April 24 after depositing eight letters in an outdoor drop box at the Pell City Post Office. Those eight letters were found to contain white powder, the arrest affidavit says.

The indictment alleges that Darden allowed Dodd to assemble the eight letters while sitting in Darden's car. Darden is also alleged to have driven Dodd to the Pell City Post Office to mail them ([Bio Prep Watch, 2010](#)).

**Title:** Man Claims Anthrax Scare Was His Retirement Plan

**Date:** May 10, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A transient is scheduled to be arraigned this week on a 10-count indictment charging him with anthrax hoaxes, threatening communications, making a threat against the president and failing to register as a sex offender.

A federal grand jury returned a 10-count indictment charging Timothy Cloud, a transient generally from Roseville and San Francisco, with four counts of hoax mailings, four counts of mailing threatening communications, one count of threatening the President and one count of crossing state lines after failing to register as a sex offender.

In a statement written by Cloud last month for two federal agents, he admitted mailing menacing messages scrawled on 3-by-5 cards, along with talcum powder, from Roseville, California, to President Barack Obama at the White House and to Social Security Administration offices in New York City, Kansas City, Mo., and Baltimore.

"I mailed the envelopes...to those addresses because I hoped people would think it was anthrax," he wrote, Sacbee.com reports. "I mailed the letters because I was mad. I knew I would be caught...I do not regret sending the envelopes because that was my retirement plan. Either I was going to get Social Security or I was going to jail."

This case is the product of an investigation by the Social Security Administration's Office of Inspector General, the U.S. Secret Service, the Postal Inspection Service and the Federal Bureau of Investigation. Assistant United States Attorney Matthew Stegman prosecuted the case.

According to court documents, on January 30, 2010, Cloud sent envelopes addressed to Social Security Administration offices in New York, Kansas City, Mo., and Baltimore. Each contained a white powdery substance and an index card with the words "you stole my money" and "die." Police, fire and hazardous material teams responded to emergency calls at each location and employees had to be quarantined and affected areas decontaminated.

The indictment alleges that a similar envelope was mailed the same day to the White House with the words, "You are just another lying politision [sic]," with cross hairs between "not this time" and "maybe next time," and a newspaper photo of President Obama with cross hairs hand drawn over his face. The indictment also alleges that Cloud failed to register in California as a sex offender by reason of a conviction in Texas.

Cloud was arrested in San Francisco on April 22.

If convicted, Cloud faces up to five years in prison and a \$250,000 fine on each of count of sending the hoax mailings and threats to the President. He faces a statutory maximum of 10 years in prison and a \$250,000 fine on each count of sending threatening communications ([Bio Prep Watch, 2010](#)).

**Title:** Alabama Man Pleads Guilty To Anthrax Hoax

**Date:** June 29, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** An Alabama man has pleaded guilty in U.S. District Court to conspiracy to mail hoax anthrax letters.

NBC13.com reports that Milstead Earl "Mickey" Darden admitted to U.S. District Judge Abdul Kallon that he conspired with Clifton Lamar "Cliff" Dodd to mail eight threatening letters on April 24.

Both Darden and Dodd were arrested by U.S. postal inspectors shortly after the eight letters were deposited in a Pell City Post Office drop box. The letters all contained white powder that, after testing, was revealed to not be anthrax.

"These type letters are a threat, not a joke," U.S. Attorney Joyce White Vance told NBC13.com. "When people open or handle letters containing white powder, they fear for their health and must endure medical precautions against poisonous contaminants. The emergency response and required testing on every potentially harmful letter is costly," she said. "These cases will be prosecuted."

In his plea agreement, Darden acknowledged to the court that he allowed Dodd to prepare and address the powder containing letters in Darden's truck in the parking lot of a Pell City, Ala., store. Darden then drove Dodd to the post office, where Dodd put the letters into a drop box.

"Tampering with U.S. mail is a serious offense and sending hoax letters to scare postal customers is something that cannot be tolerated," U.S. Postal Inspection Service Inspector in Charge Martin Phanco said, NBC13.com reports. "Because of the disruption to mail service that such letters cause, the penalties can be just as severe as if they had sent something hazardous."

Sentencing is set for October 13. The maximum penalty for conspiracy to mail hoax anthrax letters is five years in prison and a \$250,000 fine ([Bio Prep Watch, 2010](#)).

**Title:** Colorado Man To Plead Guilty To Anthrax Hoax

**Date:** July 21, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Jay DeVaughn, the man arrested for allegedly sending white powder to a series of congressmen and government offices, will reportedly plead guilty to related charges in Alabama and Colorado.

DeVaughn already pleaded not guilty, but will have a change of plea hearing, to federal charges in Colorado that include mailing threatening communications and false information and hoaxes, 9News.com

reports. Alabama federal courts have also charged him with one count of false information and hoaxes. These cases have been combined.

"He is expected to plead guilty," U.S. Attorney spokesman Jeff Dorschner told 9News.com. "Details of the plea agreement will not be made available until after the change of plea hearing."

The change of plea hearing, expected to take place on July 22, had been postponed for one month.

Birmingham FBI agents investigated a total of 12 letters containing white powder that were mailed from Alabama to the offices of Alabama senators and representatives in 2009. DeVaughn also allegedly sent white powder to the offices of government officials from Colorado, though it is unclear whether they were mailed to addresses within the state or to Washington, DC.

The return addresses used on the mailings were often those of people DeVaughn had allegedly threatened over the phone in the Denver metropolitan area, including his high school trigonometry teacher.

DeVaughn was voted the administrator of the year in 2009 at the community college he worked for in Aurora, Colorado. He was the director of library services until he resigned shortly after his arrest earlier this year ([Bio Prep Watch, 2010](#)).

**Title:** Scottish Man Behind Bomb And Biothreats Sentenced To Prison

**Date:** July 26, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A Scottish man claiming he was from the Scottish Liberation Army was recently sentenced to four years for sending two hoax bomb e-mail threats to Heathrow Airport.

Adam Busby, 61, was convicted by a jury last month and has been in custody, as Judge Desmond Hogan considered the crime a serious offense, IrishTimes.com reports.

Other terrorism threats claiming to originate from the Scottish Liberation Army, including bioterror threats against Manchester's water supply and vodka bottles containing caustic soda sent to politicians and journalists in England, have originated in Ireland since Busby came to the country, the court heard during Busby's trial.

Det. Supt. Diarmuid O'Sullivan told IrishTimes.com that e-mails made threats against specific flights and named their flight numbers. Air security services decided, however, that no action needed to be taken as the threat was not credible.

Investigators traced the e-mails back to a Dublin public library in Charleville Mall which Busby frequented, according to the report.

Busby has had a relatively long track record of making such threats.

He was convicted 13 years ago after he made threatening phone threats to Scottish media organizations. Busby pleaded not guilty at Dublin Circuit Criminal Court to two counts of sending hoax messages for the purpose of causing annoyance, inconvenience or needless anxiety, at Charleville Mall Public Library, North Strand, on May 8 and 15, 2006.

Busby, who suffers from chronic multiple sclerosis, came to Ireland in 1980 after he was charged with criminal damage on the property of the English Ministry of Defense. Busby has numerous previous

convictions in Scotland but these were all for minor offenses, such as breaching the peace, according to IrishTimes.com ([Bio Prep Watch, 2010](#)).

**Title:** Transient Sentenced For Anthrax Hoax Letter Campaign

**Date:** August 24, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Timothy Cloud, a 63-year-old transient man, has been sentenced to 20 years in prison for his part in an anthrax hoax letter campaign, threatening President Obama and failing to register as a sex offender.

In his plea agreement, Newsroom America reports, Cloud admitted to sending hoax mailings to offices of the Social Security Administration in Baltimore, Kansas City and New York. All employees at the New York office were evacuated with four of them quarantined after that office received one of Cloud's letters.

Cloud's hoax letters contained a white powdery substance meant to simulate anthrax. The letters also contained an index card with the words "you stole my money" and "die," Newsroom America reports.

Additionally, Cloud also admitted to sending President Obama a letter containing a white powder and an index card that had the words "You are just another lying politician [sic]." The letter also had cross hairs between the words "not this time" and "maybe next time," Newsroom America reports, and a photo of President Obama with cross hairs drawn over his face.

Cloud, as a result of a Texas conviction, also admitted that he was required in California to register as a sex offender, which he failed to do.

Cloud, in addition to his 20 year prison sentence, must serve a 10 year period of supervised release upon his release from prison ([Bio Prep Watch, 2010](#)).

**Title:** Man Charged For Sending 50 Anthrax Hoax And Bomb Threat Letters

**Date:** September 24, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Federal authorities have announced that a man has been charged with sending more than 50 anthrax hoax and bomb threat letters to government officials and buildings.

A spokesman for the Department of Justice told CNN that a complaint charging Roland Prejean of Thomaston, Conn., was unsealed this week.

Prejean was charged with mailing threatening communications and with making threats through the mail to kill, injure or intimidate a person, or to damage or destroy any building by means of an explosive.

David Fein, the U.S. attorney for the District of Connecticut, told CNN that Prejean has been in custody since he surrendered to authorities in North Dakota on September 7.

"This defendant is alleged to have sent more than 50 letters nationwide, in which he threatened to kill numerous victims, by shooting them, bombing the buildings in which they work or exposing them to a substance that he claimed was, but was not, anthrax," Fein told CNN.

Prejean allegedly began writing the letters in early September. Recipients included a private individual, a Connecticut probation officer and a Connecticut Superior Court judge, authorities said.

Prejean also allegedly threatened to kill several people, including a postal carrier, judges in Utah and Connecticut, several people at a Connecticut hospital and an old roommate. He also mailed a threatening letter to the Thomaston Post Office. According to officials, Prejean mailed the letters while on a cross-country drive from Connecticut to North Dakota.

If convicted, he faces a maximum sentence of 10 years in prison on each charge ([Bio Prep Watch, 2010](#)).

**Title:** Alabama Man Sentenced For Role In Anthrax Hoax Letters

**Date:** October 5, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** An Alabama man has been sentenced to five years of probation for his role in a series of fake anthrax letters that were mailed across the state.

Milstead Darden, who pleaded guilty in June in U.S. District Court to conspiracy to mail hoax anthrax letters, was charged with mailing letters to several offices in the state, including U.S. Senator Richard Shelby's office, NBC13.com reports.

The letters allegedly contained a white powder that, following testing, was revealed to be a harmless substance.

"These type letters are a threat, not a joke," U.S. Attorney Joyce White Vance told NBC13.com. "When people open or handle letters containing white powder, they fear for their health and must endure medical precautions against poisonous contaminants. The emergency response and required testing on every potentially harmful letter is costly," she said. "These cases will be prosecuted."

Darden is required to pay a \$500 in addition to the five years of probation, NBC13.com reports.

In June, Darden admitted in a plea that he had allowed another man, Clifton Dodd, to prepare the letters in Darden's truck in the parking lot of a Pell City, Ala., store. Darden then drove Dodd to the post office, where Dodd put the letters into a drop box ([Bio Prep Watch, 2010](#)).

**Title:** Federal Grand Jury Hands Down Five Count Indictment For Anthrax Hoax

**Date:** October 9, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A federal grand jury in Bridgeport, Connecticut, returned a five count indictment this week against a man for delivering a bomb threat and for mailing threatening communications.

Roland Prejean, also known as Gary Joseph Gravelle, was indicted on four counts of mailing threatening communications, according to information released to TheDay.com by Connecticut U.S. Attorney David B. Fein. One of those four counts, Fein said, threatened federal employees.

The indictment alleges that Prejean mailed a letter to a Connecticut Superior Court judge that included a substance represented to be liquid anthrax, TheDay.com reports.

The indictment also alleges that Prejean sent threatening letters to a private individual and a probation officer in Connecticut.

Prejean also allegedly mailed a letter to the Thomaston post office claiming that he had planted a hidden bomb on a remote timer there. That letter, according to court documents, caused the evacuation of the Thomaston post office along with town hall and a nearby school. The post office was searched by local bomb technicians. No explosive or incendiary device was found, Fein told TheDay.com.



Prejean has been in custody since his Sept 7. arrest in North Dakota.

If convicted, Prejean will face a maximum term of 10 years in prison for making a bomb threat through the mail. He also faces up to 10 years for mailing a threatening communication to federal employees and up to five years for each of three counts of mailing a threatening communication ([Bio Prep Watch, 2010](#)).

**Title:** Alabama Man Indicted For Anthrax Hoax

**Date:** October 28, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A 71-year-old Alabama man was indicted this week by a federal grand jury for mailing hoax anthrax letters to offices in Alabama, Nebraska and Washington D.C.

Donald Perry Parks, of Toney, Ala., was indicted on three counts of mailing hoax anthrax letters, U.S. Attorney Joyce White Vance told the Associated Press. Vance said that Parks allegedly mailed hoax anthrax letters to the Alabama Republican Party's Homewood office in September.

According to Vance, Parks was also charged with mailing hoax anthrax letters to the Center for Responsive Politics in Washington, D.C., and the Mutual of Omaha Insurance Company in Omaha, Neb.

"When people receive or handle these letters that contain powder, they are put in fear for their lives or their health, and the emergency response to each letter costs taxpayers thousands of dollars," Vance told the AP.

The maximum sentence for each count of sending hoax anthrax letters is 10 years in prison and a \$250,000 fine for each mailing.

Peggy Sanford, a spokeswoman with Vance's office, told the AP that in addition to the white powder, each letter also included a typewritten note describing the mailing as a "Koran Puffie."

Sanford told the AP that internet searches of the term "Koran Puffie" lead to posts by a man identified as Don Parks on a website called ResistNet.com, which dubs itself the "Home of the Patriotic Resistance."

Sanford said the this poster makes references to a Democratic plot to halt the Nov. 2 elections and links to a blog called "Puffie Warning" ([Bio Prep Watch, 2010](#)).

# Bio & Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** Despite the number of high-profile bio-terror plots and patsies, the historical record indicates that 99% of all bio-terror plots, attacks, "tests", "accidents" and drills are conducted by the government who has the means, the motive and the opportunity.

**Title:** FBI Arrests Coventry Township Homeowner On Charge Of Unlawful Possession Of Biological Agent Ricin

**Date:** January 28, 2011

**Source:** [Cleveland.com](http://Cleveland.com)

**Abstract:** Federal agents on Friday arrested a Coventry Township man on one count of unlawful possession of a biological agent -- the deadly toxin ricin.

Jeffrey B. Levenderis, 54, appeared in U.S. District Court in Akron late Friday, but did not enter a plea, a federal spokesman said. Levenderis is the former owner of the home on South Main St. in Coventry where officials had [seized a small amount of material](#) late Tuesday afternoon.

Levenderis, whose elderly father said he been troubled for years, is scheduled to appear again in court next week in Akron.

Ricin, a deadly poison, is made from castor beans and is a biological toxin of choice for some terrorist groups, according to the National Counterterrorism Center.

The Centers for Disease Control has [an online q&a about Ricin](#): Ricin, a poison found naturally in castor beans. If the beans are chewed and swallowed, the released ricin can cause injury. Ricin can be made from the waste material left over from processing the beans. It can be in the form of a powder, a mist, or a pellet, or it can be dissolved in water or weak acid.

Township and Summit County officials assured the public that there was no widespread health concern and minimized any possible connection with terrorism. They continued searching Levenderis' former home late Friday.

"We never really felt that there was any concern beyond the house and we never considered evacuating the neighborhood," said Coventry Township Fire Chief David Calderone. "We found a few baggies of material in a closed coffee can in the refrigerator, but they remained contained the entire time and we sent them to the lab to be tested."

The substance was flown to a federal lab in Maryland for analysis. Investigators confirmed Friday afternoon that the material taken was ricin -- a toxin that is "derived from the castor bean and can be deadly if ingested, inhaled or injected."

The new owner of the home, which had recently been foreclosed on, initially found the substance. The new owner notified local township and Summit County authorities, who contacted the FBI.

Federal agents called in specially trained FBI hazardous materials teams from Pittsburgh and Quantico, Va., FBI spokesman Scott Wilson said.

Wilson said he could not say whether he suspected Levenderis of actually making the ricin, whether he had more and whether he had taken it elsewhere. He also would not say where Levenderis was when arrested by federal agents.

"The investigation led us to him, but I can't go into any statements he made," Wilson said. "I can say that we don't believe there is any connection to terrorism at this point."

Levenderis' father said his son was still secretly staying at the home up until the point when the new owners showed up.

"My son was very troubled for a long, long time and when the FBI men came here to talk to me (Thursday), I wasn't surprised," said Anthony Levenderis, 82. He and his late wife Mary had adopted Jeffrey Levenderis when he was 6 years old.

"But I believe he was more of a danger to himself than to other people," Anthony Levenderis said. "His marriage broke up, he quit his job and he lost his house, so maybe this will be the best thing to happen to him. He needs a lot of help."

Jeffrey Levenderis has no criminal record. He divorced in 1990 and just recently lost the home, a \$165,000 two-story, brick colonial across from Firestone Metro Park, part of the Summit County park system.

Anthony Levenderis, a retired teacher from the Akron City School District, said he had no idea why his son might have had the ricin or how long he might have had it.

"The FBI men asked the same question, but I don't know what he was planning to do with it," he said. "But all of this is reviving a lot of ugly moments from the past for me" ([Cleveland, 2011](#)).

**Title:** Denver Man Sentenced For Anthrax Hoax Mailing

**Date:** January 31, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** A Denver-area man recently received a six year sentence for sending threatening letters, some containing a white powder, to President Barack Obama.

Members of Congress from Colorado and Alabama were also sent suspicious letters, as were Argentine consulates, according to the Denver Post.

The U.S. attorney's office for Colorado announced that Jay Stuart DeVaughn of Aurora, Colorado, also known as Jay Paige Edwards, also received a sentence of three years supervised release.

In August, DeVaughn pleaded guilty to a series of charges that included mailing threatening communications and conveying false information to elected officials, the Denver Post reports.

According to authorities, DeVaughn's letter to President Obama was intercepted in September 2009. The envelope contained a bag of white powder and a reference to anthrax. The letters were critical of health care reforms.

The white powder in the bag turned out to be completely harmless. It was determined to be sugar or a sugar substitute, the Denver Post reports. Nonetheless, emergency personnel were summoned when the offices received the letter. Senator Richard Shelby had his offices closed for two days in the wake of the threats.

"The emergency response required when letters claiming to contain anthrax are discovered can cost thousands of dollars," Joyce White, the U.S. Attorney for the District of Alabama, said, according to Al.com. "The people opening these letters are put in fear for their lives and have to undergo unpleasant decontamination and medical precautions" ([Bio Prep Watch, 2011](#)).

**Title:** 'Bio Terror' Threat Man Arrested In South Africa After Threatening To Attack Britain And U.S.

**Date:** February 13, 2011

**Source:** [Daily Telegraph](#)

**Abstract:** A businessman was arrested in South Africa on terrorism charges yesterday after allegedly threatening to attack Britain and America with biological weapons.

The arrest came after a six-month investigation by British, US and South African security services. The 64-year-old man, who is a South African citizen, is said to have repeatedly sent threatening emails to a Whitehall department in an attempt to extort £2.5 million.

He is then understood to have sent similar threats to institutions in the US, at which point the FBI was called in.

Yesterday morning several containers were left in a storage facility near the suspect's home in South Africa's North-West Province.

They are thought to have held money and, when the man went to collect it, he was arrested by South African special forces.

The South African authorities said they had taken the threat seriously, though they had found no evidence that the man was capable of launching a biological attack. The suspect, who has not been named, is due to appear in a Johannesburg court.

Last night his home was among the sites searched. A Scotland Yard spokesman said: 'Our counter-terrorism officers co-operated with the South African police in terms of fact-finding for the investigation' ([Daily Mail, 2011](#)).

**Title:** New York Man Convicted Over Anthrax Hoax

**Date:** March 21, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** A New York man was recently convicted by a federal jury in Newark, New Jersey, of committing a white powder terrorism hoax.

Philip D. Meyer of Chester, New York, was accused of mailing an envelope containing a white powder to the Newark offices of the Star Ledger newspaper.

At the time the incident occurred, Meyer had been employed by the newspaper as a delivery driver for over 15 years, but had recently been suspended for reasons relating to his job performance.

In early February 2010, Meyer's supervisor, Anthony Paglia, sent Meyer a request to mail back Department of Transportation logs detailing the hours Meyer had worked for two months in 2010. Included in the request was a business reply envelope addressed to Paglia.

On February 16, the newspaper's circulation manager received a voicemail from Meyer listing a number of grievances against Paglia and a statement saying it was "time to retaliate." The next day, Paglia opened the business reply envelope sent back from Meyer and found that it contained a white powder.

Federal agents and members of the Federal Bureau of Investigation's Joint Terrorism Task Force immediately investigated the newspaper's offices. An inspector from the United States Postal Inspection's Dangerous Mail Investigation Unit conducted a field test of the powder and found it to be harmless.

On February 19, Meyer was arrested at his home in Chester, New York, by members of the Newark and New York Joint Terrorism Task Force. A HAZMAT team identified and seized a canister of powder from the residence. It was later confirmed not to contain any toxins or dangerous biological agents.

In a post-arrest interview, Meyer admitted that he wanted to scare his boss by sending him the envelope. Meyer told an agent that he had hoped Paglia would think the powder was either cocaine or anthrax, but that he simply meant it to be a joke.

Meyer will be sentenced in June 2011. He faces a maximum sentence of five years in prison, a \$250,000 fine and three years of supervised release following any prison term.

"Paul Meyer's conviction should serve as a warning to those who intend to misuse the United States mail for this type of criminal activity," Thomas Boyle, the acting inspector in charge of the Newark Division of the United States Postal Inspection Service, said ([Bio Prep Watch, 2011](#)).

**Title:** South African Bioterrorism Trial Set For May

**Date:** March 31, 2011

**Source:** [NTI](#)

**Abstract:** The South African trial of a man charged with threatening to use a harmful biological agent against the United States and the United Kingdom has been pushed back to May, the South African Press Association reported on Thursday

Engineering company owner Brian Roach was arrested in February after allegedly threatening the British government through e-mail and letters to release foot and mouth disease in the two countries if he was not paid \$4 million.

Foot and mouth disease can be deadly to cattle and other animals, though it is not able to infect humans. The animal-carried pathogen has been classified by the United States as a dangerous "select agent."

Roach last month did not pursue an initial request for bail and suggested he would dispute some parts of the terrorism charge. The 64-year-old South African engineer is also charged with illegal possession of a firearm, extortion and money laundering.

National Prosecuting Authority spokesman Mthunzi Mhaga said the trial date was delayed to May 10 in order to give authorities more time to build their case.

"The case was postponed ... for police to continue with investigations and upon completion the accused must make written representations to the National Director of Public Prosecutions," Mhaga said. "We expect it to be completed by then," he added.

Roach developed his scheme in order to win financial remuneration for white Zimbabwean farmers who were forced to give up their land in 2000 under a mandate by that nation's president, Robert Mugabe, according to court documents. He apparently was angry with Washington and London for providing insufficient aid to the farmers.

"We are not habitual criminals, but have been victim of a situation which was entirely out of our control and attributed to corrupt and incompetent politicians," Roach reportedly wrote in an e-mail message to the British government.

The case was pursued by investigators from South Africa, the United Kingdom and the United States, SAPA reported. South African authorities examined Roach's residence and other locations but did not discover anything that would indicate he had the ability to release foot and mouth, according to a February news report.

Mhaga said London at this point was not interested in seeking to have Roach extradited to the United Kingdom ([NTI, 2011](#)).

**Title:** Woman Charged Over White House Anthrax Mailings

**Date:** April 14, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Kate Michelle Young, a 25-year-old woman living in Kent, Washington, has been charged with sending fake "anthrax letters," which contained white powder resembling the deadly bacteria, to the White House and the King County government.

Federal prosecutors in Seattle filed charges on Wednesday alleging that Young mailed an envelope addressed to "President Obama-Sanchez" that contained the white powder. Young was arrested on Tuesday and remains in federal custody pending a detention hearing, Seattle Pi reports.

A letter carrier received the suspicious envelope on Monday at the 3600 block of South 262nd Street in Kent. A postal inspector examined the black envelope and found that it contained a powder similar in appearance to dried anthrax.

The sender of the letter, which started with the salutation "Hello Michelle & Girls," was listed as Issaquah, Washington resident Jim Sinegal, who is the co-founder and CEO of Costco.

"Dear Obama – this is an anthrax sting," the letter's author wrote, according to Seattle Pi. "If you are scared, either mail Jim Sinegal 864.00 so you can call 911 or tell the Atty General he can have your rights too."

Investigators went to Young's Kent home the next day and took her into custody. She was later identified by the letter carrier as the woman who tried to mail the letter. She is also suspected of mailing two similar letters to the King County Sheriff's Office.

"Young stated that she put the powder in the letter 'to piss off Obama,'" a Secret Service agent told the court, according to Seattle Pi. "Upon showing her the letter written to the President, Young pointed out a red fingerprint on the letter and stated that this was her 'right pointer finger' and that she had put it on the document."

Young has been charged with one count of conducted an anthrax hoax. She is believed to have targeted Costco because she had recently been fired from her job there. The powder in the envelope is believed to have been baby powder and flour ([Bio Prep Watch, 2011](#)).

**Title:** Elgin, Ill., Anthrax Hoax Letter Came From Prison Inmate

**Date:** May 4, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** A prison inmate is allegedly responsible for recently sending a threatening letter filled with white powder to an appellate court in Elgin, Illinois.

The letter, which turned out to be harmless, contained a credible threat, according to police and officials from the Federal Bureau of Investigation, according to [CourierNews.SunTimes.com](#).

Elgin police spokeswoman Sue Olafson confirmed that the letter arrived at the courthouse via the U.S. Postal Service and had been sent from a correctional facility in southern Illinois.

Appellate Court Clerk Bob Managan told [CourierNews.SunTimes.com](#) that the letter was sent from the Tamms Correctional Center and that the message called for death to all judges. Olafson would not confirm Tamms as the origin of the letter.

Tamms includes a “super max” facility that houses some of the state’s worst offenders.

“Offenders approved for placement at the Tamms C-Max have demonstrated an inability or unwillingness to conform to the requirements of a general population facility,” according to the Illinois Department of Corrections website.

Within an hour of the letter being opened, streets in the area surrounding the courthouse had been cordoned off and ambulances and fire department hazardous-materials equipment arrived in large numbers, [CourierNews.SunTimes.com](#) reports.

Thirty people, including two police officers and three fire fighters, who may have been exposed to the powder were held in quarantine for hours. They were scrubbed with decontaminating sprays and taken for examination at local hospitals.

Olafson said that no one had been harmed and all were sent home by the evening’s end. The courthouse will remain closed until the final results of the testing are received ([Bio Prep Watch, 2011](#)).

**Title:** Guilty Plea Entered Over Anthrax Hoax

**Date:** July 27, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** A St. Clair, Alabama, man recently pleaded guilty in a federal court to charges stemming from the mailing of a series of anthrax hoax letters in spring 2010.

Clifton Dodd of Lincoln, Alabama, pleaded guilty to 23 counts of mailing letters that contained a threat in the form of a white powder that could have reasonably been perceived as the biological toxin anthrax.

Dodd entered the plea in front of District Court Judge Abdul Kallon just as the trial was set to begin. He also pleaded guilty to one count of conspiracy to mail eight of the anthrax hoax letters.

“We are pleased with the defendant’s decision to plead guilty and look forward to sentencing,” U.S. Attorney Joyce Vance said.

U.S. Senator Richard Selby (R.-Alabama) received a hoax letter from Dodd, as did Alabama Senator Jim Preuitt of Talladega, two Talladega state court judges, Talladega County Sheriff Jerry Studdard, several Talladega County Jail inmates and police investigators who had interviewed Dodd previously.



Dodd admitted to conspiring to send some of the letters along with another man. His co-defendant pleaded guilty to a conspiracy charge last year.

The U.S. Federal Bureau of Investigation, the Federal Protective Service, the U.S. Postal Inspection Service and the Talladega County Sheriff's Office investigated the case ([Bio Prep Watch, 2011](#)).

**Title:** Spain Frees Mexican In Alleged Gas Attack Plot On Anti-Pope Crowd

**Date:** August 18, 2011

**Source:** [Fox News](#)

**Abstract:** A Spanish judge ordered the release Thursday of a young Mexican chemistry student arrested on suspicion of plotting a gas attack on protesters opposed to a visit here by [Pope Benedict XVI](#), but the suspect remains under investigation.

Judge Fernando Andreu of the National Court did not immediately bring formal charges against Jose Perez Bautista, but seized his passport and ordered him to report to a police station twice a day.

Andreu announced his order after questioning Perez Bautista for about two hours and just as the Pope arrived for a youth festival. The pontiff is to leave Sunday.

An anti-pope demonstration was held Wednesday night in Madrid. Police had arrested the Mexican on Tuesday because of threats he made on the Internet against anti-pope demonstrators due to take part in that rally.

There was no chemical attack at it, although riot police clashed with demonstrators after it was over. Eight protesters were arrested and 11 people were hurt, including two police.

Perez Bautista, a stocky man of 24 with black hair worn in a crew cut, was handcuffed Thursday as two police led him into the office of Andreu for questioning. He wore black jeans and a black T-shirt with a white logo that appeared to be a Pac-Man with teeth.

The Mexican, from Puebla state near [Mexico](#) City, is in [Spain](#) studying at the government's top research body, the Spanish National Research Council.

Andreu said that a week ago police had traced threatening comments sent to an online daily to a Council IP address and then eventually to the Mexican.

In those messages, Perez Bautista allegedly made disparaging remarks about gays and said it "my struggle" to kill them and "any anti-human aberration during their protests against the [Catholic Church](#)," the judge wrote.

Perez Bautista allegedly said he had access to acid and other chemicals to make Molotov cocktails he would throw at protesters, and tried to recruit people to join him.

But the suspect's government-appointed attorney, Antonio Ortiz, said police had not seized any chemicals from his client and that Perez Bautista told the judge he never meant to stage an attack. Ortiz likened the Mexican's online messages to "a joke in bad taste."

"But in the end it was pure fantasy," Ortiz said.

Judge Andreu wrote that the suspect remains under investigation for the possible crime of making violent threats ([Fox News, 2011](#)).

**Title:** Hijacked Ship Had Chemical Weapons Materials Onboard

**Date:** October 18, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Finnish researchers recently claimed that the Arctic Sea, a Finnish ship hijacked in Swedish waters in 2009, was most likely carrying materials stolen from Russia for the use of making weapons of mass destruction.

In a new book, *Eye of the Storm*, Myrskyn Silmässä and Timo Hellenberg, assert that chemical, biological, radiological or nuclear materials were loaded onto the Arctic Sea in the Russian enclave of Kaliningrad and were headed to the Middle East before being hijacked, according to TheLocal.se.

According to official documents, the ship was loaded with supplies of timber worth more than \$1.8 million. The hijackers demanded a ransom of \$1.5 million. The ship was taken over off the coast of the Swedish island Öland soon after leaving port in Finland.

The ship was sighted in the English Channel, but was later lost until the Russian Navy reclaimed it off Cape Verde nearly a month later.

Russian authorities claim to have arrested eight Russian and Baltic men in an operation to take back the ship. Six of the men were sentenced to up to 12 years in prison for their role in the crime.

The researchers have dismissed rumors that nuclear warheads or missiles were part of the cargo, but question why the Russian government downplayed the hijacking, TheLocal.se reports ([Bio Prep Watch, 2011](#)).

**Title:** 2011 Georgia Terrorist Plot

**Date:** 2012

**Source:** [Wikipedia](#)

**Abstract:** In 2011, the FBI arrested four men in the [U.S.](#) state of [Georgia](#), who were allegedly plotting to deploy explosives and [biological weapons](#) to kill a number of American politicians, media figures, [Internal Revenue Service](#) employees, and innocent civilians. The four men were Frederick Thomas, 73, Dan Roberts, 67; Ray H Adams, 65; and Samuel J. Crump, 68. Thomas is from [Cleveland, Georgia](#); the other three men are from [Toccoa](#). They were members of a domestic militia group and believed they had to commit murder in order to "save this country". According to [The Guardian](#), Crump had planned to make 10 pounds of [ricin](#) and spread it in major cities and along [Atlanta](#), [Jacksonville](#), [Newark](#), [Washington D.C.](#), and [New Orleans](#) highways and bomb federal buildings in Atlanta. They also discussed dispersing ricin from an airplane in the sky over [Washington D.C.](#) and possibly attack other targets with explosives. Adams is a former [Agriculture Research Service](#) employee, while Crump used to work at the [Centers for Disease Control and Prevention](#).

According to court documents, Thomas was inspired by the online pro-militia novel "Absolved" by Mike Vanderboegh, which features small bands of U. S. citizens rising up against the federal government. Vanderboegh denied responsibility for inspiring the attack, saying in a blog post "I am as much to blame for the Georgia Geriatric Terrorist Gang as Tom Clancy is for Nine Eleven." Earlier, Vanderboegh had attracted controversy after urging [health care reform](#) opponents to throw bricks through the windows of Democratic Party offices; several such incidents occurred after Vanderboegh made his statement ([Wikipedia, 2012](#)).

**Title:** Ricin Plot Charges: Four Georgia Men Accused Of Planning Bioterrorism Attack

**Date:** November 2, 2011

**Source:** [Washington Post](#)

**Abstract:** Ten years after anthrax spores delivered in letters killed five people, injured 17, and raised fears about the safety of opening mail, four Georgia men have been charged with plotting to buy explosives and manufacture a deadly biological toxin: ricin.

The men, all sexagenarians or older, are suspected to be members of a fringe Georgia militia group. They are charged with purchasing explosives and a silencer, and taking steps to produce the toxin.

The specter of bioterrorism, in which bacteria, viruses or toxins like ricin are deliberately released to kill or cause illness, no longer looms as large in America as it did after 9/11. Then, the anthrax-laced mail caused near hysteria.

But scientists say that we shouldn't be so cavalier, as biological weapons are now easier to make at home than ever before.

After all, the product the four allegedly were producing is a highly toxic protein that is made from castor beans. Compared with anthrax, a much higher quantity of ricin is needed to have a significant impact. Ricin can also be inactivated much more easily than anthrax, which can remain lethal for decades.

But ricin can have a deadly effect if a person comes in direct contact with it, especially if inhaled or digested. There is also no antidote for it, although a victim can be saved by immediate medical attention, during which doctors would try to maintain air flow to the lungs.

In a cover story on Sunday, the New York Times Magazine [described](#) a bioterrorism attack this way:

It makes of the most mundane object, death: a doorknob, a handshake, a breath can become poison. Like a nuclear bomb, the biological weapon threatens such a spectacle of horror — skin boiling with smallpox pustules, eyes blackened with anthrax lesions, the rotting bodies of bubonic plagues — that it can seem the province of fantasy or nightmare or, worse, political manipulation.

Brett Giroir, a former director at the Defense Advanced Research Projects Agency, told the magazine that advancements in laboratory technology had made that fantasy much closer to real possibility than ever before.

"What took me three weeks in a sophisticated laboratory in a top-tier medical school 20 years ago, with millions of dollars in equipment, can essentially be done by a relatively unsophisticated technician," Giroir said.

But the Post's Checkpoint Washington blog reports that the chances these Georgians could have created a weapon of mass destruction was "tiny at best."

The chances are tiny because the challenges involved in delivering lethal doses of ricin to mass numbers of people are great, and nearly insurmountable for amateurs. "No one has done it, as far as we know," Raymond Zilinskas, director of the [Chemical and Biological Weapons Nonproliferation Program](#) at the James Martin Center for Nonproliferation Studies in Monterey, Calif., told Checkpoint. "It is beyond the capabilities of anyone except professional weapons scientists."

As for bioterrorism by mail, The Washington Post's Ed O'Keefe [reports](#) that the Post Office is focused on bigger problems, and that workers are now so unconcerned by the threat of attack that they no longer wear the gloves and masks provided as a precaution.

They are trained, however, to be on the lookout for envelopes that appear to contain sharp objects, dust, no return address, an invalid Zip code, or weird writing. The USPS spends \$101 million each year to screen every piece of first-class mail sent or received by U.S. households and mail sent to federal addresses in Washington ([Washington Post, 2011](#)).

**Title:** Bug Spray Bandit Robs California Bank Armed With Pesticide

**Date:** November 18, 2011

**Source:** [AOL News](#)

**Abstract:** He was armed and dangerous -- particularly to insects.

Law enforcement officials in California are seeking information about a man who robbed a Rancho Santa Fe bank armed with a pesticide sprayer.

Toting a white plastic spritzer of bug spray and clad in a yellow rain jacket with a dust mask, the perp who pulled off the Nov. 4 heist might have been able to pass himself off as an exterminator.

That is until he approached a teller at the Pacific Western Bank, displayed what appeared to be a semi-automatic handgun, and demanded cash, according to an [FBI press release](#).

The crook fled with an undisclosed sum of money and no one was injured, the statement notes.

Witnesses described the perp as a white man, about 30 years old, with a thin build. He stands about 5-foot-11 and has wavy brown hair and an unshaven face. The crook was last seen wearing jeans, white sneakers, a black baseball cap, a yellow rain coat and a dust mask.

Calls to the FBI's San Diego division and the San Diego Sheriff's Department were not returned by Huffington Post deadlines ([AOL News, 2011](#)).

**Title:** St. Louis Woman Pleads Guilty To Federal Anthrax Hoax Charges

**Date:** December 2, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** A St. Louis woman recently pleaded guilty to federal charges that she sent numerous packages to her perceived enemies that contained, among other things, a white powder that investigators believe was meant to simulate the deadly biological toxin anthrax.

Vennessa V. Bell admitted to the court that she sent numerous packages between 2003 and this year that frequently contained, in addition to the white powder, her own feces, used condoms and used feminine hygiene products, according to StLToday.com.

Most of the packages were sent in yellow bubble mailers with Purple Heart postage stamps. They were often decorated with strange writings and collages of pasted-on pornographic pictures. Bell's motives remain somewhat mysterious, but a former neighbor who received many of the packages told investigators that Bell believed she was being picked on and that her other neighbors were using a "special device" to listen in on her.

Assistant U.S. Attorney John Sauer said that Bell was driven by her perceived grievances with others, StLToday.com reports. Bell underwent a mental health evaluation and was determined to be competent to stand trial, though as part of the plea, her lawyer and Sauer will ask for three years probation and mental health counseling. Bell plead guilty to three federal misdemeanor charges of mailing injurious articles, according to StLToday.com ([Bio Prep Watch, 2011](#)).

# Bio & Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** Despite the number of high-profile bio-terror plots and patsies, the historical record indicates that 99% of all bio-terror plots, attacks, “tests”, “accidents” and drills are conducted by the government who has the means, the motive and the opportunity.

**Title:** Homemade Acid Bombs Found On College Campus In Florida

**Date:** January 29, 2012

**Source:** [Fox News](#)

**Abstract:** Police are investigating after several homemade acid bombs were planted on the Valencia College campus in Orlando, Fla., cfnews13.com reports.

A total of seven bottles were found in parking lots along walkways near buildings, the station reports. Two of the bottles exploded Friday night, about 100 yards apart.

The bombs are made using soda bottles and household chemicals, according to cfnews13.com.

Earlier, three acid bombs were found in an alley behind a student building and a parking lot as students were returning from winter break. Two of those bombs exploded.

No one has been hurt in the incidents ([Fox News, 2012](#)).

**Title:** Pakistan Says Prime Minister Was Mailed Anthrax Spores

**Date:** February 1, 2012

**Source:** [New York Times](#)

**Abstract:** Pakistan’s prime minister, [Yousaf Raza Gilani](#), received a postal package containing [anthrax](#) spores four months ago, his spokesman said Wednesday, adding a new dimension to the security threats faced by the country’s political and military leadership.

The package was intercepted by the prime minister’s security staff in October, according to the spokesman, Akram Shaheedi. The Pakistan Council of Scientific and Industrial Research, a government laboratory, established that the suspicious white powder it contained was anthrax spores, he said. A criminal case was filed on Tuesday, according to an Islamabad police officer, The Associated Press reported.

Government officials gave contradictory accounts of the identity of the sender, and they offered little sense of motive. While Islamist militants have repeatedly targeted senior government officials in suicide and bomb attacks, an assassination attempt using biological weapons would be an anomaly.

Mr. Shaheedi said that law enforcement authorities had identified the sender as an associate professor at Jamshoro University in the southern province of Sindh. But he could not say whether the professor, a Ms. Zulekha, had been arrested or detained.

A senior police officer in charge of presidential security, Hakim Khan, gave a different account. He denied any knowledge of the suspect Mr. Shaheedi named, but he confirmed that a police team had been sent to Jamshoro to investigate. The packet had been sent from a small post office on the Jamshoro University campus, he said.

Mr. Khan said the case had been registered under a provision of Pakistan's penal code that deals with the act of sending poison with the intention of causing harm.

In November 2001, suspicious letters containing anthrax spores were sent to three private businesses, including the country's largest Urdu-language daily, Jang, in the southern port city of Karachi. No motive was ever determined ([New York Times, 2012](#)).

**Title:** Pakistani Officials Send Mixed Signals On Identity Of Anthrax Mailer

**Date:** February 2, 2012

**Source:** [NTI](#)

**Abstract:** Pakistani officials have issued conflicting statements on the identity of the individual who mailed anthrax spores to Prime Minister Yousuf Raza Gilani in October, the *New York Times* reported on Wednesday (see [GSN](#), Feb. 1).

Government spokesman Akram Shaheedi said security officials have singled out a Jamshoro University associate professor, identified only as Ms. Zulekha, as the culprit. He was not able to answer whether she had been taken into custody.

Hakim Khan, a high-ranking law enforcement officer who heads presidential protection, however, rejected the assertion that Zulekha had been identified as the culprit; he did verify that investigators had been dispatched to Jamshoro to probe the matter. The anthrax package was mailed from a university postal site in the Sindh province city, Khan said.

Gilani was never exposed to the deadly bacteria as the packet containing the spores was headed off by his protective team. The package was sent to the Pakistan Council of Scientific and Industrial Research, which tested the contents and verified the substance was anthrax.

Though assassination plots against government personnel are not unusual in Pakistan, the country does not have a history of attempted targeted killings using anthrax or other weaponized pathogens. A leading newspaper and two other Pakistani companies received anthrax spores in November 2001, but the reason for the mailings remains unknown (Salman Masood, [New York Times](#), Feb. 1).

The lethality of the spores is not yet known, along with how the mailer would have been able to acquire the material, Agence France-Presse reported.

Anthrax occurs naturally in animals and is particularly common in regions of Asia, the Middle East and Africa, according to the [U.S. Centers for Disease Control and Prevention](#).

"After the laboratory test confirmed that the parcel contained anthrax, we registered a case against unknown people" on Tuesday, Khan said.

Authorities provided no reason on why a criminal case was opened months after the incident. Gilani's office first intercepted the package -- comprised of an envelope containing a smaller envelope that held the anthrax powder -- on Oct. 18, according to the police report.

Authorities declined reporter requests to view the laboratory results confirming the authenticity of the anthrax ([NTI, 2012](#)).

**Title:** Teacher Accused Of Spraying Febreze On "Fishy" Student

**Date:** February 9, 2012

**Source:** [NBC](#)

**Abstract:** This time the teacher got a time out.

An elementary school teacher in Newfoundland, Canada has reportedly been put on paid leave as district officials investigate a claim she sprayed a student with an odor eliminator to mask his fishy-smelling lunch.

Patti Rideout told [CBC News](#) she was “very hurt and very angry” after learning the teacher of her 10-year-old son, Christian Roberts, had put him in the hallway then sprayed him with Febreze last week.

Other kids at Twillingate Island Elementary School had teased him over the fried capelin meal she’d made him, she said.

"I feel like he's been embarrassed, bullied, and I think what she [did] was very disgraceful," Rideout told CBC News. "I think my son was treated not like a human being — I think he was treated like a dog, or a cat ... I'm very hurt and very angry over this."

Rideout told CBC that when she first called her son’s teacher for an apology she hung up.

After taking her concerns to the school board, Rideout received a written apology from the school’s principal and vice principal, St. John’s newspaper [The Telegram](#) reported.

“The teacher has offered to make an apology to your son in front of the class,” the letter said ([NBC, 2012](#)).

**Title:** Indianapolis Man Jailed For Anthrax Threat

**Date:** February 14, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** An Indianapolis man was recently taken to Marion County Jail in Marion, Ohio, after threatening to mail a letter to the jail filled with anthrax powder.

Jason Fancher first called the Marion County Sheriff’s office and said that they would soon receive an envelope filled with anthrax, according to [WishTV.com](#).

Deputies called the number back and spoke with Fancher, who admitted that he had made several calls. He then hung the phone up. Investigators traced the number and found Fancher outside the apartment where the calls originated from.

Fancher admitted to making the calls, but denied that he had possession of any anthrax powder. He told deputies he was known to have a problem with his temper.

Deputies took Fancher into custody after he refused to allow them to search his apartment. He faces a charge of intimidation, [WishTV.com](#) reports.

Anthrax is an infectious disease caused by the bacteria *Bacillus anthracis*. It most commonly affects hooved animals, but can be extremely dangerous when contracted by humans.



Anthrax is considered a major potential weapon of bioterrorism. In 2001, a series of anthrax filled letters were sent through the U.S. Postal Service. In those attacks, 22 people were infected, five of whom died ([Bio Prep Watch, 2012](#)).

**Title:** Colorado Man Faces Prison Over Anthrax Hoax

**Date:** February 22, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A Colorado man faces up to five years in prison and a \$250,000 fine for lying to federal investigators about mailing threatening letters to tax collectors in the state that contained a white powder.

Matthew O'Neill pled guilty to the charges, which stem from an incident in 2011 in which a mail room employee received a legal-sized manila envelope that contained an unidentified white powder. The letter was mailed to the Colorado Department of Revenue and included post marks for Kremmling, Colo., [Government Security News](#) reports.

The employee and a co-worker contacted the Colorado State Patrol and 911 and waited for the Hazmat and Denver Fire Department teams to arrive. The teams evacuated the building and tested the substance, finding it to be harmless baking soda.

According to the letter's intended recipient, O'Neill had previously sent documents expressing beliefs that he doesn't have to pay federal or state taxes as a sovereign citizen. Postal inspectors and the FBI determined that O'Neill had visited the Kremmling post office several days before the envelope arrived.

"Those who mail a threat, especially one containing material simulating a biological or chemical agent, will face felony criminal consequences," John Walsh, the U.S. attorney, said, according to [Government Security News](#).

While the powder was not harmful, threatening mailings count as a federal crime.

"All threatening communications are taken seriously, the recipient of these types of threats cannot determine the true nature of the implied, or stated danger," James Yacone, the FBI Denver special agent in charge, said, according to [Government Security News](#). "The FBI wants to remind everyone that mailing a threatening communication that contains a hoax of any kind in a parcel will be aggressively investigated. We will continue to respond to such threats, along with our federal, state, and local law enforcement partners, through the combined resources of the Joint Terrorism Task Force" ([Bio Prep Watch, 2012](#)).

**Title:** Texas Nurse's Bleach Injection Deaths Trial Begins

**Date:** March 5, 2012

**Source:** [Fox News](#)

**Abstract:** An East Texas nurse violated the trust of a noble profession when she injected kidney dialysis patients with toxic bleach, killing five of them and injuring five others, a prosecutor said as the woman's murder trial began Monday.

Kimberly Saenz, 38, faces a possible death sentence if convicted of capital murder in the April 2008 deaths.

Saenz stood in court holding her hands behind her back as Angelina County District Attorney Clyde Herrington read the six-count indictment against her. Her lawyer, Ryan Deaton, answered "Not guilty, your honor," on her behalf when the judge asked for a plea after each count.

Herrington told jurors in his opening remarks that evidence would show there was bleach in the IV dialysis lines of victims who were being treated at a DaVita dialysis clinic in Lufkin, about 125 miles northeast of Houston.

"The defendant in this case is the one that put it there," he said.

He said investigators also found Internet searches on Saenz's computer about bleach poisoning in blood and whether bleach could be detected in dialysis lines.

"The profession of nursing is one of the most respected," Herrington told jurors. "Health care providers devote their career to those who are sick and ill ... But involves a great deal of trust. And if that trust is violated, very serious things can happen."

Saenz was charged a year after the Lufkin clinic closed for about two months following a rash of illnesses and deaths.

Emergency crews had been called to the clinic many as 30 times that April, including seven for cardiac problems, and made at least 19 runs. Four people had died.

There had been only two calls during the previous 15 months, according to the Texas Department of Health Services.

Denver-based health care giant DaVita Inc. investigated along with local, state and federal agencies.

Inspectors were present on April 28, 2008, when two dialysis patients said they suddenly didn't feel well and two others reported that they saw Saenz inject bleach into tubing used by two fellow patients.

Saenz, who had held her entry-level position as a licensed vocational nurse for eight months, was sent home. Police were summoned. The next day she was fired.

In his opening defense statement, Deaton said the stories told by the two patients who complained about Saenz varied widely and said DaVita officials waited eight hours before calling police.

"DaVita Inc. is the puppet master in this case," he said, drawing an immediate objection from Herrington that was upheld by the judge.

But he continued to blame the company, insisting DaVita "has manipulated the evidence ... and the science in this case."

Deaton said he would present evidence to contradict the charges. For example, a syringe patients saw Saenz using was being used to measure bleach for a cleaning solution so Saenz could get the precise amount and adhere to clinic rules, he said.

"When Kim supposedly is doing this, there's a monitor watching her, there's people in the clinic," Deaton said. "Patients are watching what's going on."

"Everybody's freaking out," he continued. "People were dying. Everybody's on edge. This whole thing is just a firecracker."

Federal investigators examined blood tubing, IV bags and syringes used by the DaVita patients, who spent up to three days a week tethered for hours to a machine that filtered their blood — a job their kidneys could no longer do.

Joel Sprott, an attorney for clinic operator DaVita Inc., has said the Denver-based company turned over more than 10,000 pages of records in the case. Through 2011, DaVita operated or provided services to 1,809 dialysis facilities in the U.S., serving some 142,000 patients and employing more than 41,000 people.

Citing a gag order imposed by the judge, DaVita spokesman Vince Hancock would only say last week only that the company looks forward "to continuing our steadfast commitment to the Lufkin community."

A [Food and Drug Administration](#) report found some samples linked to some victims tested positive for bleach while others showed bleach "may have been present at one time."

Clinic policy calls for bleach to be used in various concentrations for cleaning and then chemical reactive agents are used to confirm bleach residue was removed and the cleaned areas are safe.

"The point is, bleach is used in every aspect of dialysis," Deaton said ([Fox News, 2012](#)).

**Title:** Canadian Sentenced For Planned Bio-Terrorist Attacks

**Date:** March 8, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Adel Mohamed Nagi Arnaout, nicknamed the Vendetta bomber, was sentenced to an indefinite prison term on Wednesday in Ontario, Canada, for planned terrorist acts, including attempted poisonings, letter bombings and exploding packages.

Ontario Superior Court Judge Todd Ducharme pronounced Arnaout to be a dangerous offender with little hope for rehabilitation. Arnaout was arrested in 2007 as police found evidence that he had searched for tips on purchasing detonators, grenades, and biological and chemical weapons such as anthrax and sarin, the [Globe and Mail](#) reports.

"I found that his intent was to kill his targets," Ducharme said, according to the [Globe and Mail](#). "Judged from the perspective of his intent, his actions closely resemble acts of terrorism but for the non-political, utterly banal nature of his cause. If Mr. Arnaout had been more competent, the results of his actions could have been truly horrific."

Arnaout created a list of 452 targets that included jails, courthouses, Jewish schools and government officials.

"Mr. Arnaout has a greatly magnified sense of his own victimhood," Ducharme said, according to the [Globe and Mail](#). "He blames others for problems that either do not exist or that he has brought on himself. This is accompanied by a sense that he is entitled to avenge himself no matter how minor the original slight."

Police were convinced that Arnaout was serious about his plans and had tested some of his explosives on stuffed animals and dolls. Ducharme convicted Arnaout of 11 counts of attempted murder, three counts of delivering an explosive device and one count of possessing an explosive device.

"He lacks any remorse or guilt for his actions," Ducharme said, according to the [Globe and Mail](#). "Indeed, he seems to believe that his actions were justified. Such a stunning lack of insight raises a very real concern about Mr. Arnaout engaging in similar activities in future" ([Bio Prep Watch, 2012](#)).

**Title:** Man Arrested Over White Powder Hoax Letters

**Date:** March 12, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A man was arrested on Friday in connection with the mailing of threatening letters that contained suspicious white powder to members of Congress and multiple media organizations.

Christopher Lee Carlson was indicted on two criminal counts after an investigation into approximately 100 envelopes that were mailed that contained white powder. All of the letters, which were postmarked Portland, Ore., tested negative for anthrax or any other toxic substances, [Associated Press](#) reports.

Carlson was charged on Friday by a federal grand jury after being arrested at his home in the Portland area. Carlson allegedly mailed a threatening communication to House Speaker John Boehner (R-Ohio) and mailed a letter that threatened to use a biological weapon to U.S. Sen. Barbara Mikulski (D-Md.).

Carlson will be arraigned on Monday.

More than 100 letters were sent in total that were addressed to U.S. representatives and senators.

"Threatening letters – whether hoax or real – are serious concerns that federal law enforcement agencies will aggressively pursue," Greg Fowler, the special agent in charge of the FBI in Oregon, said, according to [Associated Press](#).

The sender said that he wanted to end corporate personhood, end corporate lobbying and money, and start a new constitutional convention. The letters had a fake return address from a sender calling himself "the MIB" ([Bio Prep Watch, 2012](#)).

**Title:** Canadian Man Given Indefinite Prison Term Over Ricin-Laced Water

**Date:** March 13, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A Lebanese-born man who was convicted of 11 counts of attempted murder for sending poisoned water and letter bombs to multiple targets has been labeled a dangerous offender in Canada, receiving an indefinite prison term.

Arnaout was an aspiring actor. In July 2004, he sent water tainted with ricin to two talent agencies he felt weren't advancing his career. He also sent the tainted water to a judge and the CIBC. He dropped off a homemade bomb at the home of a one-time roommate that left his former roommate with cuts to his feet and arms. He also sent a bomb to his former lawyer and to a former landlord, the [Record](#) reports.

"I reject the suggestion that Mr. Arnaout is willing to change, or has developed any insight into his condition," Ducharme said, according to the [Record](#). "Sadly, he has not."

According to Superior Court Justice Todd Ducharme, Adel Arnaout has major problems with revenge-oriented thinking and controlling his anger along with a "greatly magnified sense of his own victimhood." In addition to 11 attempted murder charges in Guelph and Toronto, Arnaout also possessed three explosive devices in the trunk of his car.

Ducharme said that effective therapeutic supervision would be difficult and that Arnaout continued to scribble notes about making bombs while in custody waiting to be arrested.

"The fact that he engaged in this behavior and so resolutely maintains that he was justified in so doing, underscores how difficult it will be to control his risk through supervision and therapeutic intervention," Ducharme said, according to the [Record](#).

Arnaout will be able to apply for parole after seven years, though a very low percentage of dangerous offenders ever get released ([Bio Prep Watch, 2012](#)).

**Title:** Former University Of Texas Student Arrested With Ricin Strains

**Date:** March 13, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A former student at the University of Texas allegedly stole multiple vials and plastic droppers from a UT laboratory, including a harmless strain of the bioterrorism agent ricin.

Karl Jasheway was charged with driving while intoxicated on December 21. While searching the car, the arresting officer found a box addressed to the university containing 13 vials, 12 plastic droppers and a notebook. The discovery led to the seizure of 44 measuring tubes from Jasheway's apartment in North Austin, [Statesman.com](#) reports.

Despite concerns that the materials stolen were related to terrorism, Austin campus officials said that the searches revealed no dangerous materials in Jasheway's apartment or car. Two of the vials contained ricin A-chain DNA, which is a harmless substance. While the potent toxin ricin is a bioterrorism concern, the non-toxic A-chain component is used by the lab to search for possible antidotes to ricin. Jasheway was the lead author of a scientific paper on the ricin antidote subject.

The lab has not used the toxic form of ricin in research for 25 years. The lab materials theft led to tightened lab safety and security rules.

Jasheway allowed police to search his apartment without a warrant. The FBI would neither confirm nor deny that an investigation was underway and Jasheway was not available for comment, according to [Statesman.com](#) ([Bio Prep Watch, 2012](#)).

**Title:** Anthrax Tip From Hoaxer's Wife Led To Arrest

**Date:** March 15, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A Vancouver, Wash., man who allegedly sent letters containing a white powder to Congress members came under FBI scrutiny after his wife told an officer he laced the envelopes with corn starch and celery salt.

Christopher Lee Carlson was focused on after a Vancouver police officer told the FBI about a March 4 interview he had with Carlson's wife about the recent turmoil Carlson was going through. A federal grand jury indicted Carlson on March 9 on charges that he mailed threatening letters to Democratic Sen. Barbara Mikulski of Maryland and Republican House Speaker John Boehner of Ohio, [Associated Press](#) reports.

The counts arose after an investigation into 100 envelopes that were mailed containing white powder. The letters, which were postmarked in Portland, Ore., have tested negative for toxic substances.

"Adrienne (Carlson) told me that a few months ago, Chris had talked about sending letters to members of the Senate and the media to express his frustration with certain things," Leah Supriano, a Vancouver police officer, said, according to [Associated Press](#). "About two weeks ago, they were driving in Portland ... and when they passed a post office somewhere off Stark (Street), he pointed at the post office and told her that he was worried and wondered if they had surveillance cameras."

When Adrienne Carlson asked her husband if he sent the letters, Christopher Carlson acknowledged that he had. Adrienne Carlson said her husband planned to send a second round of letters that would contain the highly corrosive chemical lye.

Christopher Carlson is expected to be arraigned this week ([Bio Prep Watch, 2012](#)).

**Title:** Suspects In Monroe Drano Bomb Case Go To Court Today

**Date:** March 20, 2012

**Source:** [CBS 12 News](#)

**Abstract:** The suspects accused of making home-made chemical bombs and leaving them scattered in a Butler County neighborhood are due in court. Three men and a woman are accused with making the devices, some of which blew up.

Police and explosives experts say the bomb-makers could have really hurt someone or even themselves had they been nearby when the bombs went off. The Butler County Sheriff's Department and explosives experts displayed what they confiscated earlier this week from the Lemon Township neighborhood.

Monroe police say nine of the Drano bombs were found by neighbors on Hickory Street. Eight of the bombs blew up. Some of the neighbors say it sounded like gunshots. No one was hurt.

Four people are due to be arraigned today charged with making the explosive devices. Michael Akers, Steven Bolin, Claire Garrett and William Carr, who are all 19 years old, are set to go before a judge. Akers and Carr are both said to be residents of Hickory Street, where the bombs were found, according to our partners at the Hamilton Journal News ([CBS 12 News, 2012](#)).

**Title:** Indonesian Man Faces Seven Years In Prison Over Ricin Plot

**Date:** March 22, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Indonesian prosecutors recently announced that a man accused of plotting to poison police officers with ricin faces seven years in jail.

Ali Miftah, an herbal medicine seller whose real name is Amri Firmansyah, allegedly planned to help a group of six other suspects ship water bottles tainted with ricin to several regional police headquarters throughout Indonesia, according to [TheJakartaGlobe.com](#).

"He was involved in an evil conspiracy," prosecutor Ricky Rommy said, [TheJakartaGlobe.com](#) reports. "[He attempted] to help or commit a premeditated act of terrorism."

Ricky said Ali has also been charged with two other crimes under Indonesia's 2003 Law on Terrorism.

"We declare that Ali Miftah is [also] guilty for helping hide [then] terrorist fugitive Umar Patek and for his possession of pen guns," Ricky said as he read the indictment, [TheJakartaGlobe.com](#) reports.

The alleged mastermind behind the conspiracy, as well as the group's chemist, face six years in prison for their roles in the plot.

The group appears to be only loosely affiliated with other known terrorist groups. Ali was linked to a terrorist training camp in Aceh, according to [AsiaNewsNet.com](#).

Most of the members of the cell had stable jobs and appear to have been inspired, in part, by the 2002 Bali nightclub bombings that killed 202 people, mostly foreign tourists. They said they decided to attack the police for their efforts in arresting mujahedeen, or holy warriors ([Bio Prep Watch, 2012](#)).

**Title:** Inmate To Plead Guilty To Anthrax Hoax Letters

**Date:** March 23, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A former inmate at a federal prison near Terre Haute, Indiana, will plead guilty to mailing a death threat and anthrax hoax to a federal judge in 2009.

Michael Disch will face a sentence of up to eight years as part of a plea agreement. Disch has been charged with mailing threatening communications, [USA Today](#) reports.

The 2009 letter, which was addressed to Judge Larry McKinney, was opened at the Terre Haute courthouse before reaching the judge. The powdery substance inside was later found to be benign.

Investigators do not yet know why Disch targeted McKinney, but Disch had complained about the conditions at the prison and had previously sent letters to the judge. Disch is currently an inmate at the federal prison in Lewisburg, Pa.

The letter contained both powder and instructions along with a threat to smell the contents of the package and die. The letter also threatened to find out where McKinney lived and to have his family killed, the [Tribune-Star](#) reports.

“Our message is a consistent and strong one,” Joseph H. Hogsett, the U.S. attorney for the Southern District of Indiana, said, according to the [Tribune-Star](#). “We are committed to protecting the inmates from each other, and the safety of those who work there, and we take seriously threats made against authorities” ([Bio Prep Watch, 2012](#)).

**Title:** Suspect In Congress Mail Threats Pleads Not Guilty To Added Charges

**Date:** April 6, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A registered nurse from Portland, Oregon, entered a not guilty plea on Thursday to additional charges relating to more than 100 threatening letters he allegedly mailed to members of Congress in February.

Christopher Carlson has been jailed without bond since his March 9 arrest for allegedly mass mailing envelopes from Portland that contained a suspicious white powder. The powder, later found to be harmless, triggered security alerts on Capitol Hill and among several media outlets, [Reuters](#) reports.

The 10 additional felony counts against Carlson were contained in an expanded indictment returned on March 28 by a federal grand jury. The charges came after Carlson entered not guilty pleas to two earlier charges. He pleaded not guilty to 12 charges – six counts of mailing a threat to use a biological weapon and six counts of mailing a threatening communication to a member of Congress.

If Carlson is convicted, he could face a maximum penalty of 90 years in prison. More than 100 threatening letters were received by various media offices and lawmakers, including National Public Radio and House of Representatives Speaker John Boehner. Authorities have yet to offer a possible motive, according to [Reuters](#).



A trial date is currently set for June 5. The security alert in February was the largest postal scare in Washington, D.C. since deadly anthrax-containing letters were sent to several Senate offices and news organizations in 2001. Seventeen people were sickened by the letters and five were killed ([Bio Prep Watch, 2012](#)).

**Title:** Russia Confirms Discovery Of Sarin Capsule

**Date:** April 10, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Security services in Russia confirmed on Monday that a capsule believed to contain sarin, an extremely toxic nerve agent, has been discovered in the county's Bryansk region.

Reports over the weekend quoted local ecological organizations as saying that residents of Bryansk brought a capsule, containing the inscription of the word sarin, to a local scrap metal recycling shop on Saturday. The capsule was then put into a sealed box, [Pan Armenian](#) reports.

"The item has been seized by police, the situation is under control," a spokesman for the Bryansk regional security services, said, according to [Pan Armenian](#).

Tests have begun to determine whether the capsule actually contains the toxic chemical. The spokesman would not speculate on where the capsule came from. A chemical weapons destruction facility is located in the Bryansk region near the town of Pocheпа. The facility stores aviation chemical bombs filled with organophosphorus chemicals, including sarin.

Sarin is an odorless, colorless liquid that is more than 500 times more poisonous than cyanide. The chemical was outlawed by the Chemical Weapons Convention of 1993. The United States, Iraq, Russia and Libya are known to have possessed stockpiles of sarin.

The Japanese cult Aum Shinrikyo used sarin during a terrorist attack in 1995 on the Tokyo subway. Ten people were killed during the attack and thousands were injured ([Bio Prep Watch, 2012](#)).

**Title:** Iowa Man Sent To Federal Prison After Violating Release In White Powder Case

**Date:** April 11, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** An Iowa man who spent time in a federal prison for sending a police officer a threatening letter containing a white powder is going back to prison for violating the terms of his supervised release.

America Yegile Haileselassie of Bettendorf, Iowa, was recently sentenced to 14 months in a federal prison at a hearing held in Davenport by U.S. District Judge John Jarvey, according to [QCTimes](#).

In September 2010, Haileselassie pleaded guilty to sending a Bettendorf detective an envelope containing a white powder and a letter saying, in part, "enjoy the anthrax spores!" The powder was tested and proved to be nothing more than a mixture of baby powder and carpet cleaner.

At the time, Haileselassie was sentenced to 21 months in federal prison, but was credited for time served since his arrest. He was ordered to serve three years on supervised release after completing his prison term.

Haileselassie violated the terms of his release in several ways before being sent back to prison, including calling the Bettendorf detective he had threatened and hanging up. He was also expelled from Scott Community College for violating the school's internet usage policy.

In addition, Haileselassie was required to secure employment, which he did not do. He also attempted to deposit a Social Security check from 2010. He later attempted to use his ATM card to withdraw funds from a bank account after fraudulently making a deposit, [QCTimes](#) reports ([Bio Prep Watch, 2012](#)).

**Title:** Elderly Georgian Militiamen Plead Guilty To Weapons, Explosives Charges

**Date:** April 13, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A group of elderly Georgia militiamen recently plead guilty to conspiring to obtain explosives and a silencer as part of a terror plot uncovered in November.

The U.S. Attorney's Office for the Northern District of Georgia said that Frank Thomas of Cleveland, Georgia, and Dan Roberts of Toccoa, Georgia, entered their pleas in federal court on April 10, according to [GSNMagazine.com](#).

Thomas, the suspected ringleader, was arrested on charges that the self-styled militia group planned to make the biotoxin ricin and use it to kill American citizens and government employees. Authorities arrested two other Toccoa men, both over the age of 65, in the alleged conspiracy.

The U.S. Federal Bureau of Investigation said that Thomas and Roberts could face five years in prison if convicted of the weapons and explosives charges.

The case is being used in Washington as an example that potential terror threats are possible from groups other than radicalized Muslims. Roberts' attorney said the plot was a fantasy concocted by a group of grumpy old men, [GSNMagazine.com](#) reports.

The four men were arrested after their group was infiltrated by a government informant who recorded their conversations about overthrowing the U.S. government by killing government officials and creating chaos throughout the country.

"Civilian government operatives is who we're going to be shooting at: IRS, ATF, FBI, and the cops," Thomas said, [GSNMagazine.com](#) reports ([Bio Prep Watch, 2012](#)).

**Title:** Neil Heywood 'Poisoned By Cyanide Drops' In China

**Date:** April 15, 2012

**Source:** [Telegraph](#)

**Abstract:** Neil Heywood was murdered on the orders of a fallen Communist Party chief, according to the reports.

The Mail on Sunday quoted "respected Mandarin-language websites" saying Mr Heywood, 41, died from cyanide poisoning after allegedly having an affair with lawyer Gu Kailai, wife of Bo Xilai, seen until recently as a future leader of China.

Mr Heywood was found dead on November 15 in Chongqing, in central China.

Britain asked China to investigate his death and it emerged last week that Mrs Gu was being probed for "intentional homicide".

The newspaper said it was alleged that Mr Heywood was murdered after helping Mrs Gu to siphon nearly £800 million of assets overseas.

A city official has allegedly confessed that he prepared the poison and handed it to an employee of Mr Bo, who administered it to Mr Heywood on the party chief's instructions.

Mr Heywood was a friend of the family of Mr Bo, a former rising star in Chinese politics who served as local party chief in Chongqing.

At the time, Chinese officials said the British expat died of "excessive alcohol consumption".

But friends questioned this, saying the businessman was not a heavy drinker.

In February, Mr Bo's former Police Chief Wang Lijun sought refuge in the US consulate in China.

It is thought he made a number of claims against the politician and Mrs Gu, including her alleged role in Mr Heywood's death.

State media reported on Tuesday that Mrs Gu and Zhang Xiaojun, an orderly at Mr Bo's home, had been arrested.

Meanwhile Mr Bo has been suspended from the Communist Party's 25-member Politburo amid allegations of "serious discipline violations".

A Foreign Office (FCO) spokeswoman said yesterday: "We are aware of the latest media reports. As there is an ongoing Chinese police investigation into this case it wouldn't be appropriate to comment further. We remain in close touch with the Chinese authorities and Mr Heywood's family."

It was reported on Saturday that the Foreign Office was facing increasing questions over delays in its intervention.

Reports said it had emerged that a British diplomat and two Chinese policemen attended Mr Heywood's cremation in Chongqing shortly after he was killed.

But the British did not raise questions with the Chinese until three months later, despite locally based British businessmen urging the Foreign Office to intervene, the newspaper said.

An FCO spokesman said: "As we became more concerned about this case, including following suggestions from the business community, we took the decision to ask the Chinese authorities to launch an investigation.

"We acted as soon as we thought concerns about the case justified it.

"We are pleased that the Chinese have now launched that investigation. We were in constant contact with the family throughout and kept them informed of our actions."

Prime Minister David Cameron said on Wednesday during a Far East tour that he was pleased the Chinese authorities were taking action over the murder.

He said: "We did ask the Chinese to hold an investigation and we are pleased that they are now doing that.

"It is very important we get to the truth of what happened in this very disturbing case, this very tragic case."

Mr Heywood had lived in China for 10 years and was fluent in Mandarin. He had two children with his Chinese wife ([Telegraph, 2012](#)).

**Title:** Oregon Man Sentenced For Anthrax Hoax

**Date:** April 19, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** The perpetrator of an anthrax hoax was recently sentenced to prison for threatening a postal carrier in Oregon with the deadly biological agent.

Kelsey Van Hook was sent to federal prison for one year and one day for placing a white powder in a mailbox and claiming it was anthrax, according to [OregonLive.com](#).

In 2009, a U.S. postal carrier in Oregon City, Oregon, pulled a stack of envelopes out of a mailbox and noticed that his hands were covered in white powder. Among the envelopes was one with a message that read, "anthrax what now mr mailman(?)"

The postal worker immediately contacted his supervisor. A postal inspector soon arrived to conduct field tests on the substance. The testing determined that the substance was harmless. Later, it was identified as cream of tartar.

Van Hook recently stood before U.S. District Judge Anna J. Brown in a Portland courtroom where he apologized for committing the act along with a friend. He also said he was sorry for failing out of a diversion program that would have eliminated his felony record.

"I screwed up and I'm sorry for doing it," Van Hook said, [OregonLive.com](#) reports.

In addition to prison time, Brown also sentenced Van Hook to three years of post-prison supervision and 50 hours of community service. Brown told Van Hook that he should earn his GED while behind bars and grow up ([Bio Prep Watch, 2012](#)).

**Title:** Fla. Man Charged With Mailing Powder And Threats

**Date:** April 23, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A Miami Gardens, Florida, man charged with mailing threatening letters that contained powder to the Broward County Courthouse and the Broward Sheriff's office was ordered held without bail on Friday.

Tarvess David Taylor was arrested after investigators found forensic evidence that connected him to the hoax letters. He was held without bail because he may still pose a threat to the community. Five envelopes he allegedly sent contained a powder, later found to be the cleaning substance Ajax, the [Sun Sentinel](#) reports.

Taylor also allegedly sent four expletive-filled anonymous letters that threatened himself and his family in October.

One employee who came into contact with the powder suffered a burning sensation on their hands and in the eyes, and the sheriff's office headquarters and the main county courthouse closed for a short period of time after the envelopes were found.

Taylor pleaded not guilty to five counts of making a hoax threat on Friday. Taylor was already facing multiple felony charges in state court due to an incident in December 2008 when he allegedly tried to run over a Pembroke Pines police office.

"Although the powder contained in the envelopes mailed by the defendant contained non-biohazardous materials, they nonetheless caused anxiety and emotional distress to the recipients and incurred a disruption of government operations," Michael Walleisa, a prosecutor on the case, said, according to the [Sun Sentinel \(Bio Prep Watch, 2012\)](#).

**Title:** London Siege Ends As Man With Gas Canisters Arrested

**Date:** April 27, 2012

**Source:** [Independent](#)

**Abstract:** More than 1,000 office workers were evacuated from Tottenham Court Road in London today after a man wearing gas canisters took office workers hostage and threatened to blow himself up.

Tube stations were closed, businesses evacuated and the capital's busiest shopping street shut as armed police laid siege to the central London office just weeks before the Olympics take place.

The suspect, thought to be enraged after failing a HGV training course, was removed from Shropshire House in Tottenham Court Road by police officers who then began searching the building.

The [Metropolitan Police](#) said: "We have arrested a man at Tottenham Court Road. A search of the building is under way.

"We are not aware of any hostages at this stage. Search of the building continues on Tottenham Court Road."

The central London street was closed after police received emergency calls at midday.

[Scotland Yard](#) sent a hostage negotiator to the scene amid reports that the man was holding people captive inside the building several floors up.

Pictures emerged of computer and office equipment being thrown through one of the office windows.

Abby Baafi, 27, the head of training and operations at Advantage, a company which offers HGV courses, said the man targeted her offices and held four men hostage.

In a [YouTube](#) video Ms Baafi said the man, calling himself [Michael Green](#), entered her office.

"I recognised him because he was one of our previous customers but he is not quite stable - mentally stable," she said.

"He turned up, strapped up with gasoline cylinders, and threatened to blow up the office.

"He said he doesn't care about his life.

"He doesn't care about anything, he is going to blow up everybody.

"He was specifically looking for me but I said 'My name's not Abby' and he let me go."

Ms Baafi said the man failed the HGV training course and wanted his money back.

The man was named at the scene as Michael Green, 49.

Sarah O'Meara, who also works for the [Huffington Post](#), said they evacuated their offices in nearby Capper Street after being alerted by a woman who ran into the building.

"A woman ran in off the street saying 'There is a guy with a bomb and he is threatening to blow himself up' and that we needed to evacuate," she said.

"Everyone got out."

John Lillis, a consultant at furniture shop Designer Sofas, witnessed the incident unfold from the back of his showroom.

He said: "The buses had been stopped and there was an ambulance crew there, as well as police cars. The road was then cordoned off.

"The police asked us to move to the back of the showroom.

"I looked across the road to an office block opposite our showroom, and I saw computer screens and computers come out of the window, and then a filing cabinet.

"About half an hour after it all started, we were asked to move behind the cordon on Goodge Street, and it has moved back further since then."

Asked if he could see who was throwing the items out on to the street, he said: "All I saw was someone in a shirt, I couldn't see him or her."

Rajesh Kalia, of Goodge Law solicitors, who works two floors below where the incident was unfolding in Shropshire House, said: "We were in the office and suddenly we were told by the police that there was some problem in the building and asked to evacuate immediately.

"The police were very clear about the instructions. There was no panic or anything but they were very firm and got everybody out of the building very, very quickly.

"I overheard someone say that there was a man in there with some wires coming out of his jacket.

"Now, I don't know how much of that is true but that's the impression they gave us.

"They mentioned something about a flame-thrower, the jacket and wires coming out of it, and that's about it.

"We're two floors below where this was happening.

"We heard some shouting in the stairwell and then were asked to leave by the police so I think the police got there pretty quick."

It is not known how the suspect arrived at the scene, whether by vehicle or on foot ([Independent, 2012](#)).

**Title:** Milwaukee Man In Custody For Mailing Suspicious Envelope

**Date:** April 30, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A man has been taken into custody after he filmed himself mailing a suspicious package on Milwaukee's lower east side and notified multiple media outlets on Saturday.

The man said that the envelope, addressed to the Department of Workforce Development, was laced with anthrax. Milwaukee police shut down streets near the mailbox and investigated the package, which turned out to be a hoax, [FOX 6 News](#) reports.

The incident occurred at the corner of Knapp St. and Astor and forced the closure of the two streets from 5:30 p.m. to 8:30 p.m. No businesses were closed and no evacuations took place during the incident.

The man, who has not yet been named or charged, recorded a video of himself mailing the letter with a woman by his side. He spoke nonsense during the recording, mailed the letter and sent an email to multiple news outlets in Milwaukee stating that a letter laced with anthrax could be located at East Knapp St. The emails contained a link to the video, according to [Fox 6 News](#).

The person who allegedly made the threat used to work at Accurate Metal Products, where he used computers to draw up designs. After getting the job in February, he was fired in early April following a conflict that took place between the man and a co-worker. One video showed the man making threats against his former employee. He was arrested after the incident on Saturday evening ([Bio Prep Watch, 2012](#)).

**Title:** Woman Accused Of Putting Bleach In Daughter's Eyes

**Date:** May 1, 2012

**Source:** [Fox 8 News](#)

**Abstract:** Prosecutors have accused a Washington state woman of repeatedly putting bleach into her daughter's eyes, causing permanent vision loss in the toddler's right eye.

Jennifer Mothershead was arrested Friday and was charged with assault after a lengthy investigation.

Authorities say her daughter was airlifted to Harborview Medical Center in Seattle in May 2011 after sustaining a serious head injury. The girl, who was 14 months old at the time, also had an eye infection. Doctors called the Pierce County Sheriff's Department because they suspected the head injury was a result of abuse.

Mothershead told a detective her daughter started to have an eye issue in March 2011 after playing in a barn. She said the girl received antibiotics and eye drops, but Mothershead didn't provide an explanation for the head injury and, according to the detective, didn't show any emotion about her daughter's injuries.

The detectives placed the girl in state protective custody.

Mothershead had brought the eye drops to the hospital, and a staff member later opened the drops and noticed a foul odor.

Investigators sent the drops to the Food and Drug Administration's Forensic Chemistry Lab for analysis. The lab determined the drops contained bleach.



"The staff at Harborview determined that the damage to the child's eyes was consistent with repeated exposure to bleach, and ruled out any possibility that the eye dropper had been merely cleaned with bleach," prosecutors said in a statement.

The girl's condition improved in the hospital, but doctors noted she'd lost vision in her right eye. The girl now lives with her father.

Mothershead, 29, of Buckley pleaded not guilty to first-degree assault of a child Monday. Mothershead was ordered held in lieu of \$150,000 bail ([Fox 8 News, 2012](#)).

**Title:** Minnesota Authorities See First Case Of Chemical Suicide

**Date:** May 2, 2012

**Source:** [Fox News](#)

**Abstract:** Authorities in eastern Minnesota say first responders are dealing with a new and dangerous phenomenon -- chemical suicide.

Washington County Sheriff's Cmdr. Brian Mueller says his department dealt with its first case over the weekend. A person had committed suicide by mixing household chemicals in a bucket, creating a deadly gas. The body of a man from Prescott, Wis., was found in a car in Point Douglas Park.

Mueller says when first responders arrived they detected a faint smell of chemicals and called St. Paul hazardous materials squad. He says more training is needed for first responders because they "may not know what they're walking into when they open the car door."

Mueller tells the St. Paul Pioneer Press the haz-mat squad has dealt with similar incidents in the Twin Cities metro area ([Fox News, 2012](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following propaganda was published within the calendar year of 1998. While some of the following reports may have been legitimate news stories, most if not all of them appear to be blatant propaganda with the overall goal of convincing American and the World that it is on the precipice of a bio-terror induced pandemic. The fact that this propaganda exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and military control of society.

**Title:** Defeating Biological Warfare

**Date:** December 1, 1998

**Source:** [Wired](#)

**Abstract:** For Americans, who feel snug and secure behind the shield of unparalleled military power, the thought of biological warfare raises a frightful specter. Its effects are devastating, it is indiscriminate, it is easily concealed.

But help may be coming.

A new technology designed to quickly spot biological terrorist attacks has been developed by researchers at the [Los Alamos National Laboratories](#) in New Mexico. The technique, which zeroes in on the protein toxin that causes cholera, may also be used in hospitals to detect the chemical signature of cholera well before an outbreak hits.

"For cholera [detection], it is just as good as the best lab-based method but a lot faster, much simpler," said project leader Basil Swanson.

He said the technique is also better than DNA sequencing -- a traditional method for identifying cholera -- since it can be used to isolate the organism that produces the toxin rather than simply identifying the toxin itself.

At the moment, the Los Alamos technique is limited to cholera detection, but there are plans to adapt it for identifying other dangerous biological agents as well.

"Each protein toxin is a different story in its own right," Swanson said. "The technique is flexible, but we still need to develop the appropriate recognition molecules to do each one."

Proteins, however, are not the only toxins that could be used in biological weapons.

"There are other ways that organisms can actually act to cause damage, so this would not be a panacea for detecting every possible biological agent," said Leland Rickman, medical director of the epidemiology unit at the [University of California San Diego Medical Center](#).

The Los Alamos technique generates a signal when a cholera toxin is present. Special molecules latch onto the cholera which, when struck with a pulse of laser light, become fluorescent.

The detection aspect of the technology is small enough to be portable, but the tool that measures the fluorescent response -- a flow cytometer -- isn't.

"Flow cytometry is a lab-based instrument and not a small fieldable sensor," Swanson said. "[But] flow cytometry has been adapted to the Biological Integrated Detection Systems that the Army uses for detection of biological-agent release in military situations."

BIDS, a mobile lab housed in a Humvee, is the best equipment currently available for detection, using immunoassay-based approaches to isolate the agent. Although BIDS is too cumbersome for immediate response, researchers hope it will soon be portable enough to carry their new technology.

It's important that some method of portability be devised. Until researchers prove the technique can work outside the lab, it remains on the shelf alongside other methodologies that are unavailable for field use, Rickman said.

"It's an innovative study and actually quite elegant," he said, "so it looks like a promising technique. However, it doesn't appear to have been validated in the field and there's a long way from the lab to the field" ([Wired, 1998](#)).

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**Title:** Silent Weapons: Growing Fear Of Bioterrorism Prompts Action

**Date:** July 26, 1999

**Source:** [Nurse Week](#)

**Abstract:** Civilian nurses could well be the first responders to a bioterrorist attack—but they might not realize it initially. Victims could look as if they had the flu or a cold. But if the weapon were aerosolized anthrax, those seemingly commonplace symptoms might escalate to respiratory distress and death in only a couple of days for thousands of victims, experts warn.

What was once the exclusive realm of the military has become a leading public health concern. Although the armed forces have long been interested in biological weapons, nonmilitary organizations such as the national Centers for Disease Control and Prevention (CDC), the Association for Professionals in Infection Control and Epidemiology Inc. (APIC), the American Public Health Association (APHA), and disaster planners nationwide are beginning to focus on bioterrorism.

"It wouldn't be the military who are responding to the patients," explained Donna E. Davis, MPH, project director for Public Health Grand Rounds for the University of North Carolina at Chapel Hill. In June, the school in conjunction with the CDC presented a program on bioterrorism.

### What's the Difference?

Previously, civilian training for responding to bioterrorism went to traditional first responders to a tragedy, such as police, firefighters, and rescue workers, said D. A. Henderson, MD, MPH, director of the Johns Hopkins University Center for Civilian Biodefense Studies in Baltimore. The organization was established in September 1998 to spearhead efforts to respond effectively to bioterrorist threats.

"When it comes to a biological event, that's an epidemic," Henderson said. "The whole first responder group is different than for chemical or explosive events." Victims will likely initially trickle into emergency rooms and healthcare facilities looking for relief of symptoms such as nausea, respiratory problems, fever, or myalgia. Health professionals need a good understanding of potential biologic agents and of the appropriate response to the resulting disease to minimize its effect and spread.

Detecting bioweapons is difficult. They leave no visible fingerprint until their toxins steadily decimate a population. Unlike nuclear weaponry, biologic agents require no telltale equipment to produce. "Purely from a public health standpoint," said Mohammad Akhter, MD, MPH, executive director of APHA, "the

threat is real because these are concealed substances that can't be detected by any means that we know."

### **Silent Assault**

This insidious nature is one of the foremost challenges of reacting to bioterrorism. Attacks will likely transpire without fanfare, such as the silent release of an agent like anthrax or smallpox, experts predict.

"We're not likely to know that it occurred until the first case is diagnosed," said certified infection control nurse Judith English, MSN, RN, chair of the bioterrorism task force for APIC and head of the infection control branch of the infectious diseases division at the National Naval Medical Center in Bethesda, Md. "It doesn't smell; it's invisible. It would just be by syndromes— which healthcare providers need to be aware of— that an attack could be identified," she said.

Timely response requires recognizing an assault's aftermath quickly. Bioterrorism needs to be in the back of all health professionals' minds whenever they begin to see large numbers of patients with similar symptoms, said Rachel Stevens, EdD, RN, director of the public health nursing program at the University of North Carolina at Chapel Hill. "A cluster of similar symptoms should make any nurse suspicious," Stevens said. A close look at the epidemiology of the outbreak could then confirm or refute bioterrorism as the source and set in motion effective response measures.

### **Healthcare Response**

Key to an efficient response, English said, is having policies and procedures in place that can be accessed readily. She is co-author of *Bioterrorism Readiness Plan: A Template for Healthcare Facilities*, a joint project of APIC and the CDC. The plan can be downloaded from either agencies' Web sites free of charge ([www.apic.org/html/educ/readinow.html](http://www.apic.org/html/educ/readinow.html) and [www.cdc.gov/NCIDOD/HIP/Bio/bio.htm](http://www.cdc.gov/NCIDOD/HIP/Bio/bio.htm)) and can be easily modified to meet a facility's needs. The guide divulges agent-specific recommendations for anthrax, botulism, plague, and smallpox. It also describes infection control practices, postexposure management, patient information, and reporting requirements.

Even if terrorism hasn't been determined as a cause, suspicious symptoms need to be reported immediately to local infection control personnel, hospital administration, and local and state health departments, English said. She recommends notifying the FBI field office, local police, the CDC, and medical emergency services. The readiness plan includes phone numbers for many of these agencies and leaves room to write in local numbers.

Communication between agencies is critical to a coordinated effort, said Raouf Arafat, MD, MPH, chief of epidemiology for the City Health Department in Houston. Too often, health professionals delay contacting the health department to report suspicious signs and symptoms, no matter what the origin. Hesitancy in reporting can obscure the big picture and hamper spotting an outbreak in the early stages, he said.

Nurses' roles after a bioterrorist incident would be similar to their usual jobs. "Infection control professionals would do the gumshoe investigation: Where was this person that could have been exposed to this organism that has been diagnosed?" English said. "We have this experience in our daily work life."

But the scope would probably be on a much larger scale in the event of bioterrorism, Henderson said. "A lot of disease goes around, whether at a church picnic or whatever, but it doesn't bring a city to its knees," he said. Anthrax, smallpox, plague, botulism, hemorrhagic fevers, and other biologic agents could cripple a city's population and its economy.

### **Preparation as Deterrence**

“The better prepared we are, the less likely we are to have such an event,” Henderson said. “If it’s recognized that we’re prepared to respond quickly and effectively, then a biological weapon is less likely to be selected for use.”

By being prepared for a possible bioterrorist attack, healthcare systems are also ready to combat naturally occurring infections, he said. “What we need to do is come out of the complacency we’ve had about infectious disease,” Henderson said. Many people feel that infectious disease is confined to our past, he said, yet new virulent diseases are developing all the time. Henderson cautioned, “We’ve got to be alert and ready to deal with new and emerging infections, whether natural or man-made” ([Nurse Week, 1999](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following propaganda was published within the calendar year of 2001. While some of the following reports may have been legitimate news stories, most if not all of them appear to be blatant propaganda with the overall goal of convincing American and the World that it is on the precipice of a bio-terror induced pandemic. The fact that this propaganda exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and military control of society.

**Title:** Deadly Virus Fuels Bio-Terror Fears

**Date:** January 10, 2001

**Source:** [BBC](#)

**Abstract:** Scientists who accidentally created a deadly version of mouse smallpox in the laboratory say lethal human viruses are only a step away.

The prospect of such dangerous organisms being produced relatively easily have left bioterrorism experts fearful of killer global epidemics.

The Australian researchers, reports New Scientist magazine, made one simple genetic change to a "mousepox" virus in an attempt to produce an effective contraceptive vaccine.

"Mousepox" normally causes only mild illness, and when all the animals undergoing the experiment died within days, they realised the potential of their discovery.

They say a similar change in human smallpox could produce a far more virulent strain which could even be resistant to vaccines.

Many scientists across the world are making subtle genetic modifications to disease-causing, or pathogenic, viruses, in order to carrying gene therapies into the body's cells.

In this case, a gene which produces a body chemical called interleukin-4 was inserted into the mousepox virus.

The idea was to stimulate an immune reaction against mouse eggs, with a contraceptive effect - but the effect was to completely suppress the part of the immune system normally mobilised to fight viral infection.

Dr Ron Jackson, who led the research, said: "It would be safe to assume that if some idiot did put human IL-4 into human smallpox they'd increase the lethality quite dramatically."

Smallpox infection is already believed to have an approximate mortality rate of 30% - an increase, coupled with the natural contagiousness of the virus, could be devastating, say experts.



In addition, vaccination against mousepox appeared to have far less of a protective effect for those infected with the new strain.

In fact, only half those mice vaccinated survived infection.

### **Vaccine Fear**

Experts say tiny genetic modifications may not only increase the virulence of a virus, but also render existing vaccines useless.

Professor John Bartlett, co-director of the Johns Hopkins Center for Civil Biodefense Studies in Baltimore, US, told BBC News Online: "I wouldn't have thought you would need anything more virulent than smallpox already is to cause a global epidemic.

"There is a lot of concern about it - the entire world is vulnerable because no-one has immunity."

He added: "If a new vaccine needs to be developed from scratch, we are talking about several years minimum.

"There are enough rogue nations and dissidents trying to do this."

He named several countries for which he said there was evidence of the development of biological weaponry. One had taken the precaution of inoculating its soldiers against smallpox.

A spokesman for Friends of the Earth told BBC News Online: "This is very worrying for us, and shows how unpredictable genetic engineering can be.

"We simply don't know enough to allow these experiments at present."

He called for much closer scrutiny of laboratory experiments.

So did Susan Meyer, of pressure group Genewatch, who is calling for more openness on the part of the biotechnology industry.

She said: "This discovery should really alert people to the fact that genetically altering organisms can have unexpected outcomes.

"Things don't stay in the lab all the time. You can have single gene changes that can make a big difference."

A spokesman for the Ministry of Defence's biological research facility at Porton Down said: "Making scientists aware of the full potential of their discoveries is important, but inevitably it carries the same risk in bringing possibilities to the attention of the unscrupulous.

"We seek to be aware of what possibilities are open to aggressor countries or terrorists. By the nature of things, this is always a game of catch-up.

"And there are already so many possibilities that absolute protection is not possible without the sort of constraints that are not acceptable in a free society."

Smallpox, a much feared disease in the 20th century, was eradicated by a massive vaccination programme.

The US recently decided to retain some stocks of the virus for experimental reasons, even though some scientists were clamouring for all stocks to be destroyed.

The disease presents as severe headache and fever, with the trademark sores appearing after a few days.

The last confirmed outbreak of smallpox was in 1977 in Somalia - later that year, the World Health Organisation declared the disease eradicated ([BBC, 2001](#)).

**Title:** Biden: Bioterrorism More Of A Threat Than Missiles

**Date:** September 5, 2001

**Source:** [CNN](#)

**Abstract:** Seeking to deflect Congress from President Bush's proposal for a missile defense system, Senate Foreign Relations Committee Chairman Joseph Biden said his committee would concentrate on the threat of bioterrorism during the current Congressional session.

"In my view, the threat from anonymously-delivered biological weapons and from emerging infectious diseases simply dwarfs the threat that we will be attacked by a third-world ICBM with a return address," the Delaware Democrat said. "This committee will spend a lot of time" on that issue.

Biden and other senators said the administration's 2002 budget allotment of \$182 million for combating bioterrorism was not enough, and called for laws banning the possession of deadly agents such as anthrax, botulism and smallpox.

The panel's ranking Republican, retiring Sen. Jesse Helms of North Carolina, agreed but said "a robust missile defense system" could also prevent attack using a missile armed with a biological weapon.

Former Senator Sam Nunn, a Georgia Democrat who was at one time chairman of the foreign relations committee, told the committee he would put the biological threat to U.S. national security "near the top of the list." Without cooperation with Russian scientists, he said, the danger cannot be significantly reduced.

"We cannot solve it by ourselves," Nunn said, advocating a joint program to be started by President Bush and Russian President Vladimir Putin "to work together to develop vaccines and other defenses."

Former CIA Director James Woolsey said a biological attack on the United States by terrorists or an enemy state is the most serious threat the nation faces from weapons of mass destruction, in part because the weapons are easy to make and to conceal.

"Often you don't even have to smuggle anything," said Woolsey. "Anthrax grows in many cow pastures in the world and much of the equipment one would need to weaponize it is transportable. Some of it is little more complex than that for, say, a microbrewery attached to a restaurant" ([CNN, 2001](#)).

**Title:** Anthrax, Smallpox, Vx: The Inferno Next Time

**Date:** October 17, 2001

**Source:** [All Africa](#)

**Abstract:** Recriminations have started in America following the worst terrorist attack in the history of any nation. The only consolation is that this could have been a thousand times worse not only for America but for the whole world.

As the true extent of the tragedy sinks in - perhaps 20,000, perhaps 30,000 dead (half the number of young Americans who perished in Vietnam) - the world's most powerful nation could turn inwards again and become introverted vis-a-vis Africa, the most neglected continent ([All Africa, 2001](#)).

**Title:** Anthrax In Parcel Sent To Nairobi Doctor

**Date:** October 17, 2001

**Source:** [High Beam](#)

**Abstract:** An anthrax alert was flashed to health headquarters in Nairobi yesterday after a white powder feared to contain the deadly bacteria was found at the United Nations in Gigiri.

The powder was in a parcel sent from Pakistan, one source said.

Another parcel mailed from Georgia in the United States also contained the suspect powder, it was believed.

The parcels were detected by security staff at the United Nations Environment Programme headquarters and were immediately put in polythene bags and taken to the Ministry of Health.

The discoveries sent ministry officials into a crisis meeting which went on late into the evening ([High Beam, 2001](#)).

**Title:** Anthrax In Parcel Sent To Nairobi Doctor

**Date:** October 19, 2001

**Source:** [Telegraph](#)

**Abstract:** A Kenyan doctor has been sent a package containing anthrax bacteria, authorities in Nairobi said yesterday.

It is the first such attack outside America and heightens fears that biological weapons could be used anywhere in the world.

The anthrax was in a package sent to the doctor in Nairobi by his brother in America. It had been tampered with while in transit in Florida.

Tests were being carried out on two other suspicious letters, one of which was sent to the United Nations Environment Programme, which has its headquarters in Nairobi, from Pakistan. Up to 10 of its employees were being treated with antibiotics as a precaution.

Kenya's health minister, Sam Ogeri, said all three packages contained a powdery substance. He declared a state of alert. Officials linked the cases and said they believed Osama bin Laden was a likely suspect.

"It is bio-terrorism," Julius Meme, Kenya's director of health, said. "We are under attack again.

"Kenya was bombed in 1998 by terrorists and now this attack seems to follow in the pattern of what is happening in the United States."

Four men linked to bin Laden were sentenced to life imprisonment in New York yesterday for their roles in the bombings of the American embassies in Nairobi and Dar es Salaam in 1998, in which 224 people were killed, 202 of them Kenyans.

This is the only trial so far of any of bin Laden's followers. It would not have taken place without the help of Kenyan intelligence during the investigation.

President Daniel arap Moi of Kenya has pledged total support for America's war on global terrorism and has agreed to provide logistical help to the US military.

His stance has provoked fierce opposition from the country's Muslims, 2,000 of whom held a pro-bin Laden demonstration in Nairobi a week ago.

The doctor who received the letter containing anthrax bacteria has not been named but officials said he and three other people who came into contact with it were being treated with antibiotics. It is not yet known whether they have developed the disease.

The package, containing cloth samples, was posted in Atlanta by a relative of the doctor on Sept 8, three days before [the attacks on New York and Washington](#).

According to Prof Meme, the package, posted express, was diverted through Miami in Florida "at a time when some of the September 11 hijackers were known to be in the state". He said the bacteria were probably put in after it was posted.

The parcel did not arrive in Kenya until Oct 9 and was opened by the doctor's secretary two days later.

"She handed it to him and it was soggy and mouldy," Prof Meme said. "He took the envelope home and after a day or so he became suspicious and brought it to a hospital for analysis."

White powder was also found in a parcel sent to the UN from Pakistan. It was removed in polythene bags and taken to the Health Ministry for further analysis.

The third parcel was sent to a businessman in the town of Nyeri. It was allegedly posted in Nairobi. Mr Ongeru said it contained a pink powder ([Telegraph, 2001](#)).

**Title:** Top Security Lab Established To Deal With Terrorists' Bugs

**Date:** October 19, 2001

**Source:** [High Beam](#)

**Abstract:** A high security laboratory has been set up at the Kenya Medical Research Institute to deal with biological weapons attacks more serious than the anthrax one.

The institute is also stockpiling testing reagents for such germ-based diseases spread by terrorists.

According to Dr Gabriel Mbugua, director of Kemri's Centre for Microbiology Research and head of the laboratory team in charge of testing suspect samples in the current anthrax scare, the country has enough capacity to test any number of anthrax samples.

"Anthrax is a fairly ordinary organism and we have the necessary personnel, lab equipment, reagents and know-how to test..."([High Beam, 2001](#)).

**Title:** Kenya No Stranger To Anthrax

**Date:** October 19, 2001

**Source:** [High Beam](#)

**Abstract:** Kenya is no stranger to anthrax. There has been a recent resurgence in the disease - commonly found among domestic animals and wild game - due to a breakdown in vaccination services.

What is new in the bioterrorism scare is the use of powder anthrax bacteria to deliberately infect people...([High Beam, 2001](#)).

**Title:** Deputy Speaker In Anthrax Fear At Mystery Mail

**Date:** October 19, 2001

**Source:** [High Beam](#)

**Abstract:** Parcels to Kenya's Deputy Speaker and a doctor at a leading hospital were among nine feared to contain anthrax spores. Deputy Speaker Joab Omino's and five of the others were cleared by scientists at the Kenya Medical Research Institute - but the Nairobi Hospital doctor's packet was found to contain the potentially deadly bacteria. The scientists were last night checking two other letters which were received in the capital only hours before. Mr Omino said he decided not to open his letter because he could not tell where it had come from. Instead, it was handed to the police. The alert came as an increasing number of...([High Beam, 2001](#)).

**Title:** Parcel Taken For Tests as Firms Step Up Security

**Date:** October 20, 2001

**Source:** [All Africa](#)

**Abstract:** The envelope businessman Martin Njoroge Nduati received from Barclays Bank containing a white powder looked substandard because it did not bear the bank's logo, he said. However, another envelope inside the larger parcel was complete with the logo, and was self-addressed to the bank's Nairobi Area Manager ([All Africa, 2001](#)).

**Title:** Govt Bodies Form Anthrax Task Force

**Date:** October 20, 2001

**Source:** [All Africa](#)

**Abstract:** Health and security departments have formed a joint task force to deal with Anthrax, the bioterrorism threat. The move comes a day after a Kenyan businessman received a letter stuffed with anthrax germs. Three other members of his family were exposed to the germs ([All Africa, 2001](#)).

**Title:** Bioterror Drills Showed U.S. Not Ready

**Date:** October 21, 2001

**Source:** [SF Gate](#)

**Abstract:** Terrorism experts warned for years that federal, state and local governments were ill-prepared to handle a biological attack, and elaborate drills found glaring gaps in coordination, communication and command. This month, real life looked frighteningly like the practice runs.

As the nation grappled with anthrax, the FBI at first took a letter that turned out to be harmless from NBC News to a New York City Health Department laboratory for testing, and when the letter containing anthrax was finally tested days later, technicians accidentally contaminated a special chamber in the lab, forcing its closing.

Officials in Florida told executives at a tabloid newspaper office on a Friday that there was no reason to close shop because a photo editor had died of anthrax, then shut the office down that Sunday after much of the staff had worked there all weekend.

And nowhere was confusion worse than at the seat of government on Capitol Hill. When more than two dozen workers were exposed to anthrax from a letter opened in the office of the Senate majority leader, Tom Daschle, House Speaker Dennis Hastert suggested wrongly that people were already "infected" and that spores were in the ventilation system. He sent his members home, while the Senate, which had raised the alarm, closed its offices but met as usual.

So far, one person has died and a handful out of thousands tested have been infected and are responding to treatment with antibiotics or are cured.

But repeated confusion about coordination, communication, politics, bureaucracy and science amplified on television and the Internet 24 hours a day also exposed many of the basic weaknesses in the nation's sprawling and disparate emergency response system that the experts had warned about.

It was just the kind of confusion that drills like "Dark Winter" -- a make-believe smallpox attack staged this summer by several think tanks -- had shown might occur.

"Today is a horrific reprise," said Gov. Frank Keating of Oklahoma, who played himself in the exercise, in which a million people were "killed," public order collapsed, state and federal officials disagreed over how to handle the situation and put out information, and the National Security Council wound up discussing the need for martial law.

Senior government officials say they have learned painful lessons about what and what not to say and do in the future. By Thursday, the White House, realizing it had allowed public confusion to fester, began staging daily briefings with its new chief of domestic security, former Gov. Tom Ridge of Pennsylvania, and top doctors and officials from a bevy of affected agencies.

The missteps began early. Even as Robert Stevens lay dying of anthrax, Tommy Thompson, the secretary of health and human services, suggested it was an isolated case, perhaps contracted by drinking from a stream, a possibility scientists immediately dismissed as unlikely.

Such comments, and the subsequent stinginess of federal law enforcement and health officials in releasing information, fueled rather than calmed public fears.

"It started from the very beginning, when they said Mr. Stevens was an isolated event and we thought they were checking sheep in North Carolina," said Rep. Robert Wexler, whose district includes Boca Raton, Fla., where Stevens worked for American Media.

New York City had been preparing for the biological or chemical attack it hoped it would never face since at least 1997, when officials staged an elaborate drill that involved hundreds of city workers, more than 40 hospital emergency rooms and executives from an array of critical industries.

But when anthrax began coming in letters to news organizations, both the FBI and city health technicians made serious blunders and bureaucratic rivalries broke out between New York City officials and the FBI, both sides acknowledged.

The FBI did not initially notify the police of a report of a suspicious letter at NBC News and later pressed for more extensive environmental tests than the city wanted at ABC, where the infant son of a news producer was presumed to have been infected, although no contamination was found there.

When the FBI was first contacted about a suspicious letter at NBC on Sept. 25, it did not show up until the next day. The officials did not move to test the letter immediately for anthrax spores, and did not follow protocol and alert the city police.

There was confusion because the suspicious letter first produced by NBC and handled by Erin O'Connor, an aide to Tom Brokaw who had developed a rash, turned out to be harmless and tested negative for anthrax.

But the most embarrassing mistake occurred when two technicians in the city Health Department laboratory moved to test this letter. Working in an area known as a biological safety cabinet equipped with a powerful exhaust fan designed to pull out contamination, they kept the blower turned off, concerned that when they opened the letter it might suck out the anthrax spores before they could be examined.

The technicians worked in gloves and a mask, yet somehow the anthrax contaminated the laboratory and exposed the technicians to minute amounts of bacteria. They were given antibiotics as a precaution.

At the moment the city needed the laboratory most, it was briefly knocked out of commission, and the city had to turn to the state Health Department's Wadsworth Center for Laboratories and Research in Albany for help.

On Capitol Hill, the response was just as chaotic. Only the week before the Daschle incident, Congress had put the final touches on its own arrangements with the National Naval Medical Center and an army laboratory in Fort Detrick, Md., to help in cases of bioterrorism.

Some congressional officials were receiving briefings about the plan on Monday morning, about the time an aide in Daschle's office in the Hart Senate Office Building opened a letter and saw white powder spill out. Soon, with their two-story office suite under quarantine, about 40 members of Daschle's staff had what one aide, Jay Carson, called the "surreal moment" of watching the television coverage of themselves as the latest victims of terrorist attack.

Officials now acknowledge that there were mistakes in their initial response. It took 30 to 45 minutes to shut down the ventilation system serving the southeast quadrant of the bustling building. The first police officers on the scene had no protective suits and are counted among the 28 people who eventually tested positive for exposure.

But nothing was more confusing than the accounts of the politicians themselves about the gravity of the threat.

On Tuesday, after experts from the military and the FBI briefed senators, Daschle told reporters, "We were told it was a very strong form of anthrax, a very potent form of anthrax, which clearly was produced by someone who knew what he or she was doing" ([SF Gate, 2001](#)).

**Title:** Union Wants Anthrax Vaccine For Workers

**Date:** October 22, 2001

**Source:** [High Beam](#)

**Abstract:** The Union of Posts and Telecommunications workers want mail handlers vaccinated as the anthrax scare spreads. The protective gear given to workers by the Postal Corporation of Kenya was not enough, the Nairobi branch of the Union of Posts and Telecommunications said yesterday. Mr Abel Nandwa, the branch secretary, said "Vaccination against anthrax is considered more effective than body protective gear." The vaccination, he said, should extend to employees of DHL, UPS, TNT Express and other courier service organisations. Mr Nandwa said workers have been scared by the threat of bioterrorism. He called for the setting u...([High Beam, 2001](#)).

**Title:** Anthrax Scares Kampala

**Date:** October 23, 2001

**Source:** [All Africa](#)

**Abstract:** The National task force on bioterrorism is investigating two anthrax scares reported in Kampala yesterday, health ministry officials have said.

Dr. Sam Okware, the commissioner for community health, said samples from two suspicious parcels had been taken for testing and results would be out today ([All Africa, 2001](#)).



**Title:** Personal Vendetta Blamed For Grahamstown Anthrax Scares

**Date:** October 24, 2001

**Source:** [All Africa](#)

**Abstract:** A personal vendetta was blamed for anthrax letter scares at two co-owned businesses in Grahamstown yesterday afternoon.

Two addressed envelopes containing palm-full amounts of a mystery white powder were received at the popular Fruit & Veg City off Church Square and Marvics fruit and vegetable wholesalers in Beaufort Street near the Grahamstown police station ([All Africa, 2001](#)).

**Title:** State Truth On Anthrax

**Date:** October 25, 2001

**Source:** [High Beam](#)

**Abstract:** What we really need is a terse statement once and for all whether or not Kenya has been invaded by human anthrax.

A spokesman yesterday insisted on the Government's earlier affirmation that powder contained in external mail contained the deadly germs.

He was commenting on a claim by the local office of the US Centres for Disease Control (CDC) that its own tests had proved wrong the Government's earlier finding.

Yet there may be a common denominator. Kenya's statement was referring specifically to powder posted from the US. Powder posted from Pakistan and elsewhere had proved harmless.

That was what raised doubts in...([High Beam, 2001](#)).

**Title:** US And Kenya Experts Clash Over Anthrax

**Date:** October 25, 2001

**Source:** [High Beam](#)

**Abstract:** Experts in Kenya and the US have differed sharply over whether a parcel sent to a Kenyan doctor actually contained anthrax.

Less than a week after Health Minister Sam Ongeru announced that the parcel did contain anthrax, the US said yesterday that its own tests showed no trace of the deadly bacteria.

The Kenya government however insisted that tests by the Kenya Medical Research Institute (Kemri) which showed the presence of anthrax spores "were 100 per cent correct".

The parcel - one of 43 examined by Kemri but the only one to test positive - was sent to Dr Samuel Mwinzi of Nairobi Hospital by his daughter who lives in Atlanta, Georgia. It contained cloth samples and a polythene envelope in which was...([High Beam, 2001](#)).

**Title:** Uganda, Kenya Free Of Anthrax Scourge

**Date:** October 25, 2001

**Source:** [High Beam](#)

**Abstract:** Two parcels that caused an anthrax scare in Kampala on Monday have both tested negative for the dreaded germ, health ministry officials said yesterday.

Meanwhile, the AFP yesterday quoted reports from Paris, France as saying that both anthrax attacks reported outside the United States proved to be false alarms.

A letter which Kenyan authorities had said contained anthrax spores later tested negative for the bacterium, a US official said, while an Argentinian official said that anthrax found in a letter there was from a harmless strain.

Uganda's commissioner for community health, Dr. Sam Okware, said preliminary results from...([High Beam, 2001](#)).

**Title:** Quick Action Is Key Defence Against Bioweapons

**Date:** November 5, 2001

**Source:** High Beam

**Abstract:** Imagine a weapon which replicates itself, attacks silently and and kills ruthlessly.

Those features make living organisms the weapons with the most dreadful potential. A potential more powerful, biodefence experts say, than that posed by conventional warheads, or even nuclear weapons.

Thankfully, biowarfare experts add, the high-tech facilities and skilled personnel needed to produce pathogenic organisms for large-scale biowarfare use pose major challenges to even nations, let alone individual terrorists.

Theoretically, health experts say, almost any infectious agents could be manipulated into a devastating bioweapon in the...([High Beam, 2001](#)).

**Title:** Bioterror: Microbes Need No Passports To Travel

**Date:** November 5, 2001

**Source:** [High Beam](#)

**Abstract:** Governments the world over are taking measures to protect their citizens against possible bioterror attacks in the wake of the September 11 attacks in the US and the subsequent war in Afghanistan. Special Correspondent Dagi Kimani looks at possible bioterror tools and delivery systems and examines the inherent risks. Dr Richard Duma, head of infectious diseases at Halifax Medical Centre in Daytona Beach, Florida, in the US and a member of the board of America's National Foundation for Infectious Diseases, was brutally honest recently when asked about the risk posed to the world by biological weapons.

"Microbes know no boundaries," he said. "They don't need passports to travel."

In the wake of the anthrax attacks in the United States, in which four people have died so far, this is the chilling reality the world is coming to live with. Bioterror, long the subject of Hollywood films, has finally arrived.

In America, bioterrorism and biological warfare experts have for three years been sounding increasingly urgent warnings about the risk of a germ attack. Only recently, however, have they started getting government funding to increase vaccine doses, stockpile antibiotics and explore various treatments for deadly haemorrhagic fevers.

Before the recent attacks, the experts had already compiled an "A" list of likely germ agents to be used in attacks. At the top was anthrax. But virtually all these experts also agree that the anthrax bacillus represents only one of a horrifying array of pathogens that can be engineered into weapons.

Anthrax itself is considered by military and bioterrorism experts to be the terrorist's weapon of choice because it is deadly when inhaled, with up to a 90 per cent death rate; is relatively easy to get hold of; the spores are stable and can be dispersed by anything from a letter to a bomb; and because the symptoms look harmless until it is almost too late to treat it.

But anthrax is not easy to process into a usable form, is easy to treat with antibiotics and is not...([High Beam, 2001](#)).

**Title:** Bioterrorism: Threat & Response

**Date:** November 6, 2001

**Source:** [CFR](#) (Council on Foreign Relations)

**Abstract:** On November 6th, the CFR/Milbank Memorial Fund RT on Health & Foreign Policy held a session entitled, "Bioterrorism: Threat & Response," with Jonathan B. Tucker/Dir., Chemical & Biological Weapons Nonproliferation Program, Monterey Institute of International Studies. Since Jordan's wife decided to have their baby that evening, Dan Fox presided.

Dr Tucker began the meeting by recognizing that terrorists may threaten or attempt to use a biological of chemical weapon against the United States. A number of factors are increasing the risk of a large-scale biological attack. Although small, independent terrorist groups would encounter difficulties acquiring the technical and financial resources to execute a large-scale terrorist attack, a hostile state sponsor could provide terrorists with the necessary expertise and specialized dissemination equipment. Disturbingly, terrorist groups have already aggressively recruited Japanese, Russian, and South African biological and chemical weapons experts. Even in the face of US deterrent threats, a rogue state or terrorist group that believed that it could carry out an attack without attribution might be tempted to do so particularly in the heat of crisis.

State public health and medical communities stand directly on the front lines of combating against biological warfare. Response effectiveness will depend on the preparedness of State and local public health system. Unfortunately, there is insufficient funding for hospitals, laboratories, clinics, information networks, and other necessary elements to ensure an effective public health response in the event of a bioterrorism attack.

Combating bioterrorism through immediate first response and a reliable medical and public health infrastructure depends upon a sustained Federal, State, and local resource commitment. Dr. Tucker recommended that targeted block grants be administered to states and localities to strengthen the public health infrastructure. He also emphasized that the various elements of the public health system at the local, state and federal levels should be integrated. Secure and reliable channels of communication networks should be established between local, state, and federal public health officials. Additionally, to remedy this situation it is necessary for the intelligence community to aggressively recruit more individuals with advanced training in microbiology, infectious disease, and epidemiology to work as intelligence analysts ([CFR, 2001](#)).

**Title:** Before The House Judiciary Committee, Subcommittee On Crime

**Date:** November 7, 2001

**Source:** [FBI](#)

**Abstract:** Good morning Mr. Chairman and members of the Subcommittee. I appreciate the opportunity to appear before you today to discuss the law enforcement response to bioterrorism.

The Bioterrorism threat has risen to a new level. The federal government, in partnership with state and local law enforcement agencies, has always taken the threat concerning intentional release of a biological agent seriously. However, neither the federal government nor state and local responders have been required to utilize their assets to coordinate a response to an actual release of anthrax. The intentional introduction of bacillus anthracis into the infrastructure of American lives has resulted in significant panic

and alarm concerning our health and safety. Today, I would like to comment on the manner in which the law enforcement community responds to a suspected act of terrorism involving biological agents, and reinforce the cooperative effort that is in place between the federal government and the myriad of first responders who provide guidance, assistance and expertise.

The response to a potential bioterrorist threat can be broken down into two different scenarios: overt and covert releases. The distinction between the two involves the manner in which the biological threat agent is introduced into the community and the nature of the response. Regardless of whether a biological release is overt or covert, the primary mission of law enforcement and the public health community is saving lives.

An overt scenario involves the announced release of an agent, often with some type of articulated threat. An example of this would be the receipt of a letter containing a powder and a note indicating that the recipient has been exposed to anthrax. This type of situation would prompt an immediate law enforcement response, to include local police, fire and emergency medical service (EMS) personnel. Each FBI field office is staffed with a Weapons of Mass Destruction (WMD) Coordinator whose responsibilities include liaison with first responders in the community. Due to this established relationship with first responders, the local FBI WMD Coordinator would be notified and dispatched to the scene. The FBI investigates these articulated threats involving a biological agent. The response protocol would involve securing the crime scene and initiating the FBI's interagency threat assessment process. The FBI's Counterterrorism Division at FBI Headquarters, coordinates this threat assessment which determines the credibility of the threat received, the immediate concerns involving health and safety of the responding personnel, and the requisite level of response warranted by the federal government. The FBI obtains detailed information from the on-scene personnel and input from the necessary federal agencies with responsibility in the particular incident. In a biological event, representatives from Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (DHHS), United States Department of Agriculture (USDA) and Food and Drug Administration (FDA) are the key agencies called upon to assist FBI personnel in assessing the particular threat. Based upon the assessment, a determination is made as to the level of response necessary to adequately address the particular threat, which could range from a full federal response if the threat is deemed credible, to collection of the material in an effort to rule out the presence of any biological material if the threat is deemed not credible.

The method of collecting suspect material is established by protocols set forth by the FBI's Hazardous Material Response Unit (HMRU). These protocols, recognized and followed by state and local Hazmat teams, are necessary to ensure that sufficient evidentiary samples are collected, screened and over-packed according to scientific safety guidelines for transportation to the appropriate testing facility. Over 85 State Health Laboratories perform this analysis on behalf of CDC and belong to a coordinated collection of facilities known as the Laboratory Response Network (LRN). Once the testing has been completed, results are provided to the FBI for dissemination in the appropriate manner. The results of the analysis are then disseminated to the exposed person or persons, local first responders and to the local public health department. Additionally, results will be forwarded to the Centers for Disease Control and Prevention (CDC) in Atlanta, GA.

A covert release of a biological agent invokes a different type of response, driven by the public health community. By its nature, a covert introduction is not accompanied by any articulated or known threat. The presence of the disease is discovered through the presentation of unusual signs and/or symptoms in individuals reporting to local hospitals or physician clinics. In this situation, there is initially no crime scene for law enforcement personnel to respond. The criminal act may not be revealed until days have elapsed, following the agent identification and preliminary results obtained from the epidemiological inquiry conducted by the public health sector. Contrary to an overt act where law enforcement makes the necessary notification to public health, in a covert release, notification to law enforcement is made by the public health sector. The early notification of law enforcement in this process encourages the sharing of information between criminal and epidemiological investigators. Once an indication of a criminal act utilizing a biological agent is suspected, the FBI assumes primary authority in conducting the criminal investigation, while public health maintains responsibility for the health and welfare of the citizens. At the

local level, involving the FBI WMD Coordinator and the State or local public health department, and at the national level between FBI Headquarters and the CDC, an effective coordination has been accomplished to address the requisite roles and responsibilities of each agency.

**The response to an actual threat or one that is later determined to be not credible, or a hoax, is indistinguishable.** This includes deployment of a Hazmat team, thorough examination of the potentially contaminated area (including situations where a telephonic reporting is received) and the disruption of the normal operations of the affected entity. Additionally, the individuals potentially exposed to the WMD may experience extreme anxiety/fear due to the reported release. Potential victims may have to be decontaminated or transported to a medical facility. **The first responders must treat each incident as a real event until scientific analysis proves that the material is not a biological agent.** To both the responding entities and the potentially exposed victims, the presence of a powder threatening the presence of "anthrax" is not a hoax, or something to be taken lightly. The individuals perpetrating such an activity must be held accountable for their actions.

In 1999, the FBI testified before the House Energy and Commerce Subcommittee on Oversight and Investigations, discussing the need for improved Federal statutes which address the threatened use and possession of biological agents. During this testimony, it was reported that in 1998, the FBI opened 181 cases related to WMD events, of which 112 were biological in nature. The number of cases has increased since then, with 267 in 1999, and 257 in 2000. (threatened biological releases accounted for 187 and 115 respectively.)

Prior to the events of September 11, 2001 the number of cases initiated for 2001 was 100, of which 67 were biological, and a large percentage of these cases involved the threatened release of anthrax, necessitating a law enforcement response. However, the combined terrorist attacks on the World Trade Center and Pentagon, the subsequent publicity afforded to a handful of anthrax threats, and the tragic death of four persons, have resulted in a dramatic increase in calls for help from the public. Since mid-September, the FBI has responded to over 7,000 suspicious anthrax letters, 950 incidents involving other WMD matters, and an estimated 29,000 telephone calls from the public about suspicious packages. In that same time frame, the FBI has initiated 305 new anthrax related investigations which exceeds and virtually doubles the normal annual average of all WMD cases. Resources available by law enforcement in responding to the alleged threats and public health laboratories in testing suspicious material for the presence of biological agents are limited ([FBI, 2001](#)).

**Title:** Governments Brace For Bioterrorist Attacks

**Date:** November 9, 2001

**Source:** [High Beam](#)

**Abstract:** Following the confirmation of one anthrax case and several suspected others in Nairobi last week, the governments of the three East African states are pulling all stops to pre-empt bioterrorist attacks.

Kenya and Tanzania are still smarting from the 1998 bomb attacks on the American embassies in Nairobi and Dar es Salaam, which left over 250 people dead and about 5,000 others injured.

The action by the three countries follows the suicide hijack attacks in New York and Washington, in which over 6,000 people, including 25 Africans, are believed to have perished ([High Beam, 2001](#)).

**Title:** Experts Warn Of Cracks In European Response To Bioterrorism Threats

**Date:** November 27, 2001

**Source:** [Canadian Medical Association Journal](#)

**Abstract:** The bioterrorism threat gripping North America didn't take long to reach across the Atlantic.

At the Robert Koch Institute (RKI) in Berlin, an Information Centre for Biological Attack Substances has been launched and is collating information on the availability of vaccines, laboratories and hospital beds throughout Germany. It also provides a hotline. "We received more than 100 calls a day over the first 3 weeks," says Susanne Glasmacher, the institute spokesperson. The RKI has also posted information for physicians on the Internet. The government has already purchased 12 vehicles equipped with oxygen tanks, gas masks and devices for taking and analyzing samples to meet the threat of radioactive, chemical or biological contamination in the Berlin area. Another 340 vehicles will be acquired by year's end for the rest of Germany.\$

In France, the country's facilities for decontamination and for monitoring attacks that use airborne or waterborne bioterrorism agents will be upgraded under a new program called Biotox. The government has also contracted with Aventis to manufacture 3 million doses of smallpox vaccine and will spend 150 million Euros buying ciprofloxacin.

In the UK, existing stocks of antidotes and antibiotics have been taken out of storage for distribution to doctors and hospitals, and the Public Health Laboratory Service (PHLS) has issued guidelines on responding to the anthrax threat. "Over the last 3 weeks we have been very active in giving information on anthrax, plague, smallpox and botulism to the public, together with guidance on how to deal with suspicious packages," says Brian Duerden, the medical director. However, the British Medical Association has warned that the secrecy surrounding contingency plans for countering bioterrorism may prove counterproductive if health professionals aren't given key roles.

The piecemeal nature of the national responses reveals the lack of Europe-wide criteria for dealing with bioterrorism. Systemic failures in response capacity have been identified by Wolfgang Beyer, an anthrax expert from the Veterinary Institute at the University of Hohenheim, Germany. "As far as Northern Europe is concerned, preparations against bioterrorism have been neglected over recent years," said Beyer. "Basic channels of information are missing — for instance, people who have to deal with catastrophes do not know where to send samples for analysis. ... Meanwhile, laboratories with the capability to analyze samples are short of equipment and financial support."

A recent study in the *British Medical Journal* said these facts could be symptomatic of deficiencies in the general management of infectious disease across the European Union (EU). Weak points include the identification and reporting of cases involving more than one country and networking in order to share information and lessons on communicable disease outbreaks (*BMJ* 323: 861-3).

Mike Catchpole, deputy director of the Communicable Disease Surveillance Centre, PHLS, and Lyle R. Peterson, deputy director, Division of Vector-borne Infectious Disease, US National Center for Infectious Diseases, have proposed a surveillance centre for infectious diseases within the EU (*BMJ* 323: 818-9). "Europe needs an effective surveillance system for infectious diseases," says Catchpole. "For many diseases we have effective networks, but there is still room for improvement. Such improvement would strengthen Europe's capacity to respond to communicable disease threats of any sort, including bioterrorism."

In an attempt to coordinate protection planning, officials from EU member states and candidate countries have met twice over the last 3 weeks and agreed to establish centralized databanks on vaccines, antibiotics and hospital beds, and to create a team of on-call specialists ([Canadian Medical Association Journal, 2001](#)).

# Bio & Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following propaganda was published within the calendar year of 2002. While some of the following reports may have been legitimate news stories, most if not all of them appear to be blatant propaganda with the overall goal of convincing American and the World that it is on the precipice of a bio-terror induced pandemic. The fact that this propaganda exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and military control of society.

**Title:** Public Health Coordinator Donald Henderson Waging War On Bioterror

**Date:** January 1, 2002

**Source:** [Discovery](#)

**Abstract:** Donald Henderson was worrying about biological warfare long before anthrax started working its way through the postal system. As science adviser to George Bush and a senior health official in the Clinton administration, he heard firsthand about our country's vulnerabilities. In 1995, he continued his study of bioterror at Johns Hopkins University, where he headed the Center for Civilian Biodefense Studies. Now Henderson is director of the new federal Office of Public Health Preparedness, which will coordinate the national response to health emergencies. Sitting in his office at Hopkins, he shared his insights with *Discover* writer Rabiya S. Tuma.

### **What convinced you to focus on bioterrorism so early on?**

Up until 1995, bioterrorism was considered improbable. Then three events happened. First, the Aum Shinrikyo released sarin gas in the Tokyo subway. It was discovered that they had been working with anthrax and botulinum toxin and had tried to aerosolize anthrax throughout downtown Tokyo. Around the same time, Saddam Hussein's son-in-law defected and brought with him papers showing that Iraq's germ warfare program was shockingly extensive. But the really serious event was the discovery of the magnitude of the biological weapons program in the Soviet Union. It was beyond anything we imagined, involving 60,000 people working in 50 different laboratories. It rivaled the size of their nuclear program.

### **Have we improved our readiness for a bioattack since then?**

As late as 1998, the Centers for Disease Control and Prevention had nobody assigned to work in this area. Similarly at the National Institutes of Health there was no program, nobody assigned to it, and no money appropriated. Now the CDC does have a program for biological preparedness, and the NIH has a special research program. So we've improved, but we still have a long way to go.

### **Where are our weakest points?**

We have a very weak point in our public health infrastructure. We depend on it being there 24 hours a day, seven days a week—just like the fire department—so if somebody calls up with something really strange, the public health authorities should be ready to move in and confirm, diagnose, detect other cases, and set up control measures. But we've allowed that infrastructure to deteriorate over the decades. And there are a lot of things we could do to speed up the research process so that when we see a biological agent, we are able to develop antibiotic or antiviral preparations or vaccines very rapidly. Such preparations would also be beneficial for dealing with natural infectious diseases, particularly emerging infections.

### **What makes a particularly effective bioweapon?**



Clearly almost any agent that produces an infection could, in theory, be used as a weapon. But with ordinary influenza, for example, we have epidemics every two or three years; while a lot of people get sick and a number of them die, cities continue to function. We looked at agents that would be more disruptive than others, either as a result of the deaths that they caused or because of their ability to spread panic. We came up with six prime candidates: smallpox, anthrax, plague, botulinum toxin, tularemia (rabbit fever), and hemorrhagic fevers (a group of viral bleeding diseases that includes Ebola).

**You fought to eradicate smallpox, yet people now list it as a potential weapon. How did this happen?**

I am deeply, profoundly angry with the Soviets. The Soviet Union, in 1959, proposed to the World Health Assembly that the World Health Organization undertake the eradication of smallpox. During the program the Russian government provided 25 million doses of very high quality vaccine every year. They were extremely proud that they had played an important role in the eradication program. We finally declared the eradication of smallpox in 1980 at the assembly. We persuaded governments and laboratories to get rid of their stocks, and they did—to transfer them to one of two places, one in the United States and one in Russia. Then from 1994 to 1995, it became apparent what the Russians had been up to: They had been weaponizing smallpox. The people I worked with did not know about this; it was the military that was driving the weaponizing program.

**How hard would it be for a terrorist to cause a widespread infection in a mall or a baseball stadium?**

A number of our colleagues have expressed again and again how difficult it would be to identify a lethal agent, get a hold of it, grow it up, put it in the proper form, and disperse it. But I'd wager you could cause a lot of trouble and tens of thousands of casualties would not be out of the question. And who is to say a terror group couldn't purchase biological weapons material already prepared and ready for use? After all, those who flew the airplanes into the World Trade Center didn't need to know how to build airplanes ([Discovery, 2002](#)).

**Title:** 'Be Ready' For Attack

**Date:** January 4, 2002

**Source:** [UCLA](#)

**Abstract:** THE top biological terror expert in the US has warned Australians may have to better prepare for such an attack. Director of the US National Institute of Infectious Allergy and Diseases, Dr Anthony Fauci, said a terrorist on a suicide mission could just as likely be armed with smallpox as a bomb and the impact on Australia from such an attack might only be as far away as an overseas tour group.

Dr Fauci was commenting on plans by the US Government to provide a smallpox vaccination for any citizen who wants one. Australia will soon have to make a difficult decision on how to deal with the threat of smallpox, and may have to take similar action, Mr Fauci said.

The risks for smallpox vaccination are one-to-two deaths per million people vaccinated. "Australia has to make their own decision," Dr Fauci, among US President George W Bush's smallpox policy advisers, said.

"They have to make that decision based on their assessment of what the threat to them is. "Either from a direct attack on Australia or from an attack for example in the Middle East and then people travel back and forth to Australia."

Dr Fauci said his advice was that ordinary people should not get vaccinated against smallpox. But he said a group of healthcare workers, smallpox response teams and first responders like firefighters and policemen should be vaccinated. "If nobody's vaccinated and then there's a massive attack the people who are going to go in and try and put the fire out are going to be susceptible themselves," he said.

Professor of preventive medicine at the University of Southern California Dr Thomas Mack, a veteran of the 1960s smallpox wars in South Asia, has argued that today's media-drenched society would give a community ample warning of an outbreak and good opportunity to contain its secondary spread. "I would be against getting a vaccination policy of healthy Australians," he said.

Meanwhile, the growing terrorism threat has led Britain's biggest home insurer to specifically exclude cover for chemical, biological and nuclear attacks, a London newspaper reported.

"After September 11 we felt it was necessary for our customers to understand what they are covered for," Norwich Union spokesman David Ross told The Independent newspaper. "People are worried about the chemical, biological and nuclear threats and wanted to know where they stood with our policies."

In an unprecedented move, renewal documents sent to householders by Norwich Union since January 1 warned that their home and contents policies would not entitle them to compensation for damage caused by such attacks, the paper said ([UCLA, 2003](#)).

**Title:** Senator Cautions On Bioterrorism

**Date:** April 26, 2002

**Source:** [UCLA](#)

**Abstract:** Biological terrorism remains a serious threat to America, Sen. Bill Frist, R-Tenn., warned Thursday.

"The risk is real. The risk is increasing. Our vulnerability remains high," Frist said at a briefing in an office building closed for months following last fall's anthrax-by-mail attack.

Sidney Taurel, chairman of the drug maker Eli Lilly and Co., called for cooperation among government, academic researchers and the pharmaceutical industry in finding new ways to detect and combat bioterrorism.

"This is not business as usual. This is not politics as usual. This is war," Taurel said at the briefing on terrorism and community preparedness held in the Hart Senate Office Building.

Frist, a transplant surgeon, said last fall's anthrax attack "was very successful ... and as far as we know this person's still out there."

More than 20 people became ill and five died following the mailing of anthrax-tainted letters from New Jersey. Some postal facilities remain closed because of the contamination. No arrests have been made despite a \$2.5 million reward being offered by the Postal Service and FBI.

Frist told the session that between 11 and 17 countries either have stockpiled biological weapons or have bioweapons programs, including such threats as anthrax, botulinum toxin, tularemia, smallpox, plague and ebola.

Yet nine out of 10 public health departments in the United States don't have anyone trained in combating bioterrorism and as many as one-third lack an Internet connection for fast communications, Frist said.

In addition, he noted, only a small proportion of imported food is inspected.

Taurel said that in recent years there has been an increase in drug-resistant germs. In addition, he said there has been the emergence of newly discovered diseases such as ebola about which little is known, and there is a growing threat of manmade pathogens.

"Far from gaining control over infectious diseases, we are losing ground," he said.

The nation has been through a waking nightmare with the anthrax attack, Taurel said, and he fears that as the tragedy fades from the headlines the country will drift back to sleep ([UCLA, 2002](#)).

**Title:** Montana Lab May Lead Bioterror Defense

**Date:** April 28, 2002

**Source:** [UCLA](#)

**Abstract:** A laboratory in Montana's Bitterroot Mountains is on track to become the federal government's fourth Biosafety Level 4 research facility, handling the world's most dangerous microbes to help develop defenses against bioterrorism.

Rocky Mountain Laboratories, a part of the National Institutes of Health, pioneered research into Rocky Mountain spotted fever and Lyme disease. It now has been approved for a \$66 million expansion for bioterrorism research, including upgrades to the maximum security level. It will be the only Level 4 lab in the West.

James Musser, a biomedical researcher and a chief of one of the Rocky Mountain labs, said specifics of the expanded research in Hamilton have not been decided.

"Because of the limited space in a Biosafety Level 4 facility, one has to carefully choose exactly what kind of pathogens we're going to study," he said.

BioLevel 4 labs are the highest level security labs which, among other things, require workers to wear "spacesuit" style contamination jumpers. The government currently has Level 4 labs at Fort Dietrich, Md., Bethesda, Md., and Atlanta. The nonprofit Southwest Foundation for Biomedical Research operates one in San Antonio. Another Level 4 lab is planned at the University of Texas Medical Branch in Galveston.

The new lab was planned before Sept. 11 and the string of anthrax attacks that followed, administrator Pat Stewart said. Rocky Mountain already was studying organisms that could be used in biological attacks, and Stewart said existing expertise at the Rocky Mountain complex is the main reason for building the new lab there.

Rocky Mountain Laboratories, in a neighborhood of well-kept homes at the foot of the Bitterroot Mountains, began early in the 20th century. It now employs about 230 people and provides some of the best pay in Hamilton, a onetime timber town that is rapidly growing as a wilderness gateway and mountain retreat.

Officials have just begun conferring with architects and others involved in developing the new lab. For the community, information about the expansion came during a town meeting lab officials held in February.

"You have to view it as a positive thing," said pharmacist Wayne Hedman at Bitterroot Drug. "That is clean industry and a lot of the jobs are high-paying jobs."

The new lab may add 50 to 65 positions, Stewart said.

Hedman said that besides the economic impact of lab employees, he likes the intellectual enhancement that world-class scientists and their associates bring to this community of 3,700 people.

The hazardous nature of the new research does not concern him.

"There's enough redundancy, enough backup, in that whole process that I feel very secure," Hedman said.

But bookseller Cyndy Gardner said that while she appreciates the Rocky Mountain employees' impact on community life, she questions why the new lab must be built in the "warm, friendly, family-oriented neighborhood" where she is restoring a century-old home.

"They need to build it away from town," said Gardner, worried the lab could become a target for terrorists.

Stewart said there will be strengthened external security for all of the Rocky Mountain labs, with additional security features for the new building. Measures for dealing with hazards inside it will include airlock buffer zones, chemical decontamination and microfiltration of air.

Rocky Mountain Laboratories began during a much simpler time.

In 1910, a Bitterroot Valley camp served as the lab for researchers who found that ticks transmitted the disease now known as Rocky Mountain spotted fever. In the 1920s, ticks were ground up at an abandoned school near Hamilton to make vaccine against the disease.

Some 20 years later, workers in the buildings that are part of today's lab complex, which is on the National Register of Historic Places, made vaccines that protected troops against typhus and yellow fever during World War II.

The agent that causes Lyme disease, another disorder transmitted by ticks, was identified at Rocky Mountain Laboratories in 1982.

Following the anthrax attacks last fall, the Bush Administration agreed to spend \$100 million to renovate the 35-year-old Fort Collins, Colo., lab belonging to the Centers for Disease Control and Prevention by 2006.

The enhanced Level 3 lab, which also operates near residential neighborhoods, conducts research on vector-borne infectious diseases, such as Bubonic plague, dengue fever, yellow fever, West Nile virus, encephalitis, tularemia and Lyme Disease, many of which could be used as biological weapons. They all are diseases spread by arthropods, or mosquitoes, ticks, fleas, lice and flies ([UCLA, 2002](#)).

**Title:** Study Urges Focus On Terrorism With High Fatalities, Cost

**Date:** April 29, 2002

**Source:** [UCLA](#)

**Abstract:** A million people could die if terrorists launch a biological attack that widely disperses smallpox, anthrax, ebola or other agents, according to a new study that analyzes the damage that could be caused by the use of weapons of mass destruction.

Even though such a biological attack was deemed extremely unlikely, a team of scholars from the Brookings Institution said the Bush administration should concentrate homeland security efforts on similar doomsday terrorist scenarios that have the potential for causing the largest numbers of deaths and economic losses, and the greatest psychological damage.

The study estimated that 100,000 people would die if a nuclear bomb hit a major U.S. city and that 10,000 would perish in a successful attack on a nuclear or toxic chemical plant. If weapons of mass destruction were directed against the shipping industry, the report said, the economy could suffer up to \$1 trillion in losses.

The report, scheduled for release Tuesday, is one of the most comprehensive studies since the Sept. 11 attacks, which killed more than 3,000 people at the Pentagon and World Trade Center and in Pennsylvania. The authors, who specialize in economic and foreign policy studies, said they hoped to aid policymakers such as Homeland Security Director Tom Ridge, who is developing a national strategy, figure out where to put resources.

Ridge's staff already has devoted much attention to "high consequence" scenarios, such as attacks using thermonuclear devices, smallpox and other potential weapons of mass destruction. But administration officials have cautioned that assessing threats and assigning probabilities is difficult because authorities don't know about all terrorist cells and because terrorists frequently shift tactics.

Because the government and private industry cannot guard against every conceivable kind of attack, the Brookings authors maintained that officials should devote the bulk of resources to protecting against nuclear, chemical or biological terrorism as well as more conventional large-scale attacks at places such as airports, seaports, nuclear and chemical plants, stadiums, large commercial buildings, and monuments and other icons.

"There are an unlimited number of potential vulnerabilities," said report author Michael E. O'Hanlon. "We're going to have to spend some time prioritizing and organizing our thinking. We really should be focusing on potentially catastrophic attacks, meaning large numbers of casualties or large damage to the economy."

O'Hanlon, who specializes in foreign policy studies, said the estimates concerning economic and human losses were based on a 1993 government report done for Congress about weapons of mass destruction, the casualties from the atomic bombs released in World War II, previous disasters and criminal acts, economic data and other factors.

The Department of Health and Human Services is building up a stockpile of smallpox and anthrax vaccines, working with states to improve early-warning disease networks, and taking other steps to prevent or respond to bioterrorist threats. D.A. Henderson, director of the Office of Public Health Preparedness, an arm of HHS, said yesterday that the government is "in much, much better shape today than three months ago."

Henderson, a physician who led efforts to eliminate smallpox in 1977, said the study's casualty estimates were not out of the realm of possibility for smallpox and anthrax but that the prospect of a huge ebola attack was remote.

"Quite candidly, I think smallpox ranks way at the top," he said.

The Brookings scholars said the government should invest heavily in technology to identify and apprehend suspected terrorists before they can strike.

The report estimated that a biological attack in a major urban area could create \$750 billion in economic damage, and that widespread terror against a key part of the economy -- such as shopping malls or movie theaters -- could cost \$250 billion.

The White House is seeking about \$38 billion in the fiscal 2003 budget for homeland security, including \$10.6 billion for border security, \$5.9 billion to defend against bioterrorism, \$3.5 billion for local police, firefighters and other emergency responders, \$4.8 billion for aviation security and \$722 million for new technology. Ridge has said the amounts are but a "down payment" in a multiyear plan.

The Brookings study said even that amount isn't enough.

Shoring up security will likely cost the government \$45 billion a year, the report said, adding that private industry will need to spend up to \$10 billion annually. In some cases, new regulations will be required to bring the private sector in line, the report said; in others, lower insurance rates or other incentives could be offered.

Economic specialist Peter R. Orszag, another team member, said the group sought to identify the "most glaring vulnerabilities" to help frame public debate.

Called "Protecting the American Homeland," the report credits Ridge and the White House for setting many sound priorities, but urged more spending on information systems for law enforcement. It also recommended significantly higher spending on air defenses, cargo security, food safety and cyber-security. More must be done, the report added, to protect the nation's 12,000 chemical facilities and 103 nuclear power plants, and to shield air-intake systems of skyscrapers from biological or chemical agents.

In recent months, Henderson and other government officials have warned about many of the same threats. Customs Commissioner Robert C. Bonner, for example, has said that the detonation of a nuclear device hidden in a ship's cargo container would cause massive damage and indefinitely shut down the shipping industry. Bonner said the United States must win agreements with other countries that have "megaports" in which cargo is checked at the point of origin ([UCLA, 2002](#)).

**Title:** Officials Warned On Bioterror

**Date:** May 8, 2002

**Source:** [LA Times](#)

**Abstract:** A leading expert on chemical and biological warfare warned Tuesday that local officials must do far more to prepare hospitals and fire and police departments for terrorist attacks that could occur with little notice.

Amy E. Smithson of the nonprofit Henry L. Stimson Center in Washington, D.C., delivered the keynote speech at a three-day state-sponsored conference in the City of Industry on disaster preparedness. About 400 police, fire and public health officials attended.

Smithson said New York is far ahead of most other American cities in establishing a system to recognize the first indications of a biological attack through quick identification of new patterns of medicine purchases by sick people, emergency room admissions or calls to emergency lines. The United States is probably not on the verge of a massive chemical or biological attack, Smithson said.

Attacks that have occurred, such as those last year involving anthrax-laced mail, probably did not represent any attempt to kill people in large numbers, she said, and the threat could take decades to be realized.

Nonetheless, she said, "we know that Al Qaeda wants to kill people," and it is necessary to be ready.

The hospital system, she said, is not prepared at present to cope with large numbers of people, in the hundreds or thousands, descending on facilities to get treatment or preventive medicines in case smallpox or even more exotic diseases strike.

She said that fire and police departments must prepare to assist hospitals in handling large groups of distressed people and that it might even be a good idea to prepare to use fast-food chain restaurants to dispense preventive medicine at drive-through windows ([LA Times, 2002](#)).

**Title:** US Mulls Development Of Counter - Terror Technologies

**Date:** May 29, 2002

**Source:** [UCLA](#)

**Abstract:** The Bush administration is wrestling with how to spur development of counter-terrorism technologies to cope with post-Sept. 11 threats, including new vaccines against potential germ warfare agents, President Bush's science adviser said on Wednesday.

"All mechanisms are being explored," said John Marburger, director of the White House Office of Science and Technology Policy. He said he expected a mix of regulations, government procurements and industry incentives to emerge.

Marburger has been working closely with Tom Ridge, head of the White House Office of Homeland Security set up after the September attacks. Ridge is expected to release a report in July outlining long-term a homeland security strategy, including structures and mechanisms for dealing with chemical, biological and nuclear threats.

The pharmaceutical industry was "a very good example of an industry that requires something (from the government)" to coax out vaccines against smallpox and other biological warfare threats, he told reporters at a session organized by *New Technology Week*, a trade publication.

"In general, (countering) bioterrorism is difficult to support on the basis of the commercial market," Marburger said. "And so there's going to have to be something like a procurement or incentive here."

But industry also must rise to the challenge, said Lewis Branscomb, co-chair of an anti-terrorism technology panel sponsored by the National Academies. The panel is due to release the first phase of a science and technology counter-terrorism study late next month.

Venture capitalists taking part in a Washington networking fair said they were awaiting word from the government to guide their bets on emerging technologies.



"Does anybody have a clue as to what direction we really want to go with respect to bioterrorism?" asked Josh Fidler, a partner at Boulder Ventures Limited, which invests in biotechnology and life sciences initiatives and has about \$250 million under management. "I don't think so. Not yet."

Robert Grady, managing partner of Carlyle Venture Partners, part of the Carlyle Group, one of the world's biggest private equity firms with \$13.6 billion under management, said Sept. 11 had boosted interest in security-related investments, especially those with a track record of selling to defense contractors.

But investors can be "extremely, extremely selective" about what they're funding, he said. "And so only the best companies will be funded by us and probably by anyone" ([UCLA, 2002](#)).

**Title:** As Monkeypox Rises, Smallpox Vaccines To Be Offered

**Date:** June 11, 2002

**Source:** [UCLA](#)

**Abstract:** Federal health officials are expected to announce today that smallpox vaccinations will be made available to certain people who have been exposed to prairie dogs and other animals infected with monkeypox in recent days.

Smallpox vaccine is considered the most dangerous of human immunizations, but it can protect against monkeypox.

The Centers for Disease Control and Prevention is expected to make the vaccinations available as an option to highly selected groups like health workers who care for patients with monkeypox, people who have been exposed to animals sick with monkeypox, veterinarians who care for animals suspected of having it and scientists investigating monkeypox.

The investigation of human monkeypox cases expanded to a fourth state, northern New Jersey, yesterday as the number of suspected monkeypox cases rose to 50: 23 in Indiana, 20 in Wisconsin, 6 in Illinois and 1 in New Jersey. No one has died.

The total is more than double the 23 cases reported in three states when the disease centers urgently announced the outbreak over the weekend. The increase in cases under investigation has resulted largely from widespread publicity that led people to report rashes and illness to health officials, officials of the centers in Atlanta said.

The monkeypox cases are the first detected in the Americas. Most suspected cases had direct contact with prairie dogs or at work in veterinarian offices and pet shops.

Monkeypox patients typically fall ill with signs and symptoms like fever, headaches, dry cough, swollen lymph nodes, chills and drenching sweats.

One to 10 days later, patients develop rashes consisting of blisterlike pimples that filled with pus, broke open and produced scabs.

The rash often erupts in different stages, or crops, as it appeared on the head, trunk and arms and legs.

The Centers for Disease Control and Prevention is also expected today to announce a definition of human monkeypox, which would be critical in determining who would be eligible for smallpox vaccinations as well as investigating the outbreak.



United States officials stopped routine smallpox vaccinations in 1970, about a decade before eradication of smallpox from the world.

On Monday, a subgroup of a national panel of immunization experts appointed by the Centers for Disease Control and Prevention to serve on its Advisory Committee on Immunization Practices began discussions on whether and how the smallpox vaccine might be used.

Discussions focused on the benefits and risks of smallpox vaccine for monkeypox, a viral disease that can be fatal in 10 percent of human cases. The death rate for smallpox was about 30 percent.

But smallpox vaccination can also be fatal. Studies from the 1960's, when smallpox vaccinations were routine, found that for every million people older than 1 year old who were vaccinated, 1 or 2 died, 9 suffered from brain infection and more than 100 developed eczema vaccinatum, a severe illness and skin rash that can leave deep scars and can occasionally be life-threatening.

The government owns all the smallpox vaccine in the United States. This year, the government began offering it to health care workers to protect against any cases that might result from an attack in which terrorists released the virus.

The only known stocks of smallpox virus are kept at the Centers for Disease Control and Prevention and in Russia, both with the approval of the World Health Organization.

But the Bush administration has warned that Iraq as well as other countries and rogue groups might have obtained smallpox virus from the official stores in Russia and begun a program to vaccinate health care workers before the war began against Iraq.

The number of people for whom smallpox vaccine might be offered to protect against monkeypox would be small, the panel's chairman, Dr. John F. Modlin, said in an interview before the panel's meeting ([UCLA, 2003](#)).

**Title:** Filtering Out Bioterrorism

**Date:** June 20, 2002

**Source:** [UCLA](#)

**Abstract:** Invention: A Hopkins scientist has early success with his device, designed to remove anthrax spores, viruses and bacteria from the air.

The first place Richard S. Potember went in his quest to kill anthrax was to the dump.

The chemist at the Johns Hopkins University Applied Physics Laboratory in Laurel had mapped a system that could fit in an air conditioner or heater and that would destroy anthrax spores, viruses and bacteria in building vents.

Rather than buy a new air conditioner or heater, Potember rooted through the back of an air-conditioning store until he found a dirty, broken heating unit that fit his needs.

"Why build something expensive when you can find something cheap?" he said.

Early results show that Potember's invention, which eliminates foreign objects with ozone and ultraviolet light, has the potential to kill 100 percent of the viruses and bacteria that a terrorist might dump into a building vent.

The machine also kills or filters out more than 99 percent of spores that resemble anthrax in early tests.

Now Potember is preparing to move into a new lab modeled after an office building to test his machine in a real-world environment. If that research goes well, the device could be available commercially within a year and fill a gaping hole in homeland security.

Although he is not aware of the specifics of Potember's project, Bruce Clements, the associate director of the Center for the Study of Bioterrorism and Emerging Infections at St. Louis University, says technology that protects against airborne threats is "absolutely critical and needs to be developed, especially for high-risk buildings."

Potember began working on the project nearly a year ago with three objectives: He wanted the system to be simple, lethal and cheap.

"If it's supposed to protect the public, regular people have to be able to use it," he said.

A self-professed tinkerer who will strip down his old toasters for spare parts, Potember began fiddling in his lab amid piles of screws, discarded machines and charts.

"Some scientists need to be behind a desk, writing code," he said, standing in the middle of the cramped space that looks more like a pack rat's garage than a high-tech lab. "I need to be in the lab."

After several months of planning and building, Potember came up with a device that is made entirely from commercially available materials and is relatively straightforward.

Air runs through a filter before entering a chamber, where it is doused with ozone, high intensity UV light and water, a combination that has proved effective in early testing.

Although ozone is toxic, it has a relatively short life span and decays into oxygen within 30 minutes.

Potember estimates that it would cost \$5,000 to assemble a machine, although that could rise or fall depending on the size of the structure it serves.

Despite his advances, Potember worked in relative anonymity until fall. But when anthrax was discovered in post offices and government buildings, the frightening incidents showed how simple it is to distribute the deadly spores. Many security experts speculated about how easy it would be for a terrorist to dump biological weapons into building vents, where they would be circulated.

Potember was inundated with calls from air-conditioning contractors and others who were aware of his work because of earlier research contacts.

The anthrax attacks "showed that [more effective] technology had to be developed," said Kevin Holland, a spokesman for the 4,000-member Air Conditioning Contractors of America.

Now officials at the Hopkins lab hope Potember will prove to be the man with the answer. Because of the attention on bioterrorism, lab managers have put his project on the fast track.

Potember will be moving his experiment into a lab with a ventilation system to see if the system works on a larger scale. The lab is also equipped with three office cubicles so Potember can see how particles are distributed.

Potember applied for a patent on his device in February, and lab officials are negotiating with a number of companies who might manufacture the devices to market commercially.

"It looks like it's a real killer [of spores and viruses] and it's not expensive, so all those things together make it pretty darn interesting," said John Bacon, a manager for technology transfer at the lab.

Although much of the push behind the machine is based on its potential to fight bioterrorism, Potember and others believe it also could play an important role in hospitals by cutting down on potentially deadly airborne diseases.

While workers put the finishing touches on Potember's lab, he is eagerly awaiting a chance to put his machine to the test. Walking through the room, he put his hand on a duct and said with a smile: "It's time to see what this thing can really do" ([UCLA, 2002](#)).

**Title:** Tensions Between CDC, White House

**Date:** July 1, 2002

**Source:** [UCLA](#)

**Abstract:** Health Officials Say Low Morale Could Threaten Agency's Ability to Handle Crises

The federal Centers for Disease Control and Prevention in Atlanta has been weakened and demoralized by tensions with Bush administration officials in Washington, according to a number of current and former officials at the nation's top public health agency.

The low morale is causing deep concern among public health experts around the country that the problems will hinder the CDC at a crucial moment -- when the agency should be leading the nation's effort to counter bioterrorism and other health threats.

The tensions stem from a variety of factors, including fallout from widespread criticism of how federal health officials handled last fall's anthrax attacks, the absence of a CDC director since March, efforts by the new administration to change approaches to controversial issues such as sex education and HIV prevention, and a campaign to exert more control over the CDC from Washington, health experts said.

"The absence of leadership ... and the micromanagement of things, from press releases to travel authorizations, have created a hunkered-down mentality among the CDC staff I've talked to," said Willard Cates, president of Family Health International, a North Carolina research organization that works closely with the CDC.

Top officials at the CDC and at the Department of Health and Human Services, which oversees the agency, deny that there is a crisis at the CDC and attribute any tensions to the normal process of adjusting to a new administration.

"We are in a transition period ... [but] the agency is moving forward," said David W. Fleming, acting CDC director. "There is a long-standing esprit de corps, and that never changes... . People are doing what they need to be doing."

As the federal agency responsible for protecting public health, the CDC takes a lead role in responding to epidemics and health emergencies. Its work has ranged from eradicating infections once common in the United States, such as smallpox and measles, to investigating outbreaks of food poisoning and fighting re-emerging diseases such as tuberculosis, or newer ones such as AIDS and West Nile encephalitis.

In the past, the CDC has often acted with considerable autonomy from Washington, even though some of its programs to prevent disease and injury touch on politically sensitive issues, such as condom promotion and gun control. Indeed, the agency, which has more than 8,000 employees, has long had a reputation for attracting health activists and is viewed as a headstrong outsider by many in the Washington health bureaucracy.

Since taking office, HHS Secretary Tommy G. Thompson has moved to centralize control over the department's 11 agencies, including the CDC. Criticism of health officials for giving conflicting advice during last fall's anthrax outbreak apparently strengthened the determination of Thompson and other officials to rein in the agency.

A number of CDC employees said that, in recent months, they have frequently been exhorted by HHS officials to make sure that the department speaks with "one voice," an approach that some fear may stifle scientific debate, especially on controversial topics.

Contact with the media is strictly monitored by the HHS press office. Many people interviewed for this article declined to be identified, saying they did not want to get themselves or colleagues into trouble.

"The whole issue of speaking with one voice has become a major problem, because it means that one voice will be a political voice," said a former CDC official. "Technical agencies remain credible if they

are free to act on the basis of the best scientific information available, and not on the basis of what is the most politically favorable option."

Other factors have also contributed to the tension between the CDC and HHS, sources said. D.A. Henderson, who joined the department last November as head of HHS's new Office of Public Health Preparedness and is currently Thompson's principal science adviser for public health preparedness, once worked at the CDC but reportedly feuded with the agency on various occasions later in his career.

HHS officials have ordered audits of many CDC programs and are requiring departmental approval for decisions, such as the hiring of top staff members and travel by employees to scientific conferences, that in the past were usually made within the agency.

Workers given the task of responding to departmental audits are taken away from other public health activities, a CDC employee said. "The approach could have been to say, 'Here is Secretary Thompson's view of this,' " the employee said. "Instead they say, 'We're going to do an audit. Make sure you do things the right way. We're not going to tell you what the right way is. Guess what we're thinking.' "

International travel requests, as well as domestic trips by more than five CDC employees to the same destination, now require departmental approval, generally at least six weeks in advance. Kenneth Castro, director of the CDC's division of tuberculosis elimination, said similar rules on overseas travel were enforced at times during the Clinton administration. He said the long lead time sometimes makes it difficult to send CDC experts to international meetings.

"Very often our overseas partners have only thought of a meeting three weeks ahead," he said. While the rules can be waived in emergencies, recently "there have been a couple of decisions that have been down to the wire. Those have been difficult."

Moreover, since the resignation of Jeffrey P. Koplan as CDC director in March, the agency has been run by a four-person interim team, leaving employees uncertain who will be the CDC's next leader. "If they appoint someone as the next head who is clearly a political hack, people will leave in droves," a former federal health official predicted.

In interviews, two of the CDC's interim managers disputed the claim that tense relations with HHS headquarters have damaged morale or affected productivity.

"I think the relationship ... is actually in one of the most collaborative and professionally positive modes that I've seen in many years," said Michael Osterholm, a special adviser to the HHS Office of Public Health Preparedness whom Thompson appointed to the CDC management team.

Fleming, the CDC's acting director, said that rather than stifling scientific discussion, the department's emphasis on "one voice" has promoted greater interchange between the CDC and other federal health agencies. "Once policy decisions are made, it's all of our jobs to support them," he said.

It is common for a new administration to focus on high-profile activities such as travel and hiring, he said. Fleming said CDC and HHS officials are looking at ways to streamline the process.

Fleming acknowledged that many CDC programs have undergone audits but said they have not created problems. "We do a very good job here," he said. "The more that we can have people from the department or people from other parts of the government see what it is we are doing, the better off we're going to be."

The June 6 announcement that more than \$900 million in federal grants would be made available to state and local health departments for bioterrorism preparedness is evidence that the CDC and HHS are cooperating efficiently, Osterholm said. States' plans for spending the money were evaluated within seven weeks by the CDC, the Health Resources and Services Administration and HHS headquarters.

"You can't cut through all the red tape if you have parties that aren't working closely together," Osterholm said.

But there is uncertainty at the agency over what impact the emphasis on bioterrorism preparedness -- and the administration's recently announced plan for a new Department of Homeland Security -- will have on the funding of public health programs. Under the proposal, much of the CDC's responsibility for protecting against bioterrorist attacks would be moved to the new agency.

Following the Sept. 11 attacks, Congress passed an emergency supplemental appropriation that boosted the CDC's fiscal 2002 budget to \$6.8 billion. It included about \$1 billion for terrorism preparedness to be distributed by the CDC to state and local public health agencies, as well as more than \$1 billion for purchases of smallpox vaccine and drugs. The president's \$5.8 billion budget request for the CDC for fiscal 2003 contains about \$1.6 billion for the agency's bioterrorism efforts but would cut overall funding to other CDC programs by about 4 percent.

HHS spokesman William Pierce said the proposed budget contains money to expand the agency's infectious-disease laboratories in Atlanta and Fort Collins, Colo., as well as funds for needed building repairs, a new communications center and increased security. He said Thompson has been trying to consolidate research programs and reduce the duplication of efforts among various HHS agencies. In some areas, "that might mean less for CDC, but not less on health issues department-wide," he said.

Koplan, the former CDC director, said he was concerned about the impact of the proposed new department on the CDC's role. Much of the funding that the agency has received for bioterrorism preparedness is to rebuild and strengthen state and local public health departments, diagnostic laboratories and communications networks that are also critical to combating everyday diseases.

"There are elements of what we do at CDC that could be carved out" as exclusively related to bioterrorism, Koplan said. "There are many other things that naturally overlap... . The country needs to be prepared for both naturally occurring plague and the potential for bioterrorist use of plague."

Koplan and others said the CDC continues to attract highly qualified doctors and scientists. The key to its future will be whether it can keep them.

"Can it be improved upon? Always," Koplan said. "But I think it's got lots of talented, smart people who have done well by the country for many decades. I hope that they will be in an environment that encourages use of top-quality science to inform public health decisions" ([CDC, 2002](#)).

**Title:** Researcher Shows How Terrorists Could Create Deadly Pathogens

**Date:** July 12, 2002

**Source:** [UCLA](#)

**Abstract:** After laboring for more than a year to make polio virus from scratch, researcher Jeronimo Cello telephoned a scientific supply company in Iowa and ordered two long pieces of ready-made DNA. A few weeks after the pieces arrived in the mail, he became the first person to produce a simple form of life using only written genetic code as a starting point.

But Dr. Cello's success has some people worried. Terrorists, they say, could use similar techniques to create deadly pathogens simply by locating the gene data on the Internet and then ordering the materials through the mail. Eckard Wimmer, a virologist at the State University of New York at Stony Brook who oversaw Dr. Cello's work, says that the terrorists could synthesize other simple viruses, including the flu, HIV and Ebola, and eventually perhaps more sophisticated pathogens like smallpox. "Any well-trained graduate student could do it," Dr. Wimmer says.

The journal *Science* is publishing the polio-making recipe Friday, prompting criticism from some scientists. "I think this is irresponsible," says J. Craig Venter, formerly the head of the gene-sequencing company Celera Genomics Group and now the head of a nonprofit think tank in Rockville, Md. He says the work represents only a minor technical achievement but carries an alarmist message

that could frighten the public and prompt legislators to put more controls on basic research. "It has the chance to hurt the entire scientific community," he says.

The polio project also raises important philosophical questions. Although viruses are considered a marginal form of life because they can't survive apart from a host, this appears to be the first time that scientists have created any life form in the laboratory starting only from a written blueprint of DNA letters.

Independent scientists agree that similar techniques could probably be used to make other viruses, but they question whether it would be possible to create more complex life forms such as bacteria, plants and animals. "The simplest bacteria has a million times more DNA than a virus, so it's a practical issue. But it does make you wonder if you could make something larger," says Ross Durland, head of research at Chromos Molecular Systems Inc. of British Columbia, which is studying how to use synthetic genes for medical purposes.

Dr. Wimmer says his work was supported starting in 1999 with about \$160,000 from the Department of Defense's Advanced Research Projects Agency, which is known for funding blue-sky scientific projects with potential military consequences. Dr. Wimmer says he was serving as an adviser to the agency, known as Darpa, when administrators decided to fund his project as part of a program to study next-generation defenses against biological weapons.

But Darpa didn't disclose that the polio project was among its grants under the program, called the Unconventional Pathogen Countermeasures program. Dr. Wimmer says he isn't sure why the agency kept the project secret. A Darpa spokesman said not all the agency's work is posted on its Web site.

"It looks like the age of synthetic bioweapons is upon us," says Edward Hammond of the Sunshine Project, a nonprofit organization that monitors U.S. compliance with the international Biological and Toxin Weapons Convention, which bars the development of germ-based weapons. Mr. Hammond says the international community has been slow to recognize the threat posed by lab manipulations of viruses and other organisms.

Thanks to near-universal vaccination, the polio virus poses little danger in the hands of bioterrorists or others. According to the World Health Organization in Geneva, there were 600 cases of the paralyzing disease poliomyelitis in 10 countries in 2001, and the group has set 2005 as a target for wiping out the disease.

Recently, some public health officials have argued for the eradication of the known remaining stores of conquered viruses such as smallpox, samples of which are stored at the Centers for Disease Control and Prevention in Atlanta and in Russia, in order to permanently remove such threats. Experts say Dr. Wimmer's work appears to render such debates moot, because the genetic sequence of smallpox and other pathogens have already appeared on the Internet.

Dr. Cello began the SUNY project in 1999 after he joined Dr. Wimmer's laboratory from Argentina as a junior research scientist. He says the project was supposed to hone his skills in molecular biology and was only expected to take a few months.

Working alone, Dr. Cello began attempting to stitch together a complete copy of the 7,500 chemical units that make up polio's genetic complement. It was already known that genes copied from a live virus could produce new viral particles after being injected into a human cell. Dr. Cello's goal was to start with a copy of the genome synthesized out of DNA building blocks in the laboratory and build the chain piece by piece.

But building up the long chain of DNA from smaller pieces proved frustratingly difficult. Eventually, Dr. Cello simply ordered most of the completed sequence from a scientific supply house, Integrated DNA Technologies of Coralville, Iowa.

Like other viruses, polio virus unleashes its genetic payload into a human cell and then takes over the cell's machinery to make more copies of itself. With the viral genome in hand, Dr. Cello was able to harness that process to make millions of copies of live virus.

To help keep the laboratory ingredients out of terrorists' hands, Dr. Wimmer suggests that companies selling synthetic DNA should check orders against public databanks to identify any customers ordering sequences that match up with deadly microbes ([UCLA, 2002](#)).

**Title:** CDC Says They're Prepared To Handle Bioterrorism

**Date:** August 28, 2002

**Source:** [UCLA](#)

**Abstract:** The Centers for Disease Control and Prevention says it is better prepared to handle the threat of terrorism following the September 11 attacks.

CDC director Julie Gerberding said September 11 changed the world. Then, less than a month later, the nation was thrust into the height of the anthrax scare.

"The world changed for all of us, including the CDC," Gerberding said a conference Tuesday on terrorism preparedness. "We learned a lot of lessons last fall. We have been scaling up ... and streamlining our operation. We're better prepared than we were a year ago, but we are not done yet."

According to officials, \$918 million will be used next year for improvements to state and local health departments. The West Nile virus outbreak, now identified in 20 states and the nation's capital, has been an opportunity to practice public health response and implement operations, communications and leadership strategies similar to those that would be used in terrorist attacks.

Though the agency has stepped up its level of terrorism preparedness, it hasn't forsaken other public health concerns, Gerberding added.

"We are not taking away from other programs to enhance our terrorism efforts," Gerberding said. "We are not complacent about the threats we face. We're building terrorist capacity on the foundation of public health."

Improvements have been made to areas of radiation risks, chemical residues, drug stockpiles, and emergency response, CDC officials said. Priority has been placed on education for health care workers regarding anthrax, smallpox and other diseases.

"The anthrax attack was unprecedented, and could've been much worse and more complicated, but we're putting the lessons we learned from that to use," said James Hughes, director of the CDC's National Center for Infectious Diseases.

Kathleen Rest, Deputy Director of CDC's National Institute for Occupational Safety and Health, said the World Trade Center and anthrax attacks also highlighted the importance of worker safety and health.

"These people face illness, injury and death on the job, and it's up to us to make sure emergency responders have the tools they need to protect themselves and do their jobs," she said ([UCLA, 2002](#)).

**Title:** Quiet Federal Disease Lab Has New Mission After 9/11

**Date:** September 2, 2002

**Source:** [UCLA](#)

**Abstract:** If not for the shiny new security fence, the nondescript building would fade into the neutral shades of the foothills behind it.

In fact there's not even a sign to identify the Centers for Disease Control outpost in the war against bioterrorism. The Division of Vector-Borne Infectious Diseases, the CDC's only lab outside of Atlanta, is just another building on the Colorado State University's quiet Foothills Campus - past the equine research stables and the ducks on College Lake and before the expensive new houses on the south side of the campus.

Vistors are told to look for the guard shack.



"We've been out here for 35 years, just quietly going about our work," said Duane Gubler, director of the Fort Collins lab. "Nobody even really knew what we were doing out here."

"But that has certainly changed."

The lab's primary responsibility is researching and monitoring naturally occurring plague and other diseases transmitted by mosquitoes, ticks, and fleas. Work done at the lab has become an important weapon in the fight against both man-made bioterrorism and the naturally occurring West Nile virus.

"It's the same as in any business; there are things we've been plugging along on," Gubler said. "BT [bioterrorism] was one of those things until 9/11. Now it's our top priority."

Of the lab's 172 employees, perhaps the busiest is Dr. Lyle Petersen, associate director for medical science. The physician and epidemiologist came to the facility three years ago to focus on West Nile research. A couple of weeks before the events of Sept. 11, he volunteered to head up the bioterrorism unit.

Petersen, the CDC's spokesman at the lab, previously was involved in setting up Germany's disease control center. Prior to that, he worked with the CDC in Connecticut. He headed up the investigation of the New York City anthrax contamination last fall.

"When I moved to Colorado, nobody had even heard of West Nile," he said. "On the East Coast, everybody was familiar with it, but out West it was like, 'What's that?'"

While Petersen said that he and his fellow researchers were anticipating a larger West Nile outbreak this year than in the past, he has been surprised by how quickly the infection has spread.

"Part of the problem is that every single human is susceptible," he said. "Because people haven't been exposed to it before, no one has built up an immunity."

Vector-borne diseases, in general, went off the radar screen about 30 years ago, Petersen said. As a result, fewer people went into that field, and now the country is short on expertise on such illnesses and the infrastructure to deal with them.

"I wouldn't say it's a weakness, but we definitely have some catching up to do," Gubler said.

Before the emphasis on West Nile research and bioterrorism preparedness began in 1999, the Fort Collins lab was focusing on dengue, a mosquito-borne illness which kills hundreds around the world annually, and Lyme disease, the tick-borne illness which can damage the joints and nervous system.

"Because we are responsible for three of the top 10 agents of concern, we've really become the hub for bioterrorism," Gubler said.

Two of those agents, tularemia and plague, are "Class A," meaning they are of top concern.

Plague, transmitted by rodent fleas, was the Black Death that killed millions in Europe during the Middle Ages. Modern antibiotics are effective against plague, but if an infected person is not treated promptly, the disease is likely to cause severe illness or death. Tularemia is a plague-like disease that is transmitted by the bite of a tick or a flea or by consumption of contaminated food or water.

The third potential bioterrorism agent tracked and studied in Fort Collins is Venezuelan equine encephalitis. Rarely fatal and difficult to spread, the disease is thought to be an unlikely choice for bioterrorists.

In addition to monitoring these agents, the division is working on tests to limit the spread of viral weapons and determine their origin.

The division was established in Logan, Utah, in the 1950s as the Disease Ecology Section of the CDC to deal with forms of viral encephalitis transmitted by mosquitoes in the Western United States.

In 1963, the unit moved to Greeley, Colo., and in 1967 to its present location in Fort Collins. The plague program was moved from San Francisco to the unit at that time. In 1974, the name was changed to the Division of Vector-Borne Viral Diseases. In 1989, it was renamed the Division of Vector-Borne Infectious Diseases to reflect its responsibilities for Lyme disease, plague, and other bacterial infections.

Given its increasingly important role and the deteriorating condition of the 35-year-old building it is housed in, the division is in line for a new lab. The president's budget for the coming fiscal year includes \$74 million for a new Fort Collins facility.

The building serving 172 was designed for 50. There is a waiting list to use the most secure labs and 70 offices have been located in modular trailers.

"The past five years or so, our requests weren't given that much consideration," said Mary Ellen Fernandez, a deputy director of the division. "But now it looks like we're going to get the new building we need.

"I guess there are some advantages to being noticed" ([UCLA; 2002](#)).

**Title:** Gearing For Bioterror

**Date:** September 8, 2002

**Source:** [UCLA](#)

**Abstract:** When Dr. David Ackman started his new job in January 2001, he expected that serving as health commissioner for Nassau County would be a fairly low-key task.

That was, of course, before the affluent Long Island county's bond rating fell to near-junk status. Before two jets slammed into the World Trade Center. And, most significant to Ackman and his public health colleagues nationwide, it was before Robert Stevens (case [5](#)) died on Oct. 5 of inhalational anthrax.

"I don't think we consider ourselves a major terrorism target," Ackman said. "But it does skew what we do here . . . I'm called upon to spend a lot of time thinking about bioterrorism."

It's hard to imagine what might constitute a target for germ warfare in Nassau County, but it does lie in the shadow of the biggest target of all: New York City. And that leads to several nightmarish suburban scenarios.

"There could be a letter \[contaminated by anthrax\] passing through the postal system on Long Island," Ackman ticked off. "Second, there could be exposures in New York City, and some people who work there live here in Nassau. Or there could be an aerosol release in New York City, and the prevailing winds carry it into Nassau County."

So Ackman has to take the threat of bioterrorism seriously. Responding to Sept. 11 and anthrax fears last fall cost his department more than \$100,000, Ackman said, about \$85,000 of which was eventually covered by federal emergency funds. During the summer the county received \$1.3 million more from the federal Centers for Disease Control and Prevention for bioterrorism preparedness, and it will be Ackman's task to determine how best to spend the funds.

"But emergency preparedness planning is something we have no preparation for. Nobody in Nassau County even knew what 'incident command' meant six months ago," Ackman said. "Nobody's really decided what we have to prepare for. How big? How many cases?"

Somewhat arbitrarily, he conceded, Ackman set preparedness targets. By the end of 2003 he wants the department ready, within 36 hours of realization that a germ attack has been unleashed upon New York City or within Nassau, to "be able to treat up to 10,000 people with prophylactic medicines over a 48-hour period."

Having said that, Ackman asked, "Is that sufficient? Or too much? I don't know. Nobody's really told us what a place like Nassau County should be prepared for. We're making the best guess, and we'll go ahead, practice our bioterrorism drills, and in all probability never have to use it."

All over the country, health commissioners are trying to reckon what threats, realistically, loom over their communities and how best to juggle their typically shrinking non-bioterrorism budgets and staffs to protect the people whose health is their responsibility.

Ackman's counterpart in nearby Westchester County thinks everybody is overreacting, and he has no plans for such contingencies as large-scale quarantines. But his colleague in upstate Onondaga County is preparing for worst-case scenarios - a level of commitment that requires five full-time staffers and a budget for the cash-starved county of more than a million dollars.

Boston is spending about 10 percent of its public health resources on bioterrorism preparedness. And Los Angeles County, which for the second time in 10 years faces possible bankruptcy, is trying to find a cheap way to protect the nation's most expansive metropolis.

Who has it right?

It doesn't help, of course, that no one can really define the challenge. At a time when Congress is scrutinizing alleged failures to protect Americans on the parts of the FBI, CIA and National Security Agency, public health leaders are acutely aware of the political dangers. Dr. Alfred Sommer, dean of the Bloomberg School of Public Health at Johns Hopkins University, said in an interview, "You can't expect complete safety, no matter how many billions are poured into public health. The question is, how much safety is enough safety, from a legal, political or moral point of view?"

It's a public health gamble, a game of terrorism roulette.

Over seven months *Newsday* has interviewed local public health leaders across the nation to see how they plan to protect the American people from biological terrorism. *Newsday* found them deeply troubled by their charge. All expressed pleasure at the nearly \$2.5 billion the federal government is expected to dole out in the coming months for local public health preparedness. But, without exception, they worry that beleaguered public health systems, most facing cutbacks in non-bioterrorism budgets due to severe deficits in at least 40 states, will not be able to meet the challenge.

One top-level federal health official who spoke on condition of anonymity said that Health and Human Services Secretary Tommy Thompson has become enraged when challenged by staffers to offer detailed guidance to local authorities. He has repeatedly told his inner staff that the key mission is to get the federal dollars out to the states - let local officials decide what their threats may be and how best to spend the money.

"Potentially any [germ] agent could be a bioterrorist threat that is used in a deliberate manner to cause illness or social disruption," Dr. Ernest Takafuji said. Takafuji recently retired as a colonel in the U.S.

Army, focused on bioterrorism. Now he guides National Institutes of Health bioterrorism research agendas.

"Influenza is probably one of the best biological warfare agents we could be facing," Takafuji said. Influenza is far more contagious than smallpox, the current focus of HHS preparedness. And rare, super-virulent strains of flu, such as the one that killed 25 million people worldwide in 1918, would pose a challenge far exceeding anything the health system is currently equipped to handle.

Should the goalposts for bioterrorism preparedness be set far enough for health commissioners to handle a 1918-style superkiller influenza? Maybe, officials say, but first public health needs to achieve far less ambitious goals.

Dr. Frederick Burkle of the Defense Threat Reduction Agency at Johns Hopkins University said America's public health lacks "a real-time modern disease surveillance system" that can spot either naturally arising or terrorist disease threats. Though all local health departments and the CDC have surveillance systems, Burkle said, "there's so much noise we can hardly pick up the signal."

"We have no baseline epidemiology of infectious diseases," Burkle said. "We just don't know what the normal or background rates of infectious diseases are." Without knowing what "noise" is normal, disease trackers are hard-pressed to spot new threats.

In the absence of such information, the CDC is encouraging local public health leaders to develop systems of syndromic surveillance, which could allow them at least to notice increases in emergency room cases of illnesses that seem to involve symptoms similar to those produced by biological weapons.

Syndromic surveillance was first used extensively by New York City health officials to track the 1999 West Nile virus outbreak and is now being used nationwide to spot cases of that disease. It is swiftly becoming a mainstay of bioterrorism preparedness nationwide.

That has prompted a rash of false alarms, as doctors, trained to spot such syndromes, leap to conclusions they would never have considered before Sept. 11. On Aug. 4, for example, an emergency room physician at the Kings Highway Division of Beth Israel Hospital in Brooklyn decided that a young man with fever and a skin rash fit the description for smallpox. New York City's emergency response system was activated over what turned out to be a mild case of contact dermatitis.

Dr. Julie Gerberding, director of the CDC, said her agency "loves those false alerts because it tells us clinicians are alert and are paying attention."

Not everybody is thrilled.

"Syndromic diagnosis - that's nothing but a big charade," said Dr. C.J. Peters of the University of Texas Medical Branch in Galveston, who formerly headed the CDC's top security lab and, decades ago, was part of the Army's bioweapons defense research program.

"By the time you start getting blips in emergency rooms, it's too late," Peters insisted. Surveillance systems have to focus on spotting the microbes, themselves, before people have incubated germs in their bodies for several days and started an epidemic, he said. But regardless of how surveillance is focused, the current system is inadequate, all experts agree.

Last fall's [anthrax-spiked letters](#) sparked a wave of public anxiety worldwide that overwhelmed public health laboratories in nearly every nation. In the United States local health departments and state and federal labs processed an astounding 125,000 human specimens that were suspected of containing anthrax, and more than 1 million environmental samples, according to Dr. James Hughes, director of the

CDC's National Center for Infectious Diseases. If a genuinely contagious event occurred, the local burden would be exponentially greater.

So the mandate to prepare for such an event hits every community, large and remarkably small. "We are absolutely passionate about committing resources to remote areas," secretary Thompson said in a June 6 speech in New York City.

Health director Linda Lazzari's rural Essex County, N.Y., with a population of fewer than 40,000 spread over 1,800 square miles, is best known for its pastoral scenery and access to Lake Champlain. Its tiny health department, run by registered nurse Lazzari, is expected to devote time and resources to bioterrorism preparedness.

"Our budget has not been too affected, but our public health activities definitely have," Lazzari complained. "Our supervising nurse for preventive services spends almost all her time these days on bioterrorism. The same is true for myself. Between all these meetings I have been to and trainings I have attended on bioterrorism, I have had little time to spend on other programs and activities."

The question Lazzari faces is, if her prevention nurse hasn't got time to deal with school cafeteria inspections or child vaccine programs because she's swamped with bioterrorism meetings, is that in the best interests of the residents of rural Essex County?

In addition, all health departments worry that the federal bioterrorism funds will dry up in a year or two, which would force officials to lay off the very scientists and technicians they are now trying to hire. Many health administrators are trying to borrow personnel from other programs, rather than hire new ones.

At the other end of the scale is New York City, home to 8.5 million people and a clear target of terrorists. Due to plummeting tax revenues since Sept. 11, the state public health budget has been reduced, and the city, with its own budget deficit of about \$5 billion, is in no position to offset those cuts. Mayor Michael Bloomberg has ordered a 12 percent slash in the city's health budget for this year and warns that further cuts will be necessary in the future. The biggest hits will be in such core programs as immigrant health, infant mortality prevention, tobacco control, HIV education, lead elimination and cancer programs.

The city has received more than \$21 million for bioterrorism preparedness and expects that much again for next year. That makes bioterrorism the largest non-entitlement portion of the city's health department budget. City health officials insist they will try to build bioterrorism programs that offer protection against both natural and man-made epidemics. But they acknowledge that personnel from the full gamut of health programs have been involved in bioterrorism training and activities.

That basic dilemma - juggling finite, usually insufficient, resources against tremendous uncertainty - appears to be universal.

"If public health dollars are finite, we are very worried that funding for bioterrorism will come at the expense of other health programs," said Dr. Millie Svatek of the Suffolk County Department of Health Services. "It is essential that all bioterrorism money be viewed as additional money that will in the long run enhance all of public health" ([UCLA, 2002](#)).

**Title:** Many Worry That Nation Is Still Highly Vulnerable To Germ Attack

**Date:** September 9, 2002

**Source:** [New York Times](#)

**Abstract:** Although the Bush administration has invested hundreds of millions of dollars over the past year to strengthen the nation's defenses against a biological attack, experts say the United States remains highly vulnerable to bioterrorism, particularly strikes on the food supply.

The long-neglected public health system, which was stretched thin during the [anthrax attacks](#) of last fall, has received nearly \$1 billion. States have used the money for plans to cope with a germ attack, and some are already hiring workers who can respond to intentional attacks or natural outbreaks of diseases like West Nile virus.

"Each day we are getting stronger," said Tommy G. Thompson, the secretary of health and human services. Even so, significant shortcomings remain.

Many experts, including Mr. Thompson, say the administration has not paid enough attention to protecting the plants and animals in the food supply from biological attacks. The Food and Drug Administration doubled the number of food inspectors, to 1,500, this year, but even so, Mr. Thompson said, the government is "woefully inadequate in this area." He called this his biggest concern.

Battles persist within the federal bureaucracy, particularly over the role of the new Department of Homeland Security in preparing for germ attacks. John J. Hamre, president of the Center for Strategic and International Studies, a research organization devoted to security, says the bioterrorism effort is still "years away" from being properly organized.

"We're better prepared as a society, but not necessarily as a government," said Mr. Hamre, a deputy secretary of defense in the Clinton administration.

Meanwhile, a deep philosophical divide has emerged between scientists and intelligence officials over whether to withhold scientific information in the name of national security. A case in point is a rift over a study on agricultural bioterrorism prepared by the National Research Council.

The report, a draft of which was obtained by *The New York Times*, says the government lacked a comprehensive plan to respond to agricultural bioterrorism. But it has yet to be published, its authors say, because of fears that it could aid potential terrorists.

"There's a possibility of it being literally classified," said Dr. Joshua Lederberg, a microbiologist and Nobel laureate who served on the committee that wrote the report. "Some people think it shouldn't be released."

So while government officials say considerable progress has been made against bioterrorism, they acknowledge that there is a long way to go.

"There are still some gaps," said Dr. Julie L. Gerberding, director of the Centers for Disease Control and Prevention. "There is a kind of mosaic of capacity right now."

While public health agencies have received a big lift, hospitals have received far less money from the federal government, and many hospital executives say they cannot afford to prepare for bioterrorism on their own.

Although the budget of the National Institutes of Health has grown considerably to accommodate more research into new drugs and vaccines, the next generation of therapeutics is still years away.

"That just doesn't happen overnight," said David Franz, former commander of the Army's bioterrorism defense laboratory in Fort Detrick, Md.

Indeed, Dr. Franz and others say, the biggest change has been one of attitude.

Doctors and nurses who have never seen a case of smallpox -- a disease that was eradicated two decades ago -- are now learning how to identify its distinctive rash and how to administer the vaccine, which has not been routinely given to Americans since 1972.

Health officials pay closer attention to infectious disease. For example, Dr. Georges Benjamin, who runs the Maryland health department, now has his staff compile a monthly e-mail report of disease outbreaks overseas.

"We didn't feel threatened by that before," said Dr. Benjamin, who is also president of the Association of State and Territorial Health Officials. "The world has changed. Every time we get an outbreak at all, the first question we ask is, 'Was this intentional?' "

#### The Agencies: Boom Times

As director of the Iowa public health laboratory, Mary J. Gilchrist has long worried about germ attacks, but long had trouble getting colleagues interested.

"People thought I was from outer space," Dr. Gilchrist said.

Last year, her bioterrorism preparedness budget was scant: \$100,000, all of it from the Centers for Disease Control and Prevention.

This year, with \$1.5 million in federal bioterrorism money, Dr. Gilchrist is hiring laboratory workers and buying equipment to enable her technicians to conduct rapid tests on infectious agents. She says she worries that she will be unable to fill new positions because other public health agencies are also hiring.

"There's going to be a brain drain," Dr. Gilchrist predicted.

Bioterrorism has brought boom times to public health agencies. In January, President Bush signed a bill authorizing \$1.1 billion for bioterrorism preparedness, with the bulk of it, \$930 million, designated to be parceled out among the states for improvements in public health.

The Office of Public Health Preparedness, created by Mr. Thompson, reviewed state plans and had disbursed nearly all the money by June, said Jerome M. Hauer, the office's director and an assistant secretary.

Now the states must carry out their plans.

In Massachusetts, for example, Nancy Ridley, assistant commissioner of the state's Department of Public Health, said it took several months just to get officials in 351 local health departments to agree on how to divide the state into regions so the federal dollars could be distributed. "Everybody wants a piece of the pie," she said.

In Texas, Dr. Eduardo Sanchez, the commissioner of health, is trying to determine how to handle an attack that would involve the state's neighbor, Mexico. Could Mexican hospitals care for American patients, and vice versa? Would Mexicans be eligible for smallpox vaccine from the United States stockpile?

Dr. Rex Archer, the director of health for Kansas City, Mo., said: "We as a nation have not defined how well we want to protect our public. We have not said that we need to be able to manage a major bioterrorism attack in, say, 50 states, and keep the number of casualties down to a certain level. Until you do that, you can't see how adequate your staffing is."

#### The Hospitals: Getting Ready

The nation's hospitals are not nearly as far along as public health agencies in preparing for a bioterrorist attack, Mr. Hauer says. They received an extra \$135 million from the federal government, he said, but



that is not enough. In his budget for 2003, President Bush has proposed \$518 million for hospital preparedness.

A major concern is what experts call "surge capacity," the ability of hospitals to accommodate a sudden increase of patients. Mr. Thompson, the health secretary, says he wants each state to develop regional plans that would enable hospitals to handle an extra 500 patients on any given day this year, and 1,500 on any given day next year.

"Five hundred patients is feasible so long as people understand that not everybody is going to be in a hospital-style bed with all the accouterments," said James D. Bentley, a senior vice president at the American Hospital Association. "If we have to start using elementary schools or armories or other kinds of settings, that's what we will have to do."

Hospitals that ordinarily compete have begun joining forces. Dr. Paul Pepe, who runs the emergency department at Parkland Health and Hospital System in Dallas, said hospitals in the region were talking about "cross-credentialing" doctors so that they could treat patients anywhere.

"We're talking about buying in bulk, in economies of scale, with everybody participating," Dr. Pepe said. "Everybody is anteing up."

But, Mr. Bentley said: "There is a long way to go. It is going to probably take five years to get where we ought to be."

#### The Vaccines: Bolstering Supplies

As fear of anthrax swept the nation last fall, much of the public discussion about bioterrorism centered on the question of whether there would be enough drugs and vaccines to go around. Today, those worries have largely eased.

The biggest fear last fall was an insufficient supply of vaccine against smallpox. Mr. Thompson, the health secretary, signed contracts with two companies -- Acambis, a biotechnology concern, and Baxter, the pharmaceutical giant -- for a total of 209 million doses.

But in the interim, scientific studies have shown that the nation's existing stockpiles of smallpox vaccine could be diluted to provide 300 million doses, enough for every American to be inoculated, said Dr. Anthony S. Fauci, director of the National Institute for Allergy and Infectious Diseases, which did the work.

The existing vaccine is old -- some of it dates to 1952 -- so the government still intends to buy the new vaccine. But, Dr. Fauci said, "If we had an emergency tomorrow we'd be good to go."

Still unresolved is the question of whether the government should offer the vaccine to health care and emergency workers as a precaution against a bioterrorist attack. In June, a national advisory panel recommended vaccinating about 15,000 health care professionals.

The issue has proved a vexing and politically delicate one, because the vaccine is made from a live virus that itself can lead to fatal complications in people who receive it or come into contact with people who receive it. People with impaired immune systems are especially vulnerable. The decision now rests in the hands of the White House; Mr. Thompson said an announcement was expected by the end of the month. (The new vaccine is also made from a live virus, vaccinia, but under safer conditions. )

#### The Food Supply: Another Front

Many officials and scientists say bioterrorist threats to the nation's food supply have had too low a priority in the war against terrorism. Understandably, one administration official said, the government initially concentrated on countering threats to people, and the relative complacency about agriculture was partly a result of the nation's success in controlling disease.

"Most people take the programs for granted because we have been so well protected," Ann M. Veneman, the secretary of agriculture, said in an interview yesterday. But countering bioterrorist threats has the highest priority for her, she said. Since Sept. 11, with a \$328 million budget appropriated by Congress, she has formed a homeland defense council to advise her and has taken other steps to reduce vulnerability, among them increasing border inspections and spending on research.

Critics say too little is still being done, partly because of bureaucratic inertia and a passion for secrecy at the top.

"There is a true crisis in agricultural biosecurity that stems in part from hostility to the very notion of vulnerability at the top of the Department of Agriculture," said Thomas W. Frazier, president of GenCon, a nonprofit group that promotes scientific and educational projects affecting agriculture.

The issue is reflected in a dispute over the delayed release of the National Research Council's draft report, "Countering Agricultural Bioterrorism: A Framework for Action," commissioned by the government a year before the attacks but partly written after them.

The report warns that "gaps in biological and intelligence data on foreign-plant and foreign-animal pest and pathogens" and inadequate inspection at the nation's borders increase the chance that a terrorist armed with, say, foot-and-mouth virus or soybean rust could enter the country and deliberately spread diseases that could cripple the nation's livestock and plants.

It notes that only 1 percent of all private vehicles entering the country are inspected by the Agriculture Department. It concludes that the government has not developed "in-depth plans for defense against the intentional introduction of biological agents directed at agriculture."

Dr. E. William Colglazier, the executive director of the National Academy of Sciences, which conducted the study, said that lawyers for the Department of Agriculture and the White House's Office of Homeland Security had asked the the academy not to publish the report because it might give terrorists a "road map" to striking American agriculture.

Dr. Colglazier said the academy had been willing to omit from the published version of the study secret data or passages that could be harmful to national security, but the government had not identified such material. Scientists and other experts who worked on the study said it contained no secret information and the vulnerabilities it discusses could be found in publications on the Internet. He also said the academy planned to publish a version of the study, which it would edit.

Ms. Veneman said she had not read the report. But Alisa Harrison, an Agriculture Department spokeswoman, said her agency and the homeland security office had not requested that the report be suppressed.

At the same time, critics say, the government has been slow to spend money for initiatives like the creation of a new national laboratory network to detect infectious disease in animals.

Last year, Congress appropriated \$23 million to plan the design of a new facility at Plum Island, off Long Island, the nation's only laboratory authorized to study and develop vaccines for such highly contagious animal diseases as foot and mouth. But nine months later, no design plans have been made. Agency

officials say Congress has insisted that first a new study must be completed on whether a new, higher-security lab should be built on the island or the mainland.

Anne K. Vidaver, chairwoman of the department of plant pathology at the University of Nebraska, said that plant research in general, despite the recent increases, remained underfinanced, and that federal and state labs communicate poorly with one another. In addition, she said, the response to a blight might be delayed by the Agriculture Department's concern about the effect of such a discovery on trade.

"The United States is not unique in this respect," Dr. Vidaver said, "but if soybean rust shows up tomorrow, we might be ordered not to talk about it."

Gordon D. Johndroe, a spokesman for the Office of Homeland Security, noted that President Bush listed bioterrorism prevention as one of his top four priorities this year, and that the White House had requested \$7 billion for it in next year's budget.

He counseled patience as the government mobilizes for a long-term campaign against germs directed at people, plants and animals. "We're much better prepared than we were last fall," Mr. Johndroe said, "and we'll be twice as prepared a year from now as we are today."

Forewarned and Forearmed?

Most public health and intelligence officials agree that no matter how much money is spent, and how many plans are drawn, the nation will never be fully prepared for or protected against a biological attack.

"Prepare for what?" Dr. Benjamin, the Maryland health director, asked. "We are better prepared today to identify smallpox and anthrax than we were a year ago. There is still a whole list of organisms that we are not as prepared for."

In the end, experts say, the most important achievement since last September has been raising the nation's consciousness.

"Our biggest success is not related to vaccines or drugs," said Dr. Franz, the former Fort Detrick commander. "It is related to awareness: Awareness among physicians to think about unusual diseases. Awareness among emergency responders, that if it looks like the flu, maybe it isn't the flu. Awareness among law enforcement, and the guys that walk around in those white shirts in airports. I don't think they would let a sick person, maybe with smallpox, sit in an airport and cough on people. That's the big difference, and that is all education and experience" ([New York Times, 2002](#)).

**Title:** U.S. Makes Major Strides, Yet Much Work Remains, In Preparing For Bioterrorism

**Date:** September 18, 2002

**Source:** [UCLA](#)

**Abstract:** A year after the first [anthrax-tainted letters](#) were dropped into a New Jersey mailbox, the United States is vastly better prepared to face bioterrorism. Yet experts agree that major holes remain in communications, emergency planning and staffing, and many fear America's resolve could fade along with memories of last year's attacks.

There have been no arrests and there are officially no suspects in the criminal investigation into the attacks-by-mail, which killed five and sickened 18. But while the probe appears stalled, efforts to prepare for the next attack have moved steadily forward.

"Public health has always been the poor stepchild. It's never received the dollars, it's never received the attention," said Health and Human Services Secretary Tommy Thompson. "One of the good consequences of 9-11 is we now have the resources available to build the public health system."

Still, much work remains.

An expanded National Pharmaceutical Stockpile is loaded with medicines, vaccines and supplies, ready to land a cargo plane with 50 tons of material in any city within hours. But many communities have no plan for transporting the goods from the tarmac to the patients.

States have new money to hire public health workers, but there's a dearth of talent for hire.

And while cities are now focusing on the threat, experts worry there is still no efficient way to get medical information to the doctors on the front lines.

The anthrax attacks were limited in scale, yet the public health system was severely taxed under the weight of investigating hundreds of false alarms, testing more than 120,000 environmental samples and distributing antibiotics to thousands of people who may have been exposed to the bacteria.

"Last fall was a tragic dry run," said Dr. Michael Osterholm of the University of Minnesota, who advises HHS on bioterrorism. "That was horrible but we all know what it could have been had the same amount of anthrax been put into air intake systems."

The long-neglected public health infrastructure -- the people and systems who guard the community's health -- won an unprecedented, rapid infusion of dollars, nearly \$1 billion. "I can't remember a time when money went out that quickly," Osterholm said.

Yet he and other experts are concerned states will fail to put up their own money to finish the job or, worse, will cut back existing state spending now that the federal dollars have arrived. Some want Washington to ensure that the states spend the money wisely, something the health department has pledged to do ([UCLA, 2002](#)).

**Title:** CDC Head: Agency More Prepared For Bioterror Attack

**Date:** September 19, 2002

**Source:** [UCLA](#)

**Abstract:** The US Centers for Disease Control and Prevention (CDC) is better prepared than ever to meet the demands of an attack with a biological weapon, the agency's new chief, Dr. Julie Gerberding, said Thursday.

Speaking to a group of reporters, Gerberding said the agency had been practicing shifting resources in a hurry and improving its communications to the public. She noted that some of the preparation was evident in how the CDC was handling the West Nile virus outbreak this summer.

For instance, the agency has deployed teams around the country to quickly collect blood samples from potential victims and then rapidly send them to a CDC lab in Ft. Collins, Colorado for analysis.

Even so, she noted, "that doesn't mean there aren't gaps." Gerberding said the agency had been working particularly hard on its dealings with the public, noting that during last year's [anthrax mailings](#), the CDC appeared to be disorganized. Top staff had not done a good job of talking about risk either, she said.

"We do need to be prepared to tell people what we know when we know it," said Gerberding, adding that CDC staff should also tell the public that information could change daily.

Gerberding said the agency is confident that it now has the network in place to detect so-called "sentinel" cases of diseases like anthrax that might indicate a wider epidemic is under way. Since September 11, 2001, the agency has been receiving many more calls from physicians and health departments concerned about patients with suspicious fevers and coughs, she said.

These "false alarms" show the system is working, Gerberding stated.

"If there's a first case of smallpox, we're likely to know it, and in very quick order," she asserted.

Gerberding also defended the agency's follow-up of patients who contracted cutaneous and inhaled anthrax last year. In several recent news articles, physicians and patients themselves have claimed the agency seems to be uninterested in their progress--a curiosity, given that much could be learned.

But Gerberding said she has "personally been very concerned about the follow-up," and says the agency has been doing much to ensure it collects data. But, she noted, the CDC can't talk to the patients or get access to their medical records without permission of the state and local health authorities and the patient, as well.

The CDC has been actively monitoring the 10,000 people who received antibiotics due to potential exposure to anthrax, Gerberding pointed out. They were mostly federal postal workers and other government employees, and thus the agency did not need special permission to study them. The CDC study will continue for another 2 years, she said ([UCLA, 2002](#)).

**Title:** Doctors Warn Of Bioterrorism Risks

**Date:** October 4, 2002

**Source:** [BBC](#)

**Abstract:** Doctors are warning about the dangers of bioterror attacks.

At a meeting of the World Medical Association in Washington, US, they are warning that health officials need to be on their guard against such an attack - and say terrorists could get hold of biological weapons quite easily.

Professor Donald Henderson, senior advisor on bioterrorism to the US government, told BBC Radio 4's Today programme: "At the top of the list is smallpox, followed by anthrax, by plague, by botulinum toxin that produces paralysis.

"Getting hold of anthrax organisms is not all that difficult because there are such cases occurring amongst animals in many parts of the world every year.

Scientists know who's capable of doing this Dr Vivienne Nathanson, British Medical Association "Getting hold of smallpox would be much more difficult.

"But we know that there are many people who were formerly scientists in the Soviet Union who are now out of work and many of these people left their laboratories, and they can bring with them a great deal of sophistication to a dissident group or a state to produce these."

#### **'Web of Deterrence'**

Dr Vivienne Nathanson, Head of Ethics and Science at the British Medical Association, said experts had estimated it could cost just \$1m to buy the equipment needed to make weapons grade material.

She called for closer checks on scientific research. "Scientists know who's capable of doing this.

"They should be watching who's got the equipment, who's got the machinery, who's doing something they're not publishing, they're not talking about.

"We need what people call a web of deterrence.

"We need every country to have a law that says anyone working on this is guilty of a serious criminal act and that they are liable, therefore, for very long periods in prison."

She warned a bioterrorism attack could claim more lives than last year's attacks on the United States."

"We know the hijackers on the 11 September were prepared to fly their planes into the towers and die.

"If instead they had infected themselves with something like smallpox and walked around a busy airport or station, the chances are they would have killed millions, not the thousands tragically killed on 11 September."

### **Detection**

Doctors say that dealing with a bioterrorism attack would need the same systems as any other infectious disease - and early detection would be the key to minimising its impact.

Professor Brian Duerden, director of the Public Health Laboratory Service, which covers England and Wales, said like other major countries, the UK could be the target of a bioterrorism attack.

But he said: "What you have to have is systems in place to detect any such attempt at the earliest possible opportunity.

"And that needs the same activities that you have to have in place for any communicable diseases - whether that is the next flu epidemic major food poisoning outbreaks, or the legionella outbreaks we saw a few weeks ago."

He said plans to cope with bioterrorism attacks were in place before last autumn, but these were improved and made more publicly available.

Professor Duerden said he did not see the need for a "web of deterrence".

But he added: "What is important is to ensure that people coming for training in Western countries are of an appropriate background and that you're not risking taking people on who want to use the knowledge that they gain in this sort of way" ([BBC, 2002](#)).

**Title:** A Virus-Fed Doomsday

**Date:** October 10, 2002

**Source:** [LA Times](#)

**Abstract:** The debate among the nation's politicians and the advice they're receiving from intelligence experts should not focus exclusively on diplomacy versus preemptive military action against Saddam Hussein. Instead, there is one nightmarish outcome -- the so-called bio-Armageddon scenario -- that is of immediate concern.

It goes like this: We go in to take out Hussein, and his obedient henchmen pull a "doomsday" switch, releasing contagious biological agents for which there is no vaccine and no cure. Not only are hundreds of thousands of American troops wiped out but, if Hussein wishes to die a martyr's death, the virulent agents are released to spread around the world and wipe out half of mankind.

Even mentioning this subject may seem like scaremongering, but it's not. In today's dicey world, this horrific possibility is a biological, military and political fact of life -- or death -- that cannot be dismissed out of hand.

How seriously has the bio-Armageddon scenario been weighed in councils of war? An Oct. 7 letter from CIA Director George Tenet to Sen. Bob Graham (D-Fla.), chairman of the Intelligence Committee, stated that a cornered Hussein might use "his last chance to exact vengeance by taking a large number of victims with him."

It costs about \$1 million to kill one person with a nuclear weapon, about \$1,000 to kill one person with a chemical weapon and about \$1 to kill one person with a biological weapon. Low cost alone may dictate that current and future terrorists will opt for the \$1 biological killers.

Last year, a bombshell of a scientific paper, published in the *Journal of Virology*, revealed that a bioengineered form of mousepox -- a close cousin of smallpox -- was vaccine-resistant and 100% lethal. It showed that simply inserting one immune-inhibiting gene into mousepox was all it took.

Is it conceivable that Hussein's well-trained scientists, who crave to please their boss at any cost, have not read this paper and applied its findings to smallpox?

This year, another stunning paper in the research journal *Science* described the complete synthesis of the poliovirus genome in the test tube. This feat of bioengineering pointed out that deadly viruses, such as smallpox, can be resurrected in the test tube. No seed germs are required, as previously thought, just genetic sequences, training in molecular biology at the master's-in-science level and a few years of laboratory work.

It's hard to underestimate or sugarcoat these scientific papers. They offer a blueprint for creating vaccine-resistant and highly lethal viruses that could, for example, render the current smallpox vaccine stockpile and the U.S. government's emergency vaccination program absolutely useless. This biological genie may pose a far greater threat than 1,000 atomic bombs.

It's no longer hypothetical to bioengineer such an agent. And less than \$1 million would be required to create deadly and contagious agents.

In the wrong hands, a bioengineered virus could be bottled and used as an insurance policy against invasion and overthrow. And, if unleashed, it could change the very fabric of remaining modern civilization. At a minimum, too many people might be stricken to continue to operate oil refineries, power plants, airlines and communications.

A completely new appraisal and posture are needed to deal with these threats.

First, the U.S. needs to train and place more intelligence agents knowledgeable in this type of warfare throughout the world, because the work taking place in a secret offensive biological weapons program cannot be monitored from airplanes or satellites. It must be spied on firsthand.

Building our biological human intelligence capabilities will take years. It will require the scientific, law enforcement and national security communities to finally work together, which they have shown little inclination to do.

Second, we need to build a high-speed/high-volume infectious disease laboratory and information processing system that links the molecular fingerprints of biological agents to their sources worldwide.



Such a system would provide comprehensive and rapid analyses of biological agents and, when every moment counts, it could help to save countless lives after an attack -- both at home and abroad.

If we had such a laboratory and biological sample collection program working, we could test for the combined signatures of pox viruses and virus-altering proteins. If, for example, the two were found to reside in the wrong hands or places, we could take preemptive actions.

Here's the bottom line: Bio-Armageddon and biological blackmail cannot continue to remain as realistic options for terrorists ([LA Times, 2002](#)).

**Title:** The Biowarriors

**Date:** October 10, 2002

**Source:** [UCLA](#)

**Abstract:** Col. Erik Henchal regarded the envelope with a scientist's detachment but a citizen's dread. He had seen this day coming.

The [letter](#), coated in white powder, was meant for U.S. Sen. Tom Daschle. It was now at Fort Detrick in Frederick, home of the U.S. Army Medical Research Institute of Infectious Diseases (known as USAMRIID, pronounced "you-SAM-rid"), carried by FBI escort. Last Oct. 15, as bioterrorism fears had started to sweep the nation, Henchal and John Ezzell, a senior anthrax researcher, knew pretty quickly that something they'd long feared - an attack on civilians with microscopic pathogens - had become reality.

The envelope held the same kinds of spores that would come to kill five people and infect 17 others, either through the skin or, worse yet, after being inhaled. There they would germinate, causing a fever, a cough, nausea and diarrhea. These flu-like symptoms masked a killer. Toxins would course through the body, attacking healthy tissues, vanquishing cells, giving way to respiratory failure and shock if left untreated.

"We knew pretty quickly we were dealing with an authentic threat," says Henchal. "This is the day that we had dreaded. We had been talking for a long time that it's not a question of whether but when."

A year later, the nation's top scientific minds are at work looking for ways to boost biodefense capabilities. But significant questions remain unanswered, questions as persistently complex as the *bacillus anthracis* spores that have long been the scourge of the world's livestock population, lying dormant in soil for years, waiting to be ingested and wiping out entire herds.

Since last October, scientists have learned that an aggressive course of antibiotics, given soon after exposure, works in staving off even inhalation anthrax, a particularly lethal form. They've discovered that new detection tools can yield faster and more accurate results. Anthrax's genetic blueprint has been sequenced, giving law enforcement officers clues to track the origin of strains. And a comprehensive sequencing database should help researchers develop new drugs and diagnostics.

But consider the unknowns. What's the minimum number of spores needed to infect humans? How long can they stay in the lungs before germinating into organisms, unleashing a toxic fury? Do antibiotics offer the best treatment? Are there effective ways to treat patients in later stages of anthrax infection? Can a new vaccine be made that requires fewer shots and has less severe side effects? Is there a way to accelerate the development and regulatory approval of new therapies?

"It's a vast problem ... that involves biology, epidemiology," says Pierre Noel, a physician and U.S. Air Force major who advises the Defense Department and other government agencies on biodefense issues

and is a department head at the National Institutes of Health's Warren Grant Magnuson Clinical Center. "There's some politics involved. The important thing is there's good coordination of the effort."

Henchal says he's seeing "an improving situation every day" - but he also has concerns. Where's the blockbuster collaboration with the pharmaceutical industry and other strategic partners? Will a record level of research-and-development investment generate unrealistic expectations?

"Everybody wants us to have these products now, without due regard to the importance of basic research," he says. "A lot of the products we're transitioning to [advanced development programs] are products we did the basic research on five or 20 years ago. If people want us to have the products of the future, we have to have an appropriate investment in the basic science."

Strict regulatory guidelines mean that new vaccines under development won't be available for years. Cutting-edge, development-stage antibiotics are in short supply. USAMRIID has 14 potential vaccine products stuck in various investigation phases. It can't find takers to license the products because of their small market potential and a lack of clinical testing data. And testing potential vaccines for biowarfare agents in humans is an ethical no-go, since it would mean deliberately infecting a test patient with a deadly virus or bacteria.

"The biggest barriers now are regulatory," says David Franz, a former USAMRIID commander and United Nations biological weapons inspector who now heads the chemical and biological defense division of the Southern Research Institute, based in Frederick.

A whole new approach to biodefense needs to be considered, adds Ken Alibek, vice chairman and chief scientist of Alexandria-based Hadron Advanced Biosystems, which is working with USAMRIID and other Defense Department laboratories to develop drugs to treat late-stage infections and boost immune response.

Alibek is careful to praise the strides made in the last year. But the biowarfare veteran - he was the chief scientist in the former Soviet Union's massive program before defecting to the United States - knows last year's brush with bioterrorism could have been much worse.

"If you spend hundreds of millions of dollars developing new vaccines, you need to answer a very important question: What are you going to do next?" he says. "We need to do a very thorough analysis to develop a national understanding of these threats. We haven't done it yet."

Alibek says resources also are needed to study the immune system's defenses at each stage of infection from a biowarfare agent, finding better antibiotics and beating back the septic shock that shuts down the body's organs in the final stages of infection. But Hardon's products, expensive and time consuming to develop, remain years from clinical testing.

In 1984, followers of an Indian guru named Bhagwan Shree Rajneesh poisoned salad bars at 10 Oregon restaurants with salmonella. With county elections looming, cult members hoped to sicken enough voters so they'd be unable to make it to the polls, enabling their candidates to win. The scheme, a trial run for plans the group had to poison the water supply, sickened about 750 people. Only a year later did public health officials determine the salmonella was man-made and part of a deliberate attack.

"Today that would take 10 minutes [to pinpoint]," says Franz. "If you look at it like that, we've come a long way."

Indeed, new diagnostics offer the most immediate promise for boosting the nation's biodefense. Franz points to work done by Marti Jett, chief of the molecular pathology department at the Walter Reed Army Institute of Research in Silver Spring, as a promising new technology for confirming exposure. Jett's

system samples blood cells for signs they've come into contact with pathogens. Because the symptoms resemble the flu, there's a chance a crucial early diagnosis could be missed.

But cells, when exposed to a pathogen, produce different levels of proteins coded by genes. Scientists call this a change in the gene expression profile, and it could tip doctors that they're seeing something other than flu. Jett's lab has catalogued blood cell responses to other agents like smallpox, anthrax and plague and is collaborating with the Institute of Human Virology in Baltimore to speed the application of the system, which is probably five years away.

Further along are next-generation environmental detection tests like those Gaithersburg-based Igen International is developing with USAMRIID and three other military partners. The tests are built around a process called electrochemiluminescence. Air or soil samples are electrochemically stimulated, and chemical compounds indicative of pathogens are rooted out because the process causes them to emit light. The instruments turn out results in about 30 minutes, according to Richard Massey, Igen's president and chief operating officer.

"The technology is there" for faster, cheaper and more reliable detection, he says. "The government has to figure out what instruments they're going to go with and how they're going to deploy them."

As one of the world's premier biodefense laboratories, USAMRIID is in many ways the fulcrum of much of this next-generation R&D. Since 1969, USAMRIID scientists have gone toe to toe with nature's deadliest viruses, working to unlock their secrets. At headquarters, winding corridors and a series of sophisticated identification scanners lead to suites of laboratories where scientists study anthrax, plague, botulism, tularemia and hemorrhagic fever viruses like Ebola and Marburg. There they develop vaccines, diagnostics and other countermeasures for the military.

USAMRIID's expertise is sought in quelling "hot zones," outbreaks of lethal viruses and bacteria, around the globe. Its research facility is the largest biocontainment lab in the country. To work with the most dangerous agents, like Ebola, scientists must wear a 12-pound "space suit," a pressurized and ventilated rubber suit with a spiral air hose attached to a filtering system.

To do their work - growing cell cultures, infecting them, injecting those into animals - scientists are subject to strict monitoring systems that track their comings and goings as well as their immunization records. An accidental exposure means a stay in a special patient containment ward known as the "slammer."

Henchal, a 22-year Army microbiologist, was named USAMRIID commander in June, and the flood of attention he's received has had little to do with his arrival. His 656-person staff has been the focus of federal investigators who believe the perpetrator of last year's anthrax mail attacks may have ties to USAMRIID. The strain used in the attacks was developed there in the 1980s; a [former scientist](#) was identified by federal investigators as a "person of interest" but strongly denies any connection.

The pressure has been intense, enough to puncture the morale of a staff already working long hours. From last September through May, USAMRIID scientists, operating with a \$50 million research-and-development budget, processed 31,000 specimens and performed 260,000 tests, more than any other government agency.

Its diagnostics staff numbered six last Sept. 10; six weeks later it had jumped to 85. In the past year, USAMRIID has handed 14 biological tests over to the Defense Department's advanced developer, to be used in the field and as part of a national laboratory response network coordinated by the Centers for Disease Control and Prevention in Atlanta.

Henchal believes staff morale at USAMRIID is improving, but scars remain. The FBI continues to scrutinize the lab's security measures and question staffers, Henchal included.

Henchal also says federal agents continue to give USAMRIID "real votes of confidence" and says they're moving closer to ruling out any lab personnel as the perpetrator. He's eager to put the suspicion behind USAMRIID, for its profile to once again be centered on being a leading center of biodefense research.

"I'd like to think we're past that and can now get back to business."

Robert Koch, a German physician, first confirmed the bacterial origin of anthrax in 1876, a discovery that would become a building block for the study of microbiology. As the world's economies transitioned from an agricultural to an industrial base an aerosol version of the bacteria emerged.

A vaccine was approved in the United States three decades ago for soldiers and "high-risk populations," such as animal product handlers. Troops fighting in the 1991 Persian Gulf War were vaccinated after evidence emerged showing Iraq had weaponized anthrax. The vaccine came under controversy after Desert Storm soldiers complained of lingering illnesses they attributed to the regimen of shots, which in some cases cause flu-like symptoms like nausea and fatigue.

One of USAMRIID's top anthrax hunters is Dr. Arthur Friedlander, a physician and infectious disease specialist. The Army veteran, now retired from the military, continues to work at USAMRIID developing a new anthrax vaccine.

The next-generation vaccine updates the original vaccine approved by the FDA in 1971. The new version uses a highly purified, genetically engineered protein technology called recombinant PA, which prevents the proteins in anthrax's lethal toxins from binding to cells and opening them up to infection. The hope is that the new vaccine can be administered with fewer shots - the current cycle requires six shots over 18 months - and with less severe side effects. The vaccine also shows promise boosting antibody strength. Special white blood cells that can ingest the spores will hopefully be coaxed out and sent to do battle. The new vaccine is still at least six months away from clinical tests, when Friedlander and colleagues will begin matching animal testing data showing its effectiveness with safety tests in humans.

"That's the best we can do right now," Friedlander says. "It's a very bizarre set of circumstances in which we're developing vaccines against a potential threat of someone using it, not the very existence of the disease."

Anthrax is only one of many challenges faced by government and industry scientists developing new drugs to combat bioterrorism and arm the nation's public health infrastructure should another attack occur. The threat of a smallpox outbreak tops the list.

Congress' Office of Technology Assessment estimates that the release of 100 kilograms of aerosolized anthrax over Washington, D.C., could kill anywhere from 130,000 to 3 million people; smaller quantities of weaponized smallpox would unleash a pandemic. The smallpox virus spreads among people through close contact - anthrax is not passed between people - causing a rash, high fever and fatigue. It kills up to a third of those infected.

Smallpox disease was eradicated in 1980, but samples of the virus remain. Some are kept in the CDC's maximum containment lab. It was also weaponized in the Soviet biowarfare program, and U.S. officials widely believe it's now in the hands of so-called rogue nations and possibly terrorist groups.

Federal officials are confident the nation's stockpile of smallpox vaccine could handle an outbreak. The government signed contracts with biotech company Acambis and pharmaceutical giant Baxter to produce new doses.

Studies conducted by the National Institute of Allergy and Infectious Diseases show that existing stockpiles of the vaccine could be diluted to provide 300 million doses, enough to inoculate every American.

New vaccines are needed not just for physically fit soldiers but for a civilian population that, with the scourge of the HIV virus, is more immunodeficient than when smallpox was eradicated. And there is still no treatment, beyond vaccines, for smallpox and other potential biowarfare agents.

One bright spot: USAMRIID scientists and colleagues at the University of California at San Diego have been able to stop the replication of the smallpox virus in laboratory cultures with a derivative of an antiviral medicine called cidofovir, used to treat AIDS complications. The drug has also shown promise in early tests on mice.

Five years ago, the Defense Department picked Frederick-based DynPort Vaccine to oversee the development, licensing and manufacture of new biodefense vaccines. With the 10-year, \$322 million contract, DynPort today has six vaccines in its pipeline - for smallpox, anthrax, botulinum toxin, plague, Venezuelan equine encephalitis and tularemia. DynPort senior vice president and chief scientific officer Michael Langford says its smallpox vaccine is furthest along and should be ready for licensing in 2005.

He predicts that limited supplies of new vaccines - called investigational new drugs, or INDs - will be stockpiled for use over the next year. But the "conservative nature of the licensing process," due to regulatory guidelines governing drugs, will undercut opportunities to accelerate commercial development and will counter the impact of any pioneering discovery technologies that might emerge, many believe.

"The process of ensuring safety is time consuming," says Langford, a former USAMRIID virologist.

A recent survey by the Pharmaceutical Research and Manufacturers of America found that 256 drugs and vaccines targeting infectious diseases were in development. But, while companies like Eli Lilly and Aventis have given vaccine reserves to the government and started testing drugs for possible biodefense applications, blockbuster collaboration has yet to emerge.

In a nod to developers, the FDA passed a rule permitting them to work around efficacy restrictions. They'll be able to test potential biodefense drugs in animals for effectiveness, while demonstrating safety in humans.

Last Sept. 11, Dr. Anthony Fauci was in a taxi riding through the Queens Midtown Tunnel on his way to a morning meeting in Manhattan when a hijacked jet hit the first World Trade Center Tower. Fauci, director of the National Institute of Allergy and Infectious Diseases, watched events unfold on television until early evening.

Fauci walked 20 blocks down Broadway to Pennsylvania Station to catch an Amtrak home. As the train emerged across the river in New Jersey, Fauci turned for one last look at the New York skyline. Just then, Tower 7, a smaller building next to the two World Trade Center skyscrapers, crumbled to the ground. Fauci had trouble catching his breath as a dust cloud shrouded the skyline.

"I said, 'Uh oh, my world's going to change,'" Fauci remembers. "Because if that's happening with terrorism, bioterrorism's not far behind."

The federal government is set to channel \$1.75 billion for biodefense R&D through NIAID, part of the National Institutes of Health. The bulk of that funding, \$592 million, is slated for drug, vaccine and diagnostics development. More than \$521 million will go to construction of new containment facilities like the one at Fort Detrick. And some of that money will go to institutions like The Institute for Genomic Research in Rockville for basic research.

After last fall's mail attacks, TIGR microbiologist Tim Read and scientists from Northern Arizona University compared the DNA of two anthrax strains - one the kind used to kill a Florida photo editor (case [5](#)) - and found differences that might function as "genetic fingerprints," markers that could help law enforcement agencies pinpoint the origin of pathogens used in future attacks.

Read is leading a team now sequencing 14 other anthrax strains. The sequencing information will be compiled in a database that he believes will aid medicine as much as law enforcement. Armed with better bioinformatics tools, the research will yield new insights into the evolution and pathogenesis of anthrax, Read says, bolstering efforts to design new countermeasures.

Scientists like USAMRIID's Friedlander are already mining the data for clues in the sequence of chemical building blocks in anthrax's DNA that will lead to better diagnosis and treatment, much the way drug companies are using the human genome sequencing to find proteins involved with spurring or blocking disease.

Fauci's under pressure from the White House to deliver a return on investment, to make headway not only in basic research but to come up with "deliverables," applied research leading to the rapid development of new products.

"We need to cover a large waterfront," he says. "It's a challenge, but it's an exciting challenge" ([UCLA, 2002](#)).

**Title:** Another Attack: It Can Happen Here

**Date:** December 29, 2002

**Source:** [SF Gate](#)

**Abstract:** The unthinkable has become the inevitable.

Each night in the coming year, Americans will go snug to our beds as eerie White House warnings reverberate in our heads: The United States should brace for a second-wave terrorist attack likely to be even more spectacular than the first. They say it's not a question of if, but when.

But many experts say our preparations for that attack are woefully weak and inadequate. No one from President Bush on down discounts the risk, however.

"We are entering a time of especially grave danger," reads a new Council on Foreign Relations report, published in the fall, from a task force that includes former secretaries of state, former chairmen of the Joint Chiefs, a former director of the CIA and FBI and three Nobel laureates.

Noting that America is planning to attack a ruthless adversary who may well have access to weapons of mass destruction, the report concludes we remain "dangerously unprepared to prevent and respond to" the likely terrorism in our immediate future.

"After a year without a new attack and with our leaders dithering over bureaucracy and funding, the lack of a sense of urgency is appalling," said former Sen. Gary Hart, co-chair of the task force and the U.S. Commission on National Security, which issued similar, largely ignored warnings before Sept. 11.

The frustration is echoed by participants in a science and technology panel assembled by the National Academies: Virtually all of the 134 emergency recommendations they made half a year ago for reducing our vulnerability are still on the shelf.

Panel co-chair Lewis Branscomb, professor emeritus at Harvard and former chief scientist at IBM, calls the coming Iraq venture "an expensive and dangerous diversion" from the real mission of defending against a next attack.

In another terrorist attack, Americans can count on first-responders -- firefighters, medics and police -- to demonstrate the professionalism and raw courage witnessed Sept. 11. But they will be forced to do so without many of the tools they need.

Less than half of public health departments have e-mail, for example. More than 70 percent of cities across the country still cannot afford to buy enough hazardous materials suits to protect the rescue workers who would arrive first following a chemical attack. And thus far, none of the \$3.5 billion Congress authorized to local governments for first-responders has even been delivered.

"People running our cities are very, very aware that more needs to be done," said Karen Anderson, outgoing president of the National League of Cities and mayor of Minnetonka, Minn. "I'd say, please follow through with the funds so desperately needed by our first-responders."

If another major attack exposes lax preparedness, many Americans will question delays that may have seemed justifiable inside the Beltway but were inexcusable elsewhere. Why should it take at least five years for the Homeland Security Department to become fully operational? Why has the smallpox vaccination program been mired in wrangling over legal liability? Wasn't it foolish for the Defense Department to purge some Arabic-language translators because they are gay?

In case of another attack, some political analysts predict, the American public once again will fail to blame President Bush, because they understand the impossibility of absolute security. Instead, they credit him with making progress in security matters, especially as long as another attack does not occur.

Others say the public will be less forgiving the second time around. "Nobody has accused this president of working too hard. If he's got time to go out on the campaign trail for all those Republican candidates for Congress, he's got time to deal with (civil defense)," scolded former Sen. Hart. "Franklin Delano Roosevelt fought a Depression and World War II at the same time."

No clairvoyant can predict precisely how the country would weather a second attack. But analysts are prepared to make educated guesses as a way of assessing our readiness.

The most optimistic scenarios are isolated and manageable -- say, a cyber- attack that plays havoc with air traffic control but is ultimately thwarted by a backup defense system, triggers no plane crashes and barely alters an economy that's looking up in 2003.

There are also worst-case scenarios. **For example: "suicide terrorists" infected with deadly smallpox circulate through Disneyland, the Mall of America and other bustling icons, triggering an uncontrollable epidemic on a yet-to-be-vaccinated population, forcing mass closures of schools and businesses and sending the economy into free-fall.**

Last year, a government simulation indicated 15,000 people would contract smallpox, and 1,000 would die, within two weeks of the first patients showing signs of illness. Although the risky smallpox vaccine is effective up to five days after exposure, panicked Americans could swamp the public health system, and there wouldn't be enough licensed vaccine to go around.

When TEC International asked more than 1,000 CEOs this month about their greatest concern for the economic future, few cited higher taxes, energy prices, war or labor shortages. What 40 percent feared most was another terrorist attack here.



The financial ripples of terrorism spread in unexpected patterns, as Sept. 11 underscored. When the U.S.-Canadian border shut down briefly after the attack, many of the "Big Three" automakers' assembly plants went idle within two days, stopping production of \$1 million worth of cars at each plant every single hour.

Imagine in 2003 an explosion at the ports of either Long Beach or Los Angeles, which together take in almost half of the maritime containers arriving in the country, not to mention nearly a quarter of California's imported crude oil. The resulting shutdown of West Coast ports would cost at least \$1 billion a day and strand much of the state without refined fuels.

"The most likely place for the next attack isn't on an airline, it's rail or a seaport or infrastructure. The shock to the system will be huge, and the country will insist on entirely revamping security at a huge cost," said David Kotok, president of Cumberland Advisors Inc., and a survivor of the World Trade Center attack.

On the other hand, the economy may bounce back from another attack better this time because more fiscal and monetary stimuli are in the pipeline, and because the Federal Reserve reassured the markets by responding calmly and efficiently to Sept. 11.

Public health labs, however, could crash under surging demand for tests in the event of a biological attack. For example, seven months after the anthrax mailings, there was a backlog of thousands of unexamined specimens suspected of contamination.

Many state and local public health agencies face budget cuts. The inadvertent result, according to Dr. Georges Benjamin, head of the American Public Health Association: 2003 will be a year of fiscal emergency for public health.

### **A second attack likely would precipitate a further crackdown on civil liberties.**

"Privately, that's a huge concern for us," said Samuel Walker, author of a book on the history of the American Civil Liberties Union. "Another attack will undoubtedly be used to justify more government snooping, including on innocent people. I think we've learned from our history not to inter Arab Americans as we did Japanese Americans in World War II. It'll be something different -- maybe drastic immigration controls."

How would the American psyche weather another attack?

Psychologists say, in one sense, it will be more painful because Americans still haven't fully healed from the trauma of Sept. 11 -- a skinned knee bumped again is more likely to bleed.

"But one of the most fascinating things about human nature is our amazing adaptability," said Jana Martin, incoming president of the California Psychological Association. "We learn to live with the situations we're in, whether it's people in war-torn countries, or in families with rampant abuse, or in an area like California where a major earthquake could hit at any moment. "

If the experts are right about more terrorism in America's future, resilience will be a prized commodity ([SF Gate, 2002](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following propaganda was published within the calendar year of 2003. While some of the following reports may have been legitimate news stories, most if not all of them appear to be blatant propaganda with the overall goal of convincing American and the World that it is on the precipice of a bio-terror induced pandemic. The fact that this propaganda exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and military control of society.

**Title:** US Warns That Bioterror Attack Is Inevitable

**Date:** January 26, 2003

**Source:** [UCLA](#)

**Abstract:** The US warned on Sunday night that a bioterrorist attack that could kill thousands was inevitable and urged industrial and developing nations to spend tens of billions of dollars more to gear up medical systems to cope with the threat.

"There is going to be an attack. Whether it is in western Europe, the US, Africa, Asia or wherever, you have got to anticipate that there is going to be a bioterrorism attack and the only way to defend yourself is by getting prepared," said Tommy Thompson, health secretary.

In an interview with the *Financial Times*, he said the wave of arrests in Britain, France, Spain and Italy, and the uncovering of terrorists' attempts to make the deadly poison ricin, made the issue more urgent. Countries were not doing enough, he said.

Mr Thompson met health ministers and officials from the G20, the leading industrialised and developing countries, at the World Economic Forum in Davos, Switzerland, on Sunday night to try to step up international efforts in research and vaccine-sharing and agree mutual assistance pacts to support a country that was attacked.

Since the [anthrax panic](#) of 2001, the US has increased measures against bioterrorism. Last year it spent \$1.1bn (£700m), and is spending \$4.5bn this year with a similar amount planned next.

It has purchased enough smallpox vaccine for the entire population, stockpiled antibiotics and other drugs at 12 sites within seven hours' reach of any community, and is seeking new vaccines for botulism, haemorrhagic fever viruses, plague and anthrax.

Mr Thompson said other countries were "light years" ahead of where they were a year ago in preparedness, but still had a long way to go. They too needed to purchase smallpox vaccines and develop comprehensive plans to gear up their health infrastructure to deal with an attack.

"The preparation is difficult, hard, expensive, but the lack of a comprehensive plan can really damage your economy as well as your population. These poisons have the capacity of killing thousands of people," he said.

An attack could come in the form of "a bioterrorism agent, a chemical dispersal or a radiological one". Smallpox was the most devastating threat because of its contagious nature, he said, but poisoning of food with ricin was a great concern.

Although attention has focused on western Europe as a potential target, terrorists could strike anywhere. "Every country is at risk. You do not know whether a suicide bomber is going to be willing to sacrifice his or her own life to damage somebody else's. It is impossible to defend against, so you have got to be prepared," he said.

Mr Thompson said the US was "by far the world's leader" in the fight against bioterrorism but was still in the process of implementing its plans. "Unless you are prepared to react, your community of citizens are going to be severely impacted by deaths and severe illnesses" ([UCLA, 2003](#)).

**Title:** Threats And Responses: The Bioterror Threat; Health Data Monitored For Bioterror Warning

**Date:** January 27, 2003

**Source:** [New York Times](#)

**Abstract:** To secure early warning of a bioterror attack, the government is building a computerized network that will collect and analyze health data of people in eight major cities, administration officials say.

The Centers for Disease Control and Prevention is to lead the multimillion-dollar surveillance effort, which officials expect to become the cornerstone of a national network to spot disease outbreaks by tracking data like doctor reports, emergency room visits and sales of flu medicine. "Our goal is to have a model that any city could pick up and apply," a senior administration official said of the plan.

Officials would not disclose the program's cost or which cities will be involved. But experts say Washington is likely to be one of the eight.

Such surveillance is now possible because of an explosion in commercial medical databases that health authorities, with permission and under strict legal agreements, are starting to mine. In ambition and potential usefulness, the health network goes far beyond an environmental surveillance system, disclosed by the administration last week, that will sniff the air for dangerous germs.

The emerging health monitoring network, officials and experts say, will provide information that could save lives if terrorists strike with deadly germs like smallpox or anthrax. In detecting attacks, a head start of even a day or two can greatly lower death rates by letting doctors treat rapidly and prevent an isolated outbreak from becoming an epidemic. A senior official said President Bush was expected to refer to these new bioterrorism defenses in his State of the Union address.

The disease centers' initiative represents a sharp swing to civilian leadership in a field the military pioneered and once dominated. But even in civilian hands, the emerging network has raised concerns that such surveillance may violate individual medical privacy rights.

Officials said concerns were initially heightened because of the Pentagon's central role in the genesis of many systems, and especially because Vice Adm. John M. Poindexter, architect of the much-criticized Pentagon computer surveillance effort known as Total Information Awareness, is in charge of the Defense Department agency that finances some of the government's disease monitoring research.

In November, as the Bush administration came under fire for Admiral Poindexter's project, White House officials ordered the military to drop plans to link four cities into a \$420 million health monitoring network and shifted responsibility for such work to the new domestic security agency. The transfer was not motivated by privacy concerns, administration officials say, but by a judgment that the military was ill suited to exploit monitoring for public health.

"We all agreed that doing this surveillance in the civilian sector was not the military's job," Dr. Anna Johnson-Winegar, a Pentagon biodefense official, said in an interview.

Experts say the prospect of war with Iraq, and the chance that Baghdad might retaliate with germ weapons, are accelerating the effort to expand and integrate scores of rudimentary disease surveillance systems being developed by cities, states and the federal government. But public health experts argue that even if the United States never suffers another bioterror attack like the anthrax strikes of late 2001, the emerging network can still help doctors better track, treat and prevent natural disease outbreaks.

"We want as much protection as we can afford," said Dr. Daniel M. Sosin, director of public health surveillance at the Centers for Disease Control and Prevention in Atlanta. Dr. Sosin is helping to expand the nation's health surveillance to incorporate the new systems.

Supporters of the emerging surveillance network insist it raises few privacy issues, saying that the data are laundered of names and identifiers. People are not tracked as individuals, they say, but their symptoms are, and often their age, sex and ZIP code as well. But computer surveillance itself has drawn criticism from the American Civil Liberties Union, members of Congress and others.

The system is needed, proponents say, because few cheap, reliable sensors exist for detecting deadly germs in such likely target areas as subways and shopping malls. Sensors are also prone to false positives, or incorrect germ identifications.

Dr. Thomas R. Frieden, the health commissioner of New York City, which has one of the nation's most highly developed rapid surveillance systems, said the emerging network could help authorities gauge the dimensions of germ attacks and reassure the public.

He pointed to a case in November in which a New Mexico man visiting New York was found to have bubonic plague, a deadly contagious disease. "We were concerned this was bioterrorism," Dr. Frieden said. "But we didn't see any signals. We didn't see any alarms. That added to our confidence to rule out bioterrorism."

Experts say most of the new systems, military and civilian, are still experimental. A critical challenge is finding needles in the haystacks of data about common ailments like respiratory infections, which can rise and fall with great suddenness in winter.

Dr. Marcelle Layton, New York City's assistant health commissioner for communicable diseases, said another challenge was ensuring that there are enough public health officials to respond to alarms that the new environmental and medical surveillance systems might sound.

"The best system will be useless if it's only a fire alarm with no firefighters to put out the flames," Dr. Layton said.

Nonetheless, expectations run high.

"We think this will be important," said Dr. Alan P. Zelicoff, a physician at the Sandia National Laboratories who helped develop a widely used surveillance method, the Rapid Syndrome Validation Project, which is now used in California, New Mexico, Texas, Singapore and Australia. "We need to get disease reporting from the 19th to the 21st century."

For decades, disease surveillance has valued accuracy over speed. Nurses, doctors and public health officers gather raw data, often using paper forms sent by mail. In the background, federal, state and private laboratories use advanced technologies to determine the causes of disease and confirm diagnoses. But the process tends to take days or even weeks.

Moreover, the system is narrow, revealing little about the nation's overall health. While the federal disease control agency has more than 100 surveillance systems, most are designed to track a single organism or condition, like heart disease or flu virus. In addition, most are independent of one another.

The system has serious gaps. While laboratories usually comply with federal rules to report certain illnesses to health authorities, physicians often do not.

The military and the national weapons laboratories, increasingly worried about germ attacks, tried a new approach in the late 1990's. To learn of impending trouble quickly, they decided to scrutinize populations for clues of diseases before they were officially diagnosed. Experts zeroed in on how clusters of such symptoms as fever, cough, headache, vomiting, rash and diarrhea could suggest -- but not prove -- the presence of particular diseases, some of them lethal. The method was called syndromic surveillance.

An early military system was the Electronic Surveillance System for Early Notification of Community-Based Epidemics, or Essence. It drew medical data from some 400,000 members of the military and their dependents who lived in the Washington area -- a major potential terrorist target, but hard for civilians to scan medically because of "the numerous city, county and state jurisdictions," according to a Defense Department statement.

After the 2001 terrorist attacks, the Pentagon's Defense Advanced Research Projects Agency put \$12 million into an experimental program, Essence 2, which tracked millions of civilians in the Washington area for signs of bioterrorism. The program now reports to Admiral Poindexter, whose Total Information Awareness program was dealt a setback by the Senate late last week, its future now in doubt. Joe Lombardo, a civilian who runs Essence 2, which is based at the Johns Hopkins Applied Physics Laboratory in Maryland, said that although Admiral Poindexter's office finances the system, Essence 2 shares no data with his computer surveillance project. Essence 2, he said, gathers electronic records from drugstore chains, hospitals and physician groups. Mr. Lombardo said about a dozen people were developing the technology and collecting and analyzing the data.

"We're not Big Brother," he said. "Our objective is to support public health. The information we receive has been sanitized by the provider to ensure that it is impossible to identify individuals."

Privacy, though a goal, is apparently not yet guaranteed. A Pentagon planning document on the surveillance effort for fiscal 2002 and 2003 said the Defense Department was working to develop "enhanced automated privacy protection methods" that will "assure the anonymity of records accessed by the data monitoring software."

Experts say that privacy can, in theory, be violated when connections are made between disparate databases -- for instance, between those of physician payment and disease diagnosis, or health and law enforcement. They also say the potential for personal identification increases as the surveillance becomes a two-way street in which not only are problems detected but physicians are notified about potential problems involving individual patients.

This fall, the military sought to incorporate the Essence 2 program into an expanded program, the Biodefense Initiative. Costing a projected \$420 million, it was to deploy environmental sensors and wire four major cities, including Washington, into a disease-surveillance network.

But after Admiral Poindexter's Total Information Awareness program came under criticism by privacy advocates, White House officials moved the Biodefense Initiative out of military hands. That step, said Dr. William Winkenwerder Jr., the assistant secretary of defense for health affairs, "just seemed to make sense." Dr. Winkenwerder added that the military has often pioneered technologies, like the Internet, that move into the civilian sector.

Privately, some military officials grumble that transferring the Pentagon's effort to civilians will be wasteful. "It could be reinventing the wheel," a senior officer said.

Administration officials say the new eight-city disease control network will deal with the privacy issue directly. "We have to satisfy the legal constraints, and also people's concerns," a senior official said.

Other civilian surveillance systems are emerging quickly. In Boston, the Harvard Medical School faculty and the Massachusetts Department of Public Health are working closely with Harvard Pilgrim Health Care, a health maintenance organization. For more than a year, the team has studied data from 175,000 people in eastern Massachusetts, and it will soon cover as many as 20 million people coast to coast.

In October, the disease control centers awarded the Harvard team \$1.2 million to expand its pilot network nationally. The expansion will not monitor cities, but will concentrate on patients calling an after-hours medical advisory service.

Health officials say civilian emphasis in the developing surveillance field will help ensure privacy and enhance routine disease monitoring.

"It's the practical stuff that's most promising," Dr. Sosin of the disease control centers said. "Whether this is going to detect terrorism is unclear. But as a safety net and for tracking an event once it's going on, it's very promising" ([New York Times, 2003](#)).

**Title:** CDC Chief: Bioterror Threat Remains Real

**Date:** January 30, 2003

**Source:** [UCLA](#)

**Abstract:** More than a year has passed since [anthrax attacks](#) kept the nation on edge, and the chief of the Centers for Disease Control and Prevention worries that people have forgotten.

"Many people have put that issue in the back of their mind. We've relaxed," Dr. Julie Gerberding, director of the CDC, said in an interview Wednesday with The Associated Press. "Complacency is the enemy of preparedness. And we really have to keep reminding people: They're still out there."

For her part, Gerberding remains frustrated and on edge that the anthrax attacks, which killed five, remain unsolved.

"I just want, so want the perpetrator of the anthrax attacks to be caught because we cannot really relax our vigilance until they are," she said. "The fact that it could happen again at any moment at any time is something that still affects all of us at CDC on a day-to-day basis."

Gerberding, who took over the CDC last summer, has spent much of her tenure developing and now putting in place a smallpox vaccination program aimed at preparing the nation should the virus return in a bioterror attack.

In the first phase of the vaccination program, the CDC had hoped to vaccinate as many as 450,000 people on smallpox response teams and in hospital emergency rooms.

But the program has met stiff resistance from several quarters, and complaints were voiced Wednesday at a Capitol Hill hearing.

Gerberding sought to lower expectations, saying she will not be disappointed if the final number of people vaccinated in the first phase does not reach 450,000. The ultimate question, she said, is, "Are you prepared?"

"That's what we will be monitoring," she said.

So far, CDC officials said, 38 states, plus Los Angeles County and Cook County, Ill., which includes Chicago, have requested 205,700 doses of vaccine for their programs, and 127,200 doses have been delivered to 22 states and those two counties. One state, Connecticut, began inoculations last week; several others are expected to begin this week.

In the end, the total is not likely to reach 450,000 people and could be significantly lower, an administration official said Wednesday.

The vaccine carries rare but serious risks. Experts believe that out of every 1 million people being vaccinated for the first time, between 14 and 52 will face serious, life-threatening reactions, and one or two will die. People who come into close contact with vaccines also can be injured.

Health care unions complain that people who are injured will get little if any compensation for their time lost from work and medical expenses, a problem that federal officials acknowledge but have not solved.

Some hospitals complain that the risks of the vaccine are too great, given that there is no imminent threat that smallpox, which was eradicated, will return. States complain they do not have enough money to run their programs without cutting into other priorities.

In the AP interview, Gerberding said she expects the numbers to grow as people learn more about the vaccine and after the administration announces a way to compensate those injured.

Gerberding, an infectious disease physician, added that she will be vaccinated when the program moves to its second phase and includes health care workers outside the emergency room and emergency responders.

The key to detecting a smallpox attack will be an astute clinician who notices the distinctive rash, she said, and her agency regularly is called by doctors who believe they may have a case. Usually, she said, experts can rule out smallpox after hearing the symptoms by phone or seeing a picture.

"Having a digital photograph sent to us over the Internet has proven to save us many trips out of the CDC in the middle of the night with our response teams," she said.

An actual case of smallpox would prompt a massive response. The CDC and the state health department would vaccinate anyone with whom the patient had come into contact. Depending on the circumstances, officials might begin a regional or national vaccination campaign for the general public.

At the height of the 2001 anthrax attacks, the CDC sent teams five or six times to investigate smallpox cases in New York, West Virginia, Florida and elsewhere.

"We regard these false alarms as a very good thing," Gerberding said. "Every one of these is an opportunity to learn something" ([UCLA, 2003](#)).

**Title:** Responding To Bioterror Threat

**Date:** February 14, 2003

**Source:** [Harvard](#)

**Abstract:** The Harvard teaching hospitals and New England's medical schools have requested \$4 million to \$6 million from the federal government to open a regional biodefense research and teaching center, part of a widespread effort by the medical community to capture fast-growing dollars to fight bioterrorism.



Academic medical centers and medical schools across the United States are rapidly developing proposals for biodefense research, a portion of the National Institutes of Health budget that could double next year to \$1.6 billion, not including money for new buildings. Growth in the rest of the NIH research budget for diseases from cancer to heart disease is expected to slow to 4 percent starting in July.

"The research community is very much like any other kind of business: If you have a lot of incentives people will turn innovation toward the problem," said Dr. Alan Ezekowitz, chief of pediatrics at MassGeneral Hospital for Children. "There is also a large sense people have, and I feel this personally, that if we have expertise we should turn our attention toward these problems. It's a national and international crisis."

As the Bush administration warns Americans about the growing threat of terrorism, medical schools and teaching hospitals are requesting federal dollars for an unprecedented range of biodefense research - a shift in priorities that also is raising concerns about whether other crucial medical research projects will be neglected.

The Harvard group, which submitted its request last month, wants to establish a regional laboratory located in Boston's Longwood Medical and Academic area that would pay for individual projects to develop vaccines and treatments against agents of bioterrorism. The money also would allow Harvard to expand its lab where researchers work with dangerous organisms. And the center would help develop careers of researchers who want to redirect their efforts away from traditional medical arenas and toward biodefense.

"We have a lot of scientific talent that can readily perform the kinds of studies that need to be done," said [Dr. Dennis Kasper](#), executive dean for academic programs at Harvard Medical School, who led the grant proposal. "The time frame until we actually see something for the public is hard to know. We hope to have some useful products coming out within two years. But we still need to figure out who will make them, who will accept liability, and how we'll test them."

Kasper expects a decision by summer, but competition is fierce. The National Institute of Allergy and Infectious Diseases will award four grants for regional labs, but has received more than a dozen applications. Across the country, requests for money have ranged from several hundred thousand dollars to more than \$1 billion. Boston University Medical Center is seeking federal grants amounting to as much as \$1.6 billion to build and run one of the nation's most sophisticated and high-security biodefense research laboratories, where scientists hunt for treatments and vaccines against potentially lethal agents ranging from smallpox to plague to anthrax.

The hospital's request is for a Biosafety Level 4 laboratory - the most secure category of labs, reserved for working with the deadliest germs and viruses known. The Harvard group's lab would be Biosafety Level 3.

West Coast hospitals and medical schools, led by the University of California at Davis, are requesting \$50 million to build a center for biodefense research. The University of California at San Francisco within the next month will request a large grant from the NIH to research the impact of terrorism on the nation's mental health and how best to treat large-scale post-traumatic stress disorder and depression. And then there are countless smaller requests, including a \$250,000 award Ezekowitz's research group won to study how flies' immune systems recognize and respond to anthrax.

He said that most researchers in infectious diseases, immunology, and cellular biology have the scientific knowledge to move into biodefense research - and many are adding on that area to their regular work. His lab studies how flies' immune systems respond to routine infectious agents, and recently expanded to include anthrax. Ezekowitz's group, the laboratory of developmental immunology at Mass General, can study only how flies respond to the outer coatings of anthrax spores, minus the toxins inside. To work with live anthrax, the group needs access to a Biosafety Level 3 or Level 4 lab.

With growth in the general NIH budget slowing after 5 years of record increases, researchers in heart disease, cancer, and other areas with less connection to biodefense are concerned about federal officials neglecting their areas. Over the past five years, the NIH budget doubles to nearly \$27 billion and Boston benefited more than any other city. The city's universities, hospitals, and businesses receive more than \$1 billion a year in NIH grants. And the five independent hospitals in the nation that receive the most NIH money are all in Boston. Any reduction in NIH money for traditional areas of medical research could have an impact on the city - unless institutions move quickly to capture their share of biodefense funds.

"This is an impact we're very concerned about," said Dr. George Thibault, vice president of Partners HealthCare, a hospital network headed by Mass. General and Brigham & Women's Hospital. "We may not be able to generate new research in areas where there's just about to be a breakthrough. And if a war went on for a long time, it could have an impact on the rate of future discoveries" ([Harvard, 2003](#)).

**Title:** Czech Republic Steps Up Measures Against Bioterrorist Threats

**Date:** February 21, 2003

**Source:** [RadioCZ](#)

**Abstract:** With the possible war against Iraq increasing security risks around the world, the Czech Interior Ministry has stepped up security measures as a precaution against terrorism, including bioterrorism. Tight security is in place at water resources and water plants and also food-processing plants. But what exactly is bioterrorism?

It is the use or threatened use of microorganisms or toxins in order to cause disease or death in humans, animals or plants. Aerosol delivery is the most likely means of spreading bio-agents, followed by contamination of water or food products. Unlike conventional weapons, bioweapons are a relatively inexpensive means of paralysing or killing humans. They are relatively easy to produce, they are quite stable, and very little quantities can affect large numbers of people.

Among the identified substances that can be used as biological weapons are for example natural toxins, such as the highly poisonous plant toxin ricin or botulinum toxin. Other potential bio-agents are the infamous anthrax, plague, viral hemorrhagic fevers, such Ebola or the Lassa or Marburg fevers and also smallpox or variola, which was eradicated in 1977, and all vaccination against it stopped after 1980. Virologist Dimitrij Slonim is one of the creators of the polio, rabies and smallpox vaccines in the former Czechoslovakia.

*"The virus in the nature was fully eradicated all over the world. However, because of continuing scientific research and for some biological purpose, two strains of the virus have been and are still maintained in two places: Atlanta, Georgia, USA and the other place was Moscow."*

However, it is believed that other countries might be in possession of the smallpox virus as well and that it could be available on the international black market of weapons of mass destruction. Bioterrorists could abuse the fact that younger generations have no immunity whatsoever against the variola virus.

*"Practically all young people born after 1977 or 1980 are sensitive to variola infection, they are not immune at all. Other generations are not well immunised either, because, for example, in Europe variola was not a serious infection as it did not really exist there anymore before 1980. It means that some nations have the vaccination coverage on a very low degree and therefore in Europe the immunity level of the population is not high enough."*

After it was declared that smallpox had been eliminated as a naturally occurring disease, many countries discharged their stockpiles of vaccines. Therefore the existing smallpox vaccine supply is limited, and in many cases only supportive care would be available to those infected. The Czech Republic, however, has a supply of several hundred thousand doses, which could be administered in the case of a smallpox alert. ([RadioCZ, 2003](#)).

**Title:** Terror's Dual Threats Of Bombs And Biology

**Date:** February 25, 2003

**Source:** [UCLA](#)

**Abstract:** Rest semiassured: guards near New York City tunnels have stopped cars with cancer patients inside; remnant radiation from their tumor-fighting therapies tripped sensors. Also, the city's existing air-quality monitors have already been retrofitted to sniff out bioterror attacks, and so far so good.

That, however, is the extent of relief available in two unsettling hours about the airborne evils that Americans have been told to await. Two separate shows, "Dirty Bomb," tonight on the PBS series "Nova," and the Discovery Channel's "Bioterror: The Invisible Enemy" tomorrow, for the most part offer dreadful insights and fodder for fear.

Each program looks at information that often flits by on television in shorter, incomplete packages. Unfortunately, the hourlong shows wind up in macabre competition, arguing which is the most lethal and immediate agent of doom. Gird yourself against deadly radiation, spread by a cesium core within a detonated explosive, or run for your life from microbes like anthrax or "hemorrhagic fevers" like Ebola virus. Some choice.

There's good science in both shows and based on that standard "Dirty Bomb" scores (and scares) big. The episode employs technically undaunted minds to explain that some radioactive elements — cesium 137, strontium 90 — are unstable, sending out electrons that upset the nuclear balance within the molecule. Those electrons might arrive with enough force to send molecules inside the human body into ionized disarray. And one bad cell can replicate wildly, turning into tumors.

Got it? If not, then you see why good science can make for less-than-good television. We get lessons that break the problem down into its invisible essence when what we really want to know is where to buy a lead-lined suit and which days to wear it. "Dirty Bomb" explains all but that with enthusiastic determination.

Its format eschews the graphics that clutter up screens, focusing instead on experts filmed grainily at odd angles. It presents artsy re-enactments and close-ups of wriggling, irregular cells. It shows old clips of little-known nuclear crises overseas. (A stray canister of strontium found in the snowy Caucasus Mountains gets stored safely by hardy souls who worked in 45-second shifts to reduce exposure.) It leavens the weighty topic with visual originality.

"Bioterror: The Invisible Enemy" has as its host Tom Brokaw, the NBC News anchor, who has himself been bioterrorized. In late 2001 his assistant (case [2](#)) opened a package addressed to him, and her subsequent lesion was thought to be anything but what it was: cutaneous anthrax. He relives this nightmare with another target, Judith Miller, who has covered bioterrorism for *The New York Times* and is co-author of "Germs." Her expertise earned her an anxious readership and an unwelcome suspicious package.

Mr. Brokaw was told by the F.B.I. that his workplace was safe when in fact it needed serious quarantining. Ms. Miller still does not know who sent her a letter containing strange powder or what that powder actually was. She does know that it was harmless and that if it had been anthrax she would have been in trouble. "There would not have been enough Cipro in the world to cure her," as Mr. Brokaw puts it. Reality check: Because of a shortage? Because of her mode of exposure? Are we talking cutaneous or pulmonary?

The producers play and replay this sound bite from Ms. Miller: "If you hate the United States, if you want mass destruction on the cheap, if you want to be able to do this without being caught, forget about nuclear, go bio." Clearly she means this not as an advisory for evildoers but as a means to build awareness — and queasiness.

The Discovery Channel special, co-produced with NBC News, relies on the standard "Dateline" formula. It recaps recent history with film clips and eerie background music. It mentions the possibility of death at every opportunity. And its scripted narration sounds too much like newsmagazine warnings that viewers have already heard about the hidden dangers of minivans and cheeseburgers.

Still, watching either show imbues some sense of confidence about how to handle any attack. On Discovery, "Bioterror" makes the useful point that panic is the most dangerous contagion. On Nova, a nuclear safety expert named Charles Ferguson covers similar ground when he says, "You'd probably have more deaths due to traffic accidents than from ionizing radiation."

Safety cannot be found in numbers, as radioactive ash and biological agents can travel in or on humans. It might help to learn that smallpox vaccinations are now ready for all Americans whose bodies can handle them. (No doses for infants, pregnant women, immune-compromised patients and those with certain skin ailments.) Radiation can be cleaned up, but buildings might have to come down, and neighborhoods could be closed indefinitely.

Each program encourages cooperation before a big event rattles victims, clouds logic and spreads antagonism. "There's no question that some day we're going to get hit," Tommy G. Thompson, the Health and Human Services secretary, says on "Bioterror." When and how are not known, but absorbing all this data could work like a vaccine: a version of the calamity itself enters the imagination and helps make viewers more prepared for the mental challenges of survival ([UCLA, 2003](#)).

**Title:** 'Dream Team' Of Scientists Prepares For Worst

**Date:** March 5, 2003

**Source:** [UCLA](#)

**Abstract:** Long before there was Code Orange, the renewal of smallpox inoculations or a presidentially decreed war on terror, Jerome Hauer and a handful of counterterrorism experts were painting doomsday scenarios.

"People would look at us like we were crazy," recalled Hauer, 52, who helped create New York City's emergency management office. "They'd look at us like we were hysterical fanatics screaming the sky was falling."

Now Hauer and his hand-picked team at the Department of Health and Human Services are paid to think bleak thoughts. And if it were not for the serious nature of their work, they might just be saying, "We told you so."

For years, this disparate group spread across the military, academia and the FBI has tried to sound the alarm. Members have the journal articles and congressional testimony to prove it.

But it wasn't until fall 2001 -- when al Qaeda and anthrax made domestic terrorism a reality -- that HHS devoted major resources to the threat of biological, chemical and nuclear attacks.

"It became apparent we were totally unprepared," said D.A. Henderson, the epidemiologist who arrived at the department a few weeks after the first [anthrax death](#) in Florida. First alone, and then joined by Hauer, Henderson started assembling what has evolved into a new Office of Public Health Emergency Preparedness. The office, which comprises what HHS Secretary Tommy G. Thompson describes as a "dream team of scientists," was established to oversee emergency response and long-range planning for protecting the civilian population from acts of terrorism, particularly biological and chemical attack.

Last summer, Henderson moved to an advisory role, and Hauer became acting assistant secretary of the office, overseeing a staff of 51. Hauer had also been responsible for the 105-person Office of Emergency Response, which moved to the new Department of Homeland Security on March 1.

"We've all had a level of commitment to this for a long time," said Robert Blitzer, 57, a vice president of Science Applications International Corp. who is consulting with HHS. "This is the first time we're in a work environment together."

Other HHS agencies play large roles in the anti-terrorism effort; the National Institutes of Health is mounting a massive research effort while the Centers for Disease Control and Prevention is coordinating response activities with state and local health departments. Hauer's team has a more futuristic feel to it.

In a windowless warren kept locked at all times, the group pores over intelligence data, constantly re-ranking its threat list and possible countermeasures -- the detection systems, antidotes, vaccines and treatments of the future. Smallpox was at the top of the list because, as Henderson said, there is no treatment, and it can be fairly easily spread.

"Right behind is anthrax," he said, "because of its availability and the fact it has been used."

It is a reunion of sorts for the group of men (there are no women on the core team) and a new perspective for a department that historically had little connection to the world of national security. Henderson, 75, and Philip Russell, 71, an Army major general, came out of retirement to join the team. Medical doctors with extensive expertise in infectious diseases, both men focus on development of new treatments and vaccines.

Though the two are pleased with the speedy production of 200 million doses of smallpox vaccine and last week's announcement of three contracts to develop a safer, second-generation vaccine, there are many other deadly agents on their "to do" list.

"Soon we'll be pushing on with products for tularemia and Ebola," said Russell, who received the Legion of Merit and Distinguished Service Medal during his more than 31 years of active duty in the military. "We're also worried about people engineering new organisms."

Edward Eitzen, former commander of the U.S. Army Medical Research Institute of Infectious Diseases at Fort Detrick, Md., said he came to HHS for the chance to work with Henderson and Russell -- "giants in their field."

A highly decorated doctor who served in Operation Desert Storm, Eitzen, 49, is devoting much of his time to managing a botulism vaccine project. He scans the research horizon for other government, academic or corporate research that might apply to terrorism agents and coordinates with the Food and Drug Administration to smooth the licensing process.

The physicians rely heavily on Blitzer's reading of intelligence data, a skill he honed in the FBI's International Terrorism Operations Section.

"I look for trends in the traffic, any pattern of activity," Blitzer said. The information he culls on an enemy's ability to produce a certain weapon of mass destruction helps the group develop a counterstrategy.

A few years ago, terrorism experts focused on chemical weapons such as sarin gas or the nerve agent VX, Hauer said. But those can be difficult to disseminate in a civilian environment, as opposed to a battlefield. "Now the greater threats are toxic industrial materials that travel the highways every day," Hauer said.

Though not a government employee, Blitzer provides a critical link to law enforcement and intelligence officials, many of whom he knows. "If we see something in the traffic, I make a call to the CIA or FBI," he said.

The personal relationships, built over decades, mean the group often circumvents governmental obstacles, Hauer said, noting, "This is a group of people that abhors bureaucracy" ([UCLA, 2003](#)).

**Title:** Bio-Terror

**Date:** April 17, 2003

**Source:** [UCLA](#)

**Abstract:** The nation has read all the headlines about bio-terrorism and watched the terrorist threat level jump from yellow to orange and drop back again.

Much of what might happen in the future will be out of our control, but experts in bio-terrorism say we can take several key steps to prepare for a stateside bio-terror assault.

Bio-terrorism refers to the release of potentially deadly chemicals, bacteria or other toxins in the air, food or water supply. Tiny amounts of anthrax or smallpox, two of the better-known agents, could kill hundreds, if not more, and cause considerable panic.

Chemical weapons such as mustard gas are instantly detectable because of their fast-acting nature and can inspire panic in the populace.

Other weapons are far less obvious initially. It may take several days, if not weeks, for people to show symptoms from exposure to smallpox.

Nerve agents, man-made poisons such as sarin and VX, typically are odorless and tasteless.

Keith Holtermann, associate dean of George Washington University's School of Medicine and Health Sciences, says the stealthy nature of some bio-weapons makes them uniquely dangerous.

The 1995 sarin attack that killed 11 in a Tokyo subway "was an in-your-face event; we know it occurred," Mr. Holtermann says. Biological attacks from, say, smallpox, would make themselves known in a different fashion.

"In a biological type of event ... we may have a couple of days or so of lag time," he says. That delay, combined with the mobile nature of American society, could spread disease far and wide before anyone realized an attack had happened.

### **Getting the Word Out**

Government and health groups have been working for months on ways to educate the public on bio-terrorism.

Monica Schoch-Spana, senior fellow with the Center for Civilian Biodefense Strategies at Johns Hopkins University in Baltimore, says the medical community created a priority list of potential bio-weapons in the weeks following September 11.

Researchers identified 30 to 40 agents with some historical significance as potential weapons. They decided to focus their work on six agents that posed the greatest risk to the populace for their deadly nature and ease in dissemination.

These "Class A" agents are anthrax, smallpox, botulism, plague, tularemia and viral hemorrhagic fevers, a group that includes the ebola virus.

"They used those pathogens [as the basis] for building a response system," Ms. Schoch-Spana says.

She says the medical community didn't release information to the public on various bio-terror weapons until several weeks after the attacks.

"All of us ... were caught unaware by 9/11 and had to go into reactive mode," she says. The health community in particular wasn't used to dealing with instant threats like police departments routinely do.

"In the medical and public health communities," she continues, "there's a strong emphasis on being accurate on the scientific details and also to be careful not to foment fear where there's no cause to. You find a reticence to speak in black-and-white terms."

Her center created a "frequently asked questions" link on its Web site ([www.hopkins-biodefense.org](http://www.hopkins-biodefense.org)).

The public, too, has to come to terms with a new way of thinking regarding possible attacks.

"The answer for dealing with bio-terrorism doesn't come individually packaged," Ms. Schoch-Spana says. "We have to change our thinking to realize it's about collective protection, not individual families being prepared."

People would be well-advised to create an emergency kit to help them in case the worst should happen. J.B. Hanson, deputy director of public relations with the Maryland Department of Health and Mental Hygiene, says a practical "grab and go" kit should take all family members into consideration, even pets.

That first-aid-style kit can include traditional medicines such as aspirin as well as specific medications for family members, such as pills for diabetics. Part of the preparation must include plenty of water that can be used for drinking, cleaning, cooking and keeping pets in good health.

"Animals drink more water than people do," Mr. Hanson says.

Other crucial items include fresh batteries, about four days' worth of nonperishable foods and a small tool kit to deal with any unexpected contingencies.

Extra clothing can be important should a family member's clothes be exposed to a toxin. In that case, the person should immediately strip down and place the clothing in a sealable plastic bag. A quick soap-and-water shower should follow, which can cut down on chemical irritation and transmission to others.

Much has been made about securing gas masks for a measure of protection. Mr. Hanson cautions that this simple step could be deadly.

"You need to know how to operate a gas mask, and you need to know the proper fit," he says. "You can't just order them over the Internet." A person could suffocate if his or her gas mask were used incorrectly, he says.

No matter how well-prepared a family may be for an emergency, plans may collapse without a successful meeting plan. Parents should decide on a contact person outside their hometown whose location can serve as a meeting place, a call center or both. An out-of-state grandparent or aunt could serve such a role, allowing all family members to check in or leave messages at a single phone number.



Mr. Holtermann says parents also should work with their local school districts to make sure their children will be safe in case of an attack.

The schools "need to instill confidence in the parents that they have an action plan," he says.

Should a biological attack occur, experts say it would be nearly impossible to prepare because such an assault would be quiet and give no detectable warning signs. Should a chemical attack happen, the public should stay indoors, shut off all ventilation systems, close all doors and wait until an "all clear" signal is given via the media.

### **Prevention and Preparation**

While people mull the best way to deal with a crisis, government officials are working on ways to prevent and prepare for the worst.

At last week's 28th annual American Association for the Advancement of Science Colloquium on Science and Technology Policy, held in the District, researchers and public officials spoke to scientists about work being done to prevent and prepare for future atrocities.

Dr. John Killen, assistant director for biodefense research at the National Institute of Allergy and Infectious Diseases at the National Institutes of Health, says progress is being made to prepare the public for a bio-terrorist attack.

Nearly \$6 billion is allotted in NIH's 2004 budget for bio-terror, a dramatic increase from the \$40 million to \$50 million set aside for the same cause in 2000.

"This is all-new money coming to NIH and the Institute of Allergy and Infectious Diseases," Dr. Killen says. Part of that funding will go to creating "next generation" vaccines that don't have the significant side effects that existing vaccines such as the one for smallpox have.

Meanwhile, researchers have found that the drug Cidofovir, normally used for HIV patients, helps reduce the side effects from the smallpox vaccine. Dr. Killen also says Harvard researchers are working on antibodies that help inhibit smallpox growth in mice.

Another looming breakthrough involves a diagnostic tool that would screen people for various biotoxins in their systems before telltale symptoms emerge.

"That's the kind of technology we're on the verge of having available," Dr. Killen says.

Complicating matters is that the current medical health system already is under considerable stress from a lack of resources and constant demand, so a bio-terror attack would have severe ramifications, Mr. Holtermann says.

Still, there is only so much that can be done to prevent or prepare for an unconventional attack.

"So much of this ... we're learning as we go along," Mr. Holtermann says. The information we have right now "is not much. But it's the only way we can empower us as individuals" ([UCLA, 2003](#)).

**Title:** Unprepared For A Plague

**Date:** April 18, 2003

**Source:** [UCLA](#)

**Abstract:** Smallpox has been on the minds of public health officials for the past year, as Americans worry about a bioterrorist attack. But the disease that has struck isn't smallpox, nor is it somebody's deliberate

attempt to spread germs. Rather, it is nature's newest surprise: severe acute respiratory syndrome (SARS). SARS has gone from a few cases of pneumonia in southern China to a worldwide infection in just four months, with more than 150 deaths so far. This should remind us about the basics of disease control.

In his State of the Union address, President Bush called for a Project BioShield. Millions of dollars in federal grants are going to researchers developing electronic "biopreparedness" systems. The Centers for Disease Control and Prevention (CDC) has opened a high-tech "war room" to keep tabs on SARS and other new infections. Many cities are setting up expensive electronic surveillance systems in hopes of better watching for bioterrorist events. But while it always sounds exciting to put cutting-edge technology to use, Americans would be better off if the public health apparatus simply dealt well with the problems we know how to manage instead of trying to foresee the unlikely ones.

Take the early-warning monitoring for bioterrorism -- what the epidemiology techies call "syndromic surveillance." Syndromic surveillance doesn't work. The first [anthrax events of 2001](#) would have escaped attention but for the savvy of a Florida clinician; databases were no help. The anthrax cases later that year happened despite the CDC's complete knowledge of the method of infection and willingness to share data to prevent it. Another example: All through the '90s, good infectious-disease epidemiologists knew that mosquito-borne disease was going to break out in the New York City area after years of poor vector control. Yet the emerging-infections surveillance system of the CDC couldn't predict the coming of West Nile encephalitis (or even identify it when it did occur) in 1999.

The crux of the problem with syndromic surveillance is that it relies on statistics instead of science. Most of the effort in establishing bioterror early-warning systems goes into estimating the probability, based on what has been seen beforehand, that some cluster of cases might occur naturally. If that case cluster seems improbable, it is deemed an "aberration" -- and it merits action. The problem is that it's only when we have seen an event before that we can calculate its probability. When we are looking for the unprecedented, probability is of no use at all. The nearly 3,000 dead in the World Trade Center disaster attest to that.

It is the syndromes we haven't thought to watch for that will signal the next plague. We should have learned that lesson a quarter-century ago. Then, smallpox had just been eradicated, and with vaccines and good antibiotics, it seemed likely the other epidemic infections were on their way to a similar fate. But along came AIDS. Who, back in the early '80s, thought that uncommon infections in a few otherwise healthy young men were the first signs of what was to become the global pandemic of HIV/AIDS? Maybe SARS will be the new plague, or maybe it will be something we can't yet imagine.

Besides chasing the chimera of the unforeseeable, biopreparedness systems are based on an erroneous premise. Our public health authorities presume that bioterrorism is a serious threat to public health. They're wrong. The number of deaths attributable to willfully produced epidemics, ever, pales by comparison with the toll taken by natural ones. In 1918-19 an influenza pandemic killed more people in just 16 months than World War I had killed in six years. Smallpox killed 10 times as many people in the first half of the 20th century as did both world wars combined. Even today malaria kills 2 million people each year; so does tuberculosis. By contrast, deliberate epidemics in the past 100 years, mostly through the actions of armies at war, have been responsible for only a few thousand deaths.

So what is to be done? Public health officials should stop tinkering with electronics and get down to basics. What America needs is not more people mining more data, but better public health. We already know how to do this: Provide good primary care, track disease outbreaks by counting cases, run effective preventive programs, vaccinate, and keep the food safe, the air breathable and the water drinkable. We can make people healthier and save more lives if we resist the lure of databases. And if we succeed at maintaining good public health, we can protect ourselves against most eventualities better than if we waste time and resources looking for "aberrant clusters" ([UCLA, 2003](#)).

**Title:** Responding To Biological Terrorist Incidents: Upgrading The FEMA Approach

**Date:** May 2003

**Source:** [Homeland Security](#)

**Abstract:** The Federal Emergency Management Agency (FEMA) uses the Federal Response Plan “all-hazard” approach to coordinate federal emergency resources in responding to natural disasters. The bioterrorist threat, however, is unique. FEMA needs to enhance its ability to effectively respond to this threat.

U.S. intelligence, law enforcement, and military planners were surprised by the type of terrorist attacks carried out on 11 September 2001. There had been no scenario training or exercises appropriate to responding to the tactics the terrorists used. Nor was the United States prepared for the subsequent anthrax letter attacks. These illustrated the absence of adequate local, state, and federal preparedness and response plans for such novel threats. Continuity-of-government operation plans and other emergency plans existed to delineate roles and responsibilities in responding to a terrorist threat involving weapons of mass destruction. However, most of these plans were inadequate—disparate, disorganized, and lacking frequent testing and evaluation.

Until recently, public health officials, domestic preparedness planners, and counter-terrorism experts were almost unanimous in their agreement that a biological threat was a low-probability, high-consequence event. The anthrax attacks in the United States and the discovery of a plot by al-Qaeda operatives in Europe to use ricin indicate that a biological attack is more likely, and there is a new sense of urgency on the part of local, state, and federal governments to formulate effective, forward-looking bioterrorism policies, plans, and procedures.

### **The Biological Threat**

The biological threat is very different from the threat posed by chemical or nuclear weapons in terms of needed preparedness and response actions and in terms of appropriate research and intelligence requirements.<sup>1</sup>

Notable differences between biological agents and their chemical and nuclear counterparts lie in the areas of identification and detection, surveillance, epidemiological investigation, laboratory identification, description of general characteristics, type of biological agents, production and engineering, dissemination of agents, and medical requirements specific to biological responses.

An explosion or the release of a chemical agent results in a visibly dramatic event, usually with casualties. It requires the “sirens and flashing lights” type of intervention by emergency medical service, firefighters, and law enforcement personnel. They are needed to evacuate the wounded, to decontaminate, and to secure the site.

Release of a microbial aerosol, on the other hand, would almost certainly go unnoticed. It would be silent, invisible, odorless, and tasteless. Days to weeks later, persons ill with the disease—be it smallpox or plague or anthrax—would begin appearing in emergency rooms and doctors’ offices. As increased numbers of cases were recognized through surveillance systems and physician reporting, public health officials would be interviewing cases, tracking case contacts, investigating the source of disease exposure, and instituting control measures to interrupt disease spread. The first responders would not be fire and police personnel but physicians, nurses, and public health officials.

An attack with an agent such as smallpox could pose threats to large populations because of the potential for person-to-person transmission, enabling the disease to spread to other cities and states and quickly culminating in a nationwide or international emergency. The control of such an epidemic requires a coordinated effort of the entire public health community.

Control of the epidemic also depends on how the agent was disseminated, and this in turn depends on many uncertain factors—for example, in the case of aerosol dissemination, the method used, meteorological conditions, the type of the agent dispersed, the medium, and vectors for dissemination.

A biological terrorist attack may not occur in a single jurisdiction. This would fit al-Qaeda's modus operandi of conducting simultaneous, geographically dispersed attacks. Disease clusters are likely to emerge in several locations before an actual bioterrorist event is recognized and confirmed.<sup>2</sup> In the event of multiple cases with similar symptoms or the occurrence of cases that are temporally clustered, local and state health authorities would contact the Centers for Disease Control and Prevention (CDC) in Atlanta for further diagnostic, treatment, and investigation recommendations.

Medical experts contend that a biological attack should be considered a public health crisis of the greatest magnitude and therefore that local medical responders, in consultation with the CDC, should have the lead in responding to the crisis, with the assistance of local public health officials, clinicians, and first responders. Local public health experts—physicians, nurses, and other medical personnel—would use their epidemiological tools to detect, identify, and investigate a suspected biological agent and formulate proper decontamination procedures.

Depending upon the biological agent released, a bioterrorism event may be considered an epidemic.<sup>3</sup> Anthrax and other biological agents might create a more containable epidemic.

A wide array of federal assets may be necessary to resolve the event if the local and state governments are overwhelmed by the crisis.

Although numerous biological agents could be released, the medical community believes that the threats posing the most danger to the public are anthrax, smallpox, tularemia, botulism toxin, pneumonic plague, and viral hemorrhagic fever.

### **Detection**

A covert bioterrorist attack would likely come to attention gradually, as physicians recognize unusual patient symptoms or atypical demands for health care services. The speed and accuracy with which physicians, laboratories and public health officials detect and verify a contagious disease can determine the resultant numbers of ill individuals and rates of mortality.<sup>4</sup>

Identification and detection of a biological terrorist attack against the U.S. citizenry would be difficult for several reasons. First, the latest trend in terrorist warfare is not to claim attribution for an attack, or even claim that an attack has occurred, so it will take time before an actual attack is uncovered. Second, to date, there is no accurate, reliable device that can detect the numerous biological agents and that could be cost-effectively distributed within the United States.

Because initial detection of bioterrorism will most likely occur locally after victims have incubated the disease, it is essential to educate and train the members of the medical community in both the public and private sectors who may be the first to examine and treat the victims. State and federal epidemiologists must be trained to consider unusual or rare threat agents when suspicious outbreaks occur and must be prepared to address questions relating to transmission, treatment, and prevention.

Through cooperative agreements, grants, and other mechanisms, the CDC is providing states and selected large metropolitan health departments with tools, training, and financial resources for investigating local outbreaks and will help develop rapid public health response capacity at the state and local levels.

A crucial area in mitigating the bioterrorist threat is to accurately diagnose the disease at earlier stages—that is, the local laboratories must identify the disease and its cause and rapidly forward their findings to the state and federal laboratories. In addition, local health agencies should form partnerships with

frontline medical personnel in hospital emergency departments, hospital care facilities, poison control centers, and other facilities to enhance detection and reporting of unexplained injuries and illnesses as part of routine surveillance mechanisms for biological terrorism.<sup>5</sup>

## **Dissemination of Biological Agents**

**The principal dissemination techniques for biological agents are:**

1. Low-technology threats
2. Aerosols
3. Vectors

### **Low-Technology Threats.**

The most viable threat that terrorists can perpetrate against U.S. citizens, and the easiest to carry out, is the low-technology threat. An example was the contamination of restaurant salad bars by the Ranjneeshee sect in Oregon in 1984. Hundreds of people became sick. The sect was trying to influence a county election by incapacitating citizens and keeping them from voting.

### **Aerosols**

Dissemination of biological agents that affect people externally or through inhalation may be carried out with aerosols. Terrorists might use different aerosol distribution methods, such as the bomblets designed to distribute biological agents that in the past were tested at Dugway Proving Grounds, Utah, or an airplane with aerial bombs that can release spray tubes with the biological agent. Many rogue countries are capable of using ballistic missiles to disseminate a biological agent in the United States.

### **Vectors**

Vectors are carriers of disease. Releasing insects with sufficient range to infect people can pose a major danger. Fleas are an ideal conduit for a biological agent. Rift Valley fever has infected animals and humans in Africa. It is transmitted by mosquitoes and possibly fleas.

## **Existing Response Mechanisms**

### **Federal Funding for Bioterrorism Preparedness**

In June 2002, President Bush signed the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, authorizing \$1.1 billion for bioterrorism preparedness, with the bulk of it, \$930 million, to be parceled out among the states for public health improvements. In contrast, the previous year's budget for bioterrorism preparedness was a mere \$100,000, most of which came from the CDC. The asymmetric threat of bioterrorism requires dramatic federal funding increases, as well as new emergency management approaches in preparation and response.

While disaster experts may have effective emergency management predictive tools for assessing the probability and frequency of natural disasters, such as hurricanes, floods, and earthquakes, it is virtually impossible for these same experts to forecast with any precision the number and frequency of terrorist attacks that are likely to occur in the United States, especially attacks involving biological agents. In addition, while the existing emergency policies, plans, and procedures for nuclear and chemical threats in the United States have been well defined and tested and verified through exercises and operational requirements, preparedness for the biological terrorist threat is more problematic.

### **Emergency Planning and Exercises**

The Clinton Administration promulgated two major executive orders pertaining to U.S. preparedness for and response to bioterrorism: Presidential Decision Directive 39, U.S. Policy on Counter-terrorism (21 June 1995), reinforced by Presidential Decision Directive 62, Combating Terrorism (22 May 1998). Both directives provide statutory authority for the federal government to promulgate emergency plans, policies,

procedures, and exercises to protect the health and safety of U.S. citizens against a future attack using weapons of mass destruction.

After the formulation of these executive orders, Congress mandated that the FBI, the lead federal agency for crisis management for terrorism incidents, supported by FEMA for consequence management, hold annual counter-terrorism exercises to test and validate their existing emergency capabilities. The first was designated as Top Officials Exercise (Topoff), and Topoff 2 was held in May 2003.

The first Topoff exercise, a bioterrorism scenario in Denver, delineated roles and responsibilities for responding to a terrorism event—*who*, *what*, *where*, and *when* in response to a bioterrorist incident.

### **The Nunn-Lugar-Domenici Defense Against Weapons of Mass Destruction Act**

“The Domestic Preparedness initiative was formed under the Nunn-Lugar-Domenici legislation that provided funding for the Department of Defense to enhance the capability of federal, state and local emergency responders in incidents involving nuclear, biological and chemical terrorism,” according to the U.S. Army Soldier and Biological Chemical Command fact sheet on homeland defense. This command “was the lead DoD agency charged with implementing this objective through training, exercises, expert assistance and an improved response program.”

The Domestic Preparedness program consists of first responder training and expert assistance (section 1412 of the Nunn-Lugar-Domenici legislation); a nuclear, chemical, and biological emergency response program (section 1413); and exercises and preparedness testing (section 1415).

#### **Definitional Ambiguities**

Some gaps and shortfalls in the Defense Against Weapons of Mass Destruction Act are that the definitions of weapons of mass destruction are vague and that terrorism threats are treated as homogenous rather than unique.

For example, according to the act, “The term ‘weapon of mass destruction’ means any weapon or device that is intended, or has the capability, to cause death or serious bodily injury to a significant number of people through the release, dissemination, or impact of—

- (A) toxic or poisonous chemicals or their precursors;
- (B) a disease organism; or
- (C) radiation or radioactivity.

In essence, the threats are generic under the statute; the Nunn-Lugar-Domenici legislation does not treat a biological incident differently from a chemical or nuclear incident; however, the incidents are quite distinct in their effects and the needed response capabilities. Public health experts should be given the lead in a bioterrorist incident so that they can diagnose the disease and treat the victims effectively and efficiently.

### **The FEMA Office of National Preparedness**

In May 2001, President Bush directed FEMA to establish an Office of National Preparedness for the consequence management aspects of antiterrorism planning. The office became a major component of the Emergency Preparedness and Response Directorate of the White House Office of Homeland Security, coordinating the development and implementation of a comprehensive antiterrorism planning strategy with approximately 22 federal agencies, including FEMA.

#### **Notification for Bioterrorist Incidents**

There are several routes for notification involving nuclear, biological, or chemical terrorist events. In some cases, local police or poison control can call state authorities, which will in turn notify the federal

authorities. Federal authorities will assess the facts of the situation and consult with local authorities to determine whether the terrorist threat is credible.

Based on the federal assessment of the incident, appropriate federal assets—for example, the FBI Hazardous Materials Response Team—will be dispatched to the scene along with local police resources.

Depending on the magnitude of the terrorism incident, the full range of federal assets can be used to mitigate the event. Over 40 federal agencies can be deployed to provide an operational response. Roles and responsibilities for federal assets are clearly spelled out in the Justice Department's Concept of Operations and FEMA's Federal Response Plan Terrorism Annex.

### **Surveillance and Epidemiology**

In a covert bioterrorism event, local health care providers (clinicians and medical staff) and disease "sentinel" surveillance systems will be the first to observe related morbidity and mortality. State and local epidemiologists, infectious disease specialists, and laboratories will be among the first to detect that there is something out of the ordinary; public health professionals also lead the effort to identify the causative agent and conduct the epidemiological investigation.

Bioterrorism threats fall into three categories: (1) bacterial (anthrax, plague, foodborne pathogens); (2) viral (smallpox), and (3) toxins (botulinum toxin, *Staph enterotoxin B*, ricin, and *Tricothecene mycotoxins*).

**Two surveillance systems exist for detecting a bioterrorism attack; FEMA needs to interface with them to enhance their effectiveness:**

#### **Health Alert Network**

The Health Alert Network is a nationwide system developed by the CDC to provide a more sophisticated health infrastructure system that is designed to support the public health response to bioterrorism and other health threats. The essential organizational capabilities for this responsibility are surveillance, laboratory practice, and disease investigations. Within this structure, the Health Alert Network will have communication and information, workforce development, and organizational capacity.

#### **Syndromic Surveillance System**

The Syndromic Surveillance System identifies usual and unusual disease outbreaks. It will facilitate local and state health departments' monitoring and analysis of the epidemiological situation. Epidemiological analysis of initial victims may be critical in determining where the attack occurred, who is at risk, and who requires prophylactic treatment. The Syndromic Surveillance System will expand to regional and metropolitan areas throughout the United States. This disease surveillance taxonomy will be based on algorithms and will serve as an early warning system to detect a potential bioterrorist incident.

### **FEMA's Response Plan**

The underlying domestic assumptions concerning a bioterrorism event in the United States are that it will overwhelm the local and state governments. FEMA uses the Federal Response Plan, in particular the Terrorism Annex, as the framework for consequence management response to a bioterrorism event. This annex delineates the general roles and responsibilities for federal agencies in the event of a bioterrorist threat.

### **Gaps and Shortfalls of the Terrorism Annex**

Because of the unique nature of a bioterrorist incident, the Federal Response Plan Terrorism Annex should include a separate, specialized section focused on the unique operational response to bioterrorism. This section could be an Infectious Disease Appendix to the plan, or it could take the form of a memorandum of understanding between FEMA and the Department of Health and Human Services for



dealing with a bioterrorist incident. In essence, this attachment would provide more specific information pertaining to federal roles and responsibilities in the event of a bioterrorist incident.

Federal agencies will be extremely reliant on the Department of Health and Human Services to provide health information. Health officials will be responsible for identification, surveillance, and mortality counts of the biological agent. Another role for health experts will be to distribute pharmaceuticals to individuals who may have been exposed to a biological agent.

## Recommendations

1. FEMA should assist the FBI with threat analysis—where and when terrorists might attack the United States and what types of biological agent they might use; this needs to be performed to update the list of critical biological agents that threaten the population and identify the areas that are most vulnerable.
2. FEMA should enhance its working relationship with the Department of Health and Human Services for carrying out Emergency Support Function 8 (Medical) of the Federal Response Plan and use the National Disaster Medical System and the Metropolitan Medical Response System to respond to a bioterrorist incident.
3. FEMA should formulate an annex to the Federal Response Plan for infectious disease for a bioterrorist incident that can be segmented into pre-incident, trans-incident, and post-incident phases.
4. FEMA and the Department of Health and Human Services should assist local and state governments with expanding detection, epidemiological diagnosis, and disease surveillance technologies.
5. FEMA and the Department of Health and Human Services should assist local and state governments with prophylactic and logistics support, including evacuation planning in response to a biological attack. There should be a review by FEMA and the Department of Health and Human Services of the city, county, and state written plans to respond to a biological threat ([Homeland Security, 2003](#)).

**Title:** 'UK Not Ready For Bio-Terror Attack'

**Date:** May 15, 2003

**Source:** [Daily Mail](#)

**Abstract:** Scientists have warned of a "significant deficiency" in resources to cope with a biological terrorist attack in Britain.

MPs on the Commons science and technology committee heard that Chancellor Gordon Brown's allocation of £330 million for fighting terrorism in this year's Budget was not enough.

Dr Mike Crumpton, of the Academy of Medical Sciences, said: "There is a significant deficiency in terms of resources we would have available to address a terrorist attack, especially in terms of an infective agent."

There was a "serious deficiency" of specialists in biological research and in veterinary expertise, Dr Crumpton said.

Vets had to be brought from overseas to cope with the foot-and-mouth epidemic, he said.

The committee was also told that vetting procedures to detect potential terrorists studying or working at universities were only being adhered to by a handful of institutions.

Since 1994 the Foreign Office has operated a "voluntary vetting scheme", where universities with microbiology departments are asked to refer applications from "countries of concern".

Applications are cross-checked against 11 countries, including Iraq, Iran, Libya and Algeria, where terrorists might exploit research for the development of biological weapons programmes, and against 21 areas of academic study.

David Allen, registrar of the University of Birmingham, who was representing administration chiefs of universities, said only four institutions, which he did not name, had referred applications in the last six months.

Between them they had referred 500 to the Foreign Office in that period ([Daily Mail, 2003](#)).

**Title:** Outbreak: What A Real Bioterrorism Incident Would Look Like

**Date:** May 17, 2003

**Source:** [EHS Today](#)

**Abstract:** The first day of a bioterrorism event would look like any other day. So would the second, and probably the third and fourth as well.

It might take a week or longer for the first symptoms to show. And because the early stages of many bioterror agents look like the flu, the true nature of the disease may go unrecognized. A community may not realize it is under siege until hospitals start filling up and patients begin dying.

First responders, used to manning the front lines of any emergency, would find their roles changed. Doctors, nurses and EMTs would be in the thick of any crisis. Fire and police would find themselves providing support. Fire crews may find their station houses converted into clinics, and those with EMT training pressed into medical service. Police may be asked to guard medical supplies from looting, or to enforce quarantines.

It's a chilling scenario. Although experts repeatedly underscore the difficulty of using disease as a weapon of terror, any intentional release would have the potential for great damage. What would such an event look like? What roles will first responders play? How should we prepare? Here are some answers:

### **The Threat**

The Centers for Disease Control and Prevention (CDC) lists anthrax, smallpox, botulism, plague, tularemia and hemorrhagic fever as Class A bioterror threats. They are easily transmitted, have high mortality rates and might spark public panic.

Smallpox has attracted the most attention. It incubates quietly for 9-14 days before its distinctive lesions appear and it becomes contagious. Before 1977, when it was eradicated, it killed about one-third of its victims. Today it would enter a world where no one has natural immunity. Several nations likely retain samples of the virus, including Iraq, North Korea and France.

Just how a terrorist would release a virus is an open question. Worst-case scenarios visualize weaponized germs, highly potent viruses or bacteria treated so that they disperse readily in air. A terrorist could release them into the heating or cooling system of a stadium, convention center, auditorium or office building. This would infect thousands, who would spread the disease without knowing it.

Fortunately, weaponizing germs is not easy. Japan's religious cult Aum Shinrikyo, which killed 12 in a nerve agent attack on the Tokyo subway in March 1995, tried to do this. Despite a team of scientists and physicians and millions of dollars in equipment, it could not isolate, aerosolize or disperse bioterror agents.

This does not rule out the success of others. Terrorists might buy weaponized agents on the black market. They could disperse them through the mail like anthrax, or infect suicide volunteers to walk through crowded stadiums or airports.

Fortunately, bioterror diseases are usually treatable. But first, doctors have to correctly diagnose them.

## **Discovery/Diagnosis**

Most biowarfare diseases look like the flu. They cause high fever, weakness, muscle pain, nausea and headaches. Victims are likely to take aspirin and stay in bed. Those who seek medical care may not raise a flag because doctors used to dealing with everyday cases are unlikely to look for or recognize nonspecific bioweapon symptoms.

Doctors might, for example, mistake smallpox for chicken pox. "The distribution, type and location of lesions, and their look and feel at different stages distinguish smallpox," says Dr. Howard Schwid, an anesthesiology professor at University of Washington (Seattle).

"If a first responder could tell symptoms at a glance, that would be very valuable," he continues. "If I saw someone with a characteristic smallpox rash and high fever, I would immediately ask for a vaccination myself. I would have about three days after first exposure to receive that vaccination."

Schwid helped Anesoft Corp. (Issaquah, Wash.) develop software that trains health care workers to recognize and treat bioterrorism symptoms. Even so, he suspects that physicians would not diagnose an agent of terror until the first death.

One reason for delays is that doctors rely on laboratory tests to identify diseases that resist conventional treatments or cause unexpected deaths. These tests do not screen for bioterrorism threats. It may take days or even weeks before someone runs the right tests and understands the true nature of an outbreak. By then, those with the infection may have spread it to hundreds or thousands more.

The CDC and several states and cities hope to recognize a crisis earlier by monitoring EMS traffic, hospital admissions and patient symptoms. New York City, for example, samples flu-like symptoms and diarrhea cases at a series of "sentinel" hospitals and nursing homes for unusual upswings. Unusually heavy EMS traffic, a spike in school absences or even an increase in dead animals may also raise flags.

Statistical methods could provide a warning in the earliest phases of an outbreak, when only a handful of cases have appeared at each of a city's hospitals. Otherwise, health workers may not see the big picture until the sick and dying overwhelm them. Then it will become a race against time to contain the disease.

## **Plague**

Experts have tried to understand how a plague would unfold by simulating bioterrorist attacks. Operation Topoff, a U.S. Department of Justice simulation held in Denver in May 2000, assumes a covert attack of aerosolized plague (*Yersinia pestis*) on 2,000 people at a concert.

Within four days, 16 city hospitals report 783 cases and 123 deaths. Two days later, this rises to 3,700 cases – at least 780 transmitted by those initially infected – and 950 deaths. Cases appear in at least six states outside Colorado.

Plague's short incubation time overwhelms local hospitals. So do demands for treatment from the walking worried; healthy people who fear they have symptoms. Although federal authorities send vaccines and antibiotics, the distribution system in Denver breaks down. The governor decides to use remaining stocks to treat health care workers rather than close contacts of infectious cases.

In the end, assessors conclude that Denver would require 2,000 outside medical personnel within 24 hours to keep its health care system from collapsing. Otherwise citizens, some plague-infected, would start to leave Denver to seek help elsewhere.

One year after this simulation, the Johns Hopkins Center for Civilian Biodefense Studies (Baltimore) held Dark Winter. It simulated the 13-day spread of smallpox after aerosolized release at shopping malls in Oklahoma City, Philadelphia and Atlanta.

The Dark Winter scenario assumes that 30 grams of smallpox causes 3,000 infections, and that each victim infects an average of 10 others. The first 20 cases are diagnosed nine days after exposure. By the end of the 13-day scenario, hospitals in 25 states report 16,000 smallpox cases – 14,000 in the past 24 hours – and 1,000 deaths.

Experts predict that 17,000 new cases will emerge over the next 12 days, leaving 10,000 dead. But this assumes successful mass vaccination and disease containment. A breakdown in the system could catapult the number of dead to 100,000 or more.

### **Medical Response**

Once the first case has been diagnosed, the clock starts ticking. The community has to find enough medicine, hospital beds and health care professionals to treat the ill and vaccinate the well.

Everything starts with retaining medical personnel, says Amy E. Smithson of the Henry L. Stimson Center, a Washington, D.C., national security think tank. In her landmark report on U.S. bioterrorism preparedness, she interviewed several physicians who said that half their staff would "run for the hills" if an incident occurred. She advocates first immunizing doctors, nurses, EMTs and other health professionals – and their families – so they will feel safe enough to remain on the job. Police and fire should also receive preventive antibiotics so that they remain at their posts.

Bringing in outside medical help is more problematic. Military doctors are a possibility, and several organizations are seeking ways to create a voluntary response team of physicians and nurses that would fly to emergencies.

Until help arrives, stricken areas must fend for themselves. Tucson fire battalion chief Les Caid, who helped organize a bioterrorism exercise in Arizona in November 2002, expects to draft EMTs, pharmacists, veterinarians, and student nurses and doctors. Oklahoma State EMS director Shawn Rogers, who participated in the April 2002 Sooner Spring bioterrorism exercise, expects to use police and fire fighters with EMT training to dispense medication in an emergency.

Cities are also likely to run out of beds. Even seasonal flu outbreaks overtax the capacity of many hospitals, Smithson points out. A bioterror incident would quickly strip hospitals of their ability to house and isolate contagious patients.

To cope with the onslaught, hospitals must share the burden, Smithson continues. Some facilities must remain open and uncontaminated for ordinary medical emergencies. Others will need every available bed to treat disease. Some preexisting patients must be evacuated, while others will be too sick to move. Cities may need to quickly transform schools, heating/cooling centers and fire stations into clinics.

It will take a well-practiced plan to move fast enough to head off the crisis. "Most communities still don't have a collective game plan for burden sharing," says Smithson. "The front lines will be all around them, and in the midst of disaster there is no time to exchange business cards."

### **The Stockpile**

Communities will also need enough medicine and supplies to treat the sick. Most hospitals now stock only a few days' supplies. They will vanish within hours as hospitals inoculate their staffs, first responders and their families. Local warehouses will empty nearly as quickly.

The National Pharmaceutical Stockpile was created for that contingency. It consists of three 94,000-lb caches of palletized, ready-to-ship pharmaceuticals and medical equipment in Denver, Los Angeles and Winston-Salem, N.C. (A fourth cache remains in Washington, D.C.)

Although the system relies on 35-member volunteer medical teams, it is designed to roll within 4 hours. "It takes 18 to 24 minutes from the time we arrive to receive the first patient," says Robert Cornish, who manages the program for the U.S. Office of Emergency Response.

However, plenty of things could go wrong during deployment. Arizona's exercise moved the stockpile to a warehouse without a loading dock. It took half an hour to unload each of the 18 trucks transporting the cache. Nor did the warehouse have the Internet connection needed for logistics control.

Vaccinating the public will also take logistics planning. In its bioterror exercise, Arizona opted for collection points where people boarded buses to dedicated dispensing sites. Sooner Spring authorities took over local drive-through restaurants. "We expect cars to line up for blocks and blocks, so this allows the easiest flow of traffic," says Shawn Rogers.

### **Control**

Any emergency plan will call for rapid, highly coordinated responses from many different agencies. Lots can go wrong, and each new difficulty puts pressure on the system. "The health care system could collapse under pressure from the exposed and walking worried," says Smithson.

What would a collapse look like? "Hospitals shutting their doors because they can't treat any more patients," she replies. "People leaving the area in search of health care services in other areas. People breaking into pharmacies to get drugs. Panic."

That means a high police profile at hospitals, clinics, drug dispensing centers and even pharmacies. "Police will need to identify sites where citizens might go to take things into their own hands if things got bad," says Smithson. "Imagine how a panicked community would react if some reporter got on the air and said, 'You can get this at your local pharmacy.'"

Caid agrees. "There are going to be thousands of very anxious folks lined up at dispensing centers," says Caid. "What if someone starts a rumor about lack of medication? By the time it got to the back of the line, people would be going crazy. The potential for problems at dispensing sites is huge."

During Arizona's exercise, police manned clinics and dispensing stations. They also secured the National Pharmaceutical Stockpile landing site and warehouse, as well as routes used to distribute pharmaceuticals. "Pharmaceuticals would be more valuable than gold," says Caid. "We wanted to know who would be in charge. Local police? State? We wanted our plans to be really specific so we had no miscommunications."

"It's not just about manpower, but appropriate use of force," adds Smithson. "If someone breaks down a hospital door, what level of force do local police use? Are we talking about a bull horn? Pepper spray? Rubber bullets? Lethal force?"

### **Quarantines and Communications**

Any discussion of quarantines raises similar questions. Oklahoma's Rogers is adamant: "You can't quarantine a city – it's not realistic unless you ring a city with troops and shoot to kill."

This raises sticky issues for first responders. Police would have to enforce any restrictions. Police, fire fighters and EMS would also have to enter the same isolated areas to provide food, medical care and other essential services. How would they fare in a city that spent its last supplies of medicine to treat first responders, then sent them into neighborhoods where disease was rampant?

Issues of force will cause many communities to shy away from quarantines. Others claim that modern forms of transportation make quarantines almost impossible to enforce. "You don't have enough police in an entire state to quarantine certain city areas," says Smithson.

Instead, governments must convince citizens to stay at home, says Michael Mair, a senior research assistant at Johns Hopkins Biodefense who participated in Dark Winter. "We think people are normally calm, rational and work together in these situations," he explains. "We always get a better response when we use the least restrictive means possible that prevents spread of disease. That shows more respect for people's civil liberties."

Public communication often takes the backseat in a crisis. A bioterror event would demand an extraordinary amount of clear communications. Citizens need to hear a single message so there is no doubt what steps they must take to keep the disease from spreading.

"The ways and speed at which information is communicated may be a major factor in limiting a terrorism attack," says John Sorensen, director of Oak Ridge National Laboratory's Emergency Management Center. He notes that the anthrax scare did not cause mass hysteria, and that people tend to be more apathetic than responsive. "People have a tendency to deny that something will happen to them, and think that it will happen to other people," he explains.

Yet he also admits that no one really knows how a city will react to a large-scale bioterrorist attack. His advice: Provide lots of information. Do not withhold information. Acknowledge where there are uncertainties and why they occur. Never cover up or sugarcoat things.

He also suggests engaging a wide variety of people, from scientists to community leaders, to discuss the situation. "Multiple sources of information are the key to reaching even impoverished areas without social support networks," he says.

Addressing this, Smithson suggests getting out early with frequent updates and making sure everyone is on the same page. Contradictory statements cause confusion and panic. Given the number of different local, regional, state and federal organizations that will be working together for the first time, this may be difficult.

### **The End?**

What happens next? Assume for a moment that one or more U.S. cities have been attacked. We have identified the disease. We fly in the National Pharmaceutical Stockpile and press anyone with medical training into emergency service to treat and vaccinate the public. Everyone does a good job of communicating. Most people stay indoors, and EMS comes to get them if they call in sick.

What then?

The scariest thing about most simulations and exercises is not just the numbers, which are terrifying enough. It is that simulations are designed to last only a certain number of days. When they end, the disease is still spreading. Thousands are infected. Not all of them know it.

How does it stop? When does it stop?

No one knows the answer because nothing like this has ever happened before. And, because bioterrorism is so difficult to practice, it may never happen.

Meanwhile, the best option is to remain alert. Learn the symptoms. Look for unusual statistics. And know and practice the plan before we need it ([EHS Today, 2003](#)).

**Title:** Are We Ready?

**Date:** July 13, 2003

**Source:** [UCLA](#)

**Abstract:** Post offices have been cleaned, and many mailrooms are better protected. But how much has the U.S. medical establishment really learned from the [anthrax attacks of October 2001](#)? If anthrax -- or smallpox, or a newly engineered disease -- were to break out tomorrow, would hospitals and public health departments be prepared?

Part of the answer is deeply unsatisfying: At least at some level it is impossible to say, because no federal agency has published the results of a full investigation into what went right and what went wrong. The Department of Health and Human Services says it has conducted its own investigations but will not publish the results, for security reasons. That leaves everyone else to rely on the work of private scientists.

Their conclusions, some recently published, indicate that the medical response to the anthrax attacks was flawed. After extensive discussions with those involved, three scientists from Johns Hopkins University and the ANSER Institute for Homeland Security found, for example, that the work of doctors dealing with anthrax patients was significantly hampered by the poor distribution of information. Hospitals in Florida, New York and the Washington area were compiling evidence about anthrax cases but weren't receiving timely medical advice in return. Whereas the Pentagon held daily news briefings after Sept. 11, 2001, health professionals got their information about the spread of anthrax from CNN. An electronic system designed to link public health departments with the Centers for Disease Control and Prevention (CDC) in Atlanta worked poorly, and a public CDC Web site crashed twice. In any case, neither was dispensing pertinent medical information directly to hospitals and doctors who needed it.

HHS says much has improved. The department, along with many communities across the country, has begun conducting mock disaster drills, furthering the integration of public health officials with hospitals. Money has been spent on computers and cell phones, as well as safety shoes and surgical masks. Scientists are trying to develop a new anthrax vaccine. HHS says it can get antibiotics to any part of the country within hours -- though it isn't clear, at the local level, how they would be distributed after that.

Is it enough? Some think not -- and they usually point to personnel problems. Another report, issued last week by the Partnership for Public Service, points out that federal biodefense agencies may actually lose qualified staff in the next few months. Despite claims by Tom Ridge, the secretary of homeland security, that "a new human resource management system" is one of his top priorities, and although HHS says it has hired "hundreds" of public health officials, starting salaries for public health workers are still far lower than those in the private sector, and academia still offers scientists more stable careers. Others, both inside and outside government, point to a shortage of medical personnel as well: The nation's hospitals are already overstretched, and they have very little "surge capacity." After creating a computer model of the effects of a major anthrax attack in New York City -- and concluding that 120,000 people might die -- Stanford University business professor Lawrence M. Wein concluded that the nation needs a medical SWAT team, specialists who could fly to an emergency from cities across the country, set up tents and start caring for patients.

Both the administration and its critics agree that coming to clear conclusions is difficult, if not impossible. They generally agree that the nation is better prepared than it was, but also that if an attack took place tomorrow, many people still might die. Worse, substantial resistance remains at many levels to the very idea of preparing for a bioterrorist attack -- as we will discuss in editorials tomorrow and Tuesday on the experience of smallpox vaccinations and on biothreats of the future ([UCLA, 2003](#)).

**Title:** Uncertain Threat

**Date:** December 15, 2003

**Source:** [Scientific American](#)

**Abstract:** "Biological terrorism is our future, and smallpox is a serious threat," insists Ken Alibek, who headed the former Soviet Union's biological weapons program. Now vice chairman of Advanced Biosystems, based in Alexandria, Va., Alibek was one of 200 epidemiologists and tropical disease experts who gathered in Geneva last October to discuss how nations should prepare for an outbreak. The U.S.



has already outlined its plan--a voluntary regimen that aims to vaccinate a total of 10.5 million people in phases.

Some scientists, however, see little data to support such widespread vaccination. The plan is partly based on mock scenarios and mathematical models that attempt to predict the magnitude of an outbreak. One major problem is that they must use data on smallpox transmission gathered from pre-1977 Africa, where the last smallpox case occurred. The virus might behave completely differently in today's unvaccinated cosmopolitan societies. And all models rely on assumptions that by their nature are inaccurate.

The most grave outbreak scenario is "Dark Winter," to which U.S. Secretary of Defense Donald H. Rumsfeld has referred a number of times. It predicts that simultaneous attacks in three shopping malls could balloon to as many as one million dead and three million infected.

But many scientists find the scenario too extreme. What is most contentious is the infection rate. Dark Winter assumes that each infected person will transmit the virus to 10 others and even to descendants for several generations. This is not, however, what epidemiologists have observed in the field. Rarely was smallpox transmitted to more than two or three people, if at all, says J. Michael Lane, former director of the smallpox eradication program at the Centers for Disease Control and Prevention, and most were infected by prolonged exposure. What is more, the virus is not transmissible until physical symptoms appear. By that time, Lane states, the person usually feels "so awful" that they are bedridden. And even though the virus may not behave the same way today, Dark Winter assumes that the sick are not effectively isolated, which is "totally unrealistic," he adds.

So instead of vaccinating millions, Lane would prefer to vaccinate a core group of first responders--around 40,000 people--and then to vaccinate only people who come into contact with an infected person (the vaccine is also effective for up to four days after infection). His plan more closely reflects what has actually transpired in terms of vaccination numbers [see "Spotty Defense," News Scan; Scientific American, May 2003].

Proponents of mass vaccination also cite a few exceptional cases in which smallpox spread easily. In 1970 a young engineer returned to his home in Meschede, Germany, after spending some time in Pakistan. Soon after, he checked himself into a hospital with flulike symptoms. Doctors quickly diagnosed him with smallpox, but during his stay 19 other people also became ill. The most bizarre case was the infection of a person who had briefly walked into the hospital lobby, discovered he was lost and left. The sick engineer had a cough, a highly unusual symptom but one that nonetheless made the virus highly transmissible. No one knows whether the smallpox strain was unusually hardy or the patients uncharacteristically weak.

Another outbreak occurred in 1963 when a young man, who had spent some time in India, came down with smallpox on returning to his home in Poland. By the time health authorities figured out he had smallpox several weeks later, 99 other people became ill. To contain the outbreak, authorities vaccinated eight million people, even though the population had been vaccinated as infants. (The illness tends to be less severe in vaccinated people, however.) Scary as they are, these stories are isolated cases and clearly do not represent how the virus behaved in the majority of outbreaks. "Surveillance and containment strategies were key components of the smallpox eradication program," Lane notes. "We must not lose sight of that."

But supporters of more widespread vaccination are sticking to their guns. Although everyone agrees that an attack is unlikely, any outbreak, however small, would be "economically and psychologically devastating," Alibek states. In his view, widespread vaccination would help preempt the chaos likely to follow. (His company, Advanced Biosystems, conducts research on therapeutics to counter biological weapons.) Countries hoping to defend against a smallpox attack, it seems, will have to strike the balance between science and fear ([Scientific American, 2003](#)).



# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following propaganda was published within the calendar year of 2004. While some of the following reports may have been legitimate news stories, most if not all of them appear to be blatant propaganda with the overall goal of convincing American and the World that it is on the precipice of a bio-terror induced pandemic. The fact that this propaganda exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and military control of society.

**Title:** Bioterror Back, But Panic Is Not

**Date:** February 4, 2004

**Source:** [CS Monitor](#)

**Abstract:** As the nation's capital once again responds to what may have been a bioterror attack, one element from the anthrax scare that surfaced two years ago is largely missing: panic.

True, the anthrax spores that were found in letters mailed to news outlets and to the Senate majority leader in 2001 surfaced just after the 9/11 attacks, when the nation was still on edge, and they did end up killing five people.

But this week's discovery of possible small amounts of ricin - a deadly poison - in the mailroom of Senate majority leader Bill Frist hasn't evoked the mass evacuations and national paroxysms of the earlier attacks. Though three Senate office buildings remained closed Tuesday while authorities awaited conclusive results that the white powder was, in fact, ricin, the capitol remained open and committee hearings proceeded. Other than an inhospitable sleet that slowed morning traffic, Washingtonians seemed largely unfazed.

One reason, in addition to ricin being less lethal and contagious than anthrax, is a better-educated public and now familiar emergency procedures. "The government tried to educate people about it," says Juliette Kayyem, an expert on terrorism at Harvard University's Kennedy School. "The consequences of that [education] could explain the lack of public hysteria."

For one thing, she says, the government explained to Americans how difficult it is to cause large-scale deaths through such attacks - and even illnesses. Moreover, it is likely, as in the anthrax case, that the attack was homegrown and not a result of international terrorism.

Still, just the presence of such a substance in a senator's office is cause for concern. After the anthrax investigation, procedures were established to prevent such attacks. All mail, for example, is radiated. But that would not affect ricin, which is a biotoxin, not a bacteria or virus.

Officials caution it is too early to draw conclusions. For instance, it isn't yet clear whether the substance was sent through the mail. And at presstime, officials were trying to confirm their initial findings that the powder is ricin. The tests were being performed at the US Army's Medical Research Institute for Infectious Diseases (USAMRIID) at Fort Detrick, Md.

Still, the episode has parallels with the 2001 anthrax attacks, which caused major disruptions on Capitol Hill, closing Senate mailrooms for extended periods.

There are also significant differences between the two events. For one thing, ricin is not considered as deadly as anthrax, although there is no antidote or vaccine. The US Centers for Disease Control ranks it as a "B" class weapon, a serious threat, but not as deadly as class "A" weapons such as anthrax. But ricin is also relatively easy to make. The anthrax that was sent through the US mail was of such a pure strain that investigators have focused their attention on scientists with specific training in biological weapons programs. Indeed, to this day, the FBI still hasn't been able to re-create the kind of anthrax that was used in the 2001 attacks.

"We never had an incident like this before," says FBI spokesman Bill Carter. "We had to start from the beginning."

Ricin, on the other hand, is derived from the mash left from the extraction of castor oil from the bean of the castor plant, and can be made with ordinary kitchen tools. After World War I, the US studied its potential use as biological weapon. In collaboration with the British, a ricin bomb was developed and tested, "but apparently never used in battle," according to the "Textbook of Military Medicine."

"It's the third most toxic substance known to mankind," says Bruce Hoffman, an expert on terror at the RAND Corp. in Washington. "But short of injection, it is not very effective, nor is it contagious, as is anthrax."

Still, it's not surprising that it would turn up. "It is the easiest to fabricate," he says. "There are recipes for making it all over the Internet."

There is a recent record of ricin being used in terror attacks - both at home and abroad. As recently as October, a vial of ricin was discovered at the mail facility for the Greenville-Spartanburg International Airport in South Carolina. A letter accompanying the poison complained about new federal regulations requiring more rest for truck drivers, and threatened to taint the local water supply if demands were not met. The FBI has identified the sender as a fleet owner of a tanker company, although no arrests have been made.

Traces of ricin have also been discovered recently at a Paris train station and in a London apartment. Military officials say they found remnants of ricin manufacturing equipment at an Ansar al-Islam camp in northern Iraq during the war campaign. And manuals that described how to manufacture and use the toxin were discovered in Afghanistan, after the US forced out the Taliban regime in 2001.

### **Ricin as an Assassination Weapon**

One of the most well-known uses of it as a killing agent was the alleged assassination of Bulgarian dissident Georgi Markov, who was jabbed with a poisoned umbrella in London in 1978.

But if the anthrax investigation - the largest ever carried out by the FBI - is any indication, it may be some time before a culprit is caught in the latest case.

After 28 months, the FBI still has not solved the anthrax crimes. In tandem with the US Postal Service, it is offering a \$2 million reward for information leading to the arrests and convictions of people responsible for mailing the anthrax letters ([CS Monitor, 2004](#)).

**Title:** Democrats' Report Criticizes Bioterror Response Plan

**Date:** October 25, 2004

**Source:** [Boston.com](#)

**Abstract:** Efforts to distribute the government's stockpile of drugs and vaccines in the event of a biological attack would fall short in "the last mile" of distribution to state and local areas, according to a Democratic report critical of the Bush administration.

The administration is dismissing the report, due out today, as election-year politicking.

The Democratic staff on the House Homeland Security Committee surveyed health officials in all 50 states. The aides to Texas Representative Jim Turner, the panel's top Democrat, received 41 responses to a series of five questions about states' readiness and funds in the event of a biological attack or serious infectious disease.

Only three states reported that they are at the optimal level of preparedness for a biological attack, based on a three-point scale established by the Centers for Disease Control and Prevention. Four states reported that they were at the bottom of the scale, and six states had not been rated.

Health and Human Services Department spokesman Tony Jewell said the Democrats' report was "petty partisan politics."

"No president in history has done more to strengthen our public health and emergency response capabilities than President Bush," he said.

While the report criticizes the government for not providing enough money, Jewell said not one state has been able to use all the funds the administration has provided to improve hospital readiness and public health programs since the terrorist attacks of Sept. 11, 2001.

That total is about \$5.4 billion in four years.

In 1999, the government established a national stockpile of drugs, vaccines, and other medical supplies to deal with natural or terrorist-created attacks, including anthrax and smallpox.

An important part of the program are so-called "push packs" of supplies that can reach any state within 12 hours. Each pack could fill a 747 jet.

The Democrats' report raises questions about whether the drugs could make it smoothly through "the last mile" to state and local health officials, who would ultimately treat patients exposed to deadly pathogens.

The Democratic staff also received 63 responses to 104 surveys sent to cities and localities about plans for handling a biological attack. Some local health officials replied with concerns about finding trained people to administer treatments and getting proper equipment ([Boston.com, 2004](#)).

**Title:** Is The United States Ready For A Bioterrorism Attack?

**Date:** December 2, 2004

**Source:** [ABC News](#)

**Abstract:** During the anthrax scare of 2001, when envelopes containing the deadly bacteria were mailed to locations throughout the country, 22 people were infected with the disease. Five eventually died.

The incident, occurring shortly after the Sept. 11 terrorist attacks, underscored the vulnerability of the United States to bioterrorism. Those responsible for the anthrax scare have never been found.

But has our preparedness improved since then? According to many experts, the answer is no.

And anthrax is only one of several bacteria and viruses that could be used in a bioterrorist attack.

"Anthrax is easier to come by and people have used it recently," said Kyle Olson, vice president of CRA, a consulting firm specializing in bioterror under contract to the Department of Homeland Security.

Referring to the anthrax scare of 2001, Olson said, "He/she/they are still out there and may be biding their time and making more. If you can make a little, you can make a lot. That's a scenario that has a lot of people bothered."

### **Easily Spread & Deadly**

The Centers for Disease Control and Prevention classifies six pathogens as Class A bioterrorism agents: smallpox, plague, botulism, tularemia, hemorrhagic fever and anthrax.

Michael Greenberger, director of the University of Maryland Center for Health and Homeland Security in Baltimore, explains that the Class A pathogens share some common traits: they can be easily spread, all of them can be deadly, and even a small dose could cause widespread damage and fear throughout a populated area.

To address these concerns, the CDC in 1999 began to develop the Strategic National Stockpile, a nationwide system of storage facilities with equipment and supplies to address an emergency like a bioterrorist attack.

The SNS would supplement efforts by state and local agencies to respond to a public health emergency. And by most accounts, the stockpile has the equipment to do so.

"The SNS is in pretty good shape," said Olson. "There are multiple stockpiles in numerous sites around the country of drugs, antibiotics, medical equipment, even things like gloves and tongue depressors."

### **Are Emergency Preparations Inadequate?**

How these SNS supplies might reach their intended population, however, is a matter of some concern.

"It's one thing to say that stockpile is in good shape -- it's another thing to say that the preparations for using the stockpile are in good shape," said Olson.

"Very few places in the U.S. have plans for using [the SNS] in place. There are some good efforts, but by and large the majority of American cities do not have good plans or plans that have been tested," said Olson.

Olson and Greenberger note that a handful of cities, like Denver, Seattle and Chicago, have tested some portion of their emergency plans, and say tests are now being planned for other large cities.

But Greenberger said that in large cities like Chicago, "things did not go well."

"The major problem with the stockpile is that once it gets to the field, there are no plans to distribute the medications from the stockpile once they arrive on the scene," he said.

Charles Schable, director of Terrorism Preparedness and Emergency Response for the CDC, believes great improvement in coordinating the distribution of emergency supplies and medication has been made in recent years ([ABC News, 2004](#)).

**Title:** Report: America Is Not Ready To Defend Against Bioterrorism

**Date:** December 16, 2004

**Source:** [Daily News Central](#)

**Abstract:** Three years after 9/11, America is not ready to respond effectively to a bioterrorist attack, according to a report issued by [Trust for America's Health](#) (TFAH). This is the second year in a row that TFAH has conducted a review of bioterrorism and public health preparedness. "Ready or Not? Protecting the Public's Health in the Age of Bioterrorism -- 2004" examined 10 key indicators to gauge state preparedness and determine America's overall readiness to respond to bioterrorist attacks and other health emergencies.

### **Not Enough Improvement**

Over two-thirds of states and D.C. achieved a score of six or less. Florida and North Carolina scored the highest, achieving nine out of the possible 10 indicators, and Alaska and Massachusetts scored the lowest, at three out of 10.

Although direct comparisons are difficult because the indicators were modified to reflect the changed expectations of additional time and funding, in this year's report, 34 states and D.C. obtained higher scores, nine scores remained the same, and seven scores declined.

The scores demonstrate continued incremental progress; however, preparedness is still lagging behind goals and expectations. With most states still in the middle range of the scale and no states meeting all of the indicators, there are still major areas of vulnerability that leave Americans at risk.

Overall, the report found that many basic bioterrorism detection, diagnosis, and response capabilities are still not in place. This report found that more than three years after 9/11 and the anthrax tragedies, we've only made baby steps toward better bioterrorism preparedness, rather than the giant leaps required to adequately protect the American people, said Lowell Weicker, Jr., TFAH Board President and former three-term U.S. Senator and Governor of Connecticut.

### **What Will It Take?**

The conclusions of this study demand an answer to the big question here: What will it take to make bioterrorism and public health preparedness a real national priority?

### **Some of the report's major concerns include the following:**

1. Nearly one-third of states cut their public health budgets between Fiscal Year 2003 and 2004, and federal bioterrorism funding decreased by over \$1 million per state in 2004;
2. Shifting federal priorities and programs are distracting from improvement efforts, and there is little, if any, accountability to the public;
3. Only six states -- Florida, Illinois, Louisiana, and three undisclosed states -- have achieved "green" status for the Strategic National Stockpile, which means that they are recognized as being adequately prepared to distribute vaccines and antidotes in an emergency;

### **Brain Drain Imminent**

4. Only five public health labs report sufficient capabilities (facilities, technology, and/or equipment) to fully respond to a chemical terrorism threat, and only one-third of states report sufficient bioterrorism lab response capabilities;
5. Nearly 60 percent of states do not have adequate numbers of laboratory scientists to test for anthrax or the plague if there were to be a suspected outbreak;
6. Two-thirds of states do not electronically track disease outbreak information by national standards, causing serious delays in reporting making early warning of disease threats difficult;
7. The public health workforce is on the brink of a "brain drain" as the baby boomers retire and next-generation recruitment efforts suffer;



8. Concerns remain that states are unprepared to implement a quarantine, although every state except Alaska has adequate statutory authority to quarantine in response to a hypothetical bioterrorism attack scenario;

9. Although planning for a flu pandemic, which is often viewed as requiring a similar response to a bioterror attack, has improved, 20 states still do not have publicly available response plans in place; and

10. Based on model estimates, a pandemic flu hitting the U.S. could result in 89,000 to 207,000 deaths and could cost the economy between \$71.3 and \$166.5 billion. Sixteen states could face over 5,000 deaths and 33 states would face over 10,000 people hospitalized in the first wave of the disease hitting the U.S.

#### **'Flash Distracting from Substance'**

"Germs in the hands of terrorists is a frightening proposition. Americans deserve to know how their tax dollars are being used to better protect the homeland," said Shelley A. Hearne, DrPH, Executive Director of Trust for America's Health. "Sadly, what we found is that public health professionals have been left to juggle competing priorities with limited resources, and that flash is distracting from substance. We need to focus on fixing the fundamentals and get back to the tried-and-true basics."

During a news conference announcing his resignation earlier this month, departing HHS Secretary Tommy Thompson highlighted the importance of bioterrorism preparedness issues, saying, "for the life of me, I cannot understand why the terrorists have not attacked our food supply, because it is so easy to do," and that a pandemic flu is "a really huge bomb out there that could adversely impact on the health care of the world."

#### **Better Bio-Game Plan Needed**

To improve bioterrorism and public health preparedness, TFAH recommends the following:

1. Building a better bio-game plan, with consistent, measurable standards for improvement that require demonstration of how funds were used to achieve progress. In anticipation of the reauthorization of the Public Health Security and Bioterrorism Response Act of 2002, a systematic review of preparedness gaps should be conducted;

2. Getting back-to-basics, by building on fundamental components of a comprehensive public health system that is fully prepared to meet both emergency and ongoing challenges from threats of terrorism to the flu and cancer;

3. Conducting practice drills to assess capabilities and vulnerabilities, to help identify gaps and improve coordination of roles and responsibilities; and

4. Limiting liability to encourage vaccine development and protect health care workers. The report was supported by grants from The Robert Wood Johnson Foundation (RWJF), the Bauman Foundation, and the New York Community Trust. The report and state -specific information is available on TFAH's [Web site \(Daily News Central, 2004\)](#).

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**Title:** Bioterrorism And Pandemic Flu Preparedness In 2005

**Date:** February 22, 2005

**Source:** [Recombinomics](#)

**Abstract:** If we are seriously concerned about the possibility that nefarious individuals or groups might make bioweapons using state-of-the-art genetic manipulations, the chain of events leading to recognition that such experiments were under way might look very much like what occurred with these Korean swine strains. The WHO would be under pressure--by international agreement under the Bioweapons Convention of 1972--to definitively prove, or disprove, allegations. Does WHO have sufficient funding, manpower, and clout to do this job at this time? No.

As more and more announcements on the looming flu pandemic hit the news services and the public realizes that pandemic preparedness in 2005 is not much better than it was in 1918, the issue of bioterrorism preparedness is again being raised. The bird / human flu situation in South Korea is being cited as a "[scary near miss](#)" to show how unprepared the US is for bioterrorism.

However, the characterization of the WSN/33 situation in pigs on farms in South Korea is clearly not in the "near miss" category at this time. The situation is unresolved and although several explanations have been offered, the likelihood of the explanations being correct is very close to zero.

The WSN/33 are clearly on deposit at [GenBank](#) and [Los Alamos](#) and publicly available. They were deposited at GenBank on Oct 24, 2004 and were publicly available at the end of November. WHO was notified in early December about potential public health issues, and the possibility of Bioterrorism was also publicly raised in early December.

It is now 2 1/2 months later and the location and existence of the viruses is unresolved. The Korean lab that isolated the viruses, and deposited the WSN/33 sequences, says the sequences are in many pigs on many farms in Korea.

The human portions of the Korean swine sequences at the databases are clearly WSN/33 related and [present](#) in reassortants, which have human and avian influenza genes as well as recombined genes.

South Korea is calling the sequences a lab error and claiming that the WSN/33 sequences exist only in cyberspace, and the sequences they generated point to yet another virus as the source of the human sequences.

Clearly someone is mistaken, but no one at this time can say who.

The South Korean official explanation certainly would fall into the "least likely" category. There were six sequences on eight genes that were deposited at GenBank last year. Of these 48 sequences, 30 are over 99% homologous to WSN/33 and virtually all are slightly different than WSN/33 and slightly different than each other. Moreover, these differences are not random sequencing errors. They are differences consistent with well defined rules of influenza evolution.

Since the Korean lab has indicated that it does not have WSN/33 growing in the lab, and the viruses were isolated in chicken eggs, it is hard to see how any WSN/33 would contaminate the viruses or the data. Thus, at this time there is no credible data refuting the presence of these combinations in pigs.

The existence and location of the sequences is not an academic exercise. WSN/33 is quite lethal in mice and two of the sequences are H1N1 which would be readily transmissible from human-to-human. Since these sequences are from 1933, most people would be immunologically naïve to these proteins, so infections in humans could have severe consequences. Moreover, the sequences indicate the isolates have reassorted and recombined genes. Recent data of 2003 isolates shows extreme [genetic instability](#) in South Korean isolates. Not only were H9N2, H3N2, and H6N1 subtypes identified, but some of these genes were also recombinants.

Since South Korea is saying that there are no WSN/33 sequences in pigs and the data are lab errors, the source of these swine sequences is not being investigated.

Thus, the existence of the sequences in swine has not been resolved for four months after they were placed on deposit at Genbank.

Bioterrorism and Pandemic Preparedness are interesting concepts, but avian influenza continues to evolve and gain [pandemic potential](#) as governments spin wheels, issue warnings, and hope for the best ([Recombinomics, 2005](#)).

**Title:** Interpol Sounds Bio-Terror Alarm

**Date:** February 23, 2005

**Source:** [BBC](#)

**Abstract:** The world is ill prepared for the looming threat of a biological terror attack, the head of Interpol has said.

Ronald Noble told the BBC the danger of an al-Qaeda attack had not diminished since the 9/11 strikes on the US.

The head of the global police body also denied governments had played up the risks for political gain.

"I don't think it is the sounding of false alarms," Mr Noble said, citing recent evidence. "I think the alarm is real and it is continuing to ring."

### **'Millions at Risk'**

Recent attacks around the world; indications that al-Qaeda plans to use biological and chemical weapons; and its statements claiming "the right to kill up to 4 million people" are "enough evidence for me to be concerned", Mr Noble said.

In an exclusive interview with the BBC's Ten O'Clock News, he warned that the potential cost of a biological terror attack left no room for complacency.

"When you talk about bio-terrorism, that's one crime we can't try to solve after it happens because the harm will be too great."

"How could we ever forgive ourselves if millions or hundreds... or tens of thousands of people were killed simply because our priorities did not include bio-terrorism?"

### **Intelligence Sharing**

Around 400 police officers and health officials from around the world are going to the French city of Lyons next month to attend a bio-terrorism conference - the biggest ever organised by Interpol.

Mr Noble acknowledged that governments and security agencies were better organised against the threat than ever before - but "none of us can let our guards down and assume that the problem has been addressed".

Were al-Qaeda to launch a "spectacular biological attack which could cause contagious disease to be spread, no entity in the world is prepared for it", he said. "Not the US, not Europe, not Asia, not Africa."

Interpol's bio-terrorism conference, due to start on 1 March, will seek to encourage intelligence agencies and police forces to share information and co-operate more closely against the biological terrorism threat ([BBC, 2005](#)).

**Title:** Stanford Researchers Join Protest Against U.S. Germ Research Policy

**Date:** March 2, 2005

**Source:** [Stanford Report](#)

**Abstract:** Ten Stanford researchers are among more than 700 signatories of an open letter to National Institutes of Health Director Elias Zerhouni criticizing the unintended consequences of the 2001-02 decision by the NIH National Institute for Allergy and Infectious Diseases to "prioritize research of high biodefense but low public-health significance." The letter, sent to Zerhouni on Monday, has been published online in *Science* magazine (<http://www.sciencemag.org/feature/misc/microbio/>).

The Stanford signatories include Arthur Kornberg, a Nobel Prize winner, and Charles Yanofsky, who will receive the National Medal of Science from President Bush this month, as well as Allan Campbell, Martha Cyert, Stanley Falkow, Sharon Long, Julie Parsonnet, David Relman, Lucy Shapiro and Lucy S. Tompkins.

"The diversion of research funds from projects of high public-health importance to projects of high biodefense but low public-health importance represents a misdirection of NIH priorities and a crisis for NIH-supported microbial research," asserted the signatories. "The diversion of research funds comes at a time when research on non-biodefense-related microbial physiology, genetics and pathogenesis is poised for significant breakthroughs, made possible by the application of genomics, proteomics and systems-biology methods."

Comparing grant periods 1996-2000 and 2001-2005, the letter cited a 1,500 percent increase in the number of grants awarded for work on prioritized bioweapons agents—tularemia, anthrax, plague, glanders, melioidosis and brucellosis—and a 41 percent decrease in grants to study non-biodefense-related model organisms and a 27 percent decrease in grants to study non-biodefense-related pathogenic organisms. This funding trend may drive research innovation outside the United States to the detriment of U.S. national interests, the scientists suggested.

"Support for bioterrorism research should not come at the expense of existing research," Yanofsky said in an e-mail interview. "Yes, it is an area that is in need of interest and support. But it should be considered an additional objective and not one that, by being supported, will sacrifice progress by well-established investigators who are contributing to our overall understanding that is benefiting mankind in medical as well as many other areas."

Margaret Kosal, a science fellow at Stanford's Center for International Security and Cooperation, was not a signatory but pointed out in an e-mail interview that investment in fundamental research may be more likely to provide breakthroughs and subsequent biodefense benefits. "One of the rationales for Project BioShield and other biodefense initiatives that inject large amounts of federal funding into private pharmaceutical and biotech companies is the suggestion that there may be secondary benefits for fighting other infectious disease and benefits to public health. Perhaps the arrow is in the wrong direction" ([Stanford Report, 2005](#)).

**Title:** Fighting Terror: It Takes A Village

**Date:** March 2, 2005

**Source:** [Stanford Report](#)

**Abstract:** Responding to a terrorist attack employing biological or chemical agents requires knowledge spanning many disciplines. Three Stanford researchers were among nearly 135 leading scientists and technical experts from industry, academia and government invited to participate in the Gordon Research Conference on Chemical and Biological Terrorism Jan. 30-Feb. 4 in Buellton, Calif. The conference brought together public and private sectors to discuss what has worked, where problems are now and may appear in the future, and what needs more attention in responding to and preventing terrorism. The goal was to move toward a better "systems approach" to defense.

The Stanford participants were Margaret E. Kosal, a science fellow at the Center for International Security and Cooperation (CISAC) with a doctorate in chemistry; Steven Block, a professor of applied physics and of biological sciences and senior fellow, by courtesy, at the Stanford Institute for International Studies; and Mark A. Musen, a professor of medicine (medical informatics) and, by courtesy, of computer science.

The conference included discussions of public health surveillance and response, food supply vulnerabilities and agricultural security, forensics of biological and chemical evidence, and the changing nature of the threat environment.

Both biological and chemical terrorist attacks have the potential to cause a large number of casualties and overwhelm medical capabilities, or "surge capacity." The nation's terrorism defense plans focus on mass-effect bioterrorism—events with the potential to infect tens of thousands and kill more than a thousand. But those plans may not effectively counter small-scale biological or chemical attacks, much less nuclear or radiological attacks, Kosal asserted.

Musen spoke about the computational problems of automating surveillance for possible bioterrorism using "prediagnostic" indicators that become available even before health-care workers can identify a specific epidemic.

"There is enormous enthusiasm—and enormous spending—for combining databases of over-the-counter drug sales, absenteeism records, 911 calls and admitting diagnoses to emergency rooms and clinics," he said. "There has been virtually no empirical evaluation of any of these efforts, despite all the excitement."

Musen discussed difficulties computers have making sense of high-volume, low-signal data streams, including basic problems with the way that the data typically are represented, difficulties of integrating disparate data sources and uncertainty in how to present the results of computational analyses to public-health officials in an optimal way.

"Although there is enormous political pressure to be 'doing something' to monitor for bioterrorism, it's also important to take a step back and to engage in the research needed to determine what we really should be doing," Musen said.

### **Chemical Threats are Underestimated**

The focus on bioterror threats may miss a more frequent occurrence—chemical attacks. In a presentation

titled "The Shifting Face of Chemical Terrorism: Assessing an Emerging Threat," Kosal examined the growing trend of non-state actors to use improvised chemical devices (ICDs) that may include choking and blistering agents.

"The path from the 'street chemistry' of improvised explosive devices [IEDs] to ICDs incorporating commercial chemicals is very short, whereas the path from IEDs to transgenic biological agents effectively weaponized is a substantial leap for states and even more so for terrorists," Kosal said. "While U.S. policy is focused on defending against a mass-effect bioterrorism attack, we may be missing a lower-tech threat of much higher probability."

Half of the U.S. fatalities in Iraq have been due to IEDs, typically roadside bombs, Kosal said. "This strongly suggests there is a substantial tacit knowledge base and readily available materials for constructing these types of weapons—one guy has not been making them all in a Mosul garage." While incorporating chemicals into roadside bombs would not dramatically increase military casualties, incorporating them in devices employed in enclosed spaces could, Kosal said.

An analysis of terrorism between 1910 and 2003 from open-source information shows the lion's share of 265 terrorist attacks—76 percent—were chemical. Only 17 percent were biological, 0 percent nuclear (involving fissile material, such as that powering an atomic bomb) and 7 percent radiological (involving radioactive elements that cannot be used for fission or that contain less than a critical mass of fissionable material, such as those employed in "dirty bombs").

It used to be that the major threat of chemical weapons came from state-based programs. Chlorine and mustard gases were used extensively in World War I, for example. The United States and the former Soviet Union amassed stockpiles exceeding 40,000 tons, which are still being destroyed. International efforts to control the exchange of certain chemicals, such as precursors for nerve and blister agents, have been effective. Kosal cited the refusal in the 1980s during the Iran-Iraq war of the world community to sell Iraq the key precursor to mustard gas.

Nowadays, terrorists both foreign and domestic may disperse traditional chemical warfare agents using improvised methods. In 1995, for example, the Aum Shinrikyo group crudely dispersed a nerve agent in a Tokyo subway—killing 12 and panicking thousands—using umbrellas to puncture 11 garbage bags, each filled with a common solvent and about a pound of sarin. Today's chemical weapons may just as likely come from common commercial sources, such as agrochemicals. Radical Islamists have even attempted to weaponize a research chemical, osmium tetroxide, used to prepare biological specimens for electron microscopy.

In contrast with nuclear or mass-effect biological weapons, chemical weapons may not require sophisticated knowledge to produce. In 2003 at a rented storage space in Tyler, Texas, government agents seized half a million rounds of ammunition, more than 60 pipe bombs, remote-controlled bombs disguised as briefcases, pamphlets on how to make chemical weapons and improvised hydrogen cyanide dispersal devices hypothetically capable of killing thousands in a minute. The stockpiler, William J. Krar, described as a white supremacist and anti-government extremist, was sentenced to 11 years in federal prison. His specific objectives remain unknown to authorities.

Kosal said terrorists do not appear to be concocting new chemicals; they're co-opting existing ones. "Chemical terrorism is likely to be a crime of opportunity and familiarity with chemicals and chemistry," Kosal said. "Perhaps the basic knowledge and materials—commercial dual-use chemicals in this instance—are too globally widespread to justify efforts to control the capability of terrorists to co-opt them for malevolent uses. ... The best threat-reduction policy may be to reduce the motivation.

"Much of the academic and policy dialogue segregates the folks discussing motivation from the folks discussing capacity and vulnerability. The former tend to be historians and social scientists and the latter, biologists, chemists and physicists. It may prove that decreasing terrorist motivation is unfeasible in the

near term, but here is an example where those with the technical knowledge and those with the social science knowledge need to be working cooperatively, the type of interaction that the CISAC Science Fellows program fosters," Kosal said.

### **Ten Thousand Fingers on the Bioterror 'Button'**

Block's talk focused on the growing threat of bioterror. While chemicals have killed more people to date than have biological weapons, future biological attacks using infectious, untreatable pathogens have the potential to kill more people than chemicals. Block wryly called such biological attacks "the gift that keeps on giving."

Block said post-9/11 restrictions aimed at keeping pathogens out of the wrong hands have backfired. One is the Department of Health and Human Services' "Select Agent Rule," which establishes requirements regarding possession and use in the United States, receipt from outside the United States and transfer within the United States of a particular list of agents and toxins.

"We're shooting ourselves in the foot," Block said. "We've made it so hard to work on these pathogens that even our so-called 'A-Team' can't do research with them." World-renowned plague researcher Stanley Falkow of Stanford and famed anthrax expert John Collier of Harvard have stopped working on live pathogens because of restrictive effects of recent legislation, according to Block. They now confine their research to a handful of cloned genes. "It's almost impossible to hire grad students or postdocs to work on Select Agents. Such research has been driven underground or into our national labs, which historically have not had the biological expertise found in the top academic labs and biotech companies."

Much of our response to bioterror threats is based on how we've historically responded to nuclear terror threats, Block said. "With nuclear weapons, only two things can be made to go 'boom'—plutonium and highly enriched uranium," he said. That made it comparatively easy to track and control materials, and to get a handle on the problem. "We tried to keep nuclear secrets *secret*. Not everyone knows how to make an atomic bomb."

In contrast, the genie has long been out of the bottle when it comes to biological agents. Virtually all research is reported in the open literature. "Even if we were to stop publishing everything now, there'd be enough public information to keep bioterrorists busy for at least another 50 years," he said.

"Back in the nuclear age, only a few countries were nuclear powers, and only a few people were authorized to have their 'fingers on the button,'" Block said. "Like them or not, they were responsible people. Contrast that with a world where genetically engineered weapons can be produced by, say, 10,000 people. Someone is guaranteed to press that button. We can't stop [bioterror acts] at the source any more than we can stop a computer virus at the source."

Rather than futilely attempting to thwart biological threats at their sources, which are ubiquitous, Block advocated shoring up the public health system so it can respond nimbly once threat turns to reality. A new generation of antitoxin, antiviral and antibacterial agents may mitigate ill effects, and improved vaccines may prevent damage altogether. "We need to work the problem from the other direction," he said. "To confine our attention to Select Agents alone is essentially putting on blinders. The future threats we may face may bear little relation to the organisms on the current list" ([Stanford Report, 2005](#)).

**Title:** Bioterror CSIs Target Germs

**Date:** March 15, 2005

**Source:** [Wired](#)

**Abstract:** Back in 1346, it didn't take a CSI unit to uncover the culprits behind one of history's first cases of bioterrorism. Nobody could miss the plague-ridden corpses and heads catapulted over the walls of the ancient city of Kaffa, under siege by the Tartar army.



Nor could Kaffa residents ignore the [subsequent epidemic](#), which led to their surrender and may have set off the Black Death.

Nearly seven centuries later, it's easier to secretly spread deadly germs around and harder to figure out who did it. But pioneers in the emerging field of bioterrorism forensics hope to change that equation by exposing the secrets lurking in the DNA of bioweapons.

"It's not enough to detect (a bioagent). You have to be able to attribute who made it, how they made it, what materials have gone into it," said Barbara Seiders, manager of chemical and biological defense programs at the [Pacific Northwest National Laboratory](#) in Richland, Washington.

An anthrax germ, for example, might reveal signs of the laboratory where it was created. A plague bacterium could indicate the kind of solution used to raise it. And, at least in the dreams of scientists, the genetic makeup of [ricin](#) could help identify the single castor bean plant that produced it.

On Monday at the American Chemical Society's [annual meeting](#) in San Diego, scientists discussed a variety of forensic tools, from advanced [mass spectrometry](#), which identifies the components of a material, to the chemical analysis of water, which could identify the region of the country where a germ was grown by providing an aquatic fingerprint.

But there are plenty of limitations.

"We've got a lot of questions to answer, and we're fairly limited in what we can say right now," said Randall Murch, former deputy director of the [FBI Laboratory](#) and now associate director of research-program development at Virginia Tech, at the meeting.

After all, the field of American bioterrorism forensics is barely a decade old. It's a product of terrorism fears at the 1996 Olympics in Atlanta -- and a full 10 to 20 years behind the advanced world of civilian criminal forensics, said Murch in an interview. Obscure threats, like the disease [tularemia](#), remain largely unexamined, and researchers must poke through a bounty of potential germ clues to figure out which ones hold meaning.

Then there's the uninspiring matter of the ongoing investigation of the 2001 anthrax attacks. Scientists managed to identify the strain of anthrax used, but the case remains unsolved.

"It was clear that even though we knew what the strain was, we came to understand that scientists had been exchanging it all over the world," Seiders said. "Trying to track it only knowing the strain wasn't enough."

Finding a suspect with anthrax in his basement laboratory wouldn't have been sufficient either.

"The problem is that the agents that are used for bioterrorism are found in the environment," said forensics specialist Abigail A. Salyers, professor of microbiology at the University of Illinois at Urbana-Champaign. "The bacterium that causes anthrax is in the soil in many places, especially farming areas. If you have a suspect and you find spores in that person's apartment or house, how do you know that it's the strain that was used? If you're going to convict somebody of a crime, then (you can't) just say, 'I found this bacteria on his shoes or his hands.' The defense attorneys are going to take care of that pretty quickly."

Enter the microbiologists and the search for bioweapon "fingerprints."

"Bacteria don't have fingers, so how do you take a fingerprint of a bacteria? You look at its genome sequence," Salyers said.

Criminal forensics offers countless examples of successful investigations involving the analysis of the genetic makeup of germs. Doctors, for example, can track the AIDS virus from person to person by examining strains of the virus. They can also get a good idea about how recently a patient was infected by analyzing the level of mutation in a sample of the virus.

(Recently, the technique suggested that a New York City man infected by a so-called HIV superbug had developed AIDS within months of being infected, an unusual occurrence.)

In another promising precedent, medical forensics allowed doctors to track down a colleague who inadvertently spread a skin infection throughout a large Northeastern hospital, Salyers said. The germ strain had an unusual genetic mutation that researchers eventually linked to the doctor, who hadn't done a good job of scrubbing his hands.

According to Salyers, researchers are currently decoding the genome of 10 to 15 strains of anthrax. It's not clear if the results will be released publicly. At the same time, scientists are trying to figure out how quickly the germs mutate. According to Murch, researchers are also exploring the makeup of single anthrax spores, exploring the levels of elements like sulfur, fluorine, chlorine and phosphorus.

"Chemical signatures" are another hot topic. Bacteria are grown in solutions that Salyers calls "chicken soup" for germs. Just as human bodies show signs of what we eat, bacteria may indicate the levels of amino acids, sugars and vitamins in the test tubes where they were grown.

Even when scientists uncover chemical signatures, however, "we're still going to have trouble figuring out what that all means," said Karen Wahl, senior research scientist at Pacific Northwest National Laboratories. "There's a richness of signatures, and you don't know what constitutes evidence and what constitutes inconsequential stuff you have to sort through."

Considering the challenges, Murch is limiting his expectations.

"I'd like to someday get to the level of attribution that we see in other forensic analyses, like DNA fingerprints," he said. "But I don't know that we'll ever get there" ([Wired, 2005](#)).

**Title:** Bioterror Victims: Wait To Exhale

**Date:** March 30, 2005

**Source:** [Wired](#)

**Abstract:** When a Johns Hopkins University researcher called a pig farmer and asked to use some of his porkers in a research study, the farmer was happy to oblige. "We sell everything but the oink," he replied.

Actually, that's exactly what senior scientist Joany Jackman was looking for. "I told him I wanted to buy pig breath, and there was silence for a while," she said. But the farmer agreed to help by using a special mask to condense the water vapor from porcine breath.

Armed with an analysis of the pig breath, Jackman and her colleagues hope they're on the road to a breathalyzer-like device that will instantly detect infection by bioterrorism agents like anthrax. In a related project, Harvard University researchers are looking at ways to identify and treat "superspreaders" -- Typhoid Marys who unknowingly spread more germs than anyone else by simply breathing.

Conceivably, one breath test could identify victims of a bioterror attack, and another could confirm who is the most contagious.

Both projects have gotten exposure recently. The pig-breath research was spotlighted at the American Society for Microbiology's [Biodefense Research Meeting](#) in Baltimore last week, while new findings about superspreaders made a splash after a medical journal published them in December.

Plenty of unanswered questions remain: Will breath tests be effective or practical when someone releases a cloud of dangerous microbes over, say, Washington, D.C.? Even if the tests identify the infected and the dangerous, what will happen next?

The stakes are high, however, since early detection of infection is crucial for treatment -- and difficult. For example, it's impossible to detect anthrax infection immediately, said Steven M. Block, a bioterrorism specialist and professor of biological sciences at Stanford University.

One kind of test can pick up small numbers of anthrax spores in the nasal passages, but it takes an overnight bacterial culture, he said. Quicker tests can pick up larger numbers of spores, but people must first suspect they've been infected. As the 2001 anthrax attacks in the United States showed, the symptoms of the disease often mimic those of other illnesses.

But in a major attack, potential victims may know something is wrong. Blood tests are perhaps the most effective way to get a quick picture of someone's health, but not in the chaos of mass panic. "I could not imagine drawing blood from 1,000 people in the field and analyzing it quickly," said Jackman, who has worked as an emergency medical technician. "And it's a lot more pleasant and easy to take a breath sample than a urine sample."

So Jackman and colleagues turned to breath. It helps that it isn't just made up of the gases we inhale. We also exhale droplets of the fluid that lines our lungs, potentially telling doctors how sick we are.

Scientists have already found [evidence](#) that molecules in the breath can reveal whether people have asthma, lung cancer or breast cancer.

Jackman wants to detect proteins known as [cytokines](#). Part of the immune system's signal troops, they raise red flags when an intruder enters the body. "They're essentially a help signal," Jackman said, leading the soldiers of the immune system to the site of trouble.

The research in pigs showed that the scientists could detect cytokines expelled by the lungs by using [mass spectrometry](#) to analyze breath samples. Meanwhile, research in the laboratory suggests that researchers can track the progress of infection by diseases like anthrax and bacterial influenza via checking cytokine levels.

The next step is to meld the two types of research together so scientists can figure out what the cytokines in the breath actually mean. Jackman and her team plan to ask emergency-room patients to puff into breath meters so researchers can try to link cytokines to their illnesses.

The research is still in its early stages, however, and Jackman said it may take five to 10 years before a breathalyzer-type device is ready for prime time.

Block, the Stanford professor, is skeptical. Plenty of research projects aim to detect disease before symptoms appear, he said. But the tests are, "for the most part, imprecise, costly, difficult to score -- and their discriminatory power is not all that great."

In the other breath-related study, a group of researchers is working to identify and treat superspreaders who fling extra-large numbers of germs into the world when they breathe. While not every potential bioterrorism threat is contagious -- anthrax isn't -- some, including influenza, are transmitted through the air. The transmission of SARS, another biothreat, has been largely blamed on [superspreaders](#).

In a small study published in the [Proceedings of the National Academy of Sciences](#) in December, Harvard biomedical engineering professor David Edwards and colleagues found that saltwater solution -- the same stuff people use to spray their dry noses and rinse their contact lenses -- keeps highly contagious patients from spreading germs from their lungs.

Among the 11 volunteers studied, "everybody who inhaled saline expired 75 percent less (germs) for several hours," Edwards said. (Don't rush for your medicine cabinet the next time you get a sniffle: The saline droplets used in the study were much smaller than those in over-the-counter products.)

The saline solution appears to work by changing the [surface tension](#) of fluid in the lungs, disrupting its ability to turn into droplets.

Under one hopeful scenario, officials could treat a stadium full of potentially infected terrorism victims with a mist of saline solution, said Edwards, who has formed a commercial company to investigate the saline treatment's prospects. "Obviously, that's really provocative."

An alternative would be to reduce the spread of disease by giving saline inhalers to infected people, he said.

Stanford's Block isn't sure if detection of superspreaders will help doctors prevent the spread of infection. While doctors could have limited the spread of some diseases by finding highly contagious people like the infamous and still-controversial Typhoid Mary, potential bioterror weapons "like smallpox and the flu probably require that *all* infected people be prevented from spreading the disease," Block said. "So I don't think this will turn out to be generally useful in combating bioterror."

But, he added, "never say never" ([Wired, 2005](#)).

**Title:** Bioterror Plans Inadequate, GAO Says

**Date:** April 5, 2005

**Source:** [Washington Post](#)

**Abstract:** Despite the nation's deadly 2001 experience with anthrax in the mail, federal scientists have not agreed on a method to determine whether workplaces, postal facilities or other sites that might have been exposed are free of contamination, according to a congressional study.

The lack of certified anthrax sampling procedures means "there can be little confidence in negative results," the Government Accountability Office reported. Nor can U.S. environmental and health experts answer with confidence what GAO investigators called the basic question: "Is this building contaminated?"

The report is the latest in a series of government reviews that have questioned the effectiveness of the country's bioterrorism response plans.

The Washington area has experienced several false alarms prompted by new biological agent detection systems. They include last month's incident at two Pentagon-related mail facilities; a February 2004 report of the toxin ricin in a Senate office building; and a November 2003 alarm at a Navy mail processing center in Anacostia.

A separate draft report that examined the response by local governments to March 14 incidents at two Defense Department mail facilities concluded that uncertainty over testing "muddled the communications flow" and confused the public. During the incidents, defense officials shut down Pentagon mail delivery and placed 900 workers on preventive antibiotics. Authorities later blamed "quality control problems" at a contract testing laboratory for contaminating a key sample.

Rep. Christopher Shays (R-Conn.), chairman of the House Government Reform subcommittee on national security, which requested the GAO study, said its findings expose a risk to homeland security.

"Every false positive brings multiple federal agencies stumbling to the scene with no real plan, and every false negative risks complacency in the face of a lethal threat," Shays said. "Without validated detection protocols, we risk terrorizing ourselves with false positives that put people on antibiotics needlessly and false negatives that breed a false sense of security."

In its report, the GAO recommends that Homeland Security Secretary Michael Chertoff coordinate anthrax response and testing.

Julie L. Gerberding, director of the Centers for Disease Control and Prevention, agreed in a written response to the GAO that coordinated, improved testing methods are needed. But she noted that scientifically "validated" standards were not available in 2001.

Gerberding said developing a testing protocol that would cover "every possible scenario" is impractical given the technical challenges, time and cost involved. She said "scientific judgment and evaluation" should be relied upon instead.

A CDC representative will testify at a hearing today before Shay's panel, along with officials from Virginia, the defense department, Environmental Protection Agency, U.S. Postal Service, American Postal Workers Union and the Association of Public Health Laboratories.

The GAO report says that 23 of 286 facilities tested by federal agencies in 2001 returned positive results for anthrax bacteria.

But at two of the 23 facilities, test results were initially negative, and at one facility -- in Wallingford, Conn. -- it was not until the fourth testing that a positive hit was recorded.

The U.S. Postal Service reported in August that no further testing was warranted, and no additional postal workers have reported anthrax disease.

The GAO agreed that postal workers were at little risk but added, "We cannot rely on the argument that no one has become sick to answer the question of whether facilities are contaminated."

The Department of Homeland Security and EPA have been ordered by Congress to reach agreement by August on crisis management responsibilities, the report says ([Washington Post, 2005](#)).

**Title:** Study: Doctors Not Ready For Bioterrorism

**Date:** September 26, 2005

**Source:** [PHYSORG](#)

**Abstract:** The researchers said more than one-half of 631 physicians tested were unable to correctly diagnose diseases caused by agents most likely to be used by bioterrorists -- smallpox, anthrax, botulism and plague.

However, test scores improved dramatically for the same physicians after they completed an online training course in diagnosing and managing diseases caused by bioterrorism agents.

"Most American physicians in practice today have never seen any cases of these diseases in their practice," explained Dr. Sara Cosgrove, a faculty member in Hopkins' Division of Infectious Diseases. "Preparation will be key to dealing with a major catastrophe, such as a major bioterrorist attack."

In the study, physicians at 30 internal medicine residency programs in 16 states and Washington, D.C. were tested on how to recognize and treat bioterrorism-related diseases before and after taking an online course in bioterrorism disease. Correct management of such diseases in the pretest averaged 25.4 percent. Upon completion of the course, correct management averaged 79 percent.

The study is detailed in the Sept. 26 issue of Archives of Internal Medicine ([PHYSORG, 2005](#)).

**Title:** U.S. Unprepared For A Pandemic Plague

**Date:** November, 2005

**Source:** [CBS](#)

**Abstract:** The flu flavor of the year may be the Asian Bird Flu, but whether or not the next widespread outbreak of disease is this deadly bug, another yet to be found, or even man-made by terrorists, officials at all levels of government maintain that the United States remains woefully unprepared.

The H5N1 strain of bird flu that is currently in the news has killed more than 60 people in South East Asia since 2003, which is just over a 50% fatality rate for those infected. Migrating birds carrying the disease have been confirmed now in Turkey, Greece, Romania, and Russia. The concern is that the virus will mutate into a version that easily passes from human to human, like the common flu. If it does and remains so deadly, many people will perish.

President Bush recently warned the public, "at some point we are likely to face another pandemic." He revealed a \$7.1 billion dollar plan to get the country prepared for such an outbreak, including having 20 million doses of bird flu vaccine ready. He also stressed the need to offer pharmaceutical companies liability protection for the drugs they produce so they are not dissuaded from making vaccines and other drugs.

Senator Hillary R. Clinton (D-NY) has introduced legislation with Sen. Pat Roberts (R-KS) to ensure there are adequate supplies of flu vaccine, to help prevent recurring shortages of vaccine and strengthen the vaccine delivery infrastructure to be able to respond to a crisis. The legislation, S.1828, would establish market guarantees, enabling the federal government to purchase, stockpile and buy back stores of vaccine, and increase research into vaccine development alternatives.

"Before we can be prepared to handle a response to a pandemic or avian flu outbreak, we need to make fundamental fixes to our flu vaccine infrastructure--and the clock is ticking," she said. "We need to ensure an adequate and consistent vaccine supply by encouraging more vaccine manufacturers to enter and stay in the United State market."

Besides the pandemics produced by nature, there is also the need to be vigilant against man made pestilence, such as from terrorists. To that end, New York State Senator Michael Balboni, Chairman of the Veterans, Homeland Security, and Military Affairs Committee has cited a need to increase our readiness to handle a biological attack for several years. "Unlike conventional weapons, agents of mass destruction including Smallpox, Anthrax, Sarin, Ricin, and Ebola are relatively easy to transport and deploy. In even the smallest amounts they can wreak incalculable havoc and death," he says.

In a January 2004, the committee issued a report entitled "New York After September 11th- Shaken, but Not Stirred" which opened with the following major finding:

"New York's health care system, like the rest of the nation's, is unprepared to respond and continue to provide services in the event of a large-scale bio-terrorism attack involving an infectious pathogen. Several important programs have been developed which have significantly enhanced detection, inter-hospital communication, mass inoculation and decontamination response plans by New York State, New York City, and some hospital systems. Though we are better prepared than almost every other state in

the nation, response capabilities vary from hospital to hospital and critical programs such as surge capacity, hospital security, and long term mass care are still largely theoretical concepts."

Senator Balboni returned our call to answer some questions regarding New York's state of preparedness to handle a widespread outbreak. Asked what it would take for us to be 'ready', he answered, "Oh, a lot more than we've done today. There's a question as to can we can truly prepare a nation. We've taken steps. Information is absolutely crucial. ER's, doctor offices, schools, major transportation hubs ... There are studies on how they transmit, not just person to person, but also from population to population. To understand that school absentee rates and sales at pharmacies give warning signs.... There is a fancy title, 'syndromic surveillance'-watching the syndrome of the diseased state. A society-wide monitoring in attempt to determine when a disease state has taken a hold on a population."

According to N.Y. State Wildlife Pathologist Dr. Ward Stone, if the bird flu migrates here, "We're ready to identify it. If it does come to N. America, it's going to be a big killer of birds."

The World Health Organization said the spread of the virus to Europe's fringes had increased the chances of human to human cases developing.

"It represents a call to arms on human health," Mike Ryan, director of WHO's alert and response operations, told Reuters. "It's not a time for panic, it is a time for action."

#### **Historical Plague Notes:**

1. Plague of Justinian (541 AD)--First recorded outbreak of bubonic plague, which was spread by fleas on rats. It is estimated that at it's height, 10,000 people died per day.
2. The Black Death (1300's)--Killed over 20 million in six years, a quarter of Europe's population at the time.
3. Cholera (1816-1826)--Caused by ingesting bacteria from improperly sanitized water or fish. Killed millions, especially in Russia.
4. Spanish Flu (1918-1919)--A especially lethal strain of influenza estimated to have killed over 20 million worldwide.
5. Asian Flu (1957-1958)--Believed responsible for 70,000 deaths in the United States alone.
6. Hong Kong Flu (1968-1969)--Believed to have killed 34,000 in the United States.

#### **Other Potential Pandemics:**

Ebola virus, Bolivian haemorrhagic fever, HIV, Marburg virus, Lassa fever, and Rift Valley fever

Did you know?

It is believe this children's nursery rhyme is really about the bubonic plague, alluding to the rashes victims displayed, flowers used to hide the smell of the disease, and burning the bodies of the dead.

"Ring around the rosey Pocket full of posies Ashes, ashes They all fall down" ([CBS, 2005](#)).

**Title:** Bio-Terror Strike 'Is Inevitable'

**Date:** November 21, 2005

**Source:** [BBC](#)

**Abstract:** The world must face the inevitability of a bio-terror attack by al-Qaeda, the head of Interpol has warned.

Police and health authorities around the world were underprepared for such an attack, Ron Noble told a bio-terror conference in Cape Town, South Africa.



An attack could see smallpox, anthrax, botulism or Ebola-style viruses released into Western cities.

The Cape Town event is the first of three sessions to train medics and police how to deal with attacks.

Further sessions will be held in Chile and Singapore during 2006.

### **Patient but Deadly**

Addressing delegates from 41 African nations, Mr Noble said al-Qaeda's track record of deadly, unexpected terror attacks put the threat into focus.

Evidence collected from sympathetic websites also pointed to an avowed intention to stage bio-terror attacks if operatives gained the capability, he added.

"Al-Qaeda has openly claimed the right to kill four million people using biological and chemical weapons," he said.

"Al-Qaeda is willing, able and patient enough to plan and prepare to execute terrorists acts that [once] would have been considered unrealistic or fantasy."

Interpol says several pathogens and viruses most likely to be used in any bio-terror attack, Mr Noble told delegates.

### **'Suicide Bio-Weapon'**

Tactics could vary - as well as a traditional detonation, attackers could turn themselves into a "suicide bio-weapon", Mr Noble said, travelling around while highly infectious.

Postal services could also be used to spread disease as shown by anthrax attacks in the US in 2001.

"The potential consequences of such an attack could be so far-reaching that a lack of action in preventing bio-terrorism poses an unacceptable risk to the safety of societies around the world," he said.

The Cape Town meeting follows a conference in Lyons, France, in March, in which Interpol urged governments to back a drive against bio-terror ([BBC, 2005](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following propaganda was published within the calendar year of 2006. While some of the following reports may have been legitimate news stories, most if not all of them appear to be blatant propaganda with the overall goal of convincing American and the World that it is on the precipice of a bio-terror induced pandemic. The fact that this propaganda exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and military control of society.

**Title:** Responding to Biological Attacks

**Date:** January 2006

**Source:** [CFR](#) (Council on Foreign Relations)

### Abstract:

#### **How dangerous could biological terrorism be?**

The anthrax-laced letters mailed in the fall of 2001 infected twenty-three people and killed five—a toll that only hinted at the damage bioterrorism could cause. In a 2001 government exercise called Dark Winter, a simulated “worst-case” terrorist attack with smallpox virus—a germ more worrisome than the anthrax bacterium because it’s contagious—was projected to cause some 300,000 smallpox cases within three weeks, about one in three of which would be fatal. Plague, anthrax, and other diseases could also be major killers.

#### **Have terrorists experimented with biological weapons before?**

Yes. CIA Director George Tenet has testified that documents found in Afghanistan showed that the [al-Qaeda](#) terrorist network was pursuing sophisticated biological weapons research in Afghanistan. [Aum Shinrikyo](#), a doomsday cult in Japan, had an ambitious biological weapons program and released anthrax spores and botulinum toxin in Tokyo on several occasions, but none of the attacks inflicted any known casualties. Iraq, the Soviet Union, and other countries experimented extensively with anthrax bacteria and other germs as recently as the 1990s. (The United States abandoned its offensive biowarfare program in 1969 and destroyed its biological arsenal in the early 1970s.)

#### **How is the U.S. government responding to the threat of bioterrorism?**

##### **Through a wide variety of measures including:**

1. The Department of Health and Human Services has established a new Office of Public Health Preparedness to address bioterrorist threats.
2. In July 2002, Dr. Julie Gerberding, an infectious diseases expert noted for her work combating anthrax and bioterrorism, was named director of the Centers for Disease Control and Prevention (CDC).
3. In December 2002, the Bush administration announced plans to start inoculating some ten million health-care, emergency, law-enforcement, and military personnel against smallpox before making the vaccine available to the general public on a voluntary basis in 2004.

4. In January 2003, the Bush administration created a system designed to detect the release of deadly germs like anthrax and smallpox within twenty-four hours by adapting many of the Environmental Protection Agency's 3,000 air-quality monitoring stations nationwide.

Funding to combat bioterrorism, which was increasing even before September 11 and the 2001 anthrax letters, has shot up in their wake. A June 2002 bioterrorism law provided \$4.6 billion for stockpiling medicines and vaccines, enhancing inspections of the nation's food supply, increasing water-system security, and improving hospital preparedness. In President Bush's January 2003 State of the Union address, he proposed spending \$6 billion more for research and production of vaccines and other treatments against agents like anthrax, botulinum toxin, Ebola, and plague.

#### **Will the increased spending help?**

It should, experts say. The threat from bioterrorism is serious, but quick and effective public health and medical responses could save many lives. Preparedness has improved significantly in recent months, and public health authorities are on alert. Nevertheless, state and local governments are inadequately prepared to cope with a major bioterrorist attack. The new spending is earmarked for scientific research, public health initiatives, vaccine and drug stockpiles, hospital preparedness, and disease surveillance and response systems at the federal, state, and local levels. Down the road, the planned expenditures should also produce indirect benefits for public health in general, experts say. **What diseases are authorities most worried about?**

The "Category A" list of biological threat agents—as classified by the CDC—includes the germs that cause anthrax, botulism, plague, smallpox, tularemia, and hemorrhagic fever viruses such as Ebola. These infectious diseases cause potentially high death rates, could trigger public panic, and require special action to cure and contain. A few are contagious (smallpox, plague, and Ebola). More than a dozen other types of biological disease threats are classified by the CDC as generally less dangerous but still capable of killing many victims.

#### **How would health authorities discover that a biological attack was underway?**

Bioterrorism can be hard to detect, experts say. Environmental monitoring might be able to pick up signs of an airborne release of germs, assuming authorities knew where to look. But an attack could go unnoticed until victims feel sick and visit hospitals. A 1984 outbreak of food poisoning in a small Oregon town that sickened 751 people was initially believed to be a natural outbreak; only a year later did authorities realize that a religious cult called the Rajneeshees had deliberately contaminated salad bars with salmonella bacteria ([CFR, 2006](#)).

**Title:** New York State Ill-Prepared For Major Pandemic Breakout

**Date:** January 11, 2006

**Source:** [Homeland Security News Wire](#)

**Abstract:** New York state had better hope that no avian flu pandemic break, because the state is just not ready

If the bird flu epidemic or another major outbreak were to strike New York state, the state emergency health care system would be poorly prepared to handle a surge of patients, according to a report released yesterday. The national report card by the American College of Emergency Physicians does gave the state high marks in areas of public health and injury prevention, ranking New York first in the nation for its low incidence of fatal job-related injuries, second for its low incidence of fatalities in alcohol-related crashes and third for annual per capita expenditure on hospital care.

"But that says nothing about the state's ability to react to the bird flu," said Sandra Schneider, ACEP board member and chair of the Department of Emergency Care at the University of Rochester. New York state received an overall C+ grade for its emergency care system, slightly higher than the C- rating given

to the nation as a whole. The state was ranked 30th in its ratio of board-certified emergency room doctors to 100,000 people and ranked 49th with only 7.7 emergency departments for every 1 million people.

Very upsetting:

The U.S. overall grade on health emergency preparedness: C-

We would probably be upset if one of our children came home with a grade of C- in basket weaving or ballroom dancing. How upset should we be when the governments of the fifty states receive a C- on the ability of the United States to cope effectively with emergency health crises such as pandemic or bioterror attacks? If you say we should be very upset, we would respond with that line from Tom Cruise in "Mission Impossible": "You've never seen me very upset."

The National Report Card on the State of Emergency Medicine in the United States says in its report that the emergency medicine system of the United States as a whole has earned a grade of C- — barely above a D. This represents an average of the overall grades for all states and the District of Columbia, as well as data received from ACEP's Government Services and Puerto Rico chapters. No state scored either an A or F for its overall grade. California, Massachusetts, Connecticut, and the District of Columbia led the nation with overall grades of B. Rating worst in the nation with overall grades of D+ or D were Alabama, Arizona, Arkansas, Idaho, Indiana, New Mexico, Oklahoma, South Dakota, Utah, Virginia, Washington, and Wyoming. More than 80 percent of states earned poor or near-failing overall grades (C+ to D) ([Homeland Security News Wire, 2006](#)).

**Title:** Advances In Life Sciences May Offer Terrorists Novel Bioterror Weapons

**Date:** February 3, 2006

**Source:** [Homeland Security News Wire](#)

**Abstract:** As is the case with other aspects of technology, the onward march of biotechnology holds both promise and peril

A committee of the U.S. National Academy of Science says advances in the life sciences have made it possible to manipulate living organisms in useful ways, leading to improvements in public health, agriculture, and other areas. There is a dark side, too, however. The panel points out the growing risk that biomedical advances will be used to make novel biological weapons or misused by careless groups and individuals. The panel has issued a new report outlining the risks and recommending ways of identifying and avoiding them.

As a start, the panel says the global scientific community should broaden its awareness of what bioterrorism can do. Panelist Joshua Epstein, an economist with the Brookings Institution in Washington, emphasizes the importance of looking ahead and considering not merely current biomedical threats.

"We are acutely aware that these technologies are developing at an unprecedented pace, that they are distributed globally, and that these trends — we only expect them to gain momentum," he noted.

The group recommends creation of an independent advisory board to analyze and forecast these fast changing scientific and technological trends to keep U.S. intelligence and national security officials informed of potential life science threats ([Homeland Security News Wire, 2006](#)).

**Title:** Invest In Biotech To Fight Bioterror, Say Researchers

**Date:** February 27, 2006

**Source:** [Science Daily](#)

**Abstract:** Wealthy nations should promote the use of biotechnology in developing countries as this would combat the risk of 'bioterrorism' — the use of living agents such as bacteria to attack people or plants — says a report released today.

It urges the G8 group of most industrialised nations to create a global network of experts, leaders and citizens to help poorer nations develop and regulate biotechnology by providing training and policy advice.

The report says that boosting developing countries' capacity to use biotechnology as a tool for development would increase vigilance against the science being misused.

It highlights the ways biotechnology can assist developing countries, ranging from producing vaccines to breeding improved crop varieties.

But fears are growing that, with so much scientific information in the public domain, individuals, groups or even states could use biotechnology to develop chemical weapons fairly easily.

Co-author Abdallah Daar of the University of Toronto's Joint Center for Bioethics, Canada says the network would be particularly useful in Africa, as many nations there lack policies regulating biotechnology research.

Last year, delegates at a meeting in Uganda warned that a failure to address concerns over biological weapons could undermine efforts to develop and instill confidence in science ([Science Daily, 2006](#)).

**Title:** Infectious Defense

**Date:** June 14, 2006

**Source:** [Discovery](#)

**Abstract:** In the fall of 2001, five people died after exposure to weapons-grade spores of the *Bacillus anthracis* bacterium—anthrax—delivered in postal letters. The crime, which remains unsolved, brought national and international attention to the looming danger of bioterrorism and biological warfare. Future bioterror attacks may be unavoidable, says retired United States Army Colonel David R. Franz, who has spent more than 25 years studying—and preparing medical countermeasures against—biological warfare and bioterrorism. Franz, who worked as a veterinarian before earning a doctorate in physiology, is currently the vice president and chief biological scientist at the Midwest Research Institute. He is also the first director of the National Agricultural Biosecurity Center. In the late 1990s, Franz served as the chief inspector on three biological warfare inspections to Iraq for the United Nations Special Commission. During your inspections of Iraq, you found bioweapons.

**DF:** We did. In that era, 1998, we found them. I don't think it was a high-quality program.

**Were you surprised bioweapons weren't found in the recent inspections?**

**DF:** No. Right before we went in the second time, I was on record for both MSNBC and CNN saying that I won't be at all shocked if we don't find biological weapons this time.

It sounds like I had a lot of wisdom, but in my next breath, on MSNBC and CNN, I said that we will absolutely find chemical weapons.

**Why hasn't a biological terrorism attack happened?**

**DF:** The hardest question I am asked is why it hasn't happened. It is not necessarily as easy as everyone says. When you work through all the possible scenarios, you find technical difficulties for the bad guys,

fortunately. That is why, I think, I'm less concerned about it than [the average person] who just knows that bad things can happen with biology.

I think of a spectrum of technical barriers. On the very low end, something like foot-and-mouth disease in cattle... On the far end of the spectrum there are the classical agents—anthrax, plague, tularemia. There are significant technical issues there.

Why hasn't an attack at the lowest level occurred? That's a behavioral issue, not a technical issue. It is one of intent, it seems to me. And, for some reason it hasn't been done.

### **Can't we just develop sensors that will detect an attack—anthrax in the air?**

**DF:** If we had that, we might not need to think about vaccines. We would all have a little thing in our pocket or our purse that we could put on to protect our airways. But, I don't think we are going to get there. Biological detectors are complicated. You need antibodies to the bugs, or PCR primers, and the detectors take a lot of care and feeding.

### **Is there a relationship between emerging disease and bioterror?**

**DF:** Not everyone agrees with me, but I use a very simple equation to think about it: bioterrorism equals emerging infectious disease plus intent.

### **Could we stop a would-be terrorist if they were intent on causing harm?**

**DF:** I think it would be really tough. If we do, it would likely be through something we pick up in intelligence. We hear something is planned, or someone has this little laboratory in their basement or in a cave somewhere, or we have a scientific colleague, somewhere in the world, working with someone who hears something.

### **Assuming you can't stop it, then what?**

**DF:** I looked at the bugs and said that for medical countermeasures we can't make a "1-to-N" list and say we are going to go down the list and make a vaccine for each one—there are just too many. So I looked at the [dangerous] outliers.

We now have enough vaccine for smallpox to immunize the population. We have vaccines now for anthrax and antibiotics for anthrax, and we have some stockpiles and a lot of other preparations for foot-and-mouth disease.

Then under that, where we can't afford to do specific countermeasures, I like surveillance, general diagnostics. It is a lot easier to get diagnostics through the FDA. Anything you have to stick into people or that people take orally, there are a lot more hoops to jump through.

And then under that a strong biotechnology and basic bioresearch infrastructure. In the future, I think we'll come up with more generic countermeasures that may boost our immune system a little bit.

### **How far in the future?**

I always say 30 years.

**Over the long haul, aren't you going to drive the evolution of the bugs toward being craftier, more resistant?**

**DF:** Probably, to some degree. It depends on the bug.

**Is there anything else we can do?**

**DF:** There is no perfect solution. We can't stop a bioterrorist. We might stop some with deterrence, and if it occurs we have these generic countermeasures and a good public-health system, and then for what that can't deal with we need to have our people resilient.

**What do you mean by that? Accept that it's going to happen, and just deal with it?**

**DF:** Sort of. Not ever accept terrorism—we're going to do everything we can do to fight this—but be able to deal with it, more mentally than any other way.

**I don't think the public would be ready to hear that message. They want to hear that it is not going to happen, and that they're protected if it does.**

**DF:** I think of two examples. One is Israel. They've become a more resilient society. But it isn't by chance. They've focused on education, on understanding terrorism.

And then I remember a snippet of the news I saw after Katrina on the Cajun families out in the rural areas. They just got their boats, their shotguns, checked on their neighbors. They are used to living off the land, and have a close-knit social structure. Those kinds of things can make a great difference. I consider that resilience as well.

**Has anyone calculated the odds that an individual person will ever be attacked by a bioterrorist?**

**DF:** You're more likely to be hit by a truck. We lose 440,000 people to smoking related illnesses every year... We lose 20-80,000 people to influenza every year, 120,000 people to automobile accidents. We lose five people to bioterrorism.

**I'm sure you know where I'm going: Why spend money on this, which might not ever happen, instead of on these known things?**

**DF:** One reason is that we're willing to let our fellow citizens die if they know it is going to take a long time and they kind of enjoy what leads up to it. Like smoking. We are willing to let people die of influenza if they are old and their immune systems aren't very good and they are probably going to die soon anyway. We are not willing to have even a very low risk of dying if someone intentionally does it. We can do it to ourselves, but nobody can do it to us.

**If you were an ingenious bioterrorist, wouldn't you work on some unexpected, not-so dangerous organism, and make it worse?**

**DF:** The bad news is biology is very squishy; the good news is biology is very squishy. For those of us interested in countermeasures, you think you've got a vaccine nailed, or you think you have the perfect antiviral drug – then you find out it is toxic, or the vaccine protects mice but not primates. Fortunately the same holds true for the person who would use biology against us. You can get a group of experts, molecular biologists, virologists, together in a room and they say "I can do this" but you get in a lab and it is not as easy as in the conference room.

**What are you most worried about?**



**DF:** I am probably most concerned about the highly contagious human agents—influenza, smallpox—which could have a huge impact on this world, because the world is smaller and we have HIV/AIDS today.

### **Why does that matter?**

**DF:** I don't think we would ever eradicate smallpox again, because you couldn't immunize AIDS patients or maybe even HIV patients [because they would be vulnerable to the virus in the vaccine].

The other thing that I worry about a concept called "reload." Say you have two kilos of high-quality, powdered anthrax in ten American cities. It might not be totally efficient but can infect a lot of people. Then you say 'in two weeks, I'm going to do the next city and I won't tell you what it is,' then you do the next city. That is feasible, and would be very hard to deal with.

### **Because of the injuries or the psychological damage?**

**DF:** If they said 'it's going to be Detroit next,' you could deal with it. If they didn't say [where], it would have a real psychological impact. Would you want to go downtown or anywhere if you knew that there were 10,000 people suffering from inhalational anthrax and a lot of them would die?

**If anything is scary to me, it is the contagious agents, because an outbreak can start with such a small group of people and just... go.**

**DF:** I think we would change our lifestyles very quickly. We would probably travel a lot less, we would probably wear masks when we go to the grocery store, we would probably wash our hands a lot more.

### **How much should we worry about agricultural bioterrorism?**

**DF:** The ag threats fall below the threshold that we might compare to large natural disaster. But foot-and-mouth disease is one I worry about because it could devastate our economy. Foot-and-mouth could take us into tens of billions of dollars of economic damage.

**If you rewrite history and the 9-11 attacks never happened, would anyone have thought it likely that planes would be hijacked and crashed into targets? So isn't it possible that future attacks will be things you're not looking for?**

**DF:** Go back to my equation that bioterrorism is emerging infectious disease plus intent. We have a good medical infrastructure and public health infrastructure looking for emerging infectious disease. So I think we're in better shape with regard to biology than we are to the next terror event—someone flying airplanes into bridges, those off-the-wall kinds of things ([Discovery, 2006](#)).

**Title:** The Secretive Fight Against Bioterror

**Date:** September 15, 2006

**Source:** [Security Info Watch](#)

**Abstract:** On the grounds of a military base an hour's drive from the capital, the Bush administration is building a massive biodefense laboratory unlike any seen since biological weapons were banned 34 years ago.

The heart of the lab is a cluster of sealed chambers built to contain the world's deadliest bacteria and viruses. There, scientists will spend their days simulating the unthinkable: bioterrorism attacks in the form of lethal anthrax spores rendered as wispy powders that can drift for miles on a summer breeze, or common viruses turned into deadly superbugs that ordinary drugs and vaccines cannot stop.

The work at this new lab, at Fort Detrick, Md., could someday save thousands of lives -- or, some fear, create new risks and place the United States in violation of international treaties. In either case, much of what transpires at the National Biodefense Analysis and Countermeasures Center (NBACC) may never be publicly known, because the Bush administration intends to operate the facility largely in secret.

In an unusual arrangement, the building itself will be classified as highly restricted space, from the reception desk to the lab benches to the cages where animals are kept. Few federal facilities, including nuclear labs, operate with such stealth. It is this opacity that some arms-control experts say has become a defining characteristic of U.S. biodefense policy as carried out by the Department of Homeland Security, NBACC's creator.

Since the department's founding in the aftermath of the Sept. 11 attacks, its officials have dramatically expanded the government's ability to conduct realistic tests of the pathogens and tactics that might be used in a bioterrorism attack. Some of the research falls within what many arms-control experts say is a legal gray zone, skirting the edges of an international treaty outlawing the production of even small amounts of biological weapons.

The administration dismisses these concerns, however, insisting that the work of NBACC is purely defensive and thus fully legal. It has rejected calls for oversight by independent observers outside the department's network of government scientists and contractors. And it defends the secrecy as necessary to protect Americans.

"Where the research exposes vulnerability, I've got to protect that, for the public's interest," said Bernard Courtney, NBACC's scientific director. "We don't need to be showing perpetrators the holes in our defense."

Tara O'Toole, founder of the Center for Biosecurity at the University of Pittsburgh Medical Center and an adviser to the Defense Department on bioterrorism, said the secrecy fits a larger pattern and could have consequences. "The philosophy and practice behind NBACC looks like much of the rest of the administration's philosophy and practice: 'Our intent is good, so we can do whatever we want,'" O'Toole said. "This approach will only lead to trouble." Although they acknowledge the need to shield the results of some sensitive projects from public view, critics of NBACC fear that excessive secrecy could actually increase the risk of bioterrorism. That would happen, they say, if the lab fosters ill-designed experiments conducted without proper scrutiny or if its work fuels suspicions that could lead other countries to pursue secret biological research.

The few public documents that describe NBACC's research mission have done little to quiet those fears. A computer slide show prepared by the center's directors in 2004 offers a to-do list that suggests the lab will be making and testing small amounts of weaponized microbes and, perhaps, genetically engineered viruses and bacteria. It also calls for "red team" exercises that simulate attacks by hostile groups.

NBACC's close ties to the U.S. intelligence community have also caused concern among the agency's critics. The CIA has assigned advisers to the lab, including at least one member of the "Z-Division," an elite group jointly operated with Lawrence Livermore National Laboratory that specializes in analyzing and duplicating weapons systems of potential adversaries, officials familiar with the program confirm.

Bioweapons experts say the nature of the research envisioned for NBACC demands an unusually high degree of transparency to reassure Americans and the rest of the world of the U.S. government's intentions.

"If we saw others doing this kind of research, we would view it as an infringement of the bioweapons treaty," said Milton Leitenberg, a senior research scholar and weapons expert at the University of Maryland's School of Public Policy. "You can't go around the world yelling about Iranian and North Korean programs -- about which we know very little -- when we've got all this going on."

Created without public fanfare a few months after the 2001 anthrax attacks, NBACC is intended to be the chief U.S. biological research institution engaged in something called "science-based threat assessment." It seeks to quantitatively answer one of the most difficult questions in biodefense: What's the worst that can happen?

To truly answer that question, there is little choice, current and former NBACC officials say: Researchers have to make real biological weapons.

"De facto, we are going to make biowarfare pathogens at NBACC in order to study them," said Penrose "Parney" Albright, former Homeland Security assistant secretary for science and technology.

Other government agencies, such as the Centers for Disease Control and Prevention, study disease threats such as smallpox to discover cures. By contrast, NBACC (pronounced EN-back) attempts to get inside the head of a bioterrorist. It considers the wide array of potential weapons available. It looks for the holes in society's defenses where an attacker might achieve the maximum harm. It explores the risks posed by emerging technologies, such as new DNA synthesizing techniques that allow the creation of genetically altered or man-made viruses. And it tries in some cases to test the weapon or delivery device that terrorists might use.

Research at NBACC is already underway, in lab space that has been outsourced or borrowed from the Army's sprawling biodefense campus at Fort Detrick in Frederick. It was at this compound that the U.S. government researched and produced offensive biological weapons from the 1940s until President Richard M. Nixon halted research in 1969. The Army continues to conduct research on pathogens there.

In June, construction began on a \$128 million, 160,000-square-foot facility inside the same heavily guarded compound. Space inside the eight-story, glass-and-brick structure will be divided between NBACC's two major divisions: a forensic testing center tasked with using modern sleuthing techniques to identify the possible culprits in future biological attacks; and the Biothreat Characterization Center, or BTCC, which seeks to predict what such attacks will look like.

It is the BTCC's wing that will host the airtight, ultra-secure containment labs where the most controversial research will be done. Homeland Security officials won't talk about specific projects planned or underway. But the 2004 computer slide show -- posted briefly on a Homeland Security Web site before its discovery by agency critics prompted an abrupt removal -- offers insight into NBACC's priorities.

The presentation by NBACC's then-deputy director, Lt. Col. George Korch, listed 16 research priorities for the new lab. Among them:

"Characterize classical, emerging and genetically engineered pathogens for their BTA [biological threat agent] potential.

"Assess the nature of nontraditional, novel and nonendemic induction of disease from potential BTA.

"Expand aerosol-challenge testing capacity for non-human primates.

"Apply Red Team operational scenarios and capabilities."

Courtney, the NBACC science director, acknowledged that his work would include simulating real biological threats -- but not just any threats.

"If I hear a noise on the back porch, will I turn on the light to decide whether there's something there, or go on my merry way?" Courtney asked. "But I'm only going to do [research] if I have credible information that shows it truly is a threat. It's not going to be dreamed up out of the mind of a novelist."

Administration officials note that there is a tradition for this kind of biological risk assessment, one that extends at least to the Clinton administration. In the late 1990s, for example, a clandestine project run by the Defense Department re-created a genetically modified, drug-resistant strain of the anthrax bacteria believed to have been made by Soviet bioweaponers. Such research helped the government anticipate and prepare for emerging threats, according to officials familiar with the anthrax study.

Some arms-control experts see the comparison as troubling. They argued, then and now, that the work was a possible breach of a U.S.-negotiated international law.

The Bush administration argues that its biodefense research complies with the Biological and Toxin Weapons Convention, the 1972 treaty outlawing the manufacture of biological weapons, because U.S. motives are pure.

"All the programs we do are defensive in nature," said Maureen McCarthy, Homeland Security's director of research and development, who oversees NBACC. "Our job is to ensure that the civilian population of the country is protected, and that we know what the threats are."

Current and former administration officials say that compliance with the treaty hinges on intent, and that making small amounts of biowarfare pathogens for study is permitted under a broad interpretation of the treaty. Some also argue that the need for a strong biodefense in an age of genetic engineering trumps concerns over what they see as legal hair-splitting.

"How can I go to the people of this country and say, 'I can't do this important research because some arms-control advocate told me I can't'?" asked Albright, the former Homeland Security assistant secretary.

But some experts in international law believe that certain experiments envisioned for the lab could violate the treaty's ban on developing, stockpiling, acquiring or retaining microbes "of types and in quantities that have no justification" for peaceful purposes.

"The main problem with the 'defensive intent' test is that it does not reflect what the treaty actually says," said David Fidler, an Indiana University School of Law professor and expert on the bioweapons convention. The treaty, largely a U.S. creation, does not make a distinction between defensive and offensive activities, Fidler said.

More practically, arms experts say, future U.S. governments may find it harder to object if other countries test genetically engineered pathogens and novel delivery systems, invoking the same need for biodefense.

Already, they say, there is evidence abroad of what some are calling a "global biodefense boom." In the past five years, numerous governments, including some in the developing world -- India, China and Cuba among them -- have begun building high-security labs for studying the most lethal bacteria and viruses.

"These labs have become a status symbol, a prestige item," said Alan Pearson, a biologist at the Center for Arms Control and Non-Proliferation. "A big question is: Will these labs have transparency?"

When it opens in two years, the NBACC lab will house an impressive collection of deadly germs and teams of scientists in full-body "spacesuits" to work with them. It will also have large aerosol-test chambers where animals will be exposed to deadly microbes. But the lab's most controversial feature may be its secrecy.

Homeland Security officials disclosed plans to contractors and other government agencies to classify the entire lab as a Sensitive Compartmented Information Facility, or SCIF.

In common practice, a SCIF (pronounced "skiff") is a secure room where highly sensitive information is stored and discussed. Access to SCIFs is severely limited, and all of the activity and conversation inside is presumed to be restricted from public disclosure. There are SCIFs in the U.S. Capitol, where members of Congress are briefed on military secrets. In U.S. nuclear labs, computers that store weapons data are housed inside SCIFs.

Homeland Security officials plan to operate all 160,000 square feet of NBACC as a SCIF. Because of the building's physical security features -- intended to prevent the accidental release of dangerous pathogens -- it was logical to operate it as a SCIF, McCarthy said.

"We need to protect information at a level that is appropriate," McCarthy added, saying she expects much of the lab's less-sensitive work to be made public eventually.

But some biodefense experts, including some from past administrations, viewed the decision as a mistake.

"To overlay NBACC with a default level of high secrecy seems like overkill," said Gerald L. Epstein, a former science adviser to the White House's National Security Council and now a senior fellow with the Center for Strategic and International Studies. While accepting that some secrecy is needed, he said the NBACC plan "sends a message that is not at all helpful."

NBACC officials also have resisted calls for the kind of broad, independent oversight that many experts say is necessary to assure other countries and the American public about their research.

Homeland Security spokesmen insist that NBACC's work will be carefully monitored, but on the department's terms.

"We have our own processes to scrutinize our research, and it includes compliance to the bioweapons convention guidelines as well as scientific oversight," said Courtney, the NBACC scientific director.

In addition to the department's internal review boards, the agency will bring in small groups of "three or four scientists" on an ad-hoc basis to review certain kinds of potentially controversial experiments, Courtney said. The review panels will be "independent," Courtney said, but he noted that only scientists with government security clearances will be allowed to participate ([Security Info Watch, 2006](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following propaganda was published within the calendar year of 2007. While some of the following reports may have been legitimate news stories, most if not all of them appear to be blatant propaganda with the overall goal of convincing American and the World that it is on the precipice of a bio-terror induced pandemic. The fact that this propaganda exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and military control of society.

**Title:** Syria Ready With Bio-Terror If U.S. Hits Iran

**Date:** March 5, 2007

**Source:** [WND](#)

**Abstract:** An American biodefense analyst living in Europe says if the U.S. invades Iran to halt its nuclear ambitions, Syria is ready to respond with weapons of mass destruction – specifically biological weapons.

“Syria is positioned to launch a biological attack on Israel or Europe should the U.S. attack Iran,” Jill Bellamy-Dekker told WND. “The Syrians are embedding their biological weapons program into their commercial pharmaceuticals business and their veterinary vaccine-research facilities. The intelligence service oversees Syria’s ‘bio-farm’ program and the Ministry of Defense is well interfaced into the effort.”

Bellamy-Decker currently directs the Public Health Preparedness program for the European Homeland Security Association under the French High Committee for Civil Defense.

She anticipates a variation of smallpox is the biological agent Syria would utilize.

“The Syrians are also working on orthopox viruses that are related to smallpox,” Bellamy-Decker said, “and it’s a good way to get around international treaties against offensive biological weapons development. They work on camelpox as a cover for smallpox.”

According to the Center for Infectious Disease Research & Policy (CIDRAP) at the University of Minnesota, [camelpox is a virus closely related to smallpox, that causes a “severe and economically important disease in camels,” but rarely, if ever, causes the disease in humans.](#)

Bellamy-Decker also told WND the North Koreans were working closely with the Syrians on their biological weapons program.

“The Syrians have made some recent acquisitions in regard to their smallpox program from the DPRK,” she explained. “Right before the recent Lebanon war, the Syrians had a crash program in cryptosporidium.”

According to the Washington State Department of Health, [cryptosporidium is a one-celled parasite that causes a gastrointestinal illness with symptoms of diarrhea, abdominal cramps, headaches, nausea, vomiting, and a low-grade fever. The symptoms can last for weeks and may result in weight loss and dehydration.](#)

"Because cryptosporidium is impervious to chlorine," Bellamy-Decker continued, "you could infect the water supply by the bucket full of cryptosporidium, if you know where to get it. The resulting illness would put down a lot of civilians and military who might oppose you going into their country."

"The Syrians have a modus operandi of covert operations and deniability," she stressed, "so biological weapons are absolutely perfect for them."

WND asked Bellamy-Decker if the Syrians have any history of having used biological weapons.

"I believe they are testing biological weapons right now, in Sudan, in the conflict in Darfur," she answered. "There is credible information about flyover activity in Darfur, where little parachutes have been dropped down on the population. This is consistent with dispersal methods in bioweapons attacks. I've also seen evidence of bodies that have been recovered from Darfur that look as if they had been exposed to biological weapons."

[President Mahmoud Ahmadinejad of Iran met with Sudanese President Omar al-Bashir in Khartoum Feb. 28](#) to exchange expressions of support and solidarity.

"The Syrians now consider biological weapons as part of their arsenal," Bellamy-Decker said. "The Syrian military is also beginning to plan the eventual integration of biological weapons in its tactical and strategic arsenals."

She referenced an April 2000 article published by Syrian defense minister General Mustafa Talas, titled "Biological (Germ) Warfare: A New and Effective Method in Modern Warfare." The article was republished in a Farsi translation in Tehran.

"All indications suggest that Syria's ultimate objective is to mount biological warheads on all varieties of the long-range surface-to-surface missiles in its possession," Bellamy-Decker maintained. "This is a goal that can probably be achieved within a few years, and it may already have been realized in part."

She argued that instead of producing large quantities of bioweapons agents, Syria is seeking to develop a smaller, but high-quality arsenal, which it can deliver accurately against military and civilian targets.

When asked how Syria might be expected to retaliate against Israel or Europe if the U.S. attacked Iran, she responded, "Syria has most likely forward-deployed some of their covert operatives. Smallpox does not need to be weaponized. Aerosol release is the way to go."

#### **Bellamy-Decker explained the methodology of a terrorist bio-attack:**

So with a good primary aerosol release in an airport in Israel or Europe and you could get 100 index cases. If you've made the strain sufficiently virulent, you could have a ratio of 1 to 13 for infectivity, where the normal ratio is 1 to 3. If every index case infects 13 other people, you unfortunately have a great first hit.

"A terrorist bio-attack could go global," she noted. "A good biological hit will spread rapidly with international travel. Smallpox is a better weapon than anthrax. Smallpox has been field-tested, it is highly stable, and highly communicable, especially if you look at some of the strains the Russians manipulated. Syria probably retained some of [its] smallpox strains from the last outbreak back in 1972."

Another risk is the possibility Syria's military might give bioweapons to terrorists.

"We are close to seeing a breakthrough where Syria could provide biological weapons to some of the terrorist groups they work with, like Hezbollah in Lebanon," Bellamy-Decker argued. "The Syrians believe



they can vaccinate themselves and they are working within the Syrian military. They're certainly not worried about releasing these biological weapons in a military setting, or even if civilians were infected as well, as long as they are vaccinated. I think it is a real threat."

Bellamy-Decker is presenting a paper at this week's [Intelligence Summit](#) in St. Petersburg, Fla. It is expected to focus on the sophisticated state of development of the Syrian bioweapons program.

"The Syrians have developed a rather remarkable bioweapons capability that has gone under the radar of U.S. intelligence," she said. "U.S. intelligence continues to insist that the Syrian capability is not highly developed. The Syrian program mirrors how the Russians have developed their program, as well as Iraq under Saddam Hussein, North Korea, and Iran. The emphasis in the Syrian program is on latent potential and outbreak capability."

Bellamy-Decker explained we should not expect to find stockpiles of biological weapons.

"Stockpiles are just not how biological weapons are done," she said. "With biological weapons, it is not the quantity, but the quality that counts. If you can produce a virulent, communicable strain, then you have a great biological weapon and it doesn't matter how much of it you have, it depends on what the weapon looks like."

Bellamy-Decker also referenced a [paper she had co-authored for the European Homeland Security Association \(EHSA\) titled, "Public Health Security and Preparedness."](#)

This paper is intended to be used as part of a new initiative EHSA is launching in Brussels to hold a quarterly bioterrorism forum bringing together national and international experts with high-level decision-makers "to discuss the threat posed by deliberate disease and the appropriate preparedness and response mechanisms vitally needed to address this threat" ([WND, 2007](#)).

**Title:** Interpol Official Warns Of Bioterror Threat

**Date:** March 20, 2007

**Source:** [CIDRAP](#)

**Abstract:** Interpol's top official said yesterday that evidence collected from terrorists suggests that international law enforcement agencies should be ready to respond to chemical and biological attacks.

Ronald K. Noble, Interpol secretary-general, told a reporter from *Gulf News*, a newspaper based in the United Arab Emirates, that training materials recovered from Al Qaida investigations and information from captured operatives suggest that terrorist groups have had plans to launch bioterrorist attacks. Noble made the comments at an Interpol bioterrorism prevention workshop for the Middle East and North Africa, which is being held this week in Muscat, Oman. Interpol is the world's largest international organization of police agencies.

The goals of 3-day meeting in Oman are to educate senior law enforcement officials about bioterrorism prevention and response and provide them with guidance from international scientific and legal experts, according to an Interpol press release yesterday. Similar Interpol workshops have been held in South Africa, Singapore, Chile, and Ukraine.

"I have no doubt that the threat of bioterrorism is real and that we need to do more to prepare countries," Noble said in the press release.

Terrorists in Iraq recently perpetrated three chlorine bomb attacks, and "it is not difficult to imagine these attacks being extended from chemical to biological," Noble told *Gulf News*. "Nobody really knows when al Qaida will strike with chemical or biological weapons, but it is just a matter of time before the terrorists

believe they are ready," he said, adding that the only restraint the terrorists face is the technical complexity of launching effective attacks.

In January, British intelligence officials warned the country's laboratory officials that Islamic terrorists may try to steal deadly viruses to mount biological attacks, the London *Daily Mail* reported on Jan 25.

Labs that handle infectious disease pathogens such as polio, rabies, tuberculosis, and avian flu were told that their security measures would be reviewed by law enforcement, the newspaper reported. The story said Britain's MI5 security service had warned government officials that al Qaida operatives were training in bioterrorism and that the group had apparently tried to recruit university students to gain access to labs ([CIDRAP, 2007](#)).

**Title:** Establishing a High Level Of Knowledge Regarding Bioterrorist Threats In Emergency Department Physicians: Methodology And The Results Of A National Bio-Preparedness Project

**Date:** June 19, 2007

**Source:** [Prehospital And Disaster Medicine](#)

**Abstract:** Medical systems worldwide are facing the new threat of morbidity associated with the deliberate dispersal of microbiological agents by terrorists. Rapid diagnosis and containment of this type of unannounced attack is based on the knowledge and capabilities of medical staff. In 2004, the knowledge of emergency department physicians of anthrax was tested.

The average test score was 58%. Consequently, a national project on bioterrorism preparedness was developed. The aim of this article is to present the project in which medical knowledge was enhanced regarding a variety of bioterrorist threats, including cutaneous and pulmonary anthrax, botulinum, and smallpox.

**Methods:** In 2005, military physicians and experts on bioterrorism conducted special seminars and lectures for the staff of the hospital emergency department and internal medicine wards. Later, emergency department senior physicians were drilled using one of the scenarios.

**Results:** Twenty-nine lectures and 29 drills were performed in 2005. The average drill score was 81.7%. The average score of physicians who attended the lecture was 86%, while those who did not attend the lectures averaged 78.3% (NS).

**Conclusions:** Emergency department physicians were found to be highly knowledgeable in nearly all medical and logistical aspects of the response to different bioterrorist threats. Intensive and versatile preparedness modalities, such as lectures, drills, and posters, given to a carefully selected group of clinicians, can increase their knowledge, and hopefully improve their response to a bioterrorist attack. While many medical institutions are busy preparing for disasters and non-conventional scenarios, there is little data regarding the effectiveness of different modes of preparation or even the general effectiveness of preparedness. This project implies that intensive and versatile preparedness modalities given to a carefully selected group of clinicians can be fruitful ([Prehospital And Disaster Medicine, 2007](#)).

**Title:** Bush's Biodefense Advisor: We're Not Ready for Pandemic Disease

**Date:** July 18, 2007

**Source:** [Wired](#)

**Abstract:** The United States won't close its borders if there's an overseas bird flu outbreak, announced the Bush Administration's biodefense advisor yesterday.

"The reality is that there are tremendous challenges to sealing our borders to begin with," said Dr. Rajeev Venkayya, special assistant to the president for biodefense. "Secondly, we believe that if a pandemic virus emerges anywhere in the globe, it is inevitable that it will arrive here in the U.S. irrespective of the actions we take at the borders."

That might seem like a fatalistic prediction, but there's something refreshing about its honesty. A total border shutdown would be disastrous economically and ineffective medically; better to cut back on international flights, scan new arrivals for disease and be prepared for an outbreak when it happens. But as Venkayya went on to say, we're not ready for that, either.

"Just to be brutally honest, we have a lot of trouble determining when we have an outbreak of disease in a community here in the U.S.," Dr. Venkayya said. "We need to have uniform biosurveillance capability to prepare not only for a pandemic, but any outbreak of infectious disease."

The nation also has little extra capacity in its hospitals and other health care facilities to deal with a huge surge in need that would accompany a mass disease outbreak, Dr. Venkayya said. And the government has little ability to ensure that during an outbreak, when many workers would stay home, limited Internet capacity would go to essential work and not to children playing video games, officials said.

(How did an apparently straight-shooting guy like Rajeev Venkayya get this job, anyways? Has he just been *pretending* to drink his Bush Administration public relations kool-aid, then giving it to the dog when Karl Rove's back is turned?)

We've recently covered the country's [disastrous disease surveillance](#) program. This is seriously disturbing, scary stuff — and not just because of avian influenza, which some say is an [overblown threat](#). Whether or not bird flu makes the human jump, nearly every global public health expert agrees that climate change, social instability, population growth and modern travel habits are a recipe for epidemics.

While the Bush administration has focused on bioterror, earmarking billions of dollars for ([sloppy](#)) research on largely hypothetical threats, clear and present disease dangers have received the political equivalent of pocket change.

Come next elections, this deserves to be a serious political issue ([Wired, 2007](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following propaganda was published within the calendar year of 2008. While some of the following reports may have been legitimate news stories, most if not all of them appear to be blatant propaganda with the overall goal of convincing American and the World that it is on the precipice of a bio-terror induced pandemic. The fact that this propaganda exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and military control of society.

**Title:** Top-Secret Livermore Anti-Germ Lab Opens

**Date:** February 2, 2008

**Source:** [SF Gate](#)

**Abstract:** A high-security laboratory where deadly microbes are being grown by scientists seeking defenses against terrorist attacks began operating in Livermore last week without public announcement, and opponents said Friday that they will go to federal court in an effort to close the facility down.

Built inside the closed campus of the Lawrence Livermore National Laboratory, the facility has been controversial ever since it was first proposed by homeland security officials more than five years ago. Tri-Valley CARES, the East Bay watchdog group that has long fought nuclear weapons research there, has led the fight against it with protests and legal actions.

The facility is known as a Biosafety-level 3 laboratory where highly trained workers, high-tech airlocks and extremely rigorous safety measures are required by federal rules in order to contain any of more than 40 potentially lethal disease-causing bacteria, viruses and fungi stored inside.

The National Nuclear Security Administration, an agency of the Energy Department, which oversees the Livermore site, announced Monday only that it had "granted approval" for Livermore to begin operating its new biosafety laboratory.

But the announcement did not disclose that the facility had already opened and that its scientists had begun working there the previous Friday - a fact that immediately outraged the lab's opponents.

Robert Schwartz, the staff attorney for Tri-Valley CARES, said he will file suit in federal District Court next week to shut down the facility on the grounds that the final environmental impact statement published by the lab's oversight agency was inadequate and that another supporting document was released without public hearings in violation of the Energy Department's own rules.

In October, the Ninth District Court of Appeals in San Francisco had overruled an earlier federal court decision in support of the operation of the Livermore facility. The appeals court required officials to prepare a new environmental statement, including an assessment of the possibility that a suicide attack by terrorists could breach the facility's walls and allow killer germs to spread beyond the lab.

In response, the security agency filed a document that said such an attack would be "highly unlikely," and that it "found no significant impact" on the public or the environment from operations at the germ research facility.

A spokesman for the Energy Department's nuclear security agency at Livermore told The Chronicle that its office manager approved the final revised environmental documents on Jan. 25, and that scientists began work at the lab the same day.

Asked why the press release on Monday did not disclose that the facility was already operating, the spokesman said "because we needed the time to physically copy the documents and place them in the public reading rooms as well as post them on the Web."

Eric Gard, director of the new facility, said Friday his staff is now growing live cultures of many disease-causing organisms that could be used by terrorists in enemy biological warfare attacks and for which laboratory scientists will seek to develop countermeasures. Understanding the phenomenon of resistance to antibiotics is a high priority, he said.

Among the microbes held in the laboratory are bacteria that cause such highly dangerous and often deadly diseases as bubonic plague, anthrax, Rocky Mountain spotted fever, Q fever, tularemia and brucellosis or undulant fever, Gard said.

But scientists in his lab will also be researching other microbes unlikely to be used in terror attacks and that pose such major public health problems as tuberculosis, flu, and SARS, the severe acute respiratory syndrome that proved so deadly among elderly people in China, he said.

The scientists are barred by federal rules from conducting any research using germs for "potentially offensive use or purposes," nor for the production of any bio-warfare weapons, according to the Energy Department.

Continuing its opposition to the Livermore facility by Tri-valley CARES, Marylia Kelley, the organization's executive director, charged in a statement Friday that the lab and its sponsors "are jeopardizing the health and safety of the local community and the surrounding Bay Area." Live anthrax germs grown in the lab and released into the air from the facility, even if it were only "lightly damaged" in a terrorist attack, for example, "could result in up to 9,000 deaths, depending on wind patterns," Kelley maintained ([SF Gate, 2008](#)).

**Title:** Modest Gains Against Ever-Present Bioterrorism Threat

**Date:** August 3, 2008

**Source:** [Washington Post](#)

**Abstract:** In the past seven years, the federal government has spent more than \$57 billion to shore up the nation's bioterrorism defenses, stockpiling drugs, ringing more than 30 American cities in a network of detectors and boosting preparedness at hospitals.

The result: modest gains, at best, toward preventing another attack similar to the one in 2001, in which anthrax bacteria killed five people and sickened 17, experts and government officials agree.

"The threat of bioterrorism has not subsided," while the challenge of predicting or preventing a major biological attack remains "daunting," Robert Hooks, the Homeland Security Department's deputy assistant secretary for weapons of mass destruction and biodefense, told a House panel two weeks ago.

"The potential for something to happen is much greater now than it was in 2001, simply because of developments of technology and education," D.A. Henderson, who was principal science adviser for

public health preparedness to then-Health and Human Services secretary Tommy G. Thompson, said in an interview.

The government has not developed a general-use anthrax vaccine. A new generation of sensors that would sniff out threats more quickly has been delayed. A coordinated plan to respond to a widespread outbreak still doesn't exist. And the rapid increase in the number of researchers registered to work with biological agents, now 15,000 people, has come without enough oversight.

"We may be putting dangerous pathogens in the hands of people who would deliberately cause harm. We may also be putting them in the hands of people who may inadvertently or unintentionally take steps to put large numbers of people at risk," said Elisa D. Harris, senior research scholar at the Center for International and Security Studies at the University of Maryland.

One cause is the government's difficulty organizing itself. Since 2003, for instance, management of both the stockpile of medications that would be used in a disaster and the National Disaster Medical System, the federal government's disaster health-care responders, has been shifted from HHS to DHS and back.

A significant bright spot, many agree, is the dramatic improvement in government preparations to respond to threats such as smallpox, botulism, plague and other biological agents. The Strategic National Stockpile, an emergency cache of critical pharmaceuticals that can be sent within 12 hours to counter outbreaks, has been greatly expanded, said Michael T. Osterholm, director of the University of Minnesota's Center for Infectious Disease Research and Policy.

The stockpile, details of which are classified, has 60 million treatment courses of antibiotics for anthrax and pneumonic plague, according to a senior federal official with responsibility for bioterrorism response. About 300 million doses of smallpox vaccine can also be shipped.

"If smallpox returned today, we could contain it and minimize the danger very quickly. I could not have said that in 2001," Osterholm said. The anthrax attack "was a very important event in the world of bioterrorism preparedness," he added. "It did finally wake people up to what bioterrorism could do in this country and in the world."

The Bush administration has dedicated \$57 billion for bioweapons, prevention and defense through fiscal 2009, according to the Center for Arms Control and Non-Proliferation. That includes a \$9 billion increase next year for research and development of countermeasures such as vaccines.

The administration has tried to get its primary vaccine program, BioShield, back on track. The HHS in 2006 killed the two-year-old program's largest component, an \$877.5 million contract to develop a new anthrax vaccine and last year canceled a project to develop radiation exposure drugs.

Officials say that the government is retooling efforts to encourage drug companies to invest in BioShield projects, and that the effort is paying off in new antitoxins for anthrax and botulism. Science is also being advanced by a dramatic expansion of federally funded university research, up from a handful of laboratories a decade ago to 400 today.

Still, the nation has seen few breakthroughs such as an anthrax vaccine that could safely inoculate Americans and end what many scientists consider a top-tier threat. Some analysts worry that the U.S. research effort is increasing the risk of abuse by a malevolent or unwitting insider, whether or not bioweapons expert Bruce E. Ivins turns out to be among them.

The White House last fall refocused its years-long effort to meet the "big three" of bioterrorism preparedness needs: medical stockpiling, biosurveillance and mass casualty response.

On Oct. 18, the president signed a new homeland security directive to chart a fresh strategy for public health and medical preparedness, which included creating a panel at the U.S. Centers for Disease Control and Prevention to review biosurveillance efforts.

Early detection is critical because the impact of a bioweapons attack can spiral out of control in the hours or days it takes to discover it. Administration defenders have praised BioWatch, a five-year-old, \$400 million effort to install sensors in more than 30 U.S. cities to detect the airborne release of biological warfare agents such as anthrax spores, plague bacteria and smallpox virus.

All 50 states now can receive urgent disease reports around-the-clock and conduct year-round surveillance for diseases such as influenza, according to the senior federal bioterrorism official. The number of state and local public health laboratories that can detect biological agents has increased from 83 to 110, and the number that can respond to chemical agents has climbed from zero to 47, said the official, speaking on the condition of anonymity because of the sensitivity of the FBI's anthrax investigation.

Critics say big gaps remain. BioWatch remains of limited use, because it takes 10 to 34 hours for samples taken by the machines to be analyzed. A new generation of sensors that can detect lethal agents within four to six hours was scheduled for pilot deployment in 2008 but now is not expected until 2010 or 2011.

Meanwhile, cities such as New York are pressing the federal government to spend tens of millions of dollars more on interim technology. Other analysts say it makes more sense to spend money to improve data collection and reporting by hospitals and clinics.

"There are a lot of fabulous new tools out there that could be turned to biosurveillance, but government hasn't figured out how to marshal them, who should control them or what to do," said Tara O'Toole, director of the Center for Biosecurity at the University of Pittsburgh Medical Center.

Washington also has sent more than \$8 billion in grants to hospitals and public health agencies since 2002. The money reached more than 80 percent of 5,000 U.S. hospitals and funded 9,500 exercises in 2006 alone.

But the nation still lacks plans and an organized structure to respond to a massive disease outbreak with thousands of victims. "The system still isn't there," Osterholm said. Hospitals strain every day with overcrowded emergency rooms, while this summer's outbreak from salmonella infection underscores the challenges facing public health experts to trace outbreaks of even food-borne illness, he said.

It will do little good for the federal government to distribute stockpiled medications if health-care workers aren't there to dispense them, Osterholm said, or for the federal biosensor alarm system to ring if hospitals lack beds, nurses and tracking systems to manage patients.

"If we know the system is not going to work with everyone having a hospital bed, a nurse and all the modern medicines they need, then we better damned well prepare for that," he said.

At Congress's direction, DHS this year is developing a new National Biosurveillance Integration Center to coordinate federal efforts, but faces "big challenges" to being operational next month, Hooks said. Only six of 11 federal agencies have agreed to participate, and only one has completed a funding and staffing plan.

Henderson said such developments show that Washington is better prepared than it was in 2001 but is enmeshed in dangerous bureaucratic habits.



"There's a kind of complacency," he said. "You don't have the motivation now as they did right after 9/11 and the anthrax attack, and so, they can look at it now and say, 'Well, nothing has happened. We don't have to worry about it.' And they can sleep at night" ([Washington Post, 2008](#)).

**Title:** Bioterrorism's Threat Persists As Top Security Risk

**Date:** August 4, 2008

**Source:** [Wall Street Journal](#)

**Abstract:** So what has the U.S. learned since anthrax was sent through the mail in 2001?

It is cheap to do. It is easy to pull off. It is tough to respond to. And for all of those reasons, it remains one of the top concerns of security officials across the country, and one of their greatest frustrations.

New York City is at the forefront of confronting the bioterror threat, with one of the most advanced detection and response systems in the country. But the problem "is not fixed in New York or anywhere else," says Richard Falkenrath, the city's counterterror chief and a former senior White House security aide.

The federal government has spent nearly \$50 billion on programs to fight bioterrorism since 2001. Still, experience in New York City and elsewhere underscores the enduring difficulty of contending with this type of terror attack. Experts in the field say that the nation's ability to detect biological weapons is still inadequate in most locales, as is its ability to distribute drugs to the population once the lethal agent is identified. Hospitals warn that the volume of casualties from an effective attack could simply overwhelm facilities.

"We've made very little progress in [any] of those very big areas," says Dr. Tara O'Toole, director of the Center for Biosecurity at the University of Pittsburgh Medical Center.

The U.S. Department of Homeland Security is constructing a center that will merge biothreat information from federal agencies and eventually connect it with localities. The department has also been building its BioWatch system, which deploys equipment to sniff out key deadly pathogens from the air.

William O. Jenkins Jr. of the Government Accountability office said in congressional testimony that it isn't clear that the new center will be able to perform as expected when it is launched next month. He also found that the BioWatch system requires up to 34 hours to detect and confirm a pathogen. While the department is trying to develop an interim solution to expedite detection, a faster system isn't scheduled for completion until 2010, he said.

Bioterror experts warn that an attack is only going to become easier to launch as the same work that has spawned countless new biotech medical treatments continues to advance. "Unfortunately, there's going to be a dark side," says Randall Larsen, Director of the Institute for Homeland Security, a Virginia-based think tank. The biotech revolution, he said, is making it "easier for nonstate actors to develop sophisticated bioweapons."

With easier access to fatal pathogens, it may be impossible to uncover preparations for an attack, leading government officials to focus more on lessening the impact of an attack than preventing one.

New York is using the next generation of sensors that the federal BioWatch program hopes to distribute nationwide by 2010. The city has been asking the federal government for more sensors. Most of the devices require up to 34 hours to detect a lethal bug, but about a half dozen new machines can detect an agent more quickly.

Yet New York remains at the leading edge. In most other cities, there was little federal guidance about which systems to buy, which led to a patchwork of often ineffective programs. The BioWatch system is active in more than 30 cities.

In New York, if a lethal agent is detected, the city plans to immediately distribute drugs to counter the bug. The federal government has worked to develop a national stockpile of drugs to deploy anywhere in the country, and biosecurity experts give the program high marks, saying that it can get the drugs to an affected region quickly. The problem, they say, is getting the medication out of the airport, where the federal government leaves it, and into communities.

If a biological attack were to happen tomorrow, said Lawrence O. Gostin, a bioterrorism expert at Johns Hopkins and Georgetown Universities, the best advice the government could give would be for people to stay where they are. He adds: "I have no idea how they would get to my suburban Maryland neighborhood and get me an antiviral or antibiotic."

And biosecurity specialists lament that little progress has been made even on the most public of possible biological threats: countering an anthrax attack. Seven years after the nation contended with just such an attack, an \$877 million effort to develop a new anthrax vaccine has failed; there's no quick way to test patients for an anthrax infection; and efforts to develop a drug to counter anthrax's lethal chemicals haven't produced much.

"We need to seriously reconsider the approach we've been taking," said Alan Pearson, Director of the Biological and Chemical Weapons Control Program at the Center for Arms Control and Non-Proliferation. He advocates a greater focus on prevention ([Wall Street Journal, 2008](#)).

**Title:** Anthrax And The Biodefense Debate

**Date:** August 5, 2008

**Source:** [On Point Radio](#)

**Listen to Broadcast** [Here](#)

**Abstract:** When government biodefense scientist Bruce Ivins took his own life last week, the 2001 anthrax case took another stunning turn. The FBI say it's ready to reveal its evidence against Ivins this week. The case may close. Or it may not.

But behind all the drama is an intense debate over whether the U.S. — after seven years and more than \$50 billion spent — is any better prepared for a bioterror attack. Critics say the U.S. remains far too vulnerable. Others say progress has been real, if slow — and that the threat is devilishly complex.

This hour, On Point: the anthrax investigation, and the biodefense debate.

[You can join the conversation.](#) Have you followed the anthrax case? What lessons should we draw from the new revelations? Are you confident that the U.S. government is prepared for another attack? Tell us what you think.

**Guests:**

Joining us from Washington is Siobhan Gorman, intelligence and homeland security correspondent for The Wall Street Journal. Her piece in yesterday's paper looked at [the persistence of the bioterrorism threat](#).

From Minneapolis, we're joined by Michael Osterholm, director of the [Center for Infectious Disease Research and Policy](#) at the University of Minnesota. He sits on the [National Science Advisory Board for](#)

[Biosecurity](#). From 2001 to 2005, he was advisor to the Secretary of Health and Human Services.

Joining us from Annapolis, Maryland, is Tara O'Toole. She's CEO and director of the [Center for Biosecurity](#) at the University of Pittsburgh Medical Center and a professor of medicine and public health at the University of Pittsburgh. From 1993 to 1997, she served as Assistant Secretary of Energy for Environment Safety and Health.

And with us from Washington is Alan Pearson, director of the [Biological and Chemical Weapons Control Program](#) at the Center for Arms Control and Non-Proliferation. In recent years, he's worked at the Department of Homeland Security to streamline and refine the bioterror spending ([On Point Radio, 2008](#)).

**Title:** Bio Terror 'Next Threat' For US

**Date:** October 31, 2008

**Source:** [Sky News](#)

**Abstract:** Nuclear and biological terrorism is the emerging threat the next US President should focus on, the US security chief has told Sky News.

In an exclusive interview, homeland security secretary Michael Chertoff said sources of radioactive and biological materials must be properly secured "at all costs".

He warned terrorists are actively seeking to acquire such materials.

Mr Chertoff said he did not think a weapon of mass destruction, like a biological or nuclear bomb, was a danger that could be just months away.

But he warned: "It may be years away and we can't afford to waste this time waiting for that event to happen.

"We've got to stay ahead of the issue of weapons of mass destruction, if not for our own benefit, then for the benefit of our children."

His comments echo those of the British Home Secretary Jacqui Smith, who told Sky News last year that intelligence suggested terrorists were trying to get their hands on materials and know how to make a dirty bomb.

Last November, the security services in Slovakia arrested three men attempting to sell enriched uranium on the black market.

Mr Chertoff said it must be a priority to secure sites in rogue countries where dangerous materials may get into the wrong hands.

He said: "It is also important to secure our own radioactive material.

"Medical facilities, for example, have radioactive material, which they use for medical purposes. We're in the process of securing those in the United States."

Domestic materials 'being secured'

Mr Chertoff also warned nuclear proliferation was a major concern.

He said: "Obviously, the more countries that get the (nuclear) bomb, the greater the likelihood that they will deliberately or inadvertently pass the bomb into the hands of dangerous people."

But the security chief said biological threats posed the most pressing and "challenging issue" to security, "because the raw material exists in nature".

He said: "The internet and the proliferation of knowledge is an increasing challenge.

"It will require the whole world to make sure people aren't setting up laboratories where they're beginning to fashion biological weapons."

Mr Chertoff told Sky News the intent of terrorists to get their hands on such weapons was clear.

He pointed to the discovery of [al Qaeda](#) training camps in Afghanistan, where experiments with biological and chemical agents had taken place, saying: "Al Qaeda would, if they could, use these types of weapons.

"It is not a lack of intent, it is a lack of capability. But I don't think that we want to wait in addressing these issues and that's why this is a very hot priority for us." ([Sky News, 2008](#)).

**Title:** Bioterror Threat Is Increasing, Study Says

**Date:** November 30, 2008

**Source:** [LA Times](#)

**Abstract:** The threat of biological terrorism is growing, according to a congressionally ordered study that calls for aggressive defenses on par with those used to prevent nuclear terrorism.

Due for release this week, a draft of the study warns that bioterrorists might one day make synthetic versions of killers such as Ebola, or germs genetically modified to resist vaccines and antibiotics.

The bipartisan report says that the Bush administration has devoted insufficient resources to the threat and that U.S. policies have at times impeded international biodefense efforts.

Meanwhile, the U.S. has promoted the proliferation of domestic labs holding the most virulent pathogens, the report says. The number of such "high-containment" labs in the United States has tripled since 2001, yet officials have not implemented adequate safeguards to prevent deadly germs from being stolen or accidentally released, it says.

"The rapid growth in the number of such labs in recent years has created new safety and security risks which must be managed," the draft report says.

The report is the product of a six-month study by the Commission on the Prevention of Weapons of Mass Destruction and Terrorism, which Congress created in the spring. Drafts of chapters pertaining to bioterrorism were obtained by the Washington Post.

The document cites progress in many areas of biodefense since the deadly anthrax attacks of 2001, including major investments in research, stockpiling of drugs and development of a network of sensors designed to detect airborne viruses and bacteria.

The Bush administration has spent more than \$20 billion on such countermeasures, far more than any of its predecessors.

But the report says the next administration must do much more to prevent pathogens from falling into the wrong hands. Though politicians often warn about the dangers of nuclear terrorism, a serious biological attack would be easier to accomplish and deserves high priority as well, it says.

"The more probable threat of bioterrorism should be put on equal footing with the more devastating threat of nuclear terrorism," the draft says. It calls on the Obama administration to develop a comprehensive approach to preventing bioterrorism and "banish the 'too-hard-to-do' mentality that has hobbled previous efforts" ([LA Times, 2008](#)).

**Title:** Is A Bioterrorism Attack In The U.S. Imminent?

**Date:** December 2, 2008

**Source:** [Scientific American](#)

**Abstract:** As India picks up the pieces of last week's deadly terrorist attacks in Mumbai, [a congressional study warns](#) of a possible bioterror strike in the U.S. by 2013. In fact, biological weapons—anthrax, Ebola, influenza, and other pathogens—are more likely than nuclear weapons to be used to initiate the attack, [according to CNN](#), which obtained an early copy of the study, which officially released today by the [Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism](#).

Former Florida Sen. Bob Graham, chair of the panel created earlier this year to probe the possibility of terrorist hits in the U.S., told CNN that if such an attack were to occur, it would be "9/11 times 10 or a hundred in terms of the number of people who would be killed." Biological weapons are a more likely choice than nukes, he said, because their ingredients are easier to obtain and such an attack "would be easier to carry out."

The commission's recommendations, according to CNN: the U.S. government must impose tight security at U.S. labs with such poisons on hand (a measure that might have helped prevent the [2001 anthrax mailings](#) or at least helped law enforcement catch the culprit sooner), strengthen international treaties so that other countries also improve safeguards, enhance surveillance to detect early signs of an attack, and develop better ways to track the source of any biological weapons.

Some scientists have also been pushing for the U.S. to [vaccinate millions of citizens in advance of an attack](#), while others say only doctors, paramedics, nurses and other first-line responders should be vaccinated to help limit damage in the event of a bioterror attack. [Critics](#), however, caution that widespread vaccination might not be effective if a disease-causing pathogen mutates and becomes resistant to a vaccine.

Though he stressed the threat of a bioterror attack, Graham did not rule out a nuke strike, noting that as more countries develop their nuclear arsenal it becomes more likely that terrorists will also get their hands on the technology and materials. The bipartisan report faults the Bush administration for failing to devote enough resources toward preventing such an attack, [the Washington Post reported](#) Sunday.

The *Post* adds that, according to the report, U.S. policies have at times "impeded international biodefense efforts while promoting the rapid growth of a network of domestic laboratories possessing the world's most dangerous pathogens." [According to the New York Times](#), the report also singled out [Pakistan](#), which has nuclear capability, as a security priority for the incoming Obama administration. Not surprising given that the Mumbai terrorist attacks are believed to have been executed by [Pakistani militants](#) ([Scientific American, 2008](#)).

**Title:** Biological Terror Attack Likely By 2013, Panel Says

**Date:** December 2, 2008


**Source:** [CNN](#)

**Abstract:** Terrorists are likely to use a weapon of mass destruction somewhere in the world in the next five years, a blue-ribbon panel assembled by Congress has concluded.

They are more likely to use a biological weapon than a nuclear one -- and the results could be devastating, the chairman of the commission told CNN.

"The consequences of a biological attack are almost beyond comprehension. It would be 9/11 times 10 or a hundred in terms of the number of people who would be killed," former Sen. Bob Graham said.

He cited the flu virus that killed millions of people in 1918 as an example.

"Today it is still in the laboratory, but if it should get out and into the hands of scientists who knew how to use it for a violent purpose, we could have multiple times the 40 million people who were killed 100 years ago," he said.  [Watch how officials worry about a biological terror attack »](#)

The U.S. government "needs to move more aggressively to limit" the spread of biological weapons, the commission said in its report.

Graham warned that such measures would be costly, but were necessary.

"The leadership of this country and the world will have to decide how much of a priority ... they place on avoiding the worst weapons in the world getting in the hands of the worst people in the world," he said.

"It is not going to be cheap. It is not going to be accomplished without some sacrifices. It won't be accomplished without putting this issue ahead of some other competing national and international goals. But I think our safety and security depend upon doing so," he added.

Graham said a biological attack was more likely than a nuclear one because it would be easier to carry out.

Biological weapons "are more available," he said. "Anthrax is a natural product of dead animals. Other serious pathogens are available in equally accessible forms."

"There are so many scientists who have the skills to convert a pathogen from benign, helpful purposes into an illicit, very harmful weapon," he added.

But the commission warned that there is also a threat of nuclear terrorism, both because more countries are developing [nuclear weapons](#) and because some existing nuclear powers are expanding their arsenals.

"Terrorist organizations are intent on acquiring nuclear weapons," said the report, which was published Tuesday on the Internet and will be officially released Wednesday.

CNN obtained a copy of the report Monday evening.

It cited testimony before the commission from former Sen. Sam Nunn, who said that the "risk of a nuclear weapon being used today is growing, not receding."

The report recommends a range of measures, including increased security and awareness at biological research labs and strengthening international treaties against the spread of biological and nuclear weapons.

"Many biological pathogens and nuclear materials around the world are poorly secured -- and thus vulnerable to theft by those who would put these materials to harmful use, or would sell them on the black market to potential terrorists," the report warned.

The commission expressed particular concern about the nuclear programs of Iran and North Korea, and about Pakistan, which it described as "the intersection of nuclear weapons and terrorism."

While observing that Pakistan is a U.S. ally, the report said, "the next terrorist attack against the United States is likely to originate from within the Federally Administered Tribal Areas" in Pakistan. The tribal areas lie in northwest Pakistan where the government exerts little control; the United States says it is a haven for militants from both Pakistan and neighboring Afghanistan.

Congress created the commission to investigate and report on WMD and [terrorism](#) in line with a recommendation from the 9/11 Commission, which compiled a report on the September 11, 2001, terrorist attacks on the United States. Commissioners heard testimony from more than 250 experts from around the world over the course of their six-month investigation [\(CNN, 2008\)](#).



# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following propaganda was published within the calendar year of 2009. While some of the following reports may have been legitimate news stories, most if not all of them appear to be blatant propaganda with the overall goal of convincing American and the World that it is on the precipice of a bio-terror induced pandemic. The fact that this propaganda exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and military control of society.

**Title:** Unique Strain Fuels Bio-Terror Fear

**Date:** April 27, 2009

**Source:** [DNA](#)

**Abstract:** With more than 100 Mexicans succumbing to the deadly H1N1 virus in less than a week and cases found as far as Canada, US, Spain and New Zealand, conspiracy theorists now suspect that the new Mexican Swine Flu is not a naturally-occurring event but a genetically-engineered virus.

Such fears have gained momentum as WHO scientists said that the virus combines genetic material from pigs, birds and humans in a way researchers have not seen before. "We are very, very concerned," WHO spokesman Thomas Abraham said. "We have what appears to be a novel virus and it has spread from human to human," he said. John Brennan, White House homeland-security adviser, however, said on Sunday that there is "no evidence whatsoever" of bio-terrorism.

Conspiracy theorists say Mexico seems like an ideal 'distribution point' for terrorists as there are less safeguards there than in US. And it would also be very easy for the virus to make its way from Mexico to US, the primary target for terrorists.

Others say the outbreak 'attack' was timed for US president Barack Obama's visit to Mexico. White House press secretary Robert Gibbs said "the president's health was never in any danger," when asked about reports that Obama's host on a museum tour in Mexico City died the next day, and had flu-like symptoms. Asked if the president's decision to golf at Andrews Air Force Base on Sunday was part of a strategy to reassure people, Gibbs chuckled: "I'm not sure I'd draw a direct conclusion" ([DNA, 2009](#)).

**Title:** Leiter Warns Of Bioterror Threats

**Date:** September 14, 2009

**Source:** [Bio Prep Watch](#)

**Abstract:** Michael Leiter, the newly-retired head of the National Counterterrorism Center, recently predicted no easing of threats by the terrorist group al-Qaeda, including the use of biological weapons.

Leiter, a former Obama administration official, said that al-Qaeda still hopes to attack the United States by any means it can, according to Time.com.

Nonetheless, Leiter told an audience at the Woodrow Wilson Center that al-Qaeda's core leadership is set to be eclipsed by several offshoots of the organization, including al-Qaeda of the Arabian Peninsula in Yemen.

Leiter said that the single most effective means of destroying the group has become the drone air strike, referring to the Central Intelligence Agency's campaign against the organization's leadership.

Leiter called on the United States to stay resilient because it is almost certain that al-Qaeda will manage to penetrate U.S. counterterrorist defenses and launch a successful strike, Time.com reports.

The National Counterterrorism Center is the U.S. government agency responsible for the analysis and integration of terrorism intelligence as well as the strategic planning center for antiterrorism activities.

Leiter has been the recipient of several major awards in recognition for his service to the United States, including the Intelligence Community Distinguished Service Medal, the highest award given in the intelligence community ([Bio Prep Watch, 2009](#)).

**Title:** Report: White House Neglecting Bioterror Threat

**Date:** October 21, 2009

**Source:** [Homeland1](#)

**Abstract:** The Obama administration is working hard to curb nuclear threats but failing to address the more urgent and immediate threat of biological terrorism, a bipartisan commission created by Congress is reporting today.

The report obtained by USA TODAY cites failures on biosecurity policy by the White House, which the Commission on the Prevention of Weapons of Mass Destruction says has left the country vulnerable. The commission, created last year to address concerns raised by post-9/11 investigations, warns that anthrax spores released by a crop-duster could "kill more Americans than died in World War II" and the economic impact could exceed \$1.8 trillion in cleanup and other costs.

The government's efforts "have not kept pace with the increasing capabilities and agility of those who would do harm to the United States," the report says. "The consequences of ignoring these warnings could be dire." Says commission Chairman Bob Graham, a Democratic former senator from Florida: "The clock is ticking."

White House spokesman Nick Shapiro said protecting the nation from deadly weapons is among President Obama's "top national security priorities."

#### **Among the Commission's Criticisms:**

\*President Obama's National Security Council has no senior political appointees with a biodefense background. "That was not the case in the Clinton and Bush administrations," the report says.

\*Programs created after the 9/11 attacks to develop and buy vaccines and drugs to prevent and respond to a biological attack are not being funded adequately. Although the report is critical of the White House on this topic, Congress has the power of the purse. The report cites a funding shortage for a program to ensure there are enough drugs to respond to a bioterrorist attack.

The Obama administration asked for \$305 million in its fiscal 2010 budget request. "Insufficient by a factor of 10," the report says.

\*Disease surveillance programs fall short.

The government needs to invest in rapid diagnostic tests to "improve the nation's ability to treat people by providing a more timely and accurate diagnosis" -- something that can be critical to treating the victim of a biological attack.

Shapiro says the government is spending \$3.5 billion to protect the public from the H1N1 flu and is "carefully evaluating" broader "all-hazards" spending.

Commission Vice Chairman Jim Talent, a Republican former senator from Missouri, says: "The fact is, it is only getting easier and cheaper to develop and use biological weapons. ... It is essential that the U.S. government move more aggressively" ([Homeland1, 2009](#)).

# Bio & Terror Bible

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**Title:** Obama Orders US Government To Begin Preparing For Biological Attack

**Date:** January 2, 2010

**Source:** [Infowars](#)

**Abstract:** The US Post Office could play a key role in distributing medical aid in the event of a biological attack, according to an executive order released by the White House. The order signed by President Barack Obama directs government agencies, local law enforcement and the US Post Office to work on a model for distribution of medical countermeasures in the wake of a biological attack.

"This policy would seek to: (1) mitigate illness and prevent death; (2) sustain critical infrastructure; and (3) complement and supplement State, local, territorial, and tribal government medical countermeasure distribution capacity," the order said. "The US Postal Service has the capacity for rapid residential delivery of medical countermeasures for self administration across all communities in the United States," the order added.

The US Health and Human Services Secretary Kathleen Sebelius and Homeland Security Secretary Janet Napolitano were instructed to work with the post office to develop a "dispensing model for US cities to respond to a large-scale biological attack, with anthrax as the primary threat consideration." The order calls for the model to be drawn up within 180 days, but gives no details as to whether the idea of using the US postal system to assist Americans in the wake of a biological attack is a new one.

The United States has sought to bolster its capacity to respond to biological attacks since 2001, when anthrax-laced letters mailed to people across the United States led to five deaths. The order came amid heightened security concerns here following an attempt to bring down a US-bound jetliner on Christmas Day. A 23-year-old Nigerian has been charged in the case ([Infowars, 2010](#)).

**Title:** Senator Demands Answers On Government Anthrax Investigation Mystery

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**Title:** Obama To Outline New Bioterror Steps In State Of The Union

**Date:** January 26, 2010

**Source:** [USA Today](#)

**Abstract:** President Obama will announce plans in his State of the Union address tonight to improve the government's ability to respond to a bioterror attack and other major public health threats, the White House said Tuesday.

Spokesman Nick Shapiro said Obama aims to enhance the nation's ability to quickly produce vaccines and other antidotes that could be distributed to save lives in case of another pandemic flu, [anthrax attack](#) or other crisis.

"The goal is a national capability for the rapid, reliable and affordable production of an array of medical countermeasures," Shapiro said. The announcement came hours after the bipartisan Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism gave the federal government an "F" for its preparations to respond to a biological attack that could cause mass casualties.

The commission also issued failing grades to Congress for not reorganizing itself to better oversee anti-terror efforts and to the government generally for failing to recruit and train new national security experts.

Efforts that won an "A" grade: a government review of security at laboratories where scientists work with dangerous pathogens, a new national strategy to improve bioforensic capabilities and the appointment of a White House adviser on weapons of mass destruction.

Commission Chairman [Bob Graham](#), a former Democratic senator from Florida, called the report a "stinging indictment."

The report followed recent embarrassments for the government: months of delays in offering vaccines to counter the H1N1 flu and the White House's own review citing intelligence failures before the alleged attempt by a Nigerian man to blow up a Detroit-bound airliner on Christmas Day.

Former [Republican](#) senator [Jim Talent](#) of Missouri, the commission's vice chairman, said there is ample intelligence showing "the terrorists are actively trying" to get weapons of mass destruction.

"They are trying to hit us as hard as they can," he said.

He said the government has stopped some attacks. But "this is like Russian roulette — eventually that bullet's in the chamber."

House Homeland Security Committee Chairman [Bennie Thompson](#), D-Miss., called the report a "reminder that even as we struggle against conventional terrorist plots such as the one Christmas Day, we mustn't lose focus on the risk of nuclear or biological attacks."

Shapiro said Obama signed an executive order last month to use the [U.S. Postal Service](#) to help deliver medicine in case of a large-scale bioterror attack.

The upcoming announcement, Shapiro said, takes into account the fact that "despite years of effort and millions of dollars in taxpayer funds," the government and pharmaceutical industry have not been able to develop and produce the medications needed to counter an attack ([USA Today, 2010](#)).

**Title:** Heeding The Warning Of Bioterrorism

**Date:** January 26, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** The warning is clear: Bioterrorism is a serious danger to the United States, says the *Report Card Grading Government on Protecting the United States*, released Tuesday by the congressionally-mandated commission charged with assessing threats of weapons of mass destruction. We are unprepared for a catastrophic bio-attack, and the rest of the world is in far worse shape.

The commission's warning is not the first high-level statement to focus attention on bioterrorism. Hopefully, it will prompt the action that the threat deserves.

Disease weapons have an awful capacity to infect tens of thousands of casualties (perhaps far more). Al Qaeda leaders have long recognized that disease weapons are a uniquely cheap way to spread mass panic. Indeed, intentionally inflicted disease ideally serves the goals of terrorism.

An attack could happen invisibly, and no one would know until victims arrive in emergency rooms and morgues. And anyone who can make enough lethal germs for one city can make enough for dozens of cities. The attacks can go on and on until the perpetrators are captured or killed.

The danger is global. Lethal biological agents and the laboratories to weaponize them are on every continent. Disease weapons can be readily smuggled through any airport. A contagious disease will spread across nations unimpeded by fences or border guards. As the President recently stated, "a biological incident that results in mass casualties anywhere in the world increases the risk to all nations from biological threats."

Moreover, bioscience's progress opens new and wondrous ways to make disease weapons. Technological barriers that have thwarted terrorists from inflicting disease are dissolving; eradicated diseases can be synthetically reincarnated; and altogether new diseases can be created. Looking forward, the threats of terrorists, criminals, or lunatics using disease weapons will grow.

Whatever the risk is today, it will be greater tomorrow.

We do not have to be vulnerable. Much can be done to reduce dangers of bioterrorism by focusing on its global dimensions.

This spring, President Obama will convene a *Global Nuclear Terrorism Summit*. That is fine, but bioterrorism is far more likely than nuclear terrorism. The President should call for a *Global Biological Terrorism Summit* and make this a foreign policy priority. Our allies appreciate the risks of bioterrorism and would join in a synergistic strategy that encourages progress on two principal challenges.

First is strengthening capabilities for interdicting bioterror preparations. Disease weapons can be made in nondescript buildings with few tell-tale signs. It is foolhardy to rely on the remote surveillance techniques that only recently identified Iran's secret nuclear weapons facility to find and stop bioterrorists from making disease weapons.

Better intelligence is needed about where lethal biological agents exist and where they are being transported. We need more and better trained eyes on the ground. Local law enforcers are the best positioned to identify strange activities, but most foreign police could walk past a bioterrorism laboratory without a clue. Strengthening global monitoring and detection capacities to stop bioterrorism should be the Summit's first challenge.

Yet, no matter how capably we try to prevent a bio-attack, there can be no guarantee that an attacker will be stopped. We need to be prepared. Thus, the Summit's second challenge is how to have enough medicines (antidotes and vaccines) to treat victims and contain the spread of disease. Delivery networks must be established to rapidly move these medicines to wherever they are needed, and emergency responders must be authorized, equipped and trained to administer treatment to huge populations.

The challenge of preparedness is not centrally about devoting enormous resources to new medicines, although better medicines to treat emerging diseases will be useful long-term. For now, we should increase stockpiles of available medicines and link those stockpiles to logistical capacities for rapid deployment. A global transport system that can move medicine is the best way to prepare against pandemic disease.

Currently, the United States bears too much of the global burden of confronting bioterrorism. When foreign officials need to be trained to recognize and interrupt bioterrorism (for example, in connection with world sporting events), U.S. government personnel lead the way. When diagnostic facilities need to be built, the U.S. devotes the resources and expertise to the effort. And when medicines are needed to treat anthrax, those medicines come from the U.S. stockpile.

United States leadership in this context is commendable, but bioterrorism's global dangers compel engagement of foreign nations. Solutions will be more successful if our allies comparably appreciate why bioterrorism should be a high priority and how collectively we can reduce risks. A Global Summit would be a valuable step in the right direction ([Bio Prep Watch, 2011](#)).

**Title:** Obama Gets 'F' On Stopping Spread Of Weapons Of Mass Destruction

**Date:** January 26, 2010

**Source:** [Fox News](#)

**Abstract:** A bipartisan, independent commission on stopping the spread of weapons of mass destruction says that the Obama administration has failed in its first year in office to do enough to prevent a germ weapons attack on America or to respond quickly and effectively should such an attack occur.

In a 19-page report card being published Tuesday, the Commission on the Prevention of Weapons of Mass Destruction, Proliferation and Terrorism, chaired by former Senators Bob Graham, a Democrat from Florida, and Jim Talent, a Missouri Republican, gives the new administration the grade of "F" for failing to take key steps the commission outlined just over a year ago in its initial report.



Specifically, the commission concludes that the Obama administration, like the three administrations before it, has failed to pay consistent and urgent attention to increasing the nation's ability to respond quickly and effectively to a germ attack that would inflict massive casualties on the nation.

The commission repeated its warning that unless nations acted decisively and urgently, it was more likely than not that a WMD will be used in a terrorist attack somewhere in the world by the end of 2013, and that the terrorists' weapon of choice would be biological, rather than nuclear.

The administration's delayed response to the [H1N1](#) virus, the report concludes, demonstrated that the United States was "woefully behind in its ability to rapidly produce rapidly [vaccines](#) and therapeutics, essential steps for adequately responding to a biological threat, whether natural or man-made."

Even with time to prepare, the report noted, the epidemic peaked "before most Americans had access to vaccine."

And a bio-attack, it warned, would have no such warning.

The administration's lack of urgency was also reflected in its lack of priority on producing and distributing enough vaccines and other medical countermeasures for Americans, its reluctance to insist that hospitals have enough surge capacity to treat people who would be infected in a bioterror attack, and the lack of a national plan to coordinate federal, state and local efforts following a bioterror strike, the document asserts.

Ultimately, the commission chairman and vice chairman say, the "lack of preparedness" and "consistent lack of action" reflect "a failure of the U.S. government to grasp the threat of biological weapons."

Unlike its effort to prevent a nuclear attack, the Obama administration has shown "no equal sense of urgency" about preventing or responding to germ warfare that might cause comparable death and suffering, the commission concludes.

The report assigns 17 grades that it says highlight the issues of greatest priority in protecting Americans from WMD. The commission gave the administration a "D+" for its efforts to tighten oversight of high-containment labs in which experiments involving the deadliest pathogens are conducted. There were still far too many Federal, state, and local agencies regulating germs in sometimes conflicting ways, it states.

The commission also gave Congress a failing grade for failing to consolidate the estimated 82 to 108 committees and subcommittees that oversee some part of the Department of Homeland Security.

"Virtually no progress has been made since consolidation was first recommended by the 9/11 Commission in 2004," the report asserts.

The Obama administration disputed the findings of the report Tuesday, arguing that the president has accomplished a "great deal" in his first year in office.

[White House](#) spokesman Nick Shapiro cited a recently signed executive order establishing "federal capability to rapidly provide medical countermeasures to supplement state and local response in the event of a large-scale biological attack." He said Obama would launch a new initiative aimed at addressing potential "public health threats" during his State of the Union address Wednesday.

The Graham/Talent WMD Commission, as it is known, is a legacy of the 9/11 Commission, which recommended its creation to examine WMD proliferation threats in its own report. In December, 2008, the WMD commission concluded in its final report that American national security faced ever growing threats from unconventional weapons, and from biological weapons in particular.

Its report, "World at Risk," unanimously concluded that bioterrorism was the most likely WMD threat the nation confronted given the exponential growth of biological technology and the stated desire of [Al Qaeda](#) and other terrorist groups to acquire such weapons. It called upon the administration to take 13 steps to reduce America's vulnerability to such an attack. The new report card assesses the progress that the Obama administration has made in implementing its recommendations.

The report is not uniformly negative. It gives the Administration high marks -- an "A" -- for the reviews it has conducted into how best to store and secure dangerous pathogens, and two "A-minus" grades for appointing a WMD coordinator and restructuring how the White House oversees homeland security issues.

But it warns that such steps are not commensurate with the threat the nation faces from terrorist groups searching for unconventional weapons in asymmetrical warfare.

Robert Kadlec, President Bush's former special adviser on bio-defense policy, declined to comment on the commission's failing grade in the area in which he worked, saying there was still "ample opportunity to provide more focus and resources" for bio-preparedness in the administration's remaining three years. "This is a hard problem which deserves high priority," he said.

Two defenders of the administration's policies, both of whom asked not to be identified by name because they were speaking without authorization, said that the Obama White House gave bio-defense and countering nuclear proliferation high priority.

One official said that Obama's second presidential security directive -- the first being the reorganization of the White House national security apparatus -- mapped out a national strategy to defend the nation against biological attacks. He also predicted that the administration would seek increases in its new budget for bio-defense and global surveillance programs.

Having been extended for one more year of work in 2009, the 9-member WMD Commission is disbanding after issuing this final report card. But staff members said that its chairman and vice-chairman intend to form a non-profit organization to continue pressing the government to do more to counter WMD threats ([Fox News, 2010](#)).

**Title:** Biological Threats: A Matter Of Balance

**Date:** February 2, 2010

**Source:** [Bulletin of the Atomic Scientists](#)

**Abstract:** The Graham-Talent WMD Commission asserted again last week that a bioterrorism attack that "will fundamentally change the character of life for the world's democracies" is highly likely to occur within the next four years. The commission argues that the United States must urgently expand its efforts to develop vaccines and other medical countermeasures against potential bioterrorism agents.

We disagree with the commission on both points. It exaggerates the bioterrorist threat and proposes solutions that won't produce the comprehensive approach needed to strengthen public health security.

The bioterrorist threat must be kept in perspective. Although many fictional "tabletop" scenarios and exercises have predicted bioterrorism catastrophes, these scenarios often have used unrealistic values for critical disease parameters and have routinely ignored the organizational and technical difficulties that terrorists would have in organizing, and successfully carrying out, a bioweapons attack. The history of both state-operated bioweapons programs and unsuccessful terrorist attempts to develop and use such weapons (e.g., the Japanese cult Aum Shinrikyo) have demonstrated, again and again, the significant difficulties that confront making and disseminating a biological weapon. The 2001 anthrax letter attacks, which were seen as validating the catastrophic scenarios, appear to have been executed with anthrax

developed in a U.S. biodefense laboratory with capabilities vastly superior in scale and quality to anything a terrorist could achieve.

Advances in the life sciences may gradually put bioweapon capabilities closer within terrorist reach, but scientific and technological progress alone doesn't warrant exaggeration of the bioterrorist threat. Rather than basing policy on worst-case scenarios, the United States should develop and conduct more plausible, sophisticated threat assessments that take into account the complex set of political, social, and technical factors that would affect bioweapons development and use.

Since the 2001 anthrax attacks, the federal government has spent nearly \$60 billion responding to the perceived threat of bioterrorism. Roughly one-half of that money has funded detection systems, dramatically expanded research on bioweapon agents, and the development, procurement, and stockpiling of vaccines and other medical countermeasures against these agents.

As bioterrorism has commanded policy and funding attention over the last decade, domestic influenza-related deaths have likely exceed 300,000 people. The growing problem of multi-drug resistant tuberculosis, the lack of progress on reducing food-borne infections and disease outbreaks, and annual U.S. mortality figures from AIDS (14,000 deaths) and opportunistic infections such as MRSA (19,000 deaths) all speak to significant ongoing public health needs. Policy and funding decisions must be based on more than just mortality statistics. For instance, government is expected to respond effectively to acute disease outbreaks. Nonetheless, these figures underscore that continuing to emphasize and spend billions of dollars on measures to specifically counter exaggerated bioterrorist threats diverts attention and resources from other pressing natural disease threats and public health concerns.

Moreover, all the money and effort spent on biodefense hasn't produced demonstrably better overall health security for the country. Detection systems remain unreliable triggers for immediate responses. Expansion of biodefense research has increased the number of people with access to dangerous pathogens and toxins, which increases the risk of accidents, infiltration by outside groups, or attack by a rogue insider. Programs to develop stockpiles of vaccines against bioweapon agents continue to face questions relating to efficacy, safety, shelf life, and timely distribution. Many other bioweapon-specific countermeasures will be useless against serious infectious disease problems, other acute public health threats, or even bioterrorist attacks that differ from the threat predicted. Despite promises of broad-based "synergies," most of these efforts haven't produced benefits for public health, as illustrated by the problems experienced in the responses to pandemic influenza A (H1N1).

Nonetheless, the Graham-Talent Commission wants U.S. policy makers to continue down this questionable path with more urgency, more money, and more intense focus on bioterrorist threats. Such an approach will exacerbate the political and funding gaps between defense against bioterrorism and protection of the U.S. population from naturally occurring infectious diseases. Strangely, the Commission points to the H1N1 pandemic as evidence that the United States should devote more funding to biodefense, when the proper conclusion to draw from the troubles experienced with H1N1 is that Washington isn't paying enough attention to public health capabilities in its efforts to strengthen national health security.

Rather than continuing to argue, despite accumulated evidence to the contrary, that bioterrorism-centric policy and spending will produce meaningful and sustainable positive "spillover" effects for public health, a better, more comprehensive approach to national health security would focus on improving public health capabilities to respond to any kind of infectious disease threat. As the recently released U.S. National Health Security Strategy states, "Investments should focus, to the extent possible, on new technologies and countermeasures that could also have uses in non-public health emergency situations."

**This more comprehensive approach would focus political attention and fiscal resources on addressing important public health and national health security needs, including:**

1. Ensuring that the nation's public health system is capable of addressing all public health needs, including infectious disease outbreaks. Only by ensuring adequate staffing and resources in all program areas will the United States build a sustainable public health system that can strengthen individual resistance to disease, improve early detection and treatment, and contain disease outbreaks, whether natural, deliberate or accidental.
2. Increasing support for the basic tools necessary for public health surveillance and epidemiology, including skilled personnel, public health laboratories, and data collection, management, analytic, and information-sharing systems. In this respect, the roughly \$15 billion in biodefense spending to strengthen state and local public health capacity and fund other public health efforts *has* been important and needs to be maintained and even enhanced.
3. Enhancing animal disease surveillance and response capabilities and their integration with public health systems, which would improve the ability to rapidly detect and diagnose both animal and zoonotic infections and disease outbreaks, whether natural or deliberate.
4. Improving disaster preparedness and response capabilities, especially medical surge capacity. The capabilities needed to respond quickly and effectively to an event that produces a large number of casualties are similar whether the event is a natural disease outbreak, a bioterrorism event, or a natural disaster such as an earthquake or tsunami.
5. Strengthening research on new diagnostics, antibiotics, and antivirals for emerging or established diseases that cause significant mortality or morbidity. An ability to more rapidly develop, test, and verify the safety of new vaccines after an epidemic or pandemic is also important. However, emergency-response strategies shouldn't overly focus on vaccination because vaccines usually need to be given prior to exposure. New vaccines will continue to take time to produce, and stockpiled vaccines are highly disease-specific (often even strain-specific) and often have a limited shelf life.

Public health in the United States faces many challenges; bioterrorism is just one. Policies need to be crafted to respond to the full range of infectious disease threats and critical public health challenges rather than be disproportionately weighted in favor of defense against an exaggerated threat of bioterrorism. Nine years after the anthrax letters, we know better than to expect narrowly construed biodefense policies to produce comprehensive health security for the U.S. people ([Bulletin of the Atomic Scientists, 2010](#)).

**Title:** Ireland Calls For Tougher Restrictions On Bioweapons

**Date:** February 11, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A spokesman for Ireland's Labour Party has called for new legislation banning biological weapons to also include the prohibition of transmission of bioweapons through Irish airspace.

"There is evidence of the use of biological weapons in practically every other major conflict, so this legislation is urgent," a Labour TD told the Irish Times. "It is very important that we not only prohibit any work in this regard but also, as a country interested in international law, that we bring forward the legislation dealing with Shannon

Ireland's Cabinet approved the Biological Weapons Bill this week, which prohibits the use, development, production, manufacture, possession, stockpiling, acquisition and retention or transfer of biological weapons.

Ireland's new ban will apply to all vessels and aircraft registered in Ireland as well as to members of the Defence Forces and citizens of Ireland outside of the nation.

Michael Higgins, the spokesman on foreign affairs for Labour, told the Irish Times that the bill, as it currently stands, does not extend the ban to the transmission of biological weapons through Shannon and other airports.

Higgins also said that the bill should be brought forward in conjunction with the newly announced Air Navigation Bill, which is being discussed by the Cabinet subcommittee on extraordinary rendition ([Bio Prep Watch, 2011](#)).

**Title:** 6 Vulnerable Potential Terrorist Targets

**Date:** March 30, 2010

**Source:** [U.S. News](#)

**Abstract:** *Willful Neglect: The Dangerous Illusion of Homeland Security* author Charles Faddis says that terrorists have an ample number of targets to attack in the U.S. and that some are more vulnerable than others. Here are some targets that Faddis says are particularly dangerous and could cause catastrophic damage were they to be struck.

#### **#4 Chemical Plants**

Chemical plants have long been a concern for the Department of Homeland Security. "Tens of millions of Americans live surrounded by what are, from a terrorist perspective, giant, prepositioned chemical weapons," Faddis writes. "There is no need to construct a weapon and design some mechanism for bringing it onto our soil...They exist in mass quantities, and they are already in position in proximity to major population centers. All that is required is to set them off."

**Example:** An accidental leak of toxic gas in Bhopal, India in 1984 killed between 16,000 and 30,000 people and injured 500,000 others. The substance discharged in Bhopal, methyl isocyanate, is manufactured in a number of different locations within the U.S., most of them in proximity to large urban areas.

#### **#7 Bio-Labs**

"Since 2001, over \$20 billion has been spent on bio defense programs...The number of laboratories working with dangerous pathogens has exploded," Faddis writes. "...We have a lot more labs now and a lot more people in them, but that may have made us much less safe than we were before. While we worry about germs and the possibility of someone setting them loose against us, we are rapidly growing the pathogens ourselves and placing them in facilities all over this country, including major population centers." Research labs work with various types of pathogens, not all of which get the attention of anthrax. These include rift valley fever, Japanese encephalitis, foot and mouth disease, contagious bovine pleuropneumonia, and the nipah virus to name a few.

**Example:** In 2001, letters with anthrax were sent to numerous news organizations and congressional offices. Five people died as a result; 17 more were infected but survived ([U.S. News, 2010](#)).

**Title:** U.S. Not Ready For Clean Up Effort After A Bioterror Attack

**Date:** April 10, 2010

**Source:** [Homeland Security News Wire](#)

**Abstract:** The small 2001 anthrax attack in the United States cost hundreds of millions of dollars in decontamination costs, and some of the facilities attacked could not be reopened for more than two years; a large-scale biological release in an American city, though, could potentially result in hundreds of thousands of illnesses and deaths and could cost trillions of dollars to clean up.

Following the 2001 anthrax attacks, the government and private sector undertook the task of cleaning up anthrax-contaminated facilities — a job that had never before been attempted on that scale. Decontaminating congressional office buildings, postal facilities, and media buildings cost hundreds of millions of dollars, and some of the facilities could not be reopened for more than two years.

Nine years later, what progress has been made in policy and practice that would make decontamination easier in the event of another attack? A recent assessment, sponsored by the [Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism](#) and appearing in the journal *Biosecurity and Bioterrorism*, [found](#) that the process of environmental decontamination would still be very difficult and costly and that the lines of responsibility at the federal level are still unclear.

The 2001 anthrax attack is considered to be a small attack, because relatively few facilities were involved and anthrax contamination was limited to indoor environments. A large-scale biological release, though, could potentially result in hundreds of thousands of illnesses and deaths and could cost trillions of dollars to clean up. An attack on a U.S. city could contaminate both indoor and outdoor areas, including buildings, street, parks, and vehicles.

Researchers from the [Center for Biosecurity](#) of the University of Pittsburgh Medical Center looked at current decontamination policy and technical practices at the federal level to determine what gaps exist that might hamper response to a future large-scale attack with a biological agent. The government agencies with primary responsibility for decontamination are the Environmental Protection Agency (EPA), the Department of Homeland Security (DHS), and the Department of Defense (DoD). Federal roles and responsibilities for decontamination research and response are not clearly spelled out, overlap, and are often underfunded..

The article also describes some of the technical and scientific issues that remain unresolved: After an anthrax release, what is the risk of secondary aerosolization? What is the federal standard for decontamination — or, how clean is clean? How clean is safe?

The authors note that there are too few personnel trained in decontamination among all of the agencies and including private contractors. In the event of an attack, private building owners and government agencies would likely be calling on the same limited pool of experts and contractors to help with remediation.

**Among the recommendations the authors propose:**

1. DHS should clarify federal roles and responsibilities
2. Congress should increase funding for decontamination research
3. In addition to research, additional investment in personnel is needed ([Homeland Security News Wire, 2010](#)).

**Title:** Secretary Of State Clinton Says U.S. Will Consider Nuclear Response To Bioterror

**Date:** April 12, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** U.S. Secretary of State Hillary Clinton has struck back at critics of the nation's new nuclear weapons stance, telling CBS' "Face the Nation" that "all bets are off" in the event of a biological attack.

Clinton was joined by Defense Secretary Robert Gates, who said that both Iran and North Korea would be exceptions to the new policy of nuclear response as both nations have defied UN resolutions on their atomic programs.

"If we can prove that a biological attack originated in a country that attacked us, then all bets are off," Clinton said in an interview on "Face the Nation."

Gates, when asked why Iran and North Korea were exceptions to the newly unveiled nuclear policy, added, "They're not in compliance with the nuclear non-proliferation treaty. So for them, all bets are off. All the options are on table."

A new arms control deal with Russia, Clinton and Gates said, along with the revised nuclear policy, bolsters the diplomatic leverage held by President Obama in his quest to isolate Iran and North Korea over their nuclear programs.

The duo also rejected Republican criticism that the new nuclear policy sent signals of weakness to the world.

"We have still a very powerful nuclear arsenal," Gates told NBC's "Meet the Press" ([Bio Prep Watch, 2010](#)).

**Title:** Chemical Terror Remains A Threat

**Date:** June 1, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Jerome Hauer, the former assistant secretary for Public Health Emergency Preparedness at the U.S. Department of Health and Human Services, writes in an opinion piece that while chemical terrorism remains a threat in the U.S., President Obama should be praised for his nuclear nonproliferation efforts since he took office.

But according to Hauer's commentary on [fireengineering.com](#), some experts believe the focus on nuclear weaponry may be unintentionally taking "from other, more likely terrorist threats, such as biological and chemical agents, conventional explosives, or a combination thereof."

Hauer references two recent New York City threats that were thwarted before anyone was harmed – the car bomb detonation attempt in Times Square and the arrest of a suicidal college student who was traversing the city through the subway with a backpack full of sodium cyanide and flares.

"Unlike nuclear or biological weapons, chemical weapons are relatively easy and inexpensive to acquire and deploy," Hauer writes. "Commercially available chemicals, such as malathion and parathion – organophosphorus pesticides commonly used in agriculture – are highly toxic and have the potential to inflict significant casualties in minutes, especially if used by someone willing to die in the effort. Pesticides, cyanide and other poisons are readily accessible in the U.S., traveling via road and rail through our cities every day."

Hauer recommends arming first-responding units with better protective gear and up-to-date antidotes for a wide range of chemical threats.

"And it means training and exercising specifically to deal with chemical terrorism," he writes. "Specialized exercises by individual groups, and large-scale exercises that involve the medical community and local, state and federal agencies, help identify gaps in response protocols and strengthen partnerships between agencies so they work together more effectively" ([Bio Prep Watch, 2010](#)).

**Title:** Vaccine Against 2009 Pandemic Flu Also Protects Mice Against 1918 Strain

**Date:** June 16, 2010

**Source:** [Discovery](#)

**Abstract:** In 2005, a group of American scientists [resurrected](#) one of history's deadliest killer – the H1N1 flu virus of 1918 that killed approximately 50 million people worldwide. Using samples from a patient buried in Alaskan permafrost, they deciphered the virus's genome and structure, rebuilt it from scratch and infected mice with it.

The move was understandably a [controversial one](#). It has led to a greater understanding [of the 1918 pandemic](#), and [other important flu strains](#), but scientists have [cited the possibility](#) that this infamous killer could be accidentally released from a lab ([as has happened before with other H1N1 strains](#)). Worse still, it



could be developed into a bioterror weapon. But according to Rafael Medina from the Mount Sinai School of Medicine, these worries may be unfounded. He has shown that since 1918, the world has gained an ally that will protect people against the deadly strain should it ever reemerge. That ally is a most unexpected one – the H1N1 swine flu virus from 2009.

The virus that went pandemic last year is actually a fourth-generation descendant of the 1918 virus. It's [part of a 'pandemic era'](#) that was kicked off by the original strain and that has lasted for almost a century. Despite the 91-year gulf between them, the 1918 and 2009 viruses have some [important similarities](#) that set them apart from seasonal strains. This likeness means that antibodies that target one strain should work against the other. Indeed, elderly people who survived the 1918 pandemic [still carry such defensive antibodies](#), and these can [neutralise the 2009 virus too](#). This probably explains why elderly people, who are usually most at risk from flu viruses, were largely spared the brunt of the recent pandemic.

Now, Medina has found that the protection works the other way too, at least in mice. He gave mice the vaccine against the 2009 pandemic or antibody transfusions from humans who had themselves been vaccinated. Either way, the rodents produced antibodies that completely protected them against extremely lethal doses of the 1918 virus. Without the vaccine, all of the mice were dead within 8 days. With it, they barely showed any signs of illness and lost trivial amounts of weight. By contrast, vaccines against other strains of seasonal flu failed to provide any sort of protection against the 1918 monster.

Of course, this study has only looked at mice and Medina acknowledges that the next step will be to see if the 2009 vaccine will protect against 1918 flu in other animal models, such as guinea pigs, monkeys and ferrets. But for now, the results are encouraging

The 2009 pandemic spread worldwide and it is still [the dominant strain of seasonal flu](#). Huge numbers of people were vaccinated when the pandemic hit, and the World Health Organisation has recommended that the standard annual flu vaccine should also target the pandemic strain. This means that large swathes of the population should now be immune to the 1918 virus should it ever rear its proteins again. It's good news for scientist too; as Medina says, the current vaccine "should also serve as an additional layer of safety for researchers working with the 1918 influenza virus" ([Discovery, 2010](#)).

**Title:** Experts Warn Bioterror Could Be Future Of War

**Date:** June 21, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** The continued proliferation of chemical, biological, nuclear and radiological weapons is a major concern for U.S. military officials and could end up changing the battleground for troops according to experts.

Commanders under U.S. Central Command recently expressed such concerns during a Special Operations Forces Industry Conference, [nationaldefensemagazine.org](#) reports. While the panelists agreed that they did not know where the next wars will be fought, they agreed troops should be prepared for a number of possibilities, including chemical and biological attacks.

One concern expressed by Air Force Major General Charles Cleveland is that the Defense Department has not invested enough in next-generation protective gear to protect troops from a combination of different terrorist attacks, including biological or chemical weapons.

Air Force Brig. Gen. Richard Haddad, commander of Special Operations Command Korea, voiced similar concerns, noting that tensions remain high in North Korea and South Korea, following the March sinking of a warship. He told [nationaldefensemagazine.org](#) that North Korea recently threatened to attack South Korea if the U.N. leveled sanctions against them.

"We've heard those provocations before and are waiting to see what happens," Hadda told [nationaldefensemagazine.org](http://nationaldefensemagazine.org). "I have no question in my mind that they will do quite well in war."

Hadda noted that U.S. operator needs would include infiltration programs and radio communications ([Bio Prep Watch, 2010](#)).

**Title:** Monkeypox Rising In Wake Of Smallpox Eradication

**Date:** August 31, 2010

**Source:** [Reuters](#)

**Abstract:** Some thirty years after authorities doled out the last dose of smallpox vaccine, the world faces another multiplying menace: monkeypox.

A new study suggests that the monkeypox virus, which the smallpox vaccine also grants immunity against, is now at least 20 times as common as it was shortly after victory over smallpox had been declared.

"The eradication of smallpox was one of the greatest achievements known to man," lead researcher Anne Rimoin of the University of California, Los Angeles School of Public Health told Reuters Health. "But a consequence of ceasing smallpox vaccinations is that now the world's population is vulnerable to other (related viruses) such as monkeypox."

While the infection is somewhat less serious than smallpox, it can still scar and even kill its victims. And in contrast to its cousin, monkeypox is not only able to jump between humans, but can infect through contact with small animals that harbor the virus. As a result, its control could be all the more challenging, warned Rimoin.

Converging political, social, economic and environmental factors make African nations -- in particular, the Democratic Republic of the [Congo](#) -- especially vulnerable to the infection, she explained. The virus's favorite animal hosts such as squirrels and monkeys are endemic there, and civil war has forced many people to rely heavily on hunting wildlife for sustenance. Some have even migrated deep into the animals' forest habitats to seek refuge from the violence.

"The virus has probably been on the rise for years, but the country lacked surveillance," Rimoin noted. "To find disease, you have to look for it."

So she and her colleagues, who included many local Congolese, did just that. Using Chinese bicycles like pack mules to transport supplies, and with funding from the U.S. National Institutes of Health, they surveyed nine local health zones for signs of monkeypox between November 2005 and November 2007. They identified 760 cases of laboratory-confirmed monkeypox.

Compared to similar surveillance conducted in the 1980s, Rimoin's team found a 20-fold increase in monkeypox cases -- far more than they ever expected to find. In a single health zone, the average number of yearly cases rose from less than 1 to roughly 14 per 10,000 people.

Most of the victims were born after smallpox vaccination was officially discontinued in 1980. Vaccinated individuals were more than five times less likely to become infected with monkeypox compared to those without the vaccine's protection, the researchers report in the Proceedings of the National Academy of Sciences.

"What we're seeing is a harbinger of things to come," said Rimoin. She warned that the virus could grow more widespread with further deforestation, continued movement of people from rural to urban areas, bushmeat trafficking and importation of exotic pets.

"And every new infection provides the virus with the opportunity to evolve into a more serious or transmissible virus," she added.

It's already clear that the Democratic Republic of the Congo isn't the only home for the virus. The Republic of the Congo and Sudan also reported cases in recent years. And in 2003, monkeypox arrived in the U.S. Midwest with imported African rodents, before spreading among prairie dogs and sickening 90 people.

Experts fear an even more virulent and efficient virus could return to the western world.

"The higher the rate of new infections, the greater the chance that travelers from the U.S. will be exposed, and that the disease will be imported into the U.S. -- possibly establishing itself in U.S. rodent populations," Dr. Dan DiGiulio of Stanford University School of Medicine in California, who was not involved in the study, noted in an email to Reuters Health.

So what can be done to keep the virus at bay? Rimoin suggested that behavioral interventions may be the most effective strategy at this point, including teaching people at risk of infection what animals may be most likely to carry monkeypox and how to handle them to avoid infection, as well as isolating infected individuals.

Continued active surveillance is also important to better identify the animal reservoirs and rates of animal-to-human versus human-to-human transmission. "Once we understand more about this virus and what it may mean for us," she said, "we may be able to consider specific interventions, perhaps vaccinating groups that are at significant risk of infection."

DiGiulio added the need for animal importation policies, and research into effective antiviral treatments and vaccine development.

"Three decades after the eradication of smallpox, pox viruses still deserve our close attention," said Rimoin. "And we shouldn't only worry about its accidental introduction but also as a deliberate terrorist release" ([Reuters, 2010](#)).

**Title:** Russian Expert Says Terror Networks Searching For Bioweapons

**Date:** October 6, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** The head of Russia's Security Council recently announced that the country's security agencies believe international terror networks are doubling their efforts to gain access to biological and chemical weapons of mass destruction.

Nikolai Patrushev voiced his concerns during a recent security conference at the Black Sea Resort, in Sochi, Russia, [MonstersAndCritics.com](#) reports.

"We have such indications," Patrushev said, [MonstersAndCritics.com](#) reports. "Worldwide, terrorists have also tried to buy radioactive material for a dirty bomb."

Following the Security Council meeting, Patrushev told the press that intelligence reports indicate that energy production would be one area targeted by terrorists. He specifically named the Suez Canal in Egypt and the Strait of Gibraltar as potential targets.

Patrushev also said that he believes al-Qaeda is involved in the bloody conflict unfolding in Russia's Caucasus region, [MonstersAndCritics.com](#) reports. The region, which has seen two Chechen wars, could be of great interest to terrorists.

"Al-Qaida's main goal is to establish an Islamic caliphate spanning Central Asia, North and Central Africa and the North Caucasus," Patrushev said, MonstersAndCritics.com reports ([Bio Prep Watch, 2010](#)).

**Title:** EU Member States Urged To Prepare For Biological, Chemical attacks

**Date:** November 9, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** As a result of a rise in terrorist attacks, European Union member states were recently urged to include chemical, biological, radiological and nuclear weapons attacks in their emergency response planning.

This decision came about after a November 8, 2010, meeting between EU justice and home affairs ministers, SofiaEcho.com reports.

The ministers implored the EU states to integrate the response elements of police, rescue, intelligence, health and communication with CBRN risks to create new preventative plans. These plans would incorporate simulation exercises and information exchanged among EU states to solve problems at the EU level and to increase public awareness about potential risk.

The ministers said that public awareness must be raised so that people know the appropriate actions to take and that the member states had the first responsibility in protecting people against CBRN attacks, according to SofiaEcho.com.

Since 2002, the EU has taken several steps to respond to attacks of this nature, including a 2008 Europol program to develop a European CBRN database.

While some EU member states has specific response and preparedness plans to deal with attacks involving CBRN materials or terrorist threats, others had specific plans for nuclear or radiological risks, general emergency plans with all-hazard approaches, emergency plans to deal with CBRN threats or specific procedures to deal with CBRN material attacks, the EU ministers said, according to SofiaEcho.com ([Bio Prep Watch, 2010](#)).

**Title:** Report Warns Of Bioterror Attack On Public Transportation

**Date:** December 28, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A USA Today examination has found that, despite the government's attempts to upgrade rail and subway defenses against terrorist attacks, there are major holes in the public transportation system that may be impossible to fix.

These security holes may leave over four billion passengers vulnerable, whereas the tighter security at airports affects fewer than 700 million people. There have been six terrorist plots that have targeted the U.S. rail and subway systems since the September 11, 2001, terrorist attacks, USA Today reports.

"Mass transit systems are much less secure than the aviation sector or certain key government buildings," Clark Kent Ervin, the former inspector general of the Department of Homeland Security, said, according to USA Today.

The Transportation Security Administration has mostly given the responsibility of rail security to local governments, which USA Today said does not have the money and capabilities to make systems secure.

"We know that some terrorist groups see rail and subways as being more vulnerable, because there's not the type of screening that you find in aviation," Ervin said, USA Today reports.

It is possible, according to USA Today's report, that the only way to truly secure rail and subway cars is to screen every passenger.

"Mass transit systems in the U.S. are vast, a literal black hole," James Carafano, a homeland security expert at The Heritage Foundation, said, according to USA Today. "They would consume every cent we spend on homeland security, and there still would be vast vulnerabilities" ([Bio Prep Watch, 2011](#)).

**Title:** The Threat Of Bioterrorism And The Ability To Detect It

**Date:** December 29, 2010

**Source:** [Homeland Security Today](#)

**Abstract:** A day after Congress passed legislation to overhaul food safety laws and on the heels of the Department of Homeland Security's (DHS) disclosure that terrorism intelligence threat streams indicated Al Qaeda (AQ) has discussed an attack on US soil by contaminating "salad bars" and "buffets" with poisons, a Salmonella attack by Mother Nature sickened 89 people (23 percent of whom had to be hospitalized) in 15 states and the District of Columbia, reported the Centers for Disease Control and Prevention (CDC).

The outbreak appeared to be linked to contaminated alfalfa sprouts "at a national sandwich chain," CDC said in a statement. And it was widespread. According to CDC, 50 people were sickened in Illinois, 14 in Missouri, nine in Indiana, three in Wisconsin and two in Pennsylvania. Connecticut, Georgia, Hawaii, Iowa, Massachusetts, New York, South Dakota, Tennessee, Texas, Virginia and the District of Columbia all reported at least one confirmed case of Salmonella-induced illness linked to the reputedly contaminated alfalfa sprouts.

According to a variety of public health authorities, this and other foodborne outbreaks during the last several years "should be a wake-up call" to what could happen if terrorists were able to pull off an attack on the nation's food supplies with pathogenic bacteria like the Salmonella recently found on Alfalfa sprouts that can be found at salad bars and buffets across the nation. Even though the sprouts are washed, CDC and other authorities said the only way the pathogenic bacteria on them can be killed is by thoroughly cooking the sprouts.

Biological weapons have been called "the poor man's atom bomb" because the capacity to produce and spread pathogens requires relatively little in the way of sophisticated technology. And as recent federal and private sector studies have concluded, surveillance, reporting and situational awareness capabilities remain deficient for both naturally occurring and terrorism-caused incidents of biological foodborne contamination.

Unintended contamination of food provides an example of the potential widespread threat that could be posed by terrorists. Eight months ago, more than 500 million eggs had to be recalled in response to a nationwide Salmonella outbreak federal authorities said they linked to two egg manufacturing plants. At least 1,300 people are believed to have been sickened by the tainted eggs between May and July, or roughly 200 a week, according to CDC. The historical average is about 50 Salmonella-related illnesses a week. The government eventually said it determined that unsanitary processing practices are believed to have been responsible for the contamination.

A year earlier, the Food and Drug Administration (FDA) ordered a recall of Salmonella contaminated peanut butter and products containing peanut butter made by a specific company. In this case, federal investigators also linked the *Salmonella Typhimurium* strain in the poisoned peanut butter to improper food processing procedures. The investigations also reportedly found recurring shoddy inspection practices.

What was particularly alarming was that “this [was an ingredient-driven outbreak; that is, potentially contaminated ingredients affected many different products that were distributed through various channels and consumed in various settings,” FDA said.

Moreover, in each of these outbreaks, the actual number of people who were sickened is probably much higher. CDC’s Dr. Christopher Braden, a medical epidemiologist who currently serves as Acting Director, Division of Foodborne, Waterborne and Environmental Diseases, explained that only about one in 30 cases of Salmonella-induced illness during an outbreak is reported to health officials.

CDC considers Salmonella to be a "Category B" pathogen because it’s moderately easy to disseminate.

### **Deliberate Contamination has Precedents**

In 1984, followers of the bizarre religious cult, Bhagwan Shree Rajneesh, contaminated local salad bars in Dalles, Oregon with *Salmonella Typhimurium* in an attempt to incapacitate so many voting residents of Wasco County that the cult’s own candidates would win the county elections. The attack sickened 751 people and required 45 to be hospitalized.

In 1996, a disgruntled laboratory worker deliberately infected food to be consumed by co-workers with *Shigella Dysenteria* Type 2, causing 12 people to be sickened, four of whom had to be hospitalized and five sent to emergency rooms.

In May 2003, a supermarket employee pleaded guilty to intentionally poisoning 200 pounds of ground beef with an insecticide containing nicotine. Although the tainted meat was sold in only one store, more than 100 people, including about 40 children, were sickened.

About 40,000 cases of Salmonella poisoning are reported every year in the US, CDC said. Counterterrorism officials told *HSToday.us* that that number undoubtedly would be “much, much higher” as the result of a terrorist attack, and that it would take “precious time” before public health authorities realized that the escalating number of sickened persons were actually victims of a biological attack.

In the case of a Salmonella terrorist attack, the young, elderly and persons with weakened immune systems would be most at risk, CDC said.

According to CDC, there are an estimated 76 million illnesses, 325,000 hospitalizations and 5,000 deaths annually from food that has been inadvertently contaminated by pathogens - at a cost of somewhere around \$35 billion. Based on current population data, this roughly translates to an estimate that, each year, one out of every four Americans will develop a foodborne illness.

According to a report by CDC researchers in *Morbidity and Mortality Weekly Report*, the leading causes of foodborne disease outbreaks in 2007 were due to Norovirus and Salmonella contamination of mostly poultry, beef and leafy greens. But surveillance data also indicated that no cause was ever determined for about one-third of foodborne disease outbreaks in nearly a quarter of victims.

Counterterror authorities said this data illustrates the difficulty officials will have in quickly determining that an outbreak is the result of an attack and just how widespread the attack is when so many people who get sick from contaminated food either do not see their doctor or go to a hospital.

### **Terror Bio-Attack is Real**

DHS has stated that “the prospect of a mass-scale food contamination event is of particular concern because the nation is subject to major unintentional foodborne illness outbreaks. Experts reason that ... an individual or individuals with malevolent aims could reproduce these outbreaks with more dire consequences.”

"Now, can you imagine what a well-coordinated terrorist attack could do if they're using a really nasty pathogen?" asked a veteran counterterrorism official who has been dealing with the threat of a biological terrorist attack.

The October 2003 Department of Health and Human Services (HHS) and FDA report, [Risk Assessment for Food Terrorism and Other Food Safety Concerns](#), noted that just "major outbreaks of foodborne illness occur all too frequently," and sometimes affect hundreds of thousands of people.

"Among the largest reported outbreaks caused by unintentional biological contamination," the report stated, "was an outbreak of *Salmonella Typhimurium* infection that sickened approximately 170,000 people in 1985 and was linked to post-pasteurization contamination of milk from a US dairy plant. An outbreak of hepatitis A caused by tainted clams affected nearly 300,000 people in China in 1991 and may be the largest foodborne disease incident in history."

Then, "in 1994, an outbreak of *Salmonella Enteritidis* infection linked to a contaminated ice cream pre-mix sickened an estimated 224,000 people in 41 states in the US," and "in 1996, about 8,000 children in Japan became ill, and some died, after eating *E. coli* 0157:H7-tainted radish sprouts served in school lunches."

"In today's global marketplace, the contamination of food in one country can have a significant effect on public health in other parts of the world," the joint HHS-FDA report emphasized, noting that "in 1989, approximately 25,000 people in 30 states in the US were sickened by *Salmonella Chester* in cantaloupes imported from Mexico."

And, "in 1996 and 1997, 2,500 people in 21 states in the US and two Canadian provinces developed *Cyclospora* infections after eating tainted Guatemalan raspberries."

"If an unintentional contamination of one food, such as clams, can affect 300,000 individuals, a concerted, deliberate attack on food could be devastating, especially if a more dangerous chemical, biological or radionuclear agent were used," the HHS-FDA report concluded, adding, "it would be reasonable to assume that a terrorist using the food supply as a vehicle for attack would use an agent that would maximize the number of deaths associated with the contamination," and that "many of these agents are the same pathogens that have been linked to significant outbreaks of foodborne illness due to unintentional contamination."

A top government public health official told *HSToday.us* on background because of the politically sensitive nature of his position that while "most foodborne pathogens cause relatively mild self-limited illnesses, [they] certainly could cause nationwide distress. The ones which would have a greater potential for more serious life-threatening illnesses would include *E. coli* O157 and Botulism. The later is especially of great concern due to the fact that very miniscule amounts of the toxin are needed to contaminate food to cause the paralytic disease, and you don't need viable replicating organisms - only the pre-formed toxin. The incubation period for both would be very short, within 24 hours or so depending on dosage."

In 2000, the World Health Organization (WHO) adopted a resolution stating it was "[d]eeply concerned that foodborne illness associated with microbial pathogens, biotoxins and chemical contaminants in food represent a serious threat to the health of millions of people in the world."

The recent scare that Al Qaeda or one of its affiliated movements (AQAM) might try to carry out a biological attack in the US was brought to light by a DHS intelligence alert distributed to selected hotel and restaurant executives. Officials said the alert was in response to a "credible" threat. But this is isn't a new AQ threat, veteran WMD counterterrorism intelligence officials stressed.

The officials told *HSToday.us* that they've been aware "for some time" of AQ's desire to contaminate fresh foods in the United States, especially with highly pathogenic bacteria cultured in large batches that, for



example, could be put in syringes that could then be used to spray the potentially deadly pathogens on fresh food like produce and vegetables.

The officials said intelligence indicated AQ has considered deploying cadres of Americans who'd been recruited and converted into jihadists who could get jobs in fresh food production, distribution and transportation. Through their access to large bulk packaging, distribution and transportation inside the nation's massive food processing system, they might be able to contaminate large amounts of fresh food shipments.

Former Director of National Intelligence Michael McConnell said "one of our greatest concerns continues to be that a terrorist group or some other dangerous group might acquire and employ biological agents ... to create casualties greater than September 11."

In his 2004 resignation speech, former HHS Secretary Tommy Thompson declared: "I, for the life of me, cannot understand why the terrorists have not ... attacked our food supply because it is so easy to do."

*Homeland Security Today* earlier reported (see [The WMD Connection](#) in January 2010) that counterterrorism authorities have long been concerned that AQ is much more likely to attempt to carry out a mass casualty attack using biological agents rather than lethal chemicals or radiological or nuclear weapons.

Pathogenic bacteria are bacteria that cause bacterial infection like tuberculosis, which is caused by the bacterium *Mycobacterium Tuberculosis*, which kills roughly two million people a year.

Other pathogenic bacteria include those that cause foodborne illnesses like Salmonella. Pathogenic bacteria also are responsible for tetanus, typhoid fever, diphtheria, syphilis and leprosy.

### **But are Mass Casualties Likely?**

But not all of these pathogenic bacteria could successfully be used to contaminate food and produce mass illnesses, authorities pointed out. But some could, and that's what worries homeland security officials.

Some of these officials said in the wake of the disclosure of the DHS alert that the tactic of contaminating food with biological agents is beyond the capabilities of Al Qaeda.

DHS spokesman Sean Smith said in a prepared statement that "we get reports about the different kinds of attacks terrorists would like to carry out that frequently are beyond their assessed capability," noting, however, that Al Qaeda "has publicly stated its intention to try to carry out unconventional attacks for well over a decade."

In his March 3, 2009 S. Rajaratnam School of International Studies paper, *Food Terrorism: How Real? A Historical Survey Since 1950*, Gregory Dalziel stated that "there is very little clear evidence of actual intent from terrorist groups to attack the food supply chain in order to produce mass casualties, whether with CBRN materials or otherwise."

Earlier, the Congressional Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism's final report, [World at Risk](#), concluded that "because of the difficulty of weaponizing and disseminating significant quantities of a biological agent in aerosol form, government officials and private sector experts believe that no terrorist group currently has an operational capability to carry out a mass casualty [biological] attack."

"But they could develop that capability quickly," the report added, noting that "in 2006 congressional testimony, Charles Allen, Under Secretary for Intelligence and Analysis at the Department of Homeland

Security, noted that the threat of bioterrorism could increase rapidly if a terrorist group were able to recruit technical experts who had experience in a national biological warfare program, with knowledge comparable to that of the perpetrator of the 2001 anthrax letter attacks. In other words, given the high level of know-how needed to use disease as a weapon to cause mass casualties, the United States should be less concerned that terrorists will become biologists and far more concerned that biologists will become terrorists.”

Continuing, the panel’s report stated that “the last point bears repeating. We accept the validity of intelligence estimates about the current rudimentary nature of terrorist capabilities in the area of biological weapons but caution that the terrorists are trying to upgrade their capabilities and could do so by recruiting skilled scientists. In this respect the biological threat is greater than the nuclear; the acquisition of deadly pathogens, and their weaponization and dissemination in aerosol form, would entail fewer technical hurdles than the theft or production of weapons-grade uranium or plutonium and its assembly into an improvised nuclear device.”

But, the Commission ultimately concluded, “the difficulty of quantifying the bioterrorism threat to the United States does not make that threat any less real or compelling. It involves both motivation and capability, and the first ingredient is clearly present. Al Qaeda had an active biological weapons program in the past, and it is unlikely that the group has lost interest in employing infectious disease as a weapon. That roughly a half-dozen countries are suspected to possess or to be seeking biological weapons also provides ample grounds for concern.”

Some WMD counterterrorism authorities and other officials disagreed, saying post-9/11 intelligence has continued to indicate that Al Qaeda remains interested in carrying out biological attacks. The concerns have been serious enough that beginning in May 2005, the Heart of America Joint Terrorism Task Force (HOA-JTTF), in conjunction with the Kansas City Division of the FBI and the greater Kansas City metro area police, convened the [International Symposium on Agroteerrorism](#) to bring together experts and officials from around the world to discuss this threat.

There have been three symposiums since then that have been attended by thousands of authorities and government officials from dozens of countries to brainstorm how to protect and monitor the global food supply from terrorism. The 4th symposium will again be held in Kansas City next April 26-28.

“It would be foolish to think that Al Qaeda doesn’t have the resources and skill sets to develop pathogenic bacteria” that it could use to contaminate food stuffs, an official told *HSToday.us*.

“What they lack,” said another official, “are the jihadists in the right positions necessary to carry out a large-scale attack” that would result in mass casualties. “That’s their [AQ] problem.”

All of the officials though stressed that Al Qaeda today “is thinking out of the box – things that a lot of people probably would consider to be science fiction,” as one said.

Continuing, the official emphasized that Al Qaeda “represents a determined Islamist jihad-inspired religious mindset that’s thinking in terms of fighting infidels – us – using wide-ranging asymmetrical attack methodologies. Before 9/11, how many would have believed that terrorists could – or would - fly planes into the World Trade Center buildings ... or the Pentagon ... or that someone could send anthrax spores through the mail ... or that some terrorist would be such a true believer that he’d stuff a bomb up his ass or in his underwear?”

The official stressed that “these are religious inspired terrorists who believe that killing themselves to kill infidels will send them to be with Allah; they really believe that jihad is the one sure fire way to get to heaven. We’re facing a motivated enemy that is thinking so far out of the box that’s sometimes even I find what they’re thinking about doing is ridiculous. But it isn’t! And that’s the reality!”

The HHS-FDA study stated that “the threat to the US food supply is more than theoretical,” explaining that “when US troops entered the caves and safe houses of members of the Al Qaeda terrorist network in Afghanistan in the months following the September 11th attacks, they found hundreds of pages of US agricultural documents that had been translated into Arabic.”

“A significant part of the group's training manual is reportedly devoted to agricultural terrorism - specifically, the destruction of crops, livestock and food processing operations,” the study noted. Moreover, recent threats of food sabotage from known terrorist groups have been reported. Specifically, the Central Intelligence Agency stated in January 2003 that it was investigating whether one of Al Qaeda's leading experts on chemical and biological warfare was involved in a plot to poison food intended for British troops. The investigation stemmed from the discovery of ricin in a London apartment linked to suspected militants, one of whom worked for a catering company. The suspects were believed to have been in contact with people who worked on at least one British military base.”

Then, “in early September 2003,” the HHS-FDA report pointed out, the Federal Bureau of Investigation issued a bulletin warning that terrorists might use two naturally occurring toxins, nicotine and solanine, to poison US food or water supplies. The FBI noted that terrorist manuals and documents recovered in Afghanistan refer to the use of these substances as poisons.

Citing the supermarket employee that deliberately contaminated ground beef with an insecticide containing nicotine, FBI officials advised: “Such lone offenders, whether Al Qaeda [sic] sympathizers or domestic criminals, are a concern to FBI because they are so difficult to detect.”

And “the US is not alone in its concern about a food terrorist event. The WHO Secretariat noted [in 2002] that several countries have reported heightened states of alert for a biological or chemical attack on air, water, or food,” the study said, stressing that “the events of September 11, 2001, and evidence from Al Qaeda validate concerns about threat of terrorism against the United States.”

### **The Economic Threat**

Retired Air Force Col. [Randall Larsen](#), who served as executive director of the Congressional Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism, told *HSToday.us* that while the nation's food supply system is certainly vulnerable to a terrorist attack “at many points ... I'm not convinced that an attack on the food supply could ever reach the level of being a mass destruction attack.”

The first witnesses to testify before the National Commission on Terrorist Attacks Upon the United States (known as the 9/11 Commission), Larsen continued: “Yeah, you could do that, but you could easier also probably kill just as many with a bomb at the food court of a shopping mall.”

Director of The Institute for Homeland Security and the National Security Advisor to the Center for Biosecurity at the University of Pittsburgh Medical Center, Larsen said “I believe there's a small likelihood of a mass destruction” attack on the food supply.

Larsen explained that while there are indeed “choke points” for the production of specific food products that potentially could be targeted, he said the food production and processing industry is very cognizant of internal security because of the potential threats they face every day from disgruntled and sloppy employees and “mother nature.”

An attack or attacks could cause “mass disruption” and pockets of illnesses, Larsen said, but the larger impact would be economic, noting that “one in seven people work in the food industry in production, processing and retail sales.”

Larsen pointed out that a sophisticated attack on our meat supply using Hoof and Mouth disease “would require the destruction of 50 million cloven-hoofed animals to get the disease under control and to control the economic impact.”

“I worry more about the economic impact than I do a mass casualty impact,” Larsen said.

Indeed. The HHS-FDA report stated that the “deliberate or accidental contamination of food [could] have enormous economic implications in the US, where one out of every eight Americans is estimated to work in an occupation directly linked to food production.”

The study said “food terrorists may have economic disruption as their primary motive.”

“At least three types of economic effects may be generated by an act of food terrorism,” the study concluded. These could be from “direct economic losses attributable to the costs of responding to the act; indirect multiplier effects from compensation paid to affected producers and the losses suffered by affiliated industries, such as suppliers, transporters, distributors and restaurant chains; and international costs in the form of trade embargoes imposed by trading partners.”

“Though the costs associated with the food sabotage ... are unavailable,” the study said, “reports from unintentional contamination incidents demonstrate the tremendous costs of responding to such events. In 1998, a company in the US recalled nearly 16,000 metric tons of frankfurters and luncheon meats potentially contaminated with *Listeria monocytogenes*, at a total cost of \$50 million to \$70 million. The company reported spending more than \$100 million in the following two years to improve food safety and convince consumers that its products were safe.”

“Indirect costs,” HHS and FDA concluded, “can be staggering as well. The US Department of Agriculture estimates that foodborne illnesses linked to five pathogens costs the economy \$6.9 billion annually,” noting that “the outbreak from *Salmonella*-contaminated ice cream was estimated to have cost the US economy about \$18.1 million in medical care and time lost from work.”

“Agriculture and the general food industry remain absolutely critical to the social, economic and, arguably, political stability of the US, indirectly constituting roughly two percent of the country’s overall domestic gross domestic product (GDP),” stated RAND Corp. policy analyst Peter Chalk during a Senate Subcommittee on Oversight of Government Management, Restructuring and the District of Columbia, in October 2001.

Reiterating that “one in eight people work in some component of agriculture – more if food production is included,” this makes “the industry one of the US’ largest employers. Cattle and dairy farmers alone earn between \$50 and \$54 billion a year through meat and milk sales, while roughly \$50 billion is raised every year through agricultural exports. The share of produce sold overseas is more than double that of other US industries, which gives agriculture major importance in terms of the American balance of trade.”

Chalk told the subcommittee that “these figures represent only a fraction of the total value of agriculture to the country, as they do not take into account allied services and industries such as suppliers, transporters, distributors and restaurant chains.” He noted that “the downstream effect of any deliberate act of sabotage/destruction to this highly valuable industry would be enormous; creating a tidal wave effect that would be felt by all these sectors, impacting, ultimately, on the ordinary citizen him/herself.”

“Unfortunately,” Chalk warned lawmakers, “the agricultural and food industries remain highly vulnerable to deliberate (and accidental) disruption.”

But, Chalk said although “over the [previous] decade many states, particularly in North America and Western Europe, have made substantial investments in improving their ability to detect, prevent and

respond to terrorist threats and incidents [that] has fed into an increasingly well-protected public infrastructure throughout much of the developed world where, at a minimum, effectively developed vulnerability-threat analyses have been used to maximize both anti-terrorist contingencies and consequence management modalities ... Agriculture [nevertheless] is one area that has received very little attention in this regard."

"In terms of accurate threat assessments, response structures and preparedness initiatives," Chalk said, "the sector continues to exist as a glaring exception to the wide-ranging emphasis that has been given to critical infrastructure protection in this country."

And still does, authorities told *HSToday.us*.

### **The Ability to Monitor and Detect**

The recent alarm over terrorist "chatter" about possible bioterror attacks on the nation's food supply comes at a time when there are growing worries about the ability of the country's medical community to be able to monitor and quickly detect a foodborne bio-attack.

CDC has stated that "disease reporting is likely incomplete, and completeness might vary depending on the disease and reporting state. The degree of completeness of data reporting might be influenced by the diagnostic facilities available; control measures in effect; public awareness of a specific disease; and the resources, and priorities of state and local officials responsible for disease control and public health surveillance. Finally, factors such as changes in methods for public health surveillance, introduction of new diagnostic tests, or discovery of new disease entities can cause changes in disease reporting that are independent of the true incidence of disease."

More recently, the Government Accountability Office (GAO) reported HHS has failed to "develop and deliver to congressional committees a strategic plan that demonstrated the steps to be taken toward the establishment and evaluation of an electronic public health situational awareness network, as required by" the Pandemic and All-Hazards Preparedness Act (PAHPA) of 2006."

The Act "mandated actions" by the HHS secretary "for efficient sharing of real-time information to help prevent potentially devastating consequences that could result from public health emergencies."

PAHPA directed use of information technology to collect and share real-time information electronically among public health entities to aid in creating the situational awareness needed to enable early detection of and effective response to emerging events.

But "while multiple offices within HHS have developed related strategies that could contribute to a comprehensive strategic plan for an electronic public health information network to enhance situational awareness, these strategies were not developed for this purpose," GAO reported. "Instead, the offices developed the strategies to address their specific goals, objectives, and priorities and to meet requirements of executive and statutory authorities that mandated the development of strategies for nationwide health information exchange, coordinated biosurveillance, and health security."

Continuing, GAO stated that "HHS has not defined a comprehensive strategic plan that identifies goals, objectives, activities, and priorities and that integrates related strategies to achieve the unified electronic nationwide situational awareness capability required by PAHPA. The department has developed and implemented information technology systems intended to enable electronic information sharing to support early detection of and response to public health emergencies; however, these systems were not developed as part of a comprehensive, coordinated strategic plan as required by PAHPA. Instead, they were developed to support ongoing public health activities over the past decade, such as disease and syndromic surveillance."

Consequently, GAO concluded, “without the guidance and direction that would be provided by an overall strategic plan that defines requirements for establishing and evaluating the capabilities of existing and planned information systems, HHS cannot be assured that its resources are being effectively used to develop and implement systems that are able to collect, analyze, and share the information needed to fulfill requirements for an electronic nationwide public health situational awareness capability.”

One senior state public preparedness official told *HSToday.us* that “I scanned the GAO report and discussed it with my in-house colleagues. The premise [of the PAHPA-mandated plan] makes good sense, but from an operational standpoint I see very little in the way of effective, manageable, timely, intelligently linked, workable communication protocols. I would guess it comes under the heading of ‘devoutly to be wished.’”

Continuing, the official said “I believe that the sheer weight and complexity of our multilevel local state and federal bureaucracies dooms such a program. What we have done [in my state] is to identify a small network of individuals who are linked to other small networks who in turn are linked to others, etc, and share local and regional data as it affects our jurisdictions. We have done this because our view of the Feds is colored by their lamentable foot dragging when it comes to immediate and intelligent response to rapidly changing events.”

The Washington, DC-based Trust for America’s Health (TFAH) stated in its recently released eighth annual [Ready or Not? Protecting the Public from Diseases, Disasters, and Bioterrorism](#) report that seven states cannot currently share data electronically with health care providers and that ten states do not have an electronic syndromic surveillance system that can report and exchange information to rapidly detect disease outbreaks.

The report also looked at findings from a recently released report from CDC based on activities in 2007-08 that focus on emergency operations and food outbreak identification. Among the findings: 21 states were not able to rapidly identify disease-causing *E. coli* O157:H7 and submit the lab results in 90 percent of cases within four days.

According to the report, while states have made progress, there are still major ongoing gaps in preparedness, including biosurveillance and maintaining an adequate and expertly trained workforce.

TFAH concluded that “the United States lacks an integrated, national approach to biosurveillance, and there are major variations in how quickly states collect and report data which hamper bioterrorism and disease outbreak response capabilities.”

Fears were further stoked in December when North Texas Rep. Dr. Michael Burgess (the top Republican on the House Subcommittee on Oversight and Investigations and a member of the Committee on Health Care, Energy and Environment and chairman of Congressional Health Care Caucus) expressed consternation over the failure of CDC and DHS to prevent three people known to have an infectious disease from boarding flights this year.

According to Burgess, who spoke to *HSToday.us*, three out of nine people with an infectious disease who were supposed to be on the “Do Not Board” list were able to get on their flights – one in January and the other two in March.

DHS and CDC established the “Do Not Board” list in June 2007 after an Atlanta man known by CDC to have a drug-resistant strain of tuberculosis managed to fly in and out of the United States despite reportedly having been told by federal authorities not to fly and to get medical attention.

According to CDC, 32 people currently are on the “Do Not Board” list because they have tuberculosis. Several have hard to treat drug-resistant strains.

Burgess said he's asked DHS and CDC why the three people were allowed to fly when they were supposed to have been on the "Do Not Board" list.

"This issue is clearly a problem that only affects a small number of people [those who are infected], but which has the potential to affect many people if they're allowed fly," Burgess said.

"I want to know why they aren't able to administer this" list, Burgess said, adding, "there appear to be weak spots in the system."

In one case, TSA said the airline didn't know that a passenger's name had been put on the "Do Not Board" list because at the time the airline was only required to check the list every 24 hours. The person's name was put on the list at 9:38 PM, and the passenger checked in at 11:53 AM the following day. The other two infected persons on the "Do Not Board" list weren't caught for other reasons TSA would not explain.

As of last month, TSA became the authority responsible for cross-checking passengers on all flights against the variety of watch lists that the airlines previously were responsible for checking. The TSA program is called Secure Flight, and is supposed to fix the problem some airlines had in updating and checking the lists.

Burgess, however, said he has asked DHS to prove to him that the new system will work as intended. But he also still wants to know why three persons with a highly infectious disease were able to board passenger planes given that the technology was in place to ensure that the airlines knew that these individuals were not to be allowed to board.

"That's what you would think," Burgess said. "We have this enormous apparatus in place, so this shouldn't have been very hard to do."

Some authorities also wonder whether terrorists known to have an infectious disease who are covertly being monitored by the Intelligence Community will be put on the "Do Not Board" list. Not all suspected and known terrorists are put on the "No Fly" list because intelligence authorities want to be able to track their comings and goings.

National Counterterrorism Center (NCTC) Director Michael Leiter, a veteran intelligence practitioner, disclosed during the public portion of a January 20, 2010 Senate Committee on Homeland Security and Governmental Affairs hearing that some terrorists on terrorist watch lists are sometimes secretly allowed into the country for clandestine counterterrorism intelligence collection purposes.

Leiter told the Committee "that when people come to the country and they are on the watch list, it is because we have generally made the choice that we want them here in the country for some reason or another."

Leiter didn't go into further detail during the public portion of the hearing, but veteran counterterrorists explained in interviews with *HSToday.us* at the time that there are individuals in terrorism databases and suspected and known terrorists who've necessarily been left off the "No Fly" list and allowed into the country so that counterterrorism agents can gather vital intelligence on them, their movements, activities and associations.

Public health authorities expressed their concern that this could be "a loophole" that could allow a terrorist or terrorists "deliberately infected" with a highly contagious pathogen to enter the country. *HSToday.us* reported in 2005 that intelligence indicated Al Qaeda had discussed infecting "bio-martyrs" with pandemic influenza ([Homeland Security Today, 2010](#)).



**Title:** U.S. Not Ready For Bioterrorism  
**Date:** December 30, 2010  
**Source:** [Homeland Security News Wire](#)

**Abstract:** New report finds that if a major disease incident or bioterrorism attack were to occur today, the United States would not be ready for it; significant local, state, and federal budget cuts have had a negative impact on public health departments' ability to maintain staff capabilities, and their ability to respond to crises

If a major disease incident or bioterrorism attack were to occur today, the United States would not be ready for it. This is according to a [new report](#) supported by a grant from the Robert Wood Johnson Foundation.

*Cattlenetwork* [quotes](#) the report to say that "there's an emergency for emergency health preparedness in the United States." It calls attention to significant local, state, and federal budget cuts and the impact they have had on public health departments' ability to maintain staff capabilities, and their ability to respond to crises.

**Key findings include:**

1. Twenty-one states were not able rapidly to identify disease-causing E.coli O157:H7 and submit the lab results in 90 percent of cases within four days during 2007-8.
2. Thirty-three states and D.C. cut funding for public health from Fiscal Year 2008-9 to FY 2009-10.
3. Seven states can not currently share data electronically with health care providers.
4. Ten states do not have an electronic syndromic surveillance system that can report and exchange information.
5. Six states reported that pre-identified staff were not able to acknowledge notification of emergency exercises or incidents within the target time of sixty minutes at least twice during 2007-8.
6. Six states did not activate their emergency operations center a minimum of two times in 2007-8.
7. Two states did not develop at least two After-Action Report/Improvement Plans (AAR/IPs) after exercises or real incidents in 2007-2008 ([Homeland Security News Wire, 2010](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following propaganda was published within the calendar year of 2011. While some of the following reports may have been legitimate news stories, most if not all of them appear to be blatant propaganda with the overall goal of convincing American and the World that it is on the precipice of a bio-terror induced pandemic. The fact that this propaganda exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and military control of society.

**Title:** \$1B Effort Yields No Bioterror Defenses

**Date:** January 17, 2011

**Source:** [Boston.com](http://Boston.com)

**Abstract:** The Pentagon is scaling back one of its largest efforts to develop treatments for troops and civilians infected in a germ warfare attack after a \$1 billion, five-year program fell short of its primary goal. Even the heavy infusion of research cash and a unified effort by university labs and biotech companies from Boston to California were insufficient to break through limitations of genetic science, according to government officials and specialists in biological terrorism.

Instead, the Pentagon's next \$1 billion for the Transformational Medical Technologies program will focus on better ways to identify mutant versions of Ebola, Marburg, and other deadly viruses. Those are among the genetically modified agents that officials fear could be used by terrorists or rogue states against urban or military targets.

The continued flow of money, even with the shift in strategy, should help Massachusetts and other states retain jobs and research labs focused on this arena.

"There is tremendous potential for further development of a biodefense subcluster in the state," said James D. Rooney, vice president of the Massachusetts High Technology Council.

Among Bay State firms that have received contracts under the germ warfare effort is Worcester-based Microbiotix. Representatives from Microbiotix did not respond to requests for comment.

The new strategy represents a return to the drawing board for an ambitious program conceived after the Sept. 11 terrorist strikes and subsequent mailing of anthrax to members of Congress and media organizations — events that helped US military planners realize that the nation lacked adequate defenses against bioterrorism.

Scientists initially set out to develop new medicines capable of attacking viruses that might be altered by terrorists to make them more deadly. But after more than 50 research projects by more than 100 contractors — including biotech firms, pharmaceutical companies, and universities, including several in the Boston area — only two experimental medicines have shown promise. And even those are far from being ready for limited clinical tests, according to project officials.

“They are trying to come up with new medical technologies that are more difficult to develop,” said Crystal Franco, a specialist at the Center for Biosecurity at the University of Pittsburgh Medical Center who specializes in biological defense policy. “They are really trying to push the envelope.”

Another hurdle in the government’s effort: such treatments cannot be tested in human clinical trials, which are typically required for Food and Drug Administration approval, because it is unethical to expose people to deadly virus in such a study, requiring animals with similar traits as humans to serve as surrogates.

Alan S. Rudolph, director of science and technology at the Defense Threat Reduction Agency, said in an interview that the agency will now focus more attention on ways of identifying new pathogens. That research could lay the groundwork for further advances in the development of antidotes that could eventually win FDA approval.

The new focus of the program will be making a “cadre of investments that are able to take an unknown sample that may contain different agents, and be able to determine very quickly what is in there,” Rudolph said. “It is our intent to continue to grow this capability.”

He added the ultimate goal will still be to someday develop therapeutic remedies that could treat someone infected with any number of deadly viruses — what the Pentagon called “one size fits all” or “one drug, many bugs.”

In addition to Ebola and Marburg, some of the potential biological threats on the Pentagon’s target list are Lassa, Sabia, Machupo, and Junin, especially modified versions designed to cause more severe symptoms of hemorrhagic fever that are more resistant to traditional drugs.

The difficulty in developing medicines so far, however, demonstrates how much more research is needed, say biological warfare specialists.

It turns out it is easier to modify a germ or virus for an offensive threat than it is to develop an effective defense, they said.

“The offensive capabilities outrun the defensive capabilities as the march of biology continues,” said Richard J. Danzig, a former Navy secretary and noted expert on bioterrorism who sits on the Pentagon’s high-level Defense Policy Board.

“The theory behind [the program] was these same advances should empower the defenses,” he said. “I think that intuition is worth exploring and investing in, but it is easier to conceive than to execute.”

Margaret Kosal, an assistant professor at Georgia Tech who worked on the program between 2006 and 2007, said “there is a fundamental need for basic science. The low-hanging fruit has all been picked.”

One Pentagon contractor involved in the program who was not authorized to speak publicly put it more bluntly: “We’re years away from any reasonable FDA certification, let alone production.”

Franco said the project’s hurdles also highlight the need for ongoing taxpayer-investment commitments from government, to encourage private-sector focus on such technologies that will generate little in sales, compared to, say, cholesterol and diabetes treatments.

“These are not going to be blockbuster drugs,” said Franco. “It is different when the government is your only market. There needs to be incentives for companies to participate, to take it on for the public good” ([Boston.com](http://Boston.com), 2011).

**Title:** Pentagon Retools Bio-Effort After \$1 Billion Flop

**Date:** January 18, 2011

**Source:** [Wired](#)

**Abstract:** It was supposed to come up with antidotes for pathogens that terrorists might use for a mass-casualty bio-attack. But after spending over \$1 billion during the last five years, the Pentagon's Transformational Medical Technology initiative can barely develop drugs ready for a clinical trial. That's why the officials tasked with running it are setting their research-subsidy targets much lower.

In a shift, the Defense Threat Reduction Agency's science and technology chief tells the *Boston Globe* that the bio-initiative will now invest money on early detection of new pathogens. That puts about another \$1 billion worth of Pentagon cash closer to where science is, rather than throwing money at crash programs for undeveloped antidotes. Ultimately, the Pentagon wants to develop multi-pronged vaccines that can resist a variety of biological agents — what it calls “[One Drug, Many Bugs](#).” But that's a long way off: step one is understanding how those sicknesses develop.

The *Globe* reports that the program has hit one snag after another. Out of nearly 50 research programs, only two (unspecified) efforts to neutralize pathogens like Ebola and Marburg have shown promise, and they're not ready for clinical trial. Making matters worse for the program, the Food and Drug Administration doesn't allow experimenting on people, so Transformational Medical Technology would have to make do with animal surrogates.

It's also become something of an object of fun within the military's chem-bio community. Our pal Jason Sigger lamented the program's inability to come up with a lightweight, portable Tricorder-like [bio-detection device](#). The office tasked with coming up with one still sought to buy a Cadillac, one networked into troops' communications system and that can also detect chemical weapons. “All they need to do is warn the individual that there's a bad bug nearby,” Sigger wrote.

But don't expect the Pentagon to steer away from far-out bio-medical research. In 2009, Darpa wanted to create a bank of “[universal immunity donor cells](#)” to head bio-outbreaks off at the pass. More recently, in September, it doled out over \$5 million so Arizona State University could experiment with [growing vaccines with the aid of tobacco plants](#). “I don't know if we can pull this off, but I think this basic idea might work,” one of the ASU researchers shrugged when the grant was announced.

Still, according to the *Globe*, if the military wants to speed up the day when it can deliver mass antidotes for a host of bio-threats, it's got to subsidize pharma companies' research in areas that won't yield the next generation of lucrative “blockbuster drugs.” Bio-defense expert Crystal Franco of the Center for Biosecurity tells the paper, “It is different when the government is your only market. There needs to be incentives for companies to participate, to take it on for the public good.” That is, until someone figures out how to make Viagra stop anthrax ([Wired, 2011](#)).

**Title:** Counterterrorism Calendar Features Bioterror Awareness

**Date:** January 21, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** The 2011 Counterterrorism Calendar features several pages on ways to spot and deal with biological and chemical attacks.

There have been 40,000 copies of the calendar and weekly planner produced, but it can be downloaded from the National Counterterrorism Center website free of charge at [www.nctc.gov](http://www.nctc.gov), according to the Washington Post.

Law enforcement officials and those working in the anti-terror field generally are given the calendar, which is why it contains tips for those working in the field.

Pages on the left of the weekly planner offer insights, safety tips, drawings and even wanted posters listing the rewards for killing or capturing some of the world's most dangerous men. Catch Osama bin Laden, the calendar says, and a \$25 million from the Rewards for Justice Program can be yours.

Other lesser known but still dangerous targets included in the calendar are Hussein al-Umari and Faker Ben Abdelaziz Boussora, the Washington Post reports.

There is a \$5 million bounty for al Umari, who is wanted for a 1982 airplane bombing. He is 74 years old and the calendar says he is generally armed when he leaves his home in Lebanon.

Boussora is a Canadian and is also worth \$5 million. The calendar says that he has "'prominently protruding ears and is believed to have a serious pituitary gland illness," the Washington Post reports.

On the right side of the calendar are major and some lesser known moments in the fight against terror, such as a gunman in Kuwait ambushing and killing a U.S. contractor and wounding one other person on January 21 2003 ([Bio Prep Watch, 2011](#)).

**Title:** Virtual World To Aid Secret Service In Fighting Bioterror

**Date:** January 28, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** The Secret Service has recently upgraded its original tabletop "Tiny Town" model to a high-tech virtual and three-dimensional world that will help agents to prepare for threat scenarios like chemical, biological and radiological attacks.

The program, known as "Virtual Tiny Town," combines three-dimensional modeling and gaming technology and will prepare agents for security scenarios at stadiums, airports, urban locations, hotels and more. Other threats the game includes are suicide bombers and assaults, Government Computer News reports.

The technology, called the Site Security Planning Tool, should be completed and activated by the spring. It will be deployed at the service's Security and Incident Modeling Lab located at the James J. Rowley Training Center near Washington, D.C.

"(The Secret Service) sought to take these scenarios beyond a static environment to encompass the dynamic threat spectrum that exists today, while taking full advantage of the latest computer software technology," the service said, according to the Government Computer News. "The agency's Security and Incident Modeling Lab wanted to update Tiny Town and create a more relevant and flexible training tool."

The system involves three kiosks, each with a 55-inch Perceptive Pixel touch screen that includes a projector, a camera and a computer running the Virtual Battlespace base simulation game. Up to four people can use each kiosk at one time.

Future developments will involve more nuanced scenarios like incorporating crowd behaviors and health effects ([Bio Prep Watch, 2011](#)).

**Title:** Threat of Al Qaeda Nuclear Bomb Underscores Importance of Success in Afghanistan

**Date:** February 2, 2011

**Source:** [Ricochet](#)

**Abstract:** This week the Vancouver Sun reported that al Qaeda is on the brink of using a nuclear bomb.

Al-Qaida is on the verge of producing radioactive weapons after sourcing nuclear material and recruiting rogue scientists to build "dirty" bombs, according to leaked diplomatic documents.

A leading atomic regulator has privately warned that the world stands on the brink of a "nuclear 9/11".

This report should come as no shock. Information that came into the U.S. government's after 9/11 revealed that al Qaeda had vigorously pursued WMD technology. **The sad fact is that acquiring the means of a nuclear, biological, or chemical attack are all too easy.** We are too easily comforted by the idea that construction of an actual nuclear bomb is difficult. We see nation-states with substantial resources, such as Iran, facing technical problems, so we think that the threat of such an attack is low.

But this is wrong. Making other types of WMD weapons is not difficult. A dirty bomb, for example, does not have the destructive impact of a true nuclear bomb. It is only a conventional explosive that disperses nuclear material of much lower grade into the surroundings. It may still kill hundreds, if not thousands, and contaminate its surroundings with radioactive material. **The means to construct biological weapons are available in thousands of biotechnology labs and plants.** Chemical weapons have been used by terrorists -- in the 1990s, a Japanese terrorist group attempted to attack civilians with nerve gas; it only failed to kill thousands because it flubbed the aerosol device to spread the agent.

It is not the technology that is ultimately unavailable to terrorists, but their means of delivery. **Nation-states don't pursue dirty bombs, and perhaps have foresworn biological weapons because they are difficult to control, imprecise, and have low effectiveness against military targets.** But the indiscriminate nature of such weapons makes them perfect for terrorists. I think we've been lucky that al Qaeda has been fixated on attacks that would produce spectacular video for its propaganda uses back in the Middle East. Hence their repeated focus on airliners, bringing down buildings, and attacking landmarks and well-known tourist sites. If al Qaeda really wanted to spread terror in the United States, they would use these primitive WMDs on soft, undefended targets like shopping malls, sporting events, and the crowded downtowns of major cities.

Since it is not possible to protect all of our vulnerabilities, the best way to prevent these types of attacks is to take the fight to al Qaeda so they cannot have the breathing room to acquire and deploy WMD (which still take more resources than simple car bombs and attacks with firearms). And that, to me, is the positive effect of the Iraq and Afghanistan wars -- it is no mistake, I think, that as our offense ramped up in both places under President Bush, al Qaeda was unsuccessful in launching another attack in the U.S. If we lose in Afghanistan, it seems to me, we will cede another safe haven to al Qaeda which they will use to plan more of these kinds of attacks, but with more resources and sophistication as they were able to do in the years before 9/11 ([Ricochet, 2011](#)).

**Title:** Researcher's Death From Plague Prompts CDC Warning

**Date:** February 24, 2011

**Source:** [My Health News](#)

**Abstract:** The Centers for Disease Control and Prevention is reminding laboratory workers to be diligent about wearing protective gear, after it found that an Illinois researcher died in 2009 from exposure to plague-causing bacteria.

The 60-year-old researcher, a university employee, had been working with a strain of the bacteria *Yersinia pestis*. He died of cardiac arrest shortly after going to the hospital for what appeared to be flu symptoms, the CDC said in a report released today (Feb. 24).

After determining the cause of death, health agencies and the university began a safety investigation and learned that the man had inconsistently complied with the laboratory policy to wear gloves while handling the bacterial cultures, the CDC report said.

However, experts at the CDC did not rule out that the researcher could have been infected by the [bacteria](#) elsewhere on his skin or mucous membranes, such as his mouth or nose.

The CDC report did not identify the man or his university. According to a report from Chicago television station WLS in 2009, he was Malcolm Casadaban, a longtime professor of molecular genetics at the University of Chicago. His family said Casadaban had been seeking to develop a plague vaccine, and was working with a weakened strain of the bacteria.

The CDC report said he had hemochromatosis, a condition in which too much iron is absorbed into body tissues from foods in the gastrointestinal tract. Because *Y. pestis* bacteria are naturally iron-deficient, the extra iron in the man may have fed the bacteria and caused them to become virulent, the report said.

The researcher sought care from a physician Sept. 10, 2009, six days after he had last worked in the lab. But that doctor thought the problem was a respiratory infection or the flu, and referred him to an emergency department, the report said.

Three days later the researcher was brought by ambulance to an emergency department because of fever, cough, and worsening of his shortness of breath. He died there after suffering septic shock and cardiac arrest, the report said.

Blood tests later revealed he was infected with the bacteria. The Chicago Department of Public Health was then notified.

Before then, the last known laboratory-acquired infection with *Y. pestis* bacteria in the United States occurred in 1959, the CDC report said. That person, who inhaled the bacteria, did not die ([My Health News, 2011](#)).

**Title:** Managing Biosecurity Threats In China

**Date:** March 9, 2011

**Source:** ([PubMed, 2011](#)).

**Abstract:** Compared to the extensive literature on bioterrorism and biosecurity in the United States, less analysis has been conducted on similar challenges in China. This article seeks to fill this void by providing an integrated and updated assessment of 3 major biosecurity threats China faces: biowarfare, bioterrorism, and biocrimes. An analysis of China's biosecurity threats and biodefense building suggest varying levels of risk associated with each threat type.

First, a direct bioweapons attack on China is highly unlikely, although the threat of biowarfare cannot be simply written off.

Second, potential perpetrators of bioterrorism have capabilities at their disposal for carrying out such attacks. While terrorist organizations in China do not have a strong interest in bioterrorism, the limited state capability to counter such a threat may increase the risk in the future. T

Third, unlike the threats of biowarfare and bioterrorism, potential perpetrators of biocrimes have both incentives and capabilities, and biocrimes can produce reactions far out of proportion to the actual number of casualties. Despite the distinct biosecurity challenges it faces, China has yet to articulate a differentiated and coherent strategy to effectively tackle the challenges. Assessing different types of biosecurity threats in terms of degrees of risk not only provides greater analytical clarity but also has important implications for the strategies required to manage the risks ([PubMed, 2011](#)).



**Title:** Claims Arise That Bahraini Protesters Took Drugs To Simulate Nerve Gas Attack

**Date:** April 7, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** It has been claimed that anti-government protesters in Bahrain allegedly stole and administered drugs from a local hospital in order to fabricate the effects of nerve gas, which they claimed were excessively used against them by police.

The suspicion comes in the wake of a month long siege that has seen protesters block off major highways and government facilities, including the Salmaniya Medical Complex, Gulf-Daily-News.com reports.

More than 5,000 vials of drugs and other medicines were reportedly taken from the Salmaniya Medical Complex so protesters could take them and claim that a chemical agent was being used by Bahrain's security forces, according to Gulf-Daily-News.com.

Health Ministry Arab Board Training Coordinator Dr. Nabeel Ansari said that individuals purposefully used the drugs to simulate the symptoms of caustic agents typically used by law enforcement.

Atropine, the drug taken by the protesters, is "used to treat poisoning from chemical agents like pesticides and insecticides and dries up the skin and eyelids become dilated," Ansari said, Gulf-Daily-News.com reports. "This typically looks like the patient has been exposed to nerve gas."

According to Ansari and other senior doctors, the medical heist is believed to be a part of a campaign focused on sending distorted information about the protesting efforts in Bahrain to the international media ([Bio Prep Watch, 2011](#)).

**Title:** Can Biosecurity Go Global?

**Date:** April 27, 2011

**Source:** [Miller-McCune](#)

**Abstract:** Outside the U.S., biological labs follow few if any security regulations. A Sandia National Laboratory team works to help those labs prevent deadly microbe releases, accidental and deliberate.

A tall, modest academic with graying temples, [Ren Salerno](#) was happily toiling away in obscurity at a small biological threat research program at [Sandia National Laboratory](#) in Albuquerque, N.M., "studying issues nobody really cared about," he recalls. Then the attacks on Sept. 11 burst his academic bubble. As one of the few experts on the security of biological agents, Salerno was called to Washington, where, as soon as he arrived, he met with Deputy Secretary of Agriculture [James Moseley](#), a man with a lot to worry about.

Some of the greatest bioterror threats are zoonotic pathogens — microbes that can be transmitted from other animals to humans and vice versa, including the plague, anthrax, Ebola and more. According to a 2001 study from researchers at the University of Edinburgh, 61 percent of the more than 1,400 pathogens that infect humans are zoonotic, and [U.S. Department of Agriculture](#) animal health laboratories are littered with them. The USDA, in fact, has more biocontainment labs in the U.S. than either the [Centers for Disease Control](#) or the [National Institutes of Health](#).

For days, Washington officials peppered Salerno with questions about national biosecurity infrastructure and the possibility of bio-terrorist attacks, especially with microbes stolen from U.S. facilities. Within a month, Salerno and his team at Sandia had contracts with the USDA to assess and design security solutions for biocontainment labs around the country. Contracts with CDC and the [Department of the Army](#) soon followed.

But the stakes were about to rise again. Only weeks after 9/11, letters containing a suspicious white powder were mailed to media companies and two U.S. senators. People started dying. Bioterrorism was no longer a possibility. It was happening.

Before 2001, life scientists were familiar with [biosafety](#) — that is, working safely — but biosecurity, or keeping laboratory agents from being misused, was not really part of the scientific conversation outside of the military. “The prospect of somebody choosing to misuse biological agents was quite new and fairly controversial,” Salerno says. “The idea of threats and bad guys doing bad things is anathema to most scientists.”

Following 9/11 and the ensuing anthrax attacks, the Congress worked with what is lightning speed for the government, passing the [Patriot Act](#) at the end of 2001, restricting who was allowed to work with biological agents, and the [Bioterrorism Act](#) in 2002, improving the government’s ability to prepare for and respond to bioterrorism events. The latter law included a registration program for facilities and people who handle toxins and biological agents — in the U.S.

But even now, anywhere around the world, someone can build a laboratory to work with the most dangerous pathogens and be subject to no construction standards, no operating standards and no safety or security standards, Salerno says. It’s a situation that several international organizations are trying to address, and Salerno has helped put together trial biosecurity training programs around the world. But so far, the trials have not been expanded or institutionalized.

“It’s just the beginning, I hope,” Salerno says. “We’re trying to change the paradigm.”

After the 2001 anthrax mailings and implementation of the federal legislation they spawned, working with bacterial agents in the U.S. became a “major investment in training and infrastructure,” says [Paul Keim](#), a biologist at Northern Arizona University and senior scientist of the lab that identified the anthrax strains used in the 2001 attacks. “A response to the security fears was to raise the biosafety levels, because we didn’t really know how to raise security, because we had no standards,” Keim says.

Researchers studying anthrax, for example, at biosafety level 2 — which required basic safety precautions like goggles and specialized cabinets with air filters — were suddenly required to fulfill the restrictions of a biosafety level 3 lab. This meant that expensive respiratory equipment, waste decontamination procedures and closed airflow systems were required, suddenly, in hundreds of labs scattered across the country. “It changed so fast; it’s been very difficult to keep up with the regulations,” he says.

In addition, labs rushed to get security systems. Laboratory managers hired security companies out of the Yellow Pages; they installed locks on doors and windows, put cameras and lights in parking lots and sat security guards at front desks. Many scientists considered the efforts ridiculous and a huge waste of money. If someone broke in, how would the would-be thief know how to identify and transport a pathogen?

“The likelihood of a terrorist commando team attacking a facility with helicopters and grappling guns is extremely low,” Salerno says, laughing. The probability of a scientist going rogue is significantly higher, but scientists were even less happy to discuss that idea. So when Salerno and his team arrived at lab doorsteps to talk about internal security, they met resistance.

“This just wasn’t a topic that life scientists thought about,” recalls Jennifer Gaudioso, a staff member at the [International Biological Threat Reduction](#) program at Sandia. “You wouldn’t necessarily think about opening a door for someone with an armful of books beforehand, and now you have to stop and think, ‘Should this person be allowed in here?’”

After an initial evaluation to assess the biological materials in the labs and their basic vulnerabilities, Salerno and the Sandia team — usually three to five members — got down to less glamorous work. With help from human resources personnel, they set up systems to monitor and limit access to the lab, implemented tracking systems to follow the movement of pathogens from room to room and trained lab staffers to look for behavioral changes in colleagues. Overall, Salerno's team visited dozens of labs around the country. The effort lasted until 2003.

Then, with the largest national labs secure, Salerno and the U.S. government turned to look beyond the country's borders.

Over the last 20 years, as laboratory tools and technologies have become cheaper, biocontainment labs, once rare, have become numerous. Scientists in countries around the world study pathogens of varying levels of danger — and with varying degrees of security.

For most intents and purposes, international standards or accreditations for bioscience facilities don't exist. There is a [World Health Organization manual](#) on laboratory biosafety that includes tips like, "Children should not be authorized or allowed to enter laboratory working areas," and, "Labels must not be licked."

"Today," Salerno says, "that 100-page document is just woefully inadequate."

International biosecurity standards are important not only for the prevention of deliberate biological attacks but for the reduction of biological accidents. In 2004, nine cases of severe acute respiratory syndrome, or [SARS](#), were linked to procedural lapses at China's [National Institute of Virology](#). One infected individual died. In 2006, a lab worker at Texas A&M University became sick with [brucellosis](#), an infectious disease carried by cattle and dogs, after cleaning a chamber containing [Brucella](#) bacteria. All select-agent research at the school was suspended. In August 2007, some 60 cattle in Surrey, England, were infected with foot-and-mouth disease after the virus leaked from broken pipes running from a nearby infectious disease laboratory. The list goes on.

"An outbreak anywhere, deliberate or natural, is a threat everywhere," says [Andrew Weber](#), the assistant secretary of defense for nuclear, chemical and biological defense programs. "It's not something we can just deal with within our own borders."

Beginning in 2006, professionals in the biological community, especially biocontainment laboratory managers in North America and Europe, began discussing the need for international standards. In February 2008, the [European Committee for Standardization](#) published the first international biorisk management standards, developed by 76 participants from 24 countries. This standard, though still voluntary, includes both bio-security information — guidelines that restrict access to agents and toxins, for instance — and practical biosafety measures, such as details of the process of inventorying and disposing of hazardous materials.

"It represented an evolution in thought," says Salerno, who participated in the formation of the guidelines. "The previously distinct fields of biosafety and biosecurity came together."

Shortly after the [International Biorisk Standards](#) were published, Salerno was contacted by [Nicoletta Previsani](#), head of biosafety and laboratory biosecurity at the World Health Organization in Geneva, about creating a hands-on risk management course to be taught to people involved in biological labs around the world. "Biosafety is not anymore an issue that only concerns the worker at the bench," Previsani says. "Instead of just teaching biosafety, we thought we needed a different approach that addresses the management of big risks."

Biologists are not typically mathematicians or modelers, nor are they taught to assess risk while getting a doctorate in microbiology or virology. "It becomes more of a management problem than simply a technical problem," Salerno says.

Previsani corralled Salerno and Stefan Wagener, director for biosafety at the Canadian Science Centre for Human and Animal Health in Winnipeg, Canada, to serve as experts for the course and invited [Pamela Lupton-Bowers](#), a professional adult educator, to integrate teaching techniques. The four professionals locked themselves in a room for five days, and in January 2010, the WHO premiered the first-ever international biosecurity training program. The two-week course trains laboratory leaders in assessing and mitigating the risk of deadly agents in the laboratory. Perhaps more important, the course trains those leaders to train others.

Workshops were held in Jordan, Ecuador, Sweden, the Maldives, Kenya and Thailand, and participants have already begun teaching biosecurity workshops in their own countries: After attending the WHO course, Rafiq Saleh, head of the public health laboratory at the Ministry of Health in Amman, Jordan, went on to teach two biosecurity courses of his own, training more than 30 lab technicians in Jordan. "We really feel that it's been useful to our country," he says.

Still, Salerno says, the program is limited by numbers. Overall, it has trained just 60 participants, not all of whom have gone on to train others. "If [the course] is a one-time extravaganza, it won't mean very much because we've touched so very few people," Salerno says. "On the other hand, if the powers that be can recognize it as a precedent-setting, paradigm-shifting event, and can leverage it and build from it explicitly, then I think hopefully five or 10 years from now, we'll look back on it and say, 'Wow, that was really formative.' "But the jury's still out on that" ([Miller-McCune, 2011](#)).

**Title:** Lugar Calls For Vigilance Against Bioterror Following Bin Laden's Death

**Date:** May 4, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Sen. Richard Lugar called for the United States to remain vigilant for an Al-Qaeda sponsored or inspired nuclear, chemical or biological counterattack in the wake of the strike that led to the death of the terrorist group's leader Osama bin Laden.

"There is a risk that some bin Laden-inspired group may try to lash out in dramatic fashion," Lugar wrote in an article published by the Washington Times on May 2.

Lugar, hopeful that there will be upheavals in Al-Qaeda that the U.S. can exploit as a result of its leader's demise, urged vigilance in keeping nuclear, chemical and biological weapons materials away from terrorists.

"Our top military leaders have said that the biggest threat to U.S. security, both short-term and long-term, would be the possibility of a terrorist organization obtaining a nuclear weapon," Lugar wrote in the Washington Post.

Lugar recommended continuing with the Nunn-Lugar program, which conducts an effort to destroy weapons of mass destruction in Russia and the former Soviet Union states. He said that the Nunn-Lugar program recently helped to facilitate the destruction of a Soviet-era chemical weapons stockpile in Albania and led to the dismantling of Libya's chemical weapons program in 2004.

According to Lugar, American efforts in Africa to control and contain biological weapons and dangerous pathogens need to be stepped up.

"Africa has a unique combination of naturally occurring dangerous diseases, poorly secured laboratories and research centers where those pathogens are collected for public health study, and simmering

Islamist terrorist activity that thrives in the region's many poorly governed spaces," Lugar wrote in the Washington Post.

The next step, Lugar said, is using the Nunn-Lugar program to address key security problems in African laboratories ([Bio Prep Watch, 2011](#)).

**Title:** U.S. Official Warns Of Bio Terror Despite Bin Laden Death

**Date:** May 5, 2011

**Source:** [Xinhau](#)

**Abstract:** Terror kingpin Osama bin Laden was dead already, but the threat remains that extremists could still launch biological attacks on the public, a U.S. official told Xinhua in a recent interview.

"There is no doubt that al Qaida will continue to pursue attacks against us," said Ambassador Laura Kennedy, U.S. special representative for biological and toxin weapons convention issues.

In spite of bin Laden's death, Kennedy said the United States must continue to remain vigilant across the spectrum of possible methods that extremists might use to wreak havoc.

Among those are bio weapons, which can be constructed with little specialized knowledge and without costly facilities and infrastructure, she said.

"You can develop bio agents using very simple laboratories," she said. "So you don't require a huge elaborate infrastructure, as you would to develop a nuclear weapon."

"Very simple capabilities will do, that are available around the world. So indeed bio terrorism is a real threat and one that we take very seriously," she said.

Ricin, for example, is a toxin derived from the readily available castor bean, and extremists have attempted to use it in the past. In the early 1990s, for example, members of the Minnesota Patriots Council acquired the substance and allegedly planned to use it against federal officials.

### **Dangerous Agents, but can they be Delivered?**

Some experts, however, said that while bio weapons may be fairly simple to construct, disbursing them is no easy task.

Global intelligence company Stratfor said on its website that although it is possible for non-state actors to develop and deploy biological agents and toxins, they are more likely to employ relatively simple and proven methods of attack --such as firearms and explosives --than some exotic weapon.

Moreover, manufacture of biological agents using low technology most often yields small amounts and minimally potent products. Truly weaponized biological agents produced and prepared in quantities great enough for deployment as a weapon of mass destruction require much more sophisticated labs and weaponization facilities than most non-state actors or lone wolves can ever create in their garages or storage sheds, Stratfor argued.

Kennedy, however, contended that a bio attack could take many forms. It could be relatively low tech and result in a limited number of casualties. Or it could be a sophisticated operation that produces tens of thousands of deaths.

But since a terrorist's objective is to terrify the public for the purpose of garnering political concessions, even an attack resulting in limited casualties could be damaging.

It could, for example, have harsh economic consequences, such as those that followed the 2001 anthrax attacks, Kennedy said. Some figures showed the damage to be in the billions of U.S. dollars.

### **Authorities Faced with Tough Task**

For authorities, the challenge is how to thwart bio attacks when the materials needed for deadly biological weapons are readily available worldwide, even in high school laboratories.

"There's been an explosion of knowledge and development in the bio area, so it's very hard to keep track of," Kennedy said. "You may think you have a handle on it, but then new things are engineered and new techniques are developed at quite a dizzying pace."

And given the massive movement of people and goods around the world, there will be a greater need to deal with pandemics and bio threats wherever they occur, she said.

One of the most successful bio weapons attacks in the United States was conducted by the Bhagwan Shri Rashneesh cult in Oregon in 1984. Members put salmonella bacteria in grocery store produce and in local salad bars and restaurants. The operation left more than 700 people sick and was meant to prevent voters from getting to the polls in an election in which one of the group's followers was running.

### **Biological Weapons Convention**

Kennedy also said the Biological Weapons Convention (BWC) is one forum that aims to take on the issue through international cooperation on a number of fronts. The next BWC meeting is slated to take place in Geneva in December ([Xinhua, 2011](#)).

**Title:** Biometrics Against Bioterrorism; Steps For Trans-National Countermeasure Strategies

**Date:** June, 2011

**Source:** [IDSA](#)

### **Abstract:**

#### **Introduction**

Due to various factors like advances in biomedical technology, emerging infectious diseases research and other related activities, knowledge, materials, and equipment needed for manufacturing biological weapons are spreading rather rapidly. Consequently, fears relating to mass casualty terrorism and gross violations of Biological Weapons Convention (BWC) are also rising. Unlike nuclear weapons, where at least 5–15 kilograms of fissile material is required to build a rudimentary fission bomb, no such barrier exists for biological weapons. The dual-use nature of the equipment and supplies make biological weapon programs easy to hide under the guise of legitimate biomedical activities. Only small quantities of pathogens are required for seed stocks, and biological agents emit no detectable signal, making them virtually impossible to detect remotely. There is a general term, biometrics, which includes processes for verification and identification of individual or a group to ensure safety and security for the general public from any threat. Biometrics involves the autonomous recognition of human's physical and behavioral characteristics through sensory mechanism. Biometric provides a comprehensive defence capability against threats from adversaries which increases its robustness. This can be done by using a detector to detect virus, bacteria, other micro organisms and biotoxins. It is expected to provide the complete safety of the individual and the country.

#### **History**

Biometrics has become a critically important topic of research for scientist, researchers and engineers after 9/11. Following the fears of Anthrax and other agents' usage, there is a heightened level of attention to this kind of threats and more measures are being put in place in order to avert these threats. It is needless to stress that biometrics plays a major role in serving the purpose. On the other hand, India relies heavily on the traditional security apparatus of the police and other security agencies to deal with many security challenges including cross border terrorism, illegal migration and monetary exchanges. Since 26/11, there is a need to do more with reference to maritime security as well. These kinds of threats make it necessary for the Indian security system to adapt biometric applications. However, despite this, research and development activities in this field are lagging behind in India as not many institutes are involved in biometrics research. Therefore, its time India brings strong institutional support for research and development in this area since it can play a crucial role in counter-terror strategies.

Developed countries like the United States are paying much attention to add biotechnology to their biometrics approach. This can be observed by looking at the advancement of biotechnology in the United States. It is estimated that by the end of the 20th Century, biotechnology contributed nearly half a million jobs and \$47 billion in business revenue annually to the US economy.<sup>1</sup> Similarly, China now has about 20,000 people working in 200 biotechnology laboratories.<sup>2</sup> Mostly laboratories like these work towards developing defence mechanism against biological attacks.

### **Using Biotechnology in Identifying a Biological Attack**

Biotechnology applications are extremely useful for tracking the source of any biological attacks and also for taking further action against the culprits of that attack. However, the complexity of the system would require advance setup of coordination efforts between different agencies of the government and outside. This is because a large count of known viruses and bacteria can be used in attacks and there can be unknown new microorganisms used for the same. These can cause disease in humans, animals and crops. Even the worst case is that the terrorists can project their attack from the subtle to the apocalyptic. Therefore, the first task would be to bring about congruence in the disease-surveillance data from a variety of government and public health sources towards determining which areas might get affected and to what degree. An effective defence requires setting priorities which includes indentifying the most likely near-term threats and implementing research, detection and response agendas designed to be able to better manage future threat scenarios.

Biometrics is a source that is rich in profiling information related to the biology like all DNA synthesis orders from all suppliers worldwide. Importantly, anticipation of potential terrorist strategies, analyses of the symptoms related to all the probable diseases etc forms the basis for a promising technology. A biometric system makes use of various sensory mechanisms to assess both identity and physiological state of an agent. It also includes checking the symptoms of the individual by face recognition and diagnostic tests. These data are then transferred to data management body where it is matched with disease surveillance data. In case an emergency situation is identified as a biological attack, the next step is to identify the source organism which leads to the next step of speedy disbursement of necessary antibiotics and drugs in the affected areas. Fumigation of the ozone and other disinfectants are immediately used in the disease prone area. Improved international disease surveillance might also detect the presence of covert biological weapon programs in the event of an accident that infects the local population.

### **International Efforts**

#### **A. Diplomatic Coordination:**

Efforts by the World Health Organization (WHO) to implement the Global Outbreak Alert and Response Network are well placed and the recently revised WHO International Health Regulations, which require reporting of any disease of international public health concern within 24 hours, when fully implemented, will have public health and security benefits for all nations. These efforts need sustained and global diplomatic and financial backing.<sup>3</sup> Ultimately governments around the world must know that this spreading of disease does not depend on boundaries and public health is a great issue for all mainly



during international travel and commodity transfer. Also this leads to the development of vaccine against that particular microorganism and to be served to people for their future security.

### **B. Research Coordination:**

Exchanges of best practices at pathogen collections or biocontainment facilities that work with deadly pathogens can be undertaken in order to improve safety and security so that the risks associated with accidents or diversion could be reduced. This would help promote interaction among biomedical practitioners engaged in potentially dangerous research. International association and collaboration among biologists, medical professionals, and public health practitioners would help address emerging infectious diseases and the transparency produced through such collaborations would have, as a collateral benefit, the potential to detect covert activities.

Implementing defensive countermeasures against biological attacks will require not only research but drug development and distribution plan. According to the reports of the Biotechnology Industry Organization, nearly 100 companies are seriously engaged in advanced research on finding answers to bioterrorism and its effects.<sup>4</sup> Their research includes using technology facilities to develop new antibiotics, vaccines and antiviral drugs. Some of these are reported to be in the advanced medical trial stages. Research is also in progress in order to develop advanced oral vaccines that are capable of boosting immunity in a shorter period compared to the existing medicines<sup>5</sup>. These developments, if effective will be useful against bioterrorism attacks. Similar research is underway on other diseases as well

Pre-emptive measures can be taken to destroy the weapon before they can be launched, it can be done practically by opening the wings of biological facilities and weapons are easy to find. Research is also underway to identify simpler way to destroy these pathogens. Efforts to improve intelligence on suspect groups or individuals are useful; however, there are no technical fixes in the offing that will allow intelligence agencies to improve their ability to detect covert biological weapon programs in the future.

### **Conclusion**

The best way for the defence is to discover and implement anti factor on organism-by-organism basis so that one can win in this biological arms race.<sup>6</sup> It will be vital from a strategic perspective to consider carefully what types of biodefence work should be classified. It needs to be debated further whether it would be legal and wise to have classified biodefence research produce genetically modified pathogens that to our knowledge, no adversary has yet created. Claire Fraser once said, "Terrorists could potentially make use of public genome sequences, however it is also argued that such sequences should remain in the public domain because these 'maps' are still relatively rough. Genomics should be used to identify and fight bioterrorism, not to restrict research.<sup>7</sup> Hence with the advancement of biotechnology, its results and new products should be included to biometrics so that the future biological attack can be easily recognised and may be stopped before it will become epidemic. It is the right time for India to pay attention to the biometric side along with the research in biotechnology. This will certainly make the nation to stand against any future bioterror attack. Vaccines, antibiotics and drugs should also be produced against every new microorganism. There should be complete database of all discovered genome sequences which can help in the research activities of the nation ([IDSA, 2011](#)).

**Title:** Bio-Terrorism The New Age Weapon Of Al Qaeda, Taliban?

**Date:** June 7, 2011

**Source:** [One India](#)

**Abstract:** As if terrorism has not been terrorizing us enough, there's a new sort of terrorism looming in the horizon. According to media reports from UK, food bioterrorism is the latest threat after scientists and others failed to understand the sudden spread of the deadly E. Coli bacteria.

With al-Qaeda and Taliban involvement feared in the outbreak, doctors fear that killer germs may have been deliberately planted into fresh produce. With Germany as the centre of the outbreak, reports from the newspaper *Daily Star* says that Britain could also be impacted by the deadly bacteria.

German scientists and health officials are zeroing in on the toxic batch of bean sprouts that may have been the root of the deadly outbreak. The chief doctor for hygiene at Germany's Vivantes Hospital in Berlin, Klaus-Dieter Zastrow was quoted as saying, "It is quite possible there's a crazy person out there who thinks: 'I'll kill a few people or make 10,000 ill.' It is a mistake not to investigate in that direction."

E Coli has already claimed 18 lives and led close to 1,800 seriously ill in Germany. The Centre for the Protection of National Infrastructure (CPNI) in London has asked the producers of food and drinks along with suppliers and supermarkets to tighten security at plants and depots.

In a statement by the CPNI, "UK suffers from a low level of malicious contamination of food by the bad, the mad and the sad. Now it has to consider possibility of food supplies being disrupted by politically motivated groups" ([One India, 2011](#)).

**Title:** SIPRI Warns Of Major Challenges To 1972 Biological And Toxin Weapons Convention

**Date:** June 13, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** The Stockholm International Peace Research Institute recently declared that scientific and technological developments, particularly those occurring when chemical and biological sciences overlap, are becoming a major challenge to the 1972 Biological and Toxin Weapons Convention.

According to SIPRI, the parties to the BTWC need to develop a clearer understanding of the convention's role in supporting international peace and security once stockpiles are essentially destroyed. States must also continue to address determinations of what constitutes non-compliance with convention obligations or risk undermining the operational-level value of the regime, according to DefenceWeb.co.za.

The SIPRI 2011 yearbook, a guide to recent challenges to international security, details reports that emerged last May concerning severe crop damage caused by an unusual leaf disease that affected Afghanistan's poppy crop. The blight led to a 48 percent decrease in opium yields from 2009.

"There was speculation that the blight was deliberately induced," SIPRI said, DefenseWeb.co.za reports. "Such allegations highlighted the difficulty of distinguishing between fundamental and technical violations of international law and the possible role of a form of politicized legal dispute that aims to cast aspersions on the behavior of other states."

The BTWC outlawed offensive biological warfare, including the mass production, stockpiling and use of biological weapons, among signatories. Since the treaty was created, it has been ratified or acceded to by 163 countries for the purpose of preventing a biological attack that could cause mass civilian casualties or disrupt the global economy ([Bio Prep Watch, 2011](#)).

**Title:** When Flying, The '2 Seat Rule' Might Keep You Healthy

**Date:** June 15, 2011

**Source:** [My Health News](#)

**Abstract:** A new study of influenza and air travel shows that passengers seated in the two rows either in front of or behind someone with the flu are at greatly increased risk of getting the flu themselves — almost half as likely to become infected as the people who are seated next to the sick passenger.

Australian researchers found a "splash zone" of sorts — within two seats, in any direction, of an infected passenger — while studying flu infections that spread aboard two large airliners that entered the country during the [swine flu pandemic](#) in May 2009.

There was an increased risk of 3.6 percent for passengers sitting within two rows of someone with flu-like symptoms, the researchers said. That jumped to 7.7 percent for those within two seats on either side of the infected passenger.

"The closer you are to an infectious person, the higher your chances of becoming infected yourself," said study researcher Paul Kelly, an epidemiologist at Australian National University in Canberra. "This is especially the case on long-haul flights," those lasting more than four hours.

Researchers hope the results will help officials make better decisions when it comes to screening travelers to avoid the spread of not only influenza but other infectious diseases.

Governments should "screen and stop [symptomatic patients](#) from flying," Kelly said.

For travelers who are worried about an infected seat neighbor, Kelly had the following advice: "Change seats!"

He added: "If you have a mask, wear it or suggest your neighbor wears it. Wash your hands, and avoid touching your own face to minimize the chances of spread via that route." [Read: [Intimate Pat-Downs Raise Infection Risk at Airports](#) ]

The two flights studied had a total of 738 passengers, and 319 of them responded to the surveys. The researchers also used databases with reports of the H1N1 flu virus to find additional cases. However, they acknowledged there may have been more flu cases they did not obtain information on.

At least eight passengers on one flight, which left from Los Angeles, had flu-like symptoms at takeoff. Shortly after landing in Sydney, 2 percent of tested passengers on the plane had confirmed cases of H1N1, and there may have been more unreported cases.

The other flight, which arrived in Sydney from Singapore, was not suspected of posing a problem because Singapore had not yet reported any cases of H1N1. One passenger had flu-like symptoms before takeoff, and two others developed them in-flight. Only one of those three passengers was tested later, and that person did not have H1N1. Shortly after the plane landed, however, a child on the flight was found to have contracted H1N1.

The researchers said a major obstacle to [warding off epidemics](#) comes with delays in flu symptoms. Five of the nine infected passengers did not show signs of flu when boarding the plane.

"It's these people who are asymptomatic who may be the most troublesome, because they're harder to find," said Brian Coburn, a research scientist who does mathematical modeling at UCLA. "They're going through life without awareness that they're infected yet."

Coburn, who was not involved in the study, and the Australian investigators emphasized the importance of screening, particularly of passengers seated around a person known to be infected. That might include the need to contact them after the flight once an infection is discovered.

"It's that one person that actually gets away that could actually cause a major outbreak in an area," Coburn said.

Coburn said the results of the study are in line with previous projections of how influenza spreads on an airplane. (Coburn and colleagues made one such projection during the swine flu pandemic.) So there now seems to be a way to try to determine the spread of other infectious diseases, such as avian flu and tuberculosis, if they emerge.

"If you have the data on a virus ... for airborne diseases, I think this is an excellent framework for people to follow with other diseases," he said ([My Health News, 2011](#)).

**Title:** US Not Ready For WMD Attack, Report Says

**Date:** June 23, 2011

**Source:** [The Hill](#)

**Abstract:** The United States is unprepared for an attack involving weapons of mass destruction, according to a report by the Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism.

The report, and the commission's prediction that it is "more likely than not" that a WMD will be used by terrorists by the end of 2013, were the principal topics at Thursday's joint subcommittee hearing of the House Homeland Security Committee on the Weapons of Mass Destruction Prevention and Preparedness Act of 2011.

Lawmakers discussed the commission's statement, made in a prior report, that "Unless the world community acts decisively and with great urgency, it is more likely than not that a weapon of mass destruction will be used in a terrorist attack somewhere in the world by the end of 2013."

Rep. Dan Lungren (R-Calif.), chairman of the subcommittee on Cybersecurity, Infrastructure Protection and Security Technologies, called the report "a startling reminder of the danger we face as a nation" and emphasized the need to protect the nation from an attack.

Lungren acknowledged the Congress has not met the commission's recommendations to fully prepare the country for an attack.

"We cannot forget Congress's own shortcomings," Lungren said. "The WMD commission gave Congress a failing grade for not reforming its congressional oversight to better address our homeland security needs."

The WMD commission, headed by former Sens. Bob Graham (D-Fla.) and Jim Talent (R-Mo.), was formed by congressional mandate and concluded its official work in February 2010. It has continued its work as an independent, bipartisan organization.

Rep. Laura Richardson (D-Calif.), ranking member on the subcommittee, agreed that Congress must step up its efforts to safeguard the country.

"America needs to move aggressively to address our vulnerability to a bioterror attack," Richardson said.

Reps. Bill Pascrell (D-N.J.) and Pete King (R-N.Y.) will introduce the Weapons of Mass Destruction Prevention and Preparedness Act of 2011 on Friday. The congressmen first introduced the legislation in 2010, but the bill was never considered by the entire House.

The bill would establish a new "special assistant" to the president for biodefense who would create a federal biodefense plan and a yearly budget. The bill also contains legislation that would allow state and local first responders access to surplus vaccine ([The Hill, 2011](#)).

**Title:** New York Subway System Seen As Likely Bioterror Target

**Date:** July 19, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** The possibility that the New York subway system could be the next target of a terrorist attack has lead to a new acceptance of suspicious package alerts, bomb-sniffing dogs and cameras trained on commuters and passengers.

Since the terrorist attack that brought down New York's World Trade Center on September 11, 2001, subways have been targeted for attacks multiple times. Mass transit lines in Madrid, London, Moscow and, this spring, Minsk, Belarus, have all seen attacks in the last decade, according to MyFoxNY.com.

New York Police Department officers with heavy body armor and high-powered rifles and police commanders carrying smart phone-size radiation detectors have become commonplace.

Authorities said that a serious attack on New York's 24 hour subway system, which has more than 400 stations, could cripple the city in worse ways than the 2001 attack. The system is the largest in the United States, with more than 800 miles of track. Last year, it carried more than 5.2 million passengers on an average weekday, more than double the number that pass through U.S. airports every year.

"It's really a potentially very vulnerable environment — one that you can't totally protect," William Bratton, a security firm executive who was chief of the New York City transit police, said, MyFoxNY.com reports. "That's the reality of it. It's a unique challenge."

So far, no one has pulled off such an attack in New York City, but there have been a number of scares. In 2010, a homegrown al-Qaeda operative, Najibullah Zazi, pleaded guilty to plotting a rush hour suicide attack. In 2004, the NYPD foiled a bomb plot at Manhattan's Herald Square subway station.

Police Commissioner Raymond Kelley said that the NYPD is going to extraordinary lengths to make its presence known in the subways in order to give terrorists something to think about.

The new counterterror arsenal includes more than 30 dogs trained to smell for explosives, silent alarms and motion detectors to prevent tampering with ventilation systems, and a vast number of security cameras with live feeds.

Random bag searches, once challenged as a civil rights violation, are conducted tens of thousands of times every year with barely a complaint made against them, MyFoxNY.com reports. The department has also started using high-tech detection devices to screen riders for peroxides or nitrates common in homemade explosive ([Bio Prep Watch, 2011](#)).

**Title:** Norway Terrorist Considered Using Anthrax In Attacks

**Date:** July 25, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** The 1,500 page document written by Anders Behring Breivik, who was arrested for killing at least 93 people in the recent bombing and shooting spree in Norway, contains calculations of how much anthrax would need to be used to eliminate "A and B category traitors" in several European countries.

The reference to traitors refers to those individuals who support multiculturalist societies. The identification system was created by European cultural conservatives as a means to identify priority targets for future reprisals after they reassert political control of a given country, according to ClassicalValues.com.

Breivik's plan, described in the often rambling document, was to obtain anthrax for use in targeted killings he calls "surgically precise."

"The number of civilian loses will be acceptable for certain targets," Breivik wrote. "Certain target building complexes can contain as many as 30-50 category A traitors and 200-300 category B traitors with an acceptable amount of civilians."

Category A traitors include the most influential political, media, cultural and industry leaders, including heads of state. If found guilty of crimes against western values, category A traitors, according to Breivik, would face execution and the expropriation of their property.

Category B traitors include less influential politicians as well as professionals, including journalists, teachers, celebrities, fiction writers and cartoonists. These cases, according to Breivik, are to be considered individually and, though their punishment is also the death penalty, it could be reduced in certain circumstances.

"Multiculturalism, like drugs, is an insidious weapon," Breivik wrote. "Both destroy the heart and fabric of a people. All ties to family, community, and one's people as a whole are destroyed by these two opiates of the human mind. Both are sponsored from the top down by one world elitists bent upon creating a world order who's power is such that its subjects possess no potential for resistance.

"If you have moral quarrels remember that the multiculturalists are slowly exterminating us indirectly by allowing Islamic demographic warfare in combination with their refusal to ensure sustainable indigenous fertility rates. It is our duty to defend ourselves, our national sovereignty, our peoples and our cultures" ([Bio Prep Watch, 2011](#)).

**Title:** HHS Official Warns of Biodefense Vulnerabilities

**Date:** July 25, 2011

**Source:** [NTI](#)

**Abstract:** A senior Obama administration biodefense official on Thursday told House lawmakers that the United States does not yet have all the medical countermeasures it might need to respond to an act of biological terrorism, *Congressional Quarterly* reported (see [GSN](#), June 30).

Health and Human Services Assistant Secretary for Preparedness and Response Nicole Lurie spoke during a subcommittee hearing on reauthorization of the 2006 Pandemic and All-Hazards Preparedness Act.

Lurie recommended that a nongovernmental investment fund be formed that would deliver money to private firms researching medicines that would be used in the event of a naturally occurring epidemic or bioterror incident. The strategic investor fund would exist separately from the federal government and would operate much like a standard venture capital system.

"The strategic investor initiative would promote the transition of medical countermeasure development and procurement from a 'one bug, one drug' approach to an enterprise capable of responding to any threat at any time," the HHS official said in provided remarks to the House subcommittee.

The thinking behind the proposal is to encourage work on new medicines and systems that might be used to defend against a number of health dangers instead of a single threat.

Lawmakers on the House Energy and Commerce Health Subcommittee appeared to favor the proposal. Senator Richard Burr (R-N.C.) last week also said he would back the establishment of a strategic investor fund.

Lurie told members of the House panel that renewing the Pandemic and All-Hazards Preparedness Act would help to address remaining gaps in the production of necessary vaccines and treatments. Both congressional chambers are anticipated to consider reauthorization of the legislation the fall.



The Health and Human Services Department is also backing updating the authority of the Food and Drug Administration to permit the public use of experimental medicines, vaccines and diagnostic tools in an emergency scenario if there are no other licensed remedies available.

Lurie told journalists following the House meeting that it would be advisable to permit emergency use authorizations on an ad-hoc context prior to a catastrophic event. If authorizations are issued only after a biological strike has occurred, response efforts would be slowed down "by days or weeks," she said.

There is adequate informational available to ensure that some treatments do not pose a health threat and are likely to work as intended despite not yet having received FDA licensing. In these instances it would be wiser to issue a standing emergency certification, Lurie said.

The HHS assistant secretary emphasized that she was not advocating a run-around of standard FDA licensing procedures.

"You have to be sure that the product is safe and effective, or likely to be effective. I don't think you want to take that out of the process," Lurie said.

At the House hearing, Ranking Member Henry Waxman (D-Calif.) called for shifting some of the budget of Project Bioshield -- the multibillion dollar federal fund that pays for the acquisition of medical treatments for the U.S. Strategic National Stockpile -- to the Food and Drug Administration for assessment of experimental medical treatments (see [GSN](#), July 13, 2010).

"That was something we'd have to think about," she said. "That was something I hadn't heard before" (Rebecca Adams, *Congressional Quarterly*, July 21) ([NTI, 2011](#)).

**Title:** Breivik's Interest In Anthrax And Religious Extremism

**Date:** August 2, 2011

**Source:** [IDSA](#)

**Abstract:** Known as a lone wolf, Anders Behring Breivik planned and killed 77 Norwegians on July 22, 2011. Such a cruel expression of 'belief' by an individual shocked the entire world, particularly since it occurred in peaceful Norway.

Breivik's terrorism was an act of intolerance that stemmed from the migration of Muslims to Europe. He has outlined his ideology in a 1,518-page online manifesto 2083 – A European Declaration of Independence. In this manifesto, Breivik reveals his views on politics, culture, history, Marxism, Islam, and so on. He discusses various 'revolutionary' concepts and also expresses his views on the use of Weapons of Mass Destruction (WMDs) to bring about a change in the system and society. His manifesto deals with issues related to conventional as well as chemical, biological and nuclear weapons.

Particularly alarming is his belief that Anthrax is 'one of the most effective weapons' and an instrument to help him achieve his goal. It appears that he neither had expertise in this field nor did he have a stockpile of Anthrax. According to the New York Times, the word Anthrax appears more than 50 times in his manifesto. He discusses the success of Anthrax attacks in the United States post 9/11. He is of the opinion that it should not be difficult to acquire Anthrax spores from the black market. He has also published a photograph of a man (mostly likely of himself) in a protective suit with respirator and a vial and a syringe in his hands. He speculates that any large scale Anthrax attack could kill 200,000 people and feels that this weapon has excellent shock value.

This highlights the necessity for a fresh debate on the otherwise ignored subject of biological weapons. Global concerns about biological weapons have been mainly concentrated on bioterrorism for many years. However, the history of the use of biological agents by non-state actors indicates that radical groups, religious fanatics and even disgruntled scientists have a deep interest in this form of intimidation and violence.



The most prominent case of the successful use of a biological weapon was by the Rajneesh (Osho) cult in the US state of Oregon. The cult had used Salmonella Typhimurium to contaminate salad bars in a particularly locality. Its purpose was not to kill people but make them ill for a few days and thus stop them from voting in local elections. Another instance of a radical group employing weapons of mass destruction was by the Aum Shinrikyo, which released Sarin gas in the Tokyo subway in 1995. This cult had made significant investments in biological weapons as well and had probably experimented with them though without much success. The third prominent instance was the anthrax attacks in the United States in the aftermath of the September 11 attacks, which was the handiwork of a disgruntled scientist.

These instances and Breivik's interest in using Anthrax highlight the need to expand the debate on biological weapons and bioterrorism to include the involvement of religious groups and cults; something that must be undertaken at the 7th Review Conference of the Biological and Toxic Weapons Convention (BTWC/BWC) scheduled for December 2011.

Hitherto, the primary argument about the threat from biological weapons has been that they may not be the first preference for terrorist groups since their impact is mostly unpredictable. Secondly, terrorist organisations are generally involved in a struggle to gain political power or control over a certain territory; and the use of such WMDs could turn world opinion against them and thus impede the achievement of the groups' final goal. Moreover, a covert state supporter (if any) may not support such an attack because of geopolitical compulsions. Thirdly, since terrorist organisations gain legitimacy from their supporters, the use of biological weapons could result in the death of those who support and sympathise with their cause. Lastly, most terrorist organisations have a 'copy cat' syndrome. Since no terrorist organisation has used biological weapons as the primary mode of attack till date, it seems unlikely that there will be any such attack in the future.

However, such arguments do not deter terrorists and if they decide to opt for this form of terrorism they will. None of the above arguments holds good for a lone wolf like Breivik or for that matter any other radically motivated group in any part of the world. Consequently, it is important to take the threat of use of biological weapons by radical groups and cults seriously. Their occasional acts of terrorism are likely to have major consequences particularly if these involve the use of biological weapons.

The future use of biological weapons, which are easy to carry and disguise, cannot be ruled out. Norwegian police found 5000 kilograms of fertiliser in Breivik's farm house. While the actual purpose of such a large stockpile is not known, it might well have been for the manufacture of 'conventional' bombs or for developing some form of chemical weapons. Breivik's terrorism highlights the fact that there are always such people in every society who could use weapons of mass destruction in general and biological weapons in particular ([IDSA, 2011](#)).

**Title:** Bird Flu Rears Its Head Again

**Date:** August 29, 2011

**Source:** [UN](#) (United Nations)

**Abstract:** FAO today urged heightened readiness and surveillance against a possible major resurgence of the H5N1 Highly Pathogenic Avian Influenza amid signs that a mutant strain of the deadly Bird Flu virus is spreading in Asia and beyond, with unpredictable risks to human health.

The H5N1 virus has infected 565 people since it first appeared in 2003, killing 331 of them, according to WHO figures. The latest death occurred earlier this month in Cambodia, which has registered eight cases of human infection this year -- all of them fatal.

Since 2003 H5N1 has killed or forced the culling of more than 400 million domestic poultry and caused an estimated \$20 billion of economic damage across the globe before it was eliminated from most of the 63 countries infected at its peak in 2006.

However, the virus remained endemic in six nations, although the number of outbreaks in domestic poultry and wild bird populations shrank steadily from an annual peak of 4000 to just 302 in mid 2008. But

outbreaks have risen progressively since, with almost 800 cases recorded in 2010-2011.

### **Virus Spread in both Poultry and Wild Birds**

At the same time, 2008 marked the beginning of renewed geographic expansion of the H5N1 virus both in poultry and wild birds.

The advance appears to be associated with migratory bird movements, according to FAO Chief Veterinary Officer Juan Lubroth. He said migrations help the virus travel over long distances, so that H5N1 has in the past 24 months shown up in poultry or wild birds in countries that had been virus-free for several years.

"Wild birds may introduce the virus, but peoples' actions in poultry production and marketing spread it," Lubroth noted.

Recently affected areas are to be found in Israel and the Palestinian Territories, Bulgaria, Romania, Nepal and Mongolia.

A further cause for concern, Lubroth said, is the appearance in China and Viet Nam of a variant virus apparently able to sidestep the defences provided by existing vaccines.

In Viet Nam, which suspended its springtime poultry vaccination campaign this year, most of the northern and central parts of the country -- where H5N1 is endemic -- have been invaded by the new virus strain, known as H5N1 - 2.3.2.1.

### **High Alert**

Viet Nam's veterinary services are on high alert and reportedly considering a novel, targeted vaccination campaign this fall. Virus circulation in Viet Nam poses a direct threat to Cambodia, Thailand and Malaysia as well as endangering the Korean peninsula and Japan further afield. Wild bird migration can also spread the virus to other continents.

"The general departure from the progressive decline observed in 2004-2008 could mean that there will be a flareup of H5N1 this fall and winter, with people unexpectedly finding the virus in their backyard," Lubroth said.

The countries where H5N1 is still firmly entrenched – Bangladesh, China, Egypt, India, Indonesia and Vietnam – are likely to face the biggest problems but no country can consider itself safe, he said.

"Preparedness and surveillance remain essential," Lubroth underlined. "This is no time for complacency. No one can let their guard down with H5N1" ([UN, 2011](#)).

**Title:** Bacteria Causing 'Black Death' Likely Extinct, Study Finds

**Date:** August 30, 2011

**Source:** [Fox News](#)

**Abstract:** The bacteria that caused the Black Death, which wiped out millions in mid-14th century Europe, may be extinct, according to a new study.

Hoping to resolve some controversy regarding the cause of the Black Death, researchers examined more than 100 samples taken from bodies buried in London during that time.

"The Black Death was caused by the bacterium *Yersinia Pestis* — the one responsible for current plague outbreaks. This settles the controversy surrounding the causative agent. Although we cannot rule out, at

this stage, that there was another co-circulating strain," said study author Hendrik Poinar, a biological anthropologist at McMaster University in Ontario.

However, the genetic sequence of the bacteria in the London bodies differed from the sequences of modern versions of *Y. pestis*, suggesting that the strain responsible for the Black Death is likely extinct, the researchers said.

### **Plague Genes**

The bubonic plague, which is the infection that spread during the Black Death pandemic, persists in the world today. [Small outbreaks](#) emerge in the southwestern United States every few years, and in 2009, the Chinese government quarantined a town in Qinghai province for 10 days after an outbreak there.

But differences between plagues has led some to speculate that the Black Death was the result of an agent other than *Y. pestis* bacteria, with some even saying it more closely resembled infections of the Ebola virus, based on historical descriptions.

The researchers found that people who died during the Black Death had genes of *Y. pestis*, while the bodies of people who had died earlier nearby lacked these genes.

"I think it's an elegant study and it's very intriguing," Dr. Howard Markel, a medical historian at the University of Michigan, said of the study. "It's really neat, really hard to do, but there were millions who succumbed to the black plague." The 109 bodies examined in the new study represent "a small slice," he said.

Poinar agreed that the new study cannot account for all plague infections. "The follow-up is clearly to get more plague genomes, from other outbreaks, to compare them across both space and time," he told MyHealthNewsDaily.

### **Forensics goes Medieval**

The study helps show that speculation on the causes of past ailments can be put to rest, said Markel, who has written extensively on the Black Death. In this case, he said, he and others can breathe a sigh of relief that their conclusion has been confirmed.

"Before all these disease techniques, you were never proven wrong," he said.

Poinar said he hopes future research in the area will shed light on how the modern incarnations of the [bacteria spread and infect people](#). Some DNA segments in the ancient and modern strains "were identical to some circulating strains today, meaning that we cannot, from this stretch of DNA alone, make any claims as to difference in epidemiology between current and ancient strains."

"This technology will allow for the entire genome to eventually be sequenced down the road, and that may shed light on the differences between past and present epidemics," Poinar said.

But Markel expressed some skepticism at the ability of such research to curb present epidemics entirely.

"We never really conquer germs, we just wrestle them to a draw at best," he said.

Pass it on: The bacteria strain that caused the Black Death is likely extinct, but its modern relatives continue to cause bubonic plague outbreaks ([Fox News, 2011](#)).

**Title:** Scare Tactics Begin: UN Warns Of Asian Bird Flu Resurgence

**Date:** September 1, 2011

**Source:** [Natural News](#)

**Abstract:** Autumn is upon us, which means flu season and all of its corresponding scare campaigns are once again starting to propagate in full force. New reports from the Associated Press (AP) claim that the H5N1 avian flu virus, which afflicted 63 countries during its peak spread in 2006, is once again on the rise, and officials are warning the public to beware of a rapid resurgence throughout the upcoming winter season.

This year's H5N1 strain is said to have mutated from the previous strain, which resulted in 331 confirmed human deaths since 2003, and is resistant to currently available vaccines (which, as we have written about many times before, do not work anyway). China and Vietnam are now facing a potential outbreak of the strain, and it is poised to potentially spread to various other countries as well, say officials.

According to a [2008 study](#) published in the journal *PLoS Pathogens*, however, the H5N1 avian flu virus has already mutated into a form capable of growing in human upper respiratory tracts, and eventually killing them. So if another resurgence of the newly mutated strain takes place in the next few months, it could be even more deadly.

According to the UN Food and Agriculture Organization (FAO), the biggest potential spread of H5N1 is not necessarily just wild birds, either, but also "people's actions in poultry production and marketing," an admission that sheds light on the filthy reality of the industrial food system and its tendency to spread disease.

"The general departure from the progressive decline (of H5N1) in 2004 - 2008 could mean that there will be a flare up of H5N1 this fall and winter, with people unexpectedly finding the virus in their backyard," said FAO's Juan Lubroth to the AP.

Such warnings may be nothing more than an organized scare campaign to incite fear into the public psyche. But in the event that another major flu outbreak does manifest itself, you can help prepare yourself naturally by maintaining high levels of vitamin D, loading up on antiviral "superfoods" like spirulina and garlic, and drinking plenty of mineral rich, fluoride free water ([Natural News, 2011](#)).

**Title:** Rep. Rogers Raises Concerns Of Al-Qaeda Acquiring Libyan Chemical Weapons

**Date:** September 8, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Representative Mike Rogers, a Michigan Republican and chairman of the House Intelligence Committee, has approached the White House with concerns that al-Qaeda will acquire Libyan weapons that were once controlled by dictator Muammar Qaddafi.

Rogers said that the time frame to secure loose weapons "is rapidly closing" and he has urged the White House to quickly dedicate additional resources and work with NATO allies and the Libyan National Transitional Council on the problem, Bloomberg reports.

"We need to be doing more to secure these weapons systems now," Rogers, a former Army officer and FBI special agent, said, according to Bloomberg. "(The U.S. has) special capabilities. There is nobody better who can get their hands on this stuff, account for it and render it safe."

Rogers said that the U.S. could have been more aggressive in safeguarding the munitions in Iraq and that Libya's "systems are even more lethal."

According to a White House fact sheet, Libya's chemical stockpiles of 11.3 metric tons of mustard agent and 845 metric tons of chemical precursors are stored in non-weapon form inside steel containers and secure bunkers in a remote part of Libya.

Rogers said that Qaddafi might not have disclosed all his chemical and biological weapons.

"We just don't know," Rogers said, according to Bloomberg. "There had been sarin gas and other things."

The U.S. has provided \$3 million to two international humanitarian organizations – the Swiss Foundation for Mine Action in Geneva and the Manchester, U.K.-based MAG International – specializing in removing weapons and munitions. To date, the teams have cleared more than 450,000 square meters of land and destroyed 5.8 tons of munitions.

Qaddafi's vast military and industrial complex has been kept under constant surveillance by NATO aircraft since the rebellion began in February, according to U.S. officials ([Bio Prep Watch, 2011](#)).

**Title:** Will 'Contagion' Wake Up Our Politicians?

**Date:** September 14, 2011

**Source:** [Fox News](#)

**Abstract:** “Contagion” is one of the few [Hollywood](#) thrillers that actually debunks conspiracy theories. In most thrillers, the bad guys work for a multinational corporation, or maybe the CIA or [the Pentagon](#). But in this film, the villain is a naturally occurring killer virus. What? You mean the enemy isn't big business? Or big government?

Yes, that's right, the mass-killing enemy comes straight from the bosom of Mother Nature. And so “Contagion” poses a challenge to the political ideology of both the left and the right.

The new film, which opened last Friday, is a certified blue-chip production, featuring [Matt Damon](#), [Gwyneth Paltrow](#), [Jude Law](#), [Kate Winslet](#), and a huge ensemble cast—including even a cameo by CNN's Dr. Sanjay Gupta. And it is doing well at the box office, [ranking #1 over the weekend](#).

Perhaps the success of “Contagion” has to do with its message, which syncs up with the 9/11 commemorations past weekend.

The film argues that some causes are worth dying for; officials from the [Centers for Disease Control and Prevention](#) (CDC) and other emergency workers, confronting an epidemic that will kill millions, go bravely forth into the hot zone to aid the sick and gather information about their symptoms. And so director Steven Soderbergh--perhaps best known for the smirky caper film “Ocean's Eleven” and its two sequels--makes a somber choice, dealing with a serious topic in a responsible way.

Yes, conspiracy movies can be entertaining, just as conspiracies themselves provide entertainment. After all, conspiracy stories are a kind of mystery puzzle, and audiences love solving puzzles. In addition, a part of us enjoys thinking that global, or even galactic, conspirators have nothing better to do than fool with us and our lives.

In a weird way, it's kind of flattering to think, for example, that aliens would care enough to swoop down from outer space to spy on us--[maybe even have sex with us](#). And if the government is covering it all up, well, that's all the more delicious.

Indeed, another recent movie, “[Apollo 18](#),” works the conspiracy angle hard; it even includes a [guerrilla marketing site](#), which tells us, “This website was forcibly censored. Its contents can be seen in the film. DISCOVER THE TRUTH.” So pay your \$10, suckers, and the truth will set you free. Happily, “Apollo 18” has been a box-office bomb.

For its part, “Contagion” works real-world territory. Epidemics are real. Bubonic plague, back in the 14th century, carried away a third of Europe. And the 1918-19 [influenza](#) epidemic killed perhaps 50 million people worldwide, about three percent of the world's population. And of course, AIDS has killed some 30 million people worldwide over the last three decades, although scientific progress has reduced this killer disease, in the U.S. at least, to a mostly manageable ailment.

More recently, the viruses behind SARS and [H1N1](#) have not proved as deadly as some feared. Yet even so, H1N1 is estimated to have killed about 7,000 Americans in 2009-10, and new “superbugs,” such as [NDM-1](#), lurk on the horizon. And if none of these outbreaks prove to be as deadly as past contagions, that’s most likely a tribute to the forces of scientific medicine and public health.

Over the last century, the overall U.S. death rate from infectious disease has [fallen by 93 percent](#).

Yet “Contagion” goes even further to debunk conspiracy theorizing--the film presents an Internet activist as the human villain. Jude Law, playing a character with the evocative name of Alan Krumwiede, uses the Internet to propagate irresponsible conspiracy theories, accusing the government and big pharmaceutical companies of manipulating the epidemic for power and profit. And yet it is Krumwiede who is the manipulator; first, he sells quack medicines, and second, he is working with a hedge fund that bets that pharma stock prices will fall every time Krumwiede attacks them on his blog.

So who are the heroes of “Contagion”? Well, the CDC, for one, but the larger heroes are two pillars of order in society: dedicated scientists and government officials. Scientists and bureaucrats are both shown as flawed, but the movie still credits them with finally stopping a pandemic that killed 26 million people worldwide, and that could have killed billions. And as we have seen, the movie has a leg to stand on, since real-world scientists have, in fact, achieved those sorts of life-saving gains in the last hundred years.

So killer bugs challenge the ideology of both left and right.

Let’s start with the left. As the film makes clear, the world is full of contagion. And so that reality argues strongly for secure borders and thorough inspections of people and goods coming into the U.S. Indeed, open borders and political correctness have allowed terrible diseases to make a comeback. Immigrants, legal and illegal, have brought with them new strains of [tuberculosis](#), as well as [malaria](#), [West Nile virus](#), and dengue fever. Why are these afflictions returning? The answer can be summed up in four words: because we let them. And oh, by the way, as the movie chronicles a raging killer epidemic, the subject of health insurance didn’t come up once; when a medical crunch comes, you want real medicine, not government health insurance. Care doesn’t help a patient nearly as much as a cure.

Meanwhile, on the right, Tea Partiers and libertarians are going to have to deal with the reality that public health requires public knowledge of who lives in the country. As with [homeland security](#), biological security depends on knowing who might be carrying what. If the goal is to put a stop to an epidemic, the key issue isn’t individual freedom, or personal empowerment, or market forces; the issue is mobilizing scientific and industrial resources to find a cure or vaccine--and then delivering that life-saving medicine to a population of 310 million.

So “Contagion” illustrates a significant point: Neither political party, Democratic or Republican, has come to grips with the genuine public-health challenges that America faces.

Cancer kills about 600,000 Americans every year--now that’s a real epidemic. Yet politicians in both parties have done their best to ignore it. Over the last three years, we have had fights back and forth over ObamaCare, but neither side has raised the issue of cancer care.

Another unaddressed epidemic is Alzheimer’s Disease (AD), which afflicts some six million Americans today; that number is expected to quadruple in the next four decades. AD is not a quick killer; it is a slow killer, leaving its victims to suffer in [dementia](#) for years, even decades, in labor- and cost-intensive nursing homes. Alzheimer’s today is costing the US economy \$172 billion a year, according to the Alzheimer’s Association, and the cumulative cost is headed up to \$20 trillion by 2050.

These epidemics, cancer and AD, may lack the cinematic flair of a mysterious virus, but in their plodding progression, they are just as deadly--and costly.



In "Contagion," Hollywood has made an honest and constructive parable about medical peril. So maybe now it's time for politicians to put on their own show, demonstrating to the rest of us that they understand the need to grapple with the epidemics staring all of us in the face.

What's needed? We could start our action agenda with tort reform, regulatory reform, intellectual property reform, and the creation of new kinds of public-private partnerships to mobilize resources on behalf of cures.

To do all this, politicians will have to overcome ideological stumbling blocks on both sides of the partisan divide. But we're worth the effort. And so the voters should stand ready to reward those leaders who can see that some problems just need to be solved. And fast ([Fox News, 2011](#)).

**Title:** Five Easy Mutations To Make Bird Flu A Lethal Pandemic

**Date:** September 16, 2011

**Source:** [New Scientist](#)

**Abstract:** H5N1 bird flu can kill humans, but has not gone pandemic because it cannot spread easily among us. That might change: five mutations in just two genes have allowed the virus to spread between mammals in the lab. What's more, the virus is just as lethal despite the mutations.

"The virus is transmitted as efficiently as seasonal flu," says Ron Fouchier of the Erasmus Medical Centre in Rotterdam, the Netherlands, who reported the work at a [scientific meeting on flu](#) last week in Malta.

"This shows clearly that H5 can change in a way that allows transmission and still cause severe disease in humans. It's scary," says [Peter Doherty](#), a 1996 Nobel prizewinner for work in viral immunology.

H5N1 evolved in poultry in east Asia and has [spread across Eurasia since 2004](#). In that time 565 people are known to have caught it; 331 died. No strain that spreads readily among mammals has emerged in that time, despite millions of infected birds, and infections in people, [cats](#) and [pigs](#). Efforts to create such a virus in the lab have failed, and some virologists think H5N1 simply cannot do it.

The work by Fouchier's team suggests otherwise. They first gave H5N1 three mutations known to adapt bird flu to mammals. This version of the virus killed ferrets, which react to flu viruses in a similar way to humans. The virus did not transmit between them, though.

Then the researchers gave the virus from the sick ferrets to more ferrets - a standard technique for making pathogens adapt to an animal. They repeated this 10 times, using stringent containment. The tenth round of ferrets shed an H5N1 strain that spread to ferrets in separate cages - and killed them.

The process yielded viruses with many new mutations, but two were in all of them. Those plus the three added deliberately "suggest that as few as five are required to make the virus airborne", says Fouchier. He will now test H5N1 made with only those five.

All the mutations have been seen separately in H5N1 from birds. "If they occur separately, they can occur together," says Fouchier. Malik Peiris of the University of Hong Kong, a flu virologist, says this means H5N1 transmissible between humans can evolve in birds, where it is [circulating](#) already, without needing to spend time in mammals such as pigs.

[Peter Palese](#), a flu specialist at Mount Sinai Medical Center in New York City who has expressed doubts that H5N1 can adapt to mammals, is not convinced.

"Ferrets are not humans," he says. "H5N1 has been around for a long time" and failed to mutate into a form that can jump between people.



"That it has not adapted doesn't mean it cannot," replies Jeffery Taubenberger of the US National Institutes of Health in Bethesda, Maryland, who studies how a [bird flu became the deadly pandemic of 1918 \(New Scientist, 2011\)](#).

**Title:** Cheney Says Next Terror Attack Will Be Biological Or Nuclear

**Date:** September 30, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** According to former vice president Dick Cheney, the next terrorist attack on the Western world could be nuclear or biological and the death toll could total in the hundreds of thousands.

Cheney spoke with the Toronto Sun on Monday to discuss his life in politics, which he recounted in the recently released memoir. In the book, Cheney recounts his long career in Washington, including stints at chief of staff to president Gerald Ford and as Secretary of Defense under George Bush, Sr., the Toronto Sun reports.

"My biggest concern today when I think about a threat is the possibility that there'll be another major attack but next time they will have deadlier weapons, not just airline tickets and box cutters," Cheney said, according to the Toronto Sun. "I worry very much about the possibility of a group of terrorists getting their hands on a biological agent of some kind or a nuclear device and setting one of those off in the middle of one of our cities. That would be devastating, obviously. The death toll would run into the hundreds of thousands."

Cheney also spoke about how the problem of terrorism still exists, despite the fact that there has been no follow up attack since the September 11, 2001, terror attacks. Cheney said that it is easier for people to forget what the morning of the attack was like as time passes from the actual event.

"But if you've had the opportunity to spend as much time on it as I did, it really shaped the rest of our presidency, the Bush-Cheney administration," Cheney said, according to the Toronto Sun. "You have to be very concerned, the problem still exists" ([Bio Prep Watch, 2011](#)).

**Title:** Bio-Response Report Card

**Date:** October 2011

**Source:** [WMD Center](#)

**Abstract:** Although naturally occurring disease remains a serious threat, a thinking enemy armed with these same pathogens, or with multi-drug-resistant or synthetically engineered pathogens could produce catastrophic consequences.

These threats are not new. Naturally occurring diseases have devastated societies throughout history. Sophisticated biological weapons, however, did not become a threat until the early days of the Cold War, and a combination of the Biological Weapons Convention (BWC) and the threat of nuclear retaliation provided credible prevention and deterrence.

Unfortunately, the biotech revolution now affords non-state actors the capability to produce sophisticated biological weapons. Although traditional deterrence may not be effective against non-state actors, a strong bio-response capability may provide a deterrent effect. Therefore, the primary means of defending the American homeland against bioterrorism is the capability to effectively respond after an attack has occurred.

The purpose of this report card is to provide a strategic, end-to-end assessment of America's bio-response capabilities. It

is intended to complement other recent reports that have offered detailed assessments of various components of bioresponse, such as public health, medical countermeasures, and hospital preparedness. Our strategic overview of national bio-response capabilities is designed to provide broad

context to policymakers and government leaders for setting priorities.

Many of the nation's top biodefense, public health, and medical experts guided this project. A Board of Advisors informed project methodology, the seven categories of bio-response, the scale of potential bio-events, and the proposed metrics by which to assess capabilities in each category. A separate group of diverse subject-matter experts helped with subsequent research and early analysis. Other biodefense stakeholders—both inside and outside of government—provided numerous briefings and recommendations that also informed this report. The conclusions and content are the sole responsibility of its authors—the directors and officers of the WMD Center.

Findings are summarized in the chart on page 9. It includes letter grades in each bio-response category as assessed for each level of biological event. Trend lines project likely future progress, or lack thereof, assuming baseline funding.

No one in the fields of biodefense, public health, or medicine will be surprised by the report's finding that the United States is unprepared to respond to a global outbreak of a deadly virus for which we have no medical countermeasures. Likewise, by definition, a response to bioweapons that have been made resistant to our current medical countermeasures would fail to meet fundamental expectations. If Congress and the Administration focused primarily on addressing these most extreme, less common scenarios, it could easily expend most available biodefense resources, without a measurable return on investment.

The WMD Center recommends that future preparedness programs focus on the center two columns in the chart—largescale events. It is possible to improve these grades in the relative near-term, and doing so would significantly improve readiness for small-scale events as well.

**This report suggests that moving from Orange to Yellow (Ds to Cs) will provide the best return on investment. To do so, the nation should focus its efforts on three strategic priorities:**

1. Leadership that sets clear priorities and engenders commitment and unity of effort,
2. Mobilizing “whole of nation” response planning, and
3. Sustained investment in purposedriven science.

Throughout the past year, the leadership of the WMD Center has met with many senior-level officials throughout government and the bio-response enterprise. They are incredibly hard working and dedicated and they represent the very best America has to offer in the fields of biodefense, public health, medicine, and the biological sciences. Although their efforts have yielded considerable progress over the past decade, the nation does not yet have adequate bio-response capability to meet fundamental expectations during a large-scale biological event.

The nation's leaders need to ensure that those responsible for defending America against bioterrorism are provided the resources, organizational framework, policies, and leadership to meet this growing national security challenge.

### **History of the WMD Commission**

A legacy of the 9/11 Commission, the Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism (the WMD Commission) was chartered by the U.S. Congress in 2007 to assess the nation's efforts to prevent the use of weapons of mass destruction. To fulfill its mandate, the WMD Commission released *World at Risk* in December 2008. The report provided a roadmap with specific recommendations to address WMD threats.

## Among its Findings:

1. Unless the world community acts decisively and with great urgency, it is more likely than not that a weapon of mass destruction will be used in a terrorist attack somewhere in the world by then end of 2013.
2. Terrorists are more likely to use a biological weapon than a nuclear weapon, and the U.S. government needs to move more aggressively reduce the prospect of a bioterror attack ([WMD Center, 2011](#)).

**Title:** Al Qaeda Lab Lingers In Anthrax Story

**Date:** October 2, 2011

**Source:** [USA Today](#)

**Abstract:** Fears that al Qaeda had some role in the anthrax letter attacks that killed five and terrorized the U.S. 10 years ago surfaced early in the investigation.

"THIS IS NEXT. TAKE PENACILIN NOW. DEATH TO AMERICA. DEATH TO ISRAEL. ALLAH IS GREAT," read the anthrax-laden letter sent to [NBC](#) newsmen Tom Brokaw on Sept 18, 2001, at the start of the attacks. [At least five letters](#) were sent in the attacks that autumn, all containing similar words.

Those messages likely contributed to one of the more curious endeavors of the nine-year ["Amerithrax" investigation](#) into the anthrax murders, the retrieval of a suspected terrorist lab, right down to the pipes of the kitchen sink.

The National Research Council in February delivered [an evaluation of the science](#) used by investigators to tie the anthrax used in the attacks, a mutant-laced variant of the "Ames" anthrax strain, to the infamous RMR-1029 flask at the [United States](#) Army Medical Research Institute (USAMRIID) at [Fort Detrick](#), Md. The flask was controlled by a researcher named [Bruce Ivins](#), who committed suicide in 2008, days before investigators say they had intended to indict him for the crime. Based in part on the link to the RMR-1029 flask, the [FBI](#), in its [investigative summary of the case](#), concluded, "Ivins, alone, mailed the anthrax letters." The conclusion, though, is still disputed by some observers. Even the NRC said it was "not possible to reach a definitive conclusion about the origins of the anthrax," in its evaluation.

In May of 2004, U.S. investigators weren't so sure either. They had information about [al Qaeda plans](#) to develop an anthrax program, the NRC report said. So FBI investigators and "partners from the intelligence community" then visited a suspected bioterror lab abandoned by al Qaeda and collected swabs there. Three samples tested positive for Ames strain anthrax in tests, conducted at the USAMRIID lab. They had been taken from "an unopened medicine dropper package, a sink, and a sink drain hose," according to a partly-declassified FBI report.

Subsequent tests at microbiologist Paul Keim's lab at [Northern Arizona University](#) found signs of the Ames strain of anthrax on two of the three samples, according to the same report. "As a result of these findings, a third collection mission was conducted in November 2004 and this time large portions of the site were returned intact to the United States, including the entire sink, drain, and associated plumbing," said the NRC report. The retrieved lab was "extensively sampled" for both living anthrax and anthrax DNA.

So, what did they find? According to the NRC report, "all the tests were negative" for anthrax. Further tests of samples conducted in 2007 also showed no signs of anthrax. (The first ones likely had produced false positive results, a hazard of tests primed to turn up any traces of a pathogen.)

"While it is undoubtedly true that al Qaeda was seeking to establish an offensive [bioweapons program in 2001](#), Task Force agents were unable to find any link between al Qaeda and the letter attacks in the United States, or even that, at the time of the attacks, any al Qaeda operatives had access to the type

and quality of anthrax pathogen used in the 2001 attacks," says the FBI's investigative summary of the case.

[The NRC panel](#), headed by [Lehigh University](#) president Alice Gast, however, "consider these data to be inconclusive regarding the possible presence of *B. anthracis* Ames at this undisclosed overseas site," according to their report. Echoing findings elsewhere in the report the panel complained that investigators needed to take additional steps to validate the anthrax tests used in the investigation and to understand the naturally-occurring level of anthrax in places such as Afghanistan. The differences exposed the chasm between the level of certainty required by scientists, who want very strong statistical reassurance, and those of crime investigators, who seek a weight of evidence necessary to convince a jury of murder and no more.

So, those who still voice doubts about the investigation, such as [Rep. Rush Holt](#), D. - N.J., can point to [the al Qaeda threat](#) as a still unsettled alternative to the anthrax attacks. Scientists would like to see more basic research done on anthrax in case of another attack.

"If anthrax pops up again, we still don't know enough about what type of strains are in the environment," says former FBI investigator Bruce Budowle of the University of [North Texas Health Science Center at Fort Worth](#). In microbial forensics investigations, scientists are looking for assurances that results could be incorrect only 1 in 100 times, he says. But to reach that would be "almost a physical impossibility," he adds, given that microbe characteristics can shift markedly over small distances.

Another point made in the NRC report is that more research could be done on the evolution of anthrax, to verify how the mutations that marked anthrax in the RMR-1029 flask developed. "I have a model of how they evolved and it explains what happened very well," Keim says now. "But it is critical we understand the evolution of how these morphs (mutants) arise," he says.

"If terrorists released *Bacillus anthracis* over a large city, hundreds of thousands of people could be at risk of the deadly disease anthrax," reads the summary of an [Institute of Medicine](#) report [released only Friday](#). Even after a decade, "many public health authorities and policy experts fear that the nation's current systems and plans are insufficient to respond to the most challenging scenarios, such as a very large-scale anthrax attack" ([USA Today, 2011](#)).

**Title:** NATO Alliance Calls For Strengthened Effort To Fight Bioweapons

**Date:** October 10, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Numerous legislators from the NATO Alliance have called for allied governments to increase their efforts to stop the threat of biological and chemical weapons, saying that a growing danger exists that terrorists may acquire and use such weapons to devastating effect.

"There is always a race between those who want to do us harm and those of us who search for technological means to thwart such terrorist acts," Congressman David Scott, who authored a draft resolution for the annual session of NATO's Parliamentary Assembly, said. "We, as politicians, must make sure that we stay ahead."

Scott added that governments should not allow current budgetary restraints to undermine defenses against biological and chemical weapons.

"Biological and chemical weapons are a significant and evolving threat and we must remain vigilant and we must be strong against these terrorist threats to humankind," Scott told the committee.

The Assembly's Science and Technology Committee adopted a draft calling on NATO governments to invest in detection technology, countermeasures and protection of critical infrastructure from biological and chemical threats.

The resolution is expected to be approved by the full Assembly, comprising more than 250 parliamentarians from the 28 NATO nations, this week.

NATO governments are urged by the draft resolution to strengthen arms control, disarmament and non-proliferation efforts, particularly at the upcoming international Biological and Toxin Weapons Convention that begins on Dec. 5 in Geneva.

"This is our most urgent opportunity to update a control regime for biological and chemical weapons and it should be and must be stronger," Scott said of the conference, which is held every five years.

The resolution also calls for the United States, Russia, Iraq and Libya, the four nations with declared chemical weapons, to finish their stockpile destructions in a timely and responsible manner ([Bio Prep Watch, 2011](#)).

**Title:** Congress Lacks Response Plan For Terror Attacks

**Date:** October 11, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Ten years after the September 11, 2001, attacks, Congress has yet to develop contingency plans in case of a scenario where a large number of lawmakers are either killed or incapacitated, a new report has revealed.

The recent arrest of Rezwan Ferdaus, a 26-year-old man accused of plotting to fly an explosives-laden remote controlled airplane into the U.S. Capitol, seems to have done little to stimulate debate over the issue, according to the Washington Post.

"It is dismaying that 10 years later, the only plans we have in place to deal with a devastating terrorist attack on Congress are unrealistic, unconstitutional and/or counterproductive," Norman Ornstein, a scholar with the American Enterprise Institute, said, the Washington Post reports.

A major terrorist attack on the Capitol could potentially leave either the House or the Senate without enough congressmen fit for a quorum, meaning the chambers would effectively cease to function as lawmaking bodies. Or, if a large number of representatives were killed in an attack, a small number of lawmakers would be left responsible for setting national policy.

In 2003, the Continuity of Government Commission, a private group led by former White House counsel Lloyd Cutler and former Senator Alan Simpson (R-Wyoming) recommended creating a constitutional amendment that would allow House members to be appointed temporarily in the case of such an emergency.

Senators can be appointed, but all House members must be elected by the people. The Republicans controlled the House at the time the committee issued its report and felt it would be wrong to change that principle, according to the Washington Post.

In 2005, a law was passed that called for special expedited elections for the House should 100 or more seats become vacant due to "extraordinary circumstances." The House also passed a measure allowing the speaker to define the size of a quorum in an emergency.

Ornstein said that the changes would make little difference. He wrote that it would be nearly impossible to carry out the elections fast enough and that the changes in quorum rules could be unconstitutional.

**"If you wanted to destroy the American government, you would destroy the House of Representatives and it would be crippled," Representative Zoe Lofgren (D-California) said, the Washington Post reports. "There ought to be a remedy for that so that our enemies couldn't destroy us."**

"Republicans have made clear they're not willing to do anything further, so I'm working on things where there might be a chance something could happen" ([Bio Prep Watch, 2011](#)).

**Title:** Report: Bioterrorism Still A Major Threat

**Date:** October 12, 2011

**Source:** [UPI](#)

**Abstract:** Bioterrorism remains a major threat for [the United States](#) despite more than \$65 billion spent on protecting the country from myriad dangers, the Bipartisan WMD Terrorism Research Center said in its latest report Wednesday.

The center's Bio-Response Report Card evaluated U.S. preparedness for countering threats from bioterrorism and found the country remains vulnerable to multiple threats and "largely unprepared for a large-scale bioterrorist attack." More than two dozen of the leading U.S. bio-defense experts took part in the investigation.

The report was awaited by security organizations as an indicator of what more needs to be done in the United States and abroad to deal with bioterrorism, which became a focus of attention as part of overall defense strategies after the Sept. 11, 2011, attacks on the United States.

Bioterrorism alerts have driven other governments including U.S. allies to [invest](#) more in equipment and training to deal with potential incidents involving a wide range of threats that are categorized as bioterrorism.

The anti-bioterrorism alerts have already led to more sophisticated scanning devices being introduced at airports and other points of cross-border traffic, at private and public buildings and in areas frequent by large numbers of people.

The center, a not-for-profit research and education organization, estimates that since the October 2001 anthrax attacks, the U.S. government has spent more than \$65 billion on biodefense. The center maintains the spending was done "without an end-to-end, strategic assessment of the nation's bio-response capabilities."

The report card's evaluation assigned letter grades measuring U.S. preparedness and progress in "protecting the American people," the center said.

No comparable reports are available from other countries but increased awareness of potential terrorism has led to measures against bioterrorism in other countries, including states that are part of the military coalitions in Afghanistan and before that in Iraq.

Former U.S. Sens. Sen. Bob Graham, D-Fla., and Sen. Jim Talent, R-Mo., the chairman and vice chairman of the WMD Center, led the report's publication as "an objective, strategic analysis" of the U.S. readiness "to respond to various levels of biological disasters."

Advances in biotechnology have enabled a small team of individuals with college-level training to create deadly biological weapons, maintains the report.

**"A thinking enemy, armed with biological weapons, could change the very nature of America -- our economy, our government and even our social structure," said Graham. "America does not yet have adequate bio-response capability to meet fundamental expectations during a large-scale biological event."**

The report assessed U.S. capabilities in seven categories of bio-response in relation to the magnitude of potential biological scenarios, from "small-scale non-contagious" to "global crisis contagious." The report hands out 45 letter grades ranging from Bs to Fs.

Bs were awarded in categories related to small-scale attacks while Fs were prevalent in the categories under "large-scale" and "global crisis." There was a smattering of Cs, including in regards to communication.

The report said the United States faced three strategic priorities top of which was "leadership that sets clear priorities and engenders commitment and unity of effort. The other priorities were mobilizing "whole of nation" response planning and more investment in purpose-driven science, it added ([UPI, 2011](#)).

**Title:** How Ready Are We For Bioterrorism?

**Date:** October 26, 2011

**Source:** [New York Times](#)

**Abstract:** A few days after 9/11, a retired Air Force colonel named Randall Larsen entered the northwest gate of the White House, crossed a courtyard to the Eisenhower Executive Office Building, stepped through the front door and stopped dead in his tracks.

In place of the usual security checkpoint, there was an elaborate upgrade that included not only metal detectors but also machines to sniff out radiation and explosives, elaborate pat-downs and a mandatory search of all personal belongings. It was the search that worried Larsen most.

After passing through a body scan, he stood quietly while a guard thumbed through the contents of his briefcase. It was mostly books and papers, but after a few seconds, the agent pulled out a respirator mask and shot Larsen a quizzical look. "That's just for demonstration," Larsen said quickly. "You saw Mayor Giuliani wear one at ground zero, right?" The agent turned the mask over a few times, then stuffed it back in the briefcase. Seconds later, Larsen was through.

Inside the building, he followed a long corridor to a room where Vice President Dick Cheney and members of the national-security staff soon joined him. Also in the room were Tara O'Toole, who is now the Obama administration's top official for biodefense research at the Department of Homeland Security, and Thomas Inglesby, who runs the Center for Biosecurity. Three months earlier, Larsen, O'Toole and Inglesby collaborated on a national-security exercise to simulate the effects of a smallpox attack. Now, with the twin towers in ashes, they had come to brief the vice president on their findings.

As O'Toole began the presentation, Larsen studied Cheney's expression. The vice president showed no reaction as O'Toole listed the officials who participated in the simulation, the complications they encountered as they tried to develop an emergency response and the arguments that broke out as they watched the disease spread beyond control. She concluded by telling the vice president that the country was unprepared for a biological attack.

Cheney nodded. "O.K.," he said. "But what are we looking for? What does a biological weapon look like?"

At this, Larsen reached into his briefcase and pulled out a small test tube. "Mr. Vice President," he said, "it looks like this." Inside the tube was a weaponized powder of *Bacillus globigii*, almost genetically identical to anthrax. "And by the way," Larsen said, "I just smuggled this into your office."



At one of the most secure buildings in the world, in a moment of unprecedented alarm, the White House guards had searched Larsen's briefcase — and never even saw the powder. "They were looking for the wrong things," Larsen says now. "They still are."

**The specter of** a biological attack is difficult for almost anyone to imagine. It makes of the most mundane object, death: a doorknob, a handshake, a breath can become poison. Like a nuclear bomb, the biological weapon threatens such a spectacle of horror — skin boiling with smallpox pustules, eyes blackened with anthrax lesions, the rotting bodies of bubonic plagues — that it can seem the province of fantasy or nightmare or, worse, political manipulation. Yet biological weapons are as old as war itself. The ancient Hittites marched victims of plague into the cities of their enemies; Herodotus described archers' firing arrows tipped with manure. By the 20th century, nearly every major nation developed, produced and in some cases used a panoply of biological weapons, including anthrax, plague, typhoid and glanders.

A decade after the 9/11 attacks, it is easy to forget the anthrax letters that sprang up just a few weeks later and to dismiss the fear that swept the country as a relic of a fragile moment that already belongs to history. But in the wake of those events, many national-security experts began to reconsider the risk of a biological attack — and reached some unsettling conclusions. Since the collapse of the Soviet Union, most scientists had assumed that the difficulty of building a bioweapon was far beyond the ability of a terror cell, but looking again in the early 21st century, many experts came to believe that advances in laboratory technology brought the science within reach. "What took me three weeks in a sophisticated laboratory in a top-tier medical school 20 years ago, with millions of dollars in equipment, can essentially be done by a relatively unsophisticated technician," Brett Giroir, a former director at the Defense Advanced Research Projects Agency ([Darpa](#)), told me recently. "A person at a graduate-school level has all the tools and technologies to implement a sophisticated program to create a bioweapon."

Even some nuclear experts began to wonder if the risk of a biological attack had eclipsed the nuclear threat. Graham Allison, the founding dean of Harvard's John F. Kennedy School of Government and a leading expert on nuclear proliferation, told me: "Nuclear terrorism is a preventable catastrophe, and the reason it's preventable is because the material to make a nuclear bomb can't be made by terrorists. But in the bio case — oh, my God! Can I prevent terrorists from getting into their hands anthrax or other pathogens? No! Even our best efforts can't do that. I think the amazing thing is that one hasn't seen more bioterrorism, given the relative ease of making a bioweapon and the relative difficulty of defending."

How a biological attack might unfold depends on a number of variables, including which biological agent is used, the extent of its weaponization, the amount released and the method of delivery. Some agents, like the smallpox virus, are highly contagious and could spread widely from a small release. Others, like the plague and [tularemia bacteria](#), are not typically contagious but are relatively easy to make into wet slurry and disperse. Some of the most vivid descriptions of how such an attack might look come from the national-security exercises used to develop biodefense policy. The exercise briefed to Dick Cheney in 2001, for example, was known as [Dark Winter](#) and was coordinated by the Center for Strategic and International Studies and the Johns Hopkins Center for Civilian Biodefense Studies. It took place over two days at Andrews Air Force Base, with former Senator Sam Nunn playing the role of president, David Gergen acting as national-security adviser, the former C.I.A. director James Woolsey leading intelligence and the retired four-star general John Tilelli serving as chairman of the Joint Chiefs of Staff. As the smallpox virus began to appear, first in Oklahoma and then in pockets across the nation, the participants quickly discovered that the country had no standing response plan and only enough vaccine to protect 5 percent of the public. Within weeks, as many as a million people in the United States were estimated dead.

Not all experts are convinced that simulations like Dark Winter offer a realistic view. Milton Leitenberg, a prominent arms-control expert, has argued that the exercise relied on faulty premises to increase the death toll and "assure a disastrous outcome." In particular, Leitenberg objects to the rate of secondary transmission assumed in the Dark Winter exercise. This is the figure to describe how many additional people each patient would infect, and it is highly contextual, depending on biological traits, like the genetic vulnerability of the target population; social habits, like the number of personal interactions by each victim;

and meteorological conditions, like the weather and the time of year. Because the exercise was set in winter, which is favorable to smallpox, and because Americans are not routinely vaccinated, planners assumed a transmission rate of 10 new infections by each victim. Leitenberg says that number should be three. Other estimates vary. The Centers for Disease Control and Prevention uses a range of five to seven; the last comparable cases of smallpox to appear in Europe averaged between 9 and 17; and the authors of a 1999 article in *Science* magazine used the same figure as *Dark Winter*. But if Leitenberg is right, the death toll from the exercise would be much lower — most likely in the tens of thousands.

Whatever the transmission rate of smallpox, the more salient question for biodefense may be whether an attack will happen at all. On this, the expertise of microbiologists is limited, but there is surprisingly broad agreement among the officials in charge of national security over the past 10 years. Since 2001, senior members of both the Obama and Bush administrations, who have reviewed classified intelligence, have consistently placed biodefense at or near the top of the national-security agenda. In 2004, a report from the National Intelligence Council warned, “Our greatest concern is that terrorists might acquire biological agents.” Michael Chertoff, the secretary of Homeland Security between 2005 and 2009, told me, “In terms of catastrophic attacks, bio was at the top of the list.” In 2008, the director of national intelligence, Adm. Mike McConnell, described a biological attack as “my personal greatest worry.” In 2009, McConnell’s successor in the Obama administration, Dennis Blair, warned the Senate Select Committee on Intelligence that “the terrorist use of biological agents represents a growing threat.” In November 2009, the National Security Council estimated that a biological attack could place “hundreds of thousands of people” at risk of death and cost more than \$1 trillion. Heidi Avery, a top biodefense official in the White House, told me recently that biological terrorism poses “the ultimate asymmetric threat; it should be considered in the same class as the nuclear threat.” And a report by the Congressional Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism, formed in 2007, concluded: “To date, the U.S. government has invested most of its nonproliferation efforts and diplomatic capital in preventing nuclear terrorism. The commission believes that it should make the more likely threat — bioterrorism — a higher priority.”

To heighten the nation’s biodefenses, the federal government has invested more than \$60 billion since 2001, developing and distributing air sensors, educating doctors about the symptoms of bioterror pathogens and distributing medical supplies for biodefense to hospitals around the country. At the root of these efforts is a list of specific biological agents, known as “material threats,” that have been identified by the Department of Homeland Security as the most urgent pathogens to defend against. These include smallpox, anthrax, ebola, plague and a handful of lesser-known organisms.

Since 2004, the Department of Health and Human Services has overseen a program called [Project BioShield](#) to develop and stockpile vaccines and treatments, known collectively as “medical countermeasures,” to defend against the pathogens. After seven years, the achievements of BioShield are measurable. According to Robin Robinson, who directs the countermeasure program at Health and Human Services, there is currently enough smallpox vaccine in the stockpile to inoculate every United States citizen; enough anthrax vaccine to respond to a “three-city attack”; and a variety of therapeutic drugs to treat the infected. Yet many other goals of the program are incomplete and, in some cases, not even begun. After spending hundreds of millions of dollars, for example, to develop a new vaccine for anthrax that would replace the controversial formula developed 50 years ago by the Army — which is known to have serious side effects and has never been approved for children — there is still no new vaccine. There also are no new broad-spectrum antibacterial drugs in the stockpile and no new antivirals. “We don’t even have candidate products” for antivirals, Robinson told me.

Last year, two separate review boards evaluated the state of the country’s biodefense program, and each report came back scathing. The National Biodefense Science Board, a nonpartisan task force created in 2006 to oversee countermeasure development, delivered [a 103-page report](#) to the secretary of Health and Human Services, Kathleen Sebelius, describing “lack of urgency,” “lack of coherence,” “lack of prioritization” and “lack of synchronization.” The title of the report was “Where Are the Countermeasures?” And the commission created by Congress in 2007 to evaluate all defenses for chemical, biological, radiological and nuclear threats delivered its final report, offering letter grades in several categories. For

attention to the safe storage of toxins, the government received an A. For openness and transparency, a B-minus. For biodefense, the grade was an F.

“The lack of U.S. capability to rapidly recognize, respond and recover from a biological attack is the most significant failure identified in this report card,” the commission wrote. “Especially troubling is the lack of priority given to the development of medical countermeasures — the vaccines and medicines that would be required to mitigate the consequences of an attack.”

Even within the biodefense community, there is a widespread sense that the countermeasure program is failing. Early this year, Sebelius described the effort as “full of leaks, choke points and dead ends,” and in more than 100 interviews with senior officials from each of the federal agencies related to countermeasure development — including past and current program heads at the White House, the Pentagon, the National Institutes of Health and the Departments of Homeland Security and Health and Human Services — I heard an endless series of grim diagnoses on the health of the nation’s biodefenses. As one senior official in the Obama administration put it: “We need a new model. This is never going to work.”

**Since the 1990s**, the United States’ approach to biodefense has been redesigned at least three times. Each time, the new approach was presented as a remedy; each time, the remedy failed to cure.

The story that circulates among officials is that the first modern president to focus on biodefense was Bill Clinton in 1998: after staying up all night reading [“The Cobra Event,”](#) by Richard Preston, a thriller about a terrorist strike with modified smallpox, Clinton called a high-level meeting of scientists, ordered the F.B.I. to review the plot and began pushing copies of the book on other politicians. By 1999, the White House and Congress had created a new division of the [C.D.C.](#), known as the [National Pharmaceutical Stockpile](#), to store medicines for crises. But in the absence of an actual crisis, financing for the stockpile was fairly minimal. By summer 2001, it held only 15 million doses of smallpox vaccine and little else.

After the anthrax letters in October 2001, everything changed: by 2002, spending on biodefense rose to more than \$4 billion, from \$633 million, with an emphasis on expanding the stockpile. One of the program’s first priorities was to increase the supply of smallpox vaccine. Smallpox is regarded by biodefense experts as the most threatening biological weapon, because it can spread as easily as the flu and kills about one in three victims. To expand the stockpile, the Bush administration called in a legendary epidemiologist. In the 1960s and ’70s, D. A. Henderson led the World Health Organization’s program to eradicate smallpox in nature, chasing outbreaks through villages in Brazil, the mountains of Yugoslavia and the jungles of India before finally containing the last known cases in the Horn of Africa in 1977. Today, smallpox is the only human infectious disease ever eradicated by science.

Returning to public service in 2001, Henderson called in another legend of microbiology, Maj. Gen. Philip K. Russell, a former commander of the Army’s medical research program and a figure so revered that one commanding general was known to keep a bumper sticker on his wall that read, “What would General Russell do?” Between 2001 and 2004, Henderson and Russell, along with leaders at the National Institutes of Health and civilian research laboratories across the country, raced to develop new production techniques and expand the smallpox-vaccine supply. Today, the stockpile holds more than 300 million treatment courses.

Officials at Health and Human Services were also determined to produce and store a large supply of anthrax vaccine, but they were unsatisfied with the existing formula. Some veterans blamed the vaccine for gulf war syndrome, citing research at Tulane University, and after vaccination was made mandatory in 1998, hundreds of service members actually refused the shots. Some resigned from service in order to avoid it; a few were court-martialed for insubordination. In 2002, the most comprehensive study of the vaccine, by the [Institute of Medicine](#) at the National Academy of Sciences, concluded that while the vaccine was “reasonably safe,” a new vaccine was “urgently needed.”

Developing a new vaccine is vastly more complicated than increasing the supply of one that exists. In the pharmaceutical industry, the cost to develop a new drug or vaccine averages about \$1 billion. To encourage companies into development, the Bush administration in 2003 announced the creation of a special fund within Project BioShield, filled with \$5.6 billion for the purchase of countermeasures like a new anthrax vaccine, yet by the middle of 2004, not a single large pharmaceutical company had begun development. “The belief was: Fund it and they will come,” Senator Richard Burr, who is prominent in biodefense, told me. “Well, they didn’t come.” Anthony Fauci, the director of the [National Institute of Allergy and Infectious Diseases](#) (N.I.A.I.D.) at the National Institutes of Health, told me \$5.6 billion was simply not enough money. “The Mercks and the GlaxoSmithKlines and others looked at it and said, ‘Forget it,’ ” he said.

Officials at Health and Human Services turned to smaller drug companies, instead. In November 2004, they offered the first major contract under BioShield to a young company called VaxGen, based in California. If VaxGen could develop and deliver a new anthrax vaccine, the government promised to purchase 75 million doses for \$877 million.

From the outset, the choice of VaxGen proved controversial. The company had never produced a drug before, it had been delisted from Nasdaq a few months earlier for failure to file timely financial statements and it was embroiled in an ethical dispute in Thailand over human testing of another drug. But VaxGen did have certain advantages, not least that it had been working on a new anthrax vaccine for two years already, financed by \$100 million from Fauci’s N.I.A.I.D.

To add another layer of confidence to the deal, officials at H.H.S. structured the VaxGen contract with unusually stringent terms. During the proposal process, VaxGen executives submitted a 1,000-point outline to show the approach they hoped to take. H.H.S. officials now made the outline binding: according to the former chief executive of VaxGen, Lance Gordon, officials notified the company two weeks before the deal became public that if VaxGen could not stick to the plan, the company risked breach of contract. In retrospect, Gordon told me, VaxGen never should have taken the terms. “It’s impossible,” he said. “In the history of mankind, nobody has been able to predict 1,000 tasks for hundreds of people over a five-year period. Life doesn’t work that way.”

Vaccines especially don’t work that way. Their development is notoriously complex and requires frequent adjustment as complications arise in the lab. Predictably, within months of signing the contract, VaxGen slipped off schedule and was technically in breach. At the same time, officials at H.H.S. were discovering that the VaxGen contract did not add to the countermeasure program’s appeal: by 2006, the third year of the contract, not one other major project was in development under BioShield.

It was time for a third overhaul. In the summer of 2006, Burr instructed his legislative staff to figure out what was wrong in the countermeasure program. He came to believe that the problem was institutional. If the early research at the N.I.H. was producing valuable leads for new drugs, and the money in Project BioShield offered an incentive at the end of development, then what was missing was an agency in between to help guide companies across what Burr’s staff called the Valley of Death. “What we saw,” Burr says now, “was that we had to become more than a procurer. We had to become a *partner*.” That July, Burr introduced a bill to establish a new agency at H.H.S., known as the [Biomedical Advanced Research and Development Authority](#) (Barda), with an annual budget of \$1 billion, to finance the development of countermeasures and steer companies through the gantlet of clinical trials and F.D.A. approval. That December, the bill passed both houses of Congress unanimously — but even as executives at VaxGen watched to see how the new agency might help them, H.H.S. announced that the VaxGen contract would be canceled.

Five years later, the cancellation of that contract is still a matter of fierce debate in biodefense circles. Many experts say that the decision had less to do with science than politics. Scott Lilly, a senior fellow at the Center for American Progress, recently studied the role that lobbying may have played in VaxGen’s demise. Between 2004 and 2006, Lilly writes in a new study, the company that produced the old anthrax vaccine, which is now called Emergent BioSolutions, employed an army of lobbyists to undermine the

VaxGen contract. "Each time VaxGen's test results were less than had been hoped for," the report says, "Emergent pounded VaxGen with a highly orchestrated campaign to overstate the problems and discourage government support of the effort."

Executives at Emergent acknowledge the campaign against VaxGen but say it was not directed at the company so much as the structure of the BioShield contract. "Our issue was not with respect to VaxGen," the president of Emergent, Daniel Abdun-Nabi, told me. "It was with respect to the approach of moving to a single supplier with an unproven technology. We thought it was premature. We thought it added risk to the country." According to Abdun-Nabi, the company's message to legislators was: "You shouldn't put all your eggs in one basket. There's a role for multiple suppliers." The fact that this lobbying contributed to the implosion of VaxGen and another five years in which Emergent was the only supplier of anthrax vaccine, which has earned the company \$1.5 billion, also troubles Abdun-Nabi, he said. "It puts us in a very difficult position to be the sole supplier. I mean, the whole nation is reliant on Emergent. And in one sense, we're very honored to be in that position, but it's a tremendous responsibility."

General Russell, who led the early countermeasure program, told me: "It was Emergent lobbying that killed VaxGen. Period. Emergent bought the Congress. Congress killed VaxGen." Several current officials share Russell's view. When I asked one senior biodefense official about the lack of a new anthrax vaccine, the official nearly exploded: "Why don't we have a second-generation anthrax vaccine? The reason is Emergent lobbying!" Even the director of Barda, Robin Robinson, acknowledged that politics played a role in the decision. "Should we have kept it? I think there's a long debate," he said. "They had brought in some really top-flight people in there, and Lance Gordon was really good at judging talent. Unfortunately, there was a lot of political pressure."

Soon after the VaxGen contract failed, the company folded into another, and Emergent bought the rights to develop the new anthrax vaccine it had spent three years lobbying against. Abdun-Nabi told me his company was still trying to develop that vaccine, but critics question whether Emergent, which signed another contract this month to deliver \$1.25 billion more of the old vaccine to the stockpile, is pursuing the replacement vaccine as enthusiastically as possible. "They bought the technology and buried it," Russell says. "We are five or six years behind where we should be. We should be working on a third-generation vaccine."

**If the pursuit** of a new anthrax vaccine has been halting, the pursuit of many other vaccines has halted altogether. In fact, other than the vaccines for anthrax and smallpox, there are no vaccines in the stockpile for any other agents on the material-threat list, nor are any of those vaccines in the advanced development program, nor will any of them enter the program any time soon.

Robin Robinson, the director of Barda, is a big, easy fellow, with a trim goatee and a light Southern drawl. The first I met him, two years ago, we sat at a long table with his new boss, Nicole Lurie, who had just been appointed by the Obama administration as the assistant secretary for countermeasure development. Lurie had an air of unpretentious surety and a sudden, piercing laugh, and she and Robinson wasted no time trying to hide the failings of their program. Although Barda was established in 2006 with an annual budget of \$1 billion, it never actually received the money. In 2006, the agency received \$54 million; in 2007, \$104 million; in 2008, \$102 million; and by the time I sat down with Robinson and Lurie in 2009, Barda had received in four years about half of what it was intended to receive in one. Lurie reminded me of the high cost required to develop drugs. "What does it take in the pharmaceutical industry?" she asked. "A billion dollars per product! The advanced development part of that might be about \$350 million, so that's the part that we should be funded for."

"For each product!" Robinson said.

"For each product," Lurie agreed. "So, we're nowhere near it. We're nowhere near the level that we need to be, to be able to protect the American public."

In the two years since that conversation, financing for Barda has gone up, but with many of the goals still incomplete and criticism pouring in — two weeks ago, the Bipartisan W.M.D. Terrorism Research Center in Washington gave the agency a D for performance — the affinity between Robinson and Lurie is less apparent. Lurie, for example, has removed from Barda all contracting officers, instructing them to report to her instead of Robinson. This may seem minor, but companies working with Barda suggest that it has led to ballooning bureaucracy at an agency that was specifically created to attract business. “Now you really have two bosses,” Eric Richman, the C.E.O. of PharmAthene, which is one of four companies still working on a new anthrax vaccine, told me. “We actually spend as much time managing our contracts as we do developing our drugs. It’s a real burden.” Other C.E.O.’s echoed Richman’s concern, and friends of Robinson’s suggest that the move has compromised his ability to lead the program effectively. “This becomes very frustrating for him,” an H.H.S. official told me. “What does he tell the companies — ‘Now I have to go ask for permission’?”

But the gap between Robinson and Lurie also seems to extend to basic matters of policy and fact. Nowhere is the division in countermeasure development more apparent than on the question of vaccine development. Because a vaccine is only effective against a single pathogen, and because development is so expensive, Barda has focused much of its energy on therapeutic drugs — which may not offer protection to the healthy but can treat a broad range of diseases.

When I visited Barda recently to speak with Robinson and Lurie again, I heard two very different explanations for the move away from vaccines. Lurie described the decision as an unfortunate but necessary concession to the budget. “You’d like to have vaccines further along in the pipeline for all the threats we have, and you’d like to have a way to manufacture them quickly,” she told me. “But I don’t think there’s anywhere near enough money in the system.” Yet Robinson insisted that the move would have happened even if financing was not an issue. “There are only two biothreats — smallpox and anthrax — that we feel vaccination is the appropriate way to go,” he said. When I asked if that meant he would not even *want* a vaccine for other agents, like tularemia, he said: “I don’t think there’s a case to be made for that. What we’re doing is therapeutics.”

The debate over vaccine development is by no means limited to Robinson and Lurie. Ten years after the anthrax attacks, and with more than \$16 billion committed to countermeasure development, there is still broad disagreement among officials over whether the stockpile should include other vaccines. When I asked Tara O’Toole, who leads the Science and Technology Directorate at the Department of Homeland Security (where the list of biological material threats is created and the countermeasure process begins) whether she believed the stockpile should include vaccines for other agents, she snapped: “Vaccines are essential. If there’s a bio attack, people are going to want their children vaccinated. It’s the only defense against reload.”

By “reload,” O’Toole was referring to a concept first developed by Richard Danzig, who is a former secretary of the Navy under Bill Clinton and one of the leading intellectuals in biodefense. Danzig currently serves as chairman of the board at the Center for a New American Security, sits on the Defense Policy Board at the Pentagon and is a member of the President’s Intelligence Advisory Board. The reload concept, he told me recently, describes a fundamental difference between biological weapons and all other weapon types. “When we talk about terrorists’ acquiring a nuclear weapon, we’re talking about just that — they’re acquiring a weapon,” Danzig said. “With biological weapons, we’re talking about acquiring the ability to *produce* weapons. So if you acquire the ability to produce 100 grams of anthrax, you can keep doing that. You really have to think about biology as potentially the subject of a *campaign*, where somebody keeps attacking, rather than a one-shot incident.” When I asked Danzig how the reload concept influences the debate over vaccines, he said: “You can reassure people that there will be antibiotics available for them, and you can keep producing ever greater numbers of antibiotics. But you can see that if you had the ability to vaccinate people and protect them, it would provide a larger degree of protection. So to the extent that these things come to pass, I think there will be more pressure to develop vaccines.”



Brett Giroir, who directed the Defense Sciences Office at Darpa and is now vice chancellor for strategic initiatives at Texas A&M University, shared Danzig and O'Toole's belief that other vaccines should be developed. "Vaccines are critical components of a biodefense posture, and anybody who thinks they're not isn't thinking seriously about how we approach this," Giroir told me. "If we got sprayed with tularemia in College Station and a biodefense sensor went off, that would be an ideal opportunity for vaccine."

Tularemia is an especially difficult case. Found naturally in animals around the world, it can be transmitted during butchering and spread by ticks. Although it is highly infectious, it is seldom lethal. But during the 1950s and '60s, Army researchers became interested in weaponizing tularemia.

It has been more than 40 years since the American bioweapons program shut down, and many of the details remain classified. Last fall, the final director of the program, William Patrick, died of cancer at 84, but in the final months of Patrick's life, Robert Kadlec, the former biodefense chief in the second Bush White House, and Joel McCleary, a former aide to Jimmy Carter, spent hundreds of hours interviewing him on the history and accomplishments of the program. Over the past year, McCleary has delivered a presentation on the bioweapons program to members of Congress, the White House national-security staff and senior officials at the Departments of Defense, Homeland Security and Health and Human Services. One night this summer, I stopped by McCleary's house to see the presentation myself.

Finding McCleary's home in Georgetown was a bit like passing through the looking glass. I started down a cheery row of town houses, but as I approached the right number, I realized there was no house — just a gravel path that trailed away from the street with vines and shrubs surrounding it. I followed the path and came to a gate and, finding no bell or button, fiddled with an iron latch to enter a lush green courtyard shaded by a walnut tree. It was as if I made a wrong turn in Georgetown and wandered into the English countryside. In the center of the yard sat a small cottage, as wide as it was tall. I rang the buzzer a few times and rapped a brass knocker on the door, and after a few minutes, McCleary burst outside in a pair of bright red slippers. He is a large man, brimming with energy, and we stood in his yard admiring the flowers for a moment, then retreated inside to review the last known record of the American quest for a microbial army.

It was immediately apparent that the Army's research on tularemia went far beyond what is commonly known. In hundreds of experiments, scientists weaponized the bacteria to extraordinary potency and then proceeded to mix the slurry with another agent, known as S.E.B., which multiplied the effects logarithmically, shattering the human immune system just as the tularemia plunged in. In several large outdoor tests, scientists drifted clouds of tularemia over cages of live monkeys to evaluate the infectivity. At high doses, the weaponized bacteria were determined to have an incubation period of just a few hours. If left untreated, the combination of tularemia and S.E.B. was projected to cause death within the same period. Patrick called these "killing winds." In one video, he calmly warned, "Between 50 and 60 pounds of freeze-dried tularemia produced in our production facility would eliminate about 60 percent of the population of London, England."

When I asked Robinson, who knew Patrick and has seen McCleary's presentation, whether the extreme weaponization of tularemia suggests the limits of a therapeutic response and a role for vaccination, Robinson became circumspect. "I've got to be careful on this one," he said, "because there is classified information." Then he went on to explain that Barda is considering the possibility of such an attack but still hopes to respond by treating the sick, rather than by vaccinating the healthy. "What we're doing," he reiterated, "is therapeutics."

To date, the United States has never developed an original vaccine for tularemia. Instead, for the past 50 years, scientists who study tularemia must be vaccinated with a weakened version of the bacterium, which was first obtained through mysterious means from the Soviet Union during the early days of the cold war and then modified. But today, supplies of the live vaccine are running thin. In fact, they are virtually gone. Although some lab workers still receive it, the official literature of the C.D.C. lists the tularemia vaccine as "not currently available," and Karl Klose, who runs a tularemia lab at the University



of Texas, San Antonio, told me that federal research into tularemia has dwindled over the past few years. "They're basically just abandoning the effort," he said. "It's like the A.D.D. has kicked in."

There is one vaccine candidate for tularemia currently in development. Although it is not a novel product and represents a different formulation of the old Soviet vaccine, it is currently in clinical trials at several locations around the country. Typically, the point at which a product becomes eligible for all the support and financing of the advanced development program at BarDA is when the product enters Phase II testing. The new tularemia product entered Phase II this fall, but without interest from BarDA, it has remained under the auspices of the early development program at N.I.A.I.D. If this seems organizationally confusing, it makes sense in at least one way. Since 2002, the financing for N.I.A.I.D. has outpaced that for advanced development by as much as 15 to 1. Partly, this is a result of N.I.A.I.D.'s being an older, established institution; partly it is a consequence of the institute's powerful director, Fauci, who has led the agency since 1984 and is sometimes called the J. Edgar Hoover of biology. On the heels of the anthrax attacks in 2001, Fauci vigorously promoted N.I.A.I.D. as the best agency to lead countermeasure development and since 2003 has received about \$1.6 billion each year for biodefense research. Some of that money goes into projects like the tularemia study, which would not be financed otherwise. Much more has gone into other kinds of projects entirely. A close look at Fauci's budget last year shows that the director has steered about 70 percent of his biodefense funds toward research into natural disease, including AIDS, SARS and malaria — choosing to define "biodefense" however he likes.

**The offices of N.I.A.I.D.** lie within the sprawling N.I.H. campus in Bethesda, Md., just below the rim of the Washington Beltway. Among the stately grounds of the N.I.H., the N.I.A.I.D. building is mostly remarkable for how unremarkable it is: the exterior is smudged with mildew and laced with steel electrical conduit, and the corridors are dim and yellowing with age. One day recently, as I stood with Fauci in his seventh-floor office, he paused to admire the dishevelment around him. "Look at this!" he cried, running a hand over the dented surface of his desk. "I inherited this from my predecessor!" He pointed to an old sofa in the corner. "If there's ever a Congressional investigation, I don't want them to say I spent it all on myself!"

Fauci is a small, muscular man with an outsize manner. He is from New York in the most obvious ways. After three decades leading one of the most prestigious research programs on earth, he retains a booming Brooklyn patois that sounds, even when he is discussing matters of virulence and pathogenesis, as if he is shouting a pizza order to the back. As we sat together in his library, he explained that although he has overseen most federal spending on countermeasure development since 2002, he does not fully embrace the mission. The list of material threats, he said, reflects an outmoded way of thinking. "It's less of a priority to say, 'O.K., now here's our menu for the Strategic National Stockpile,'" Fauci said. "We call that the military model." He added, "Do we have this little thing in the stockpile or not? I don't judge the safety of the country on that basis. To me, the idea of a naturally occurring threat is infinitely greater."

Many agents on the list, Fauci said, were a product of the cold war, when the U.S. military kept a list of "Category A" pathogens being developed by the Soviet bioweapons program. "So when the decision was made to make an investment into developing countermeasures," he told me, "that was essentially their matrix from the beginning: these are what we know the Soviets had. We know they have stockpiles. This is what we're going to protect against." He mentioned the bacterium glanders, which was reportedly used by Germany in World War I and by Japan in World War II but seemed to Fauci a comparatively minor threat today. "I think the unknown threat of a mutant microbe is infinitely greater than someone coming and dropping a glanders on us!" he said. "I mean, seriously! Get real about that!"

When I mentioned Fauci's comments to O'Toole, who oversees the biological-threat list at the Department of Homeland Security, she said he was "completely wrong" to suggest that the list is rooted in cold-war thinking. "We use current intelligence as an integral part of every material-threat determination," O'Toole said. "I'm surprised anyone in N.I.H. would think otherwise, particularly since the details of the material-threat determination process are briefed at the White House. It does raise a troubling question about how seriously N.I.H. is engaged in the biodefense mission."

Whether or not Fauci is right about the origins of the material-threat list, his observation that a natural outbreak is more likely than a biological attack is difficult to dispute. Each year, seasonal flu leads to about 200,000 hospitalizations and several thousand deaths in the United States. Although a biological attack could be much larger, there is no certainty that such an attack will ever happen. How to balance the unlikely but catastrophic potential of bioterror with the steady advance of natural disease is one of the most puzzling challenges for biodefense policy going forward.

To some extent, this is also a question of framework. Fundamentally, the countermeasure program is a public-health project, yet with its reliance on classified intelligence and secret-threat assessments, it is more closely aligned in many respects with the methodology of other national-security projects. Where biodefense fits into government bureaucracy will have a profound impact on its financing. In public health, the \$12 billion necessary to develop new vaccines for a dozen material-threat agents can seem a towering, even absurd, figure. Within the realm of national security, the same amount represents less than a quarter of the cost of the military's experiment with the V-22 Osprey heli-plane, or about what the U.S. will spend in Afghanistan between now and Christmas.

"We spent trillions of dollars in the cold war preparing for a potential nuclear exchange that never occurred," says Kenneth Bernard, who was the senior biodefense official in the Clinton White House from 1998 to 2001 and then again in the Bush White House from 2002 to 2005. "We're not spending that kind of money to prevent a bio attack because the people who work on biology are not trained to think like that. They are much more interested in dealing with the three particular strains of influenza that are in the dish this year than they are in thinking about a plague attack in 2018."

Even if the leadership and financing for biodefense were to shift toward a national-security framework, the task would still require complex coordination among agencies with expertise in disparate spheres. This challenge is not made easier by the personal hostility that has emerged among many current program heads — some of whom have close ties to the competing companies they oversee. In the course of several months of reporting, I heard senior officials from each of the major countermeasure agencies question the motives and professional credentials of the others, sometimes in a manner involving spittle. At times it seemed that the most virulent pathogen in biodefense was mutual hostility, and everybody had it.

Senior officials in the Obama administration say that the president is committed to improving coordination on biodefense and is entering a fourth major overhaul of the countermeasure enterprise. Last year, officials from the countermeasure agencies met weekly with the White House staff to discuss the merits and drawbacks of the current approach. Officials who attended those meetings say the administration hopes to develop a more "nimble, flexible" program, in which a single drug can treat multiple diseases and a single manufacturing plant can produce multiple drugs. If that plan, after 10 years and hundreds of millions of dollars trying to create a new anthrax vaccine that is still not ready, sounds optimistic, it is. Whether it is also realistic, only time will tell. Critics are quick to note that, three years after taking office, the administration is still holding meetings and announcing bold new plans.

A number of former and current officials also point out that no one in the Obama White House is focused exclusively on biodefense. In both the Clinton and Bush administrations, there was a biodefense director whose primary job was to coordinate the agencies. Today, there are four senior White House officials with partial responsibility for biodefense, but each of them is also responsible for a raft of other issues, like natural disasters, terrorism and large-scale accidents like the Deepwater Horizon oil spill. Whatever you think U.S. biodefense policy should be, it is difficult to imagine that it would not benefit from clear, central leadership. Kenneth Bernard, the biodefense czar in both the Clinton and Bush administrations, told me, "The only way that you can get all of those people in the room is to call them into the White House, and to have a coordinating group under a single person." Robert Kadlec, who was the senior official for biodefense in the second Bush term, said, "Unless someone makes this a priority, it's a priority for no one."

Randall Larsen, who first smuggled a tube of weaponized powder into the meeting with Dick Cheney 10 years ago — and went on to become the executive director of the Congressional Commission on Weapons of Mass Destruction — said: "Today, there are more than two dozen Senate-confirmed individuals with some responsibility for biodefense. Not one person has it for a full-time job, and no one is in charge" ([New York Times, 2011](#)).

**Title:** Hospital Rooms Crawling With Drug-Resistant Germs: Study

**Date:** November 2, 2011

**Source:** [U.S. News](#)

**Abstract:** Nearly half of 50 hospital rooms tested by researchers were colonized or infected with a multidrug-resistant bacteria, a new study says.

University of Maryland School [of Medicine](#) researchers found *Acinetobacter baumannii* (MDR-AB) bacteria on multiple surfaces, including bedrails, supply carts and floors. This species of bacteria, which has caused infection outbreaks in health care facilities over the last decade, can survive on surfaces for long periods of time. MDR-AB infections mainly occur in patients who are very ill, wounded or have weakened [immune systems](#).

For the study, the researchers analyzed samples collected from 10 surfaces in each of 50 hospital rooms occupied by patients with a recent (less than two months prior to sampling) or remote (more than two months) history of MDR-AB.

The surfaces selected for sampling included bedrails, bedside table, door knob, vital sign monitor touchpad, nurse call button, sink, supply cart drawer handles, infusion pump, ventilator surface touch pad, and the floor on both sides of the bed.

The researchers found that 9.8 percent of the surface samples from 48 percent of the rooms showed evidence of MDR-AB. The surfaces most commonly contaminated were supply cart handles (20 percent), floors (16 percent), infusion pumps (14 percent), ventilator touchpads (11.4 percent), and bedrails (just over 10 percent).

These findings are a cause for concern because these surfaces are routinely touched by health care workers, the researchers said.

The study, published in the November issue of the *American Journal of Infection Control*, also found that patients with a recent history of MDR-AB were no more likely to contaminate their hospital room than those with a remote history.

"For patients with MDR-AB, the surrounding environment is frequently contaminated, even among patients with a remote history of MDR-AB," the researchers concluded in a [journal news release](#). "In addition, surfaces often touched by health care workers during routine patient care are commonly contaminated and may be a source of (hospital-based) transmission. The results of this study are consistent with studies of other important hospital pathogens such as methicillin-resistant [Staphylococcus aureus](#), vancomycin-resistant *Enterococcus* and *Clostridium difficile*."

However, the study does not show which came first -- MDR-AB or environmental contamination.

Also, the researchers noted that since they conducted their study, new methods of reducing transmission of MDR-AB have helped decrease infections ([U.S. News, 2011](#)).

**Title:** UN Lacks Single Agency To Respond To Biological, Chemical Terror Threats

**Date:** November 11, 2011

**Source:** [Xinhua](#)

**Abstract:** The United Nations on Thursday told its 193-member states that on the international level "there is no single lead agency that bears the responsibility" to respond to chemical or biological terror threats.

An 85-page report from the Working Group on Preventing and Responding to Weapons of Mass Destruction (WMD) attacks tells nations to get familiar with and cooperate with the 31 UN entities and other international organizations dealing with chemical and biological threats. Radiological and nuclear threats were dealt with in an earlier report..

"I think people are aware there are some very real issues here, " said Assistant UN Secretary-General Robert Orr, chairman of the Counter-Terrorism Implementation Task Force (CTITF), formed by UN Secretary-General Ban Ki-moon in 2005.

At the launch, just outside UN Headquarters in New York, at the International Peace Institute, and co-sponsored by the Polish Mission to the United Nations, Orr voiced his greatest concern, bio-terror.

"All too often I think our sources on WMD terrorism threats come from Hollywood," he said. "It's kind of the work of science fiction that people have in their head. But, unfortunately the drama is all too real and that the real threats are out there and the international system is not fully a system on some of these issues."

Referring to one of a series of sessions leading up to the report, Orr said, "We started one meeting by talking about 'What keeps you awake at night?' By that night I don't think any of us were sleeping."

While the world organization provides a place for "various actors" to get together to discuss with experts on terror threats the effort is "very fragmented," he said.

"The UN family came together around an issue that was not a natural," Orr said. "It's not easy for some of the agencies, funds and programs to take a deep dive in this area because their mandate takes one piece of it."

"One observation on the substance: biological and chemical threats are often the step child, or the orphan, after nuclear and radiological and I think its a function of the human experience that when we think about really what would keep us up at night, it 's a mushroom cloud," he said. "You know, the idea that civilization changes overnight."

"Yet, if you look at the pound for pound or ounce for ounce threat, you look at the biological or chemical side of the equation, we are probably in many ways much more threatened by threats that come from the biological or chemical world," he continued.

"The pace of change in the natural sciences in particular on the biological side is breathtaking," Orr said. "What can be produced in anyone's garage, anyone's bathroom, anywhere in the world today is fundamentally different than what could be produced 10 years ago. So, the fact is that the context of this report is a very fast-changing, science-based shift, tectonic shift, in particular, on the biological side."

"Chemical threats are many but I would underscore the biological side because I don't think that policy makers at the national level, at the international level, fully appreciate you just need to sit in a room with some scientists, from the natural sciences, for a few hours to realize that this world is moving so fast that any attempts to govern this space properly are challenged simply by the pace of change," he added.

Among the report's conclusions, other than encouraging coordination and sharing of information and experience, it suggested measures be developed for preparedness against chemical and biological terror threats, accidents and deliberate actions by criminals.

"Interagency Coordination in the Event of a Terrorist Attack Using Chemical or Biological Weapons of Materials" also suggested entities to aid in legal assistance, for technical program assistance to aid in regional approaches and that the UN Disaster Assessment and Coordination (UNDAC) mechanism be formally adopted for coordinating relief efforts.

The report called for better international coordination in training and exercise to respond to chemical and biological attacks, early warning and detection of chemical or biological releases and human, animal and disease surveillance improvement and protection of the food chain.

It called for attention to the recovery phase after an attack and decontamination and, "Finally, better preparation and coordination are needed in managing public information in crisis situations," explaining that the complexity of such situation and "the absence of a single lead agency are all factors that pose challenges for an authoritative, accurate, consistent and timeless release of information to the public by the different agencies concerned."

In that regard, the report called for setting up a Crisis Communications Group to agree on information modalities "in advance and to review its operation" ([Xinhua, 2011](#)).

**Title:** Scientists Fight Bio-Terror Threat

**Date:** November 18, 2011

**Source:** [Herland Sun](#)

**Abstract:** The Commonwealth Scientific and Industrial Research Organisation (CSIRO) has opened one of the world's most advanced biosecurity areas.

"Level four" - the new \$5 million laboratory and opened by Science Minister Kim Carr - will allow scientists to work with live cells of killer bugs, including the ebola, SARS, nipah and hendra viruses.

Scientists will collaborate with experts from throughout the world through online hook-ups and visits.

The Geelong laboratory is already renowned in the science world as a result of Dr Linfa Wang's breakthrough in finding a link between bats and the SARS virus.

Bats will form a major part of experiments at the lab, which also has 120 monkeys used for HIV research.

The laboratory was mentioned in the Hollywood blockbuster *Contagion*, starring Kate Winslet and Matt Damon.

In the film, scientists receive a sample from Geelong that helps them fight a flu-like epidemic that came from a bat infecting a pig.

Prof Jeggo said vigilance against diseases was necessary - another SARS-like virus was around the corner.

"We do have these new and emerging viruses," Prof Jeggo said.

"And we don't know where they are going to come from.

"If you have had the pleasure of seeing the film *Contagion* ... that's what we're dealing with here.

"That is the likely scenario.

"It's not so much those four (hendra, ebola, SARS and nipah); it's probably one we don't know about."

The new laboratory was funded through the Federal Government's National Collaborative Research Infrastructure Strategy.

Students from universities throughout Australia also will be encouraged to work at the laboratory as one of the conditions of the grant.

The opening comes as The Department of Homeland Security in the US announced it wants to work with the CSIRO to develop vaccines against bio-terror threats, which are seen as more critical than nuclear warfare.

Prof Jeggo said the Americans were interested in using live-cell imaging technology.

"The Department of Homeland Security sent us a letter asking about creating partnerships," he said.

"They want to develop anti-biological warfare options, which could include vaccines, or better equipment such as face masks for their troops, particularly after the anthrax scare" ([Herland Sun, 2011](#)).

**Title:** Scientist Deliberately 'Militarizes' Flu Strain In Deadly Bioterrorism Experiment

**Date:** November 23, 2011

**Source:** [Natural News](#)

**Abstract:** For years, health officials from around the world have been warning that the H5N1 avian flu virus, which is currently not a threat, will one day mutate into a deadly, pandemic strain. But now their predictions -- or warnings, depending on how you look at it -- could come true, as a European scientist has genetically altered H5N1 to effectively spread between mammals.

NPR reports that Dr. Ron Fouchier from Erasmus Medical Centre in the Netherlands announced at a recent flu conference in Malta that he had discovered a way to make the avian flu virus more contagious. By deliberately modifying the virus' genes, Dr. Fouchier was able to induce H5N1 transmission between ferrets, which represent the animal model typically used to study flu transmission between humans.

So in case you missed it, a virologist has deliberately altered the deadly H5N1 avian flu virus to become more transmissible between mammals -- and he has done so in the name of studying the nature of the virus and, according to NPR, "what it is capable of." Never mind that in its native state, H5N1 is incapable of doing much at all on a global scale. Now that it has been purposely altered, the virus could eventually have devastating global consequences should it ever be released into the wild.

"It's just a bad idea for scientists to turn a lethal virus into a lethal and highly contagious virus," said Dr. Thomas Inglesby, a bioterrorism expert and director of the Center for Biosecurity at the University of Pittsburgh Medical Center, concerning the experiment. "And it's a second bad idea for them to publish how they did it so others can copy it."

Though Dr. Fouchier has not yet published his findings in a scientific journal, he very well could in the near future. In response to an NPR inquiry as to whether or not he intends to publish the study, Dr. Fouchier allegedly told NPR via email that he refused to comment until a National Science Advisory Board for Biosecurity committee decides whether or not to recommend that the study be published.

In defense of publishing sensitive studies of this nature, Lynn Enquist, editor in chief of the *Journal of Virology*, told NPR that it is necessary in order to "be prepared" for how the virus might evolve and spread ([Natural News, 2011](#)).

**Title:** Ready or Not? 2011: Protecting The Public From Diseases, Disasters, And Bioterrorism

**Date:** December, 2011

**Source:** [Trust for America's Health](#)

**Abstract:** *Ready or Not? Protecting the Public from Diseases, Disasters, and Bioterrorism*

1. 51 of the 72 cities in the Cities Readiness Initiative are at risk for elimination; the Initiative supports the ability to rapidly distribute and administer vaccines and medications during emergencies;
2. All 10 state labs with "Level 1" chemical testing status are at risk for losing top level capabilities, which could leave the U.S. Centers for Disease Control and Prevention (CDC) with the only public health lab in the country with full ability to test for chemical terrorism and accidents;
3. 24 states are at risk for losing the support of Career Epidemiology Field Officers - CDC experts who supplement state and local gaps to rapidly prevent and respond to outbreaks and disasters, such as during the H1N1 flu pandemic and responding to the health impact of the Gulf Oil Spill in 2010; and
4. The ability for CDC to mount a comprehensive response to nuclear, radiologic and chemical threats as well as natural disasters is at risk due to potential cuts to the National Center for Environmental Health. All 50 states and Washington, D.C. would lose the support CDC provides during these emergencies.

"We're seeing a decade's worth of progress eroding in front of our eyes," said Jeff Levi, PhD, Executive Director of TFAH. "Preparedness had been on an upward trajectory, but now some of the most elementary capabilities - including the ability to identify and contain outbreaks, provide vaccines and medications during emergencies, and treat people during mass traumas - are experiencing cuts in every state across the country."

Combined federal, state and local budget cuts mean public health departments can no longer sustain a number of basic elements of preparedness. In the past year, 40 states and Washington, D.C. cut state public health funds - with 29 of those states and D.C. cutting their budgets for a second year in a row and 15 states for three years in a row. Federal funds for state and local preparedness declined by 38 percent from fiscal year (FY) 2005 to 2012 (adjusted for inflation) - and additional cuts are expected under budget sequestration.

"Americans expect the public health system to have the capability to competently protect their health during emergencies. This is not an optional service," said Mel Kohn, MD, MPH, State Health Officer and Public Health Director of the Oregon Health Authority. "We will be unable to absorb reductions of this magnitude simply by finding efficiencies. We have reached the point where our ability to do this work will be seriously compromised, with life and death consequences."

"During the anthrax attacks and Hurricane Katrina, we witnessed what happens when public health doesn't have the technology, resources, workforce or training needed to respond to emergencies," said James S. Marks, Senior Vice President and Director of the Health Group of RWJF. "The old adage is that it's better to be safe than sorry. Unfortunately if we ignore preparedness now, we'll be sorry later when the next emergency strikes."

**The report includes a series of recommendations that will be important for improving America's preparedness, including:**

1. Assuring dedicated funding and strengthening the public health preparedness core capabilities;
2. Improving biosurveillance to rapidly detect and track outbreaks or attacks;
3. Improving research, development and manufacturing of vaccines and medications;
4. Enhancing the ability to provide care for a mass influx of patients during emergencies;
5. Providing better support to help communities cope with and recover from disasters; and
6. Coordinating food safety with other preparedness efforts through the strategic implementation of the FDA Food Safety Modernization Act of 2011.

Detailed Findings Summary

The 51 cities at risk for elimination from the Cities Readiness Initiative include: Albany and Buffalo, NY;



Albuquerque, NM; Anchorage, AK, Baltimore, MD; Baton Rouge and New Orleans, LA; Billings, MT; Birmingham, AL; Boise, ID; Burlington, VT; Charleston, WV; Charlotte, NC; Cheyenne, WY; Cincinnati and Columbus, OH; Columbia SC; Des Moines, IA; Dover, DE; Fargo, ND; Fresno, Riverside, Sacramento and San Jose, CA; Hartford and New Haven, CT; Honolulu, HI; Indianapolis, IN; Jackson, MS; Kansas City, MO; Little Rock, AR; Louisville, KY; Manchester, NH; Memphis and Nashville, TN; Milwaukee, WI; Oklahoma City, OK; Omaha, NE; Orlando and Tampa, FL; Peoria, IL; Portland, ME; Portland, OR; Providence, RI; Richmond and Virginia Beach, VA; Salt Lake City, UT; San Antonio, TX; Sioux Falls, SD; Trenton, NJ; Wichita, KS.

**The 21 cities NOT at risk for elimination from the Cities Readiness Initiative include: Atlanta, GA; Boston, MA; Chicago, IL; Cleveland, OH; Dallas, TX; Denver, CO; Detroit, MI; District of Columbia; Houston, TX; Las Vegas, NV; Los Angeles, San Diego and San Francisco, CA; Miami, FL; Minneapolis, MN; New York City, NY; Philadelphia and Pittsburgh, PA; Phoenix, AZ; Seattle, WA; St. Louis, MO.**

The 10 state labs at risk for losing "Level 1" chemical testing abilities: California, Florida, Massachusetts, Michigan, Minnesota, New Mexico, New York, South Carolina, Virginia, Wisconsin.

The 24 states at risk to lose Career Epidemiology Field Officers: Alabama, Arizona, California, Florida, Idaho, Kentucky, Maine, Michigan, Minnesota, Mississippi, Montana, Nebraska, Nevada, New York, North Carolina, North Dakota, Pennsylvania, South Dakota, Tennessee, Texas, Vermont, Virginia, West Virginia, Wyoming.

The 14 universities at risk to lose Preparedness and Emergency Response Learning Center funds: Columbia University Mailman School of Public Health; Harvard University School of Public Health; Johns Hopkins University Bloomberg School of Public Health; Texas A&M School of Rural Public Health; University of Alabama at Birmingham School of Public Health; University of Albany SUNY School of Public Health; University of Arizona College of Public Health; University of Illinois at Chicago School of Public Health; University of Iowa College of Public Health; University of Minnesota School of Public Health; University of North Carolina Gillings School of Global Public Health; University of Oklahoma College of Public Health; University of South Florida College of Public Health; University of Washington School of Public Health.

The nine universities at risk to lose Preparedness and Emergency Response Research Center fund: Emory University; Harvard School of Public Health; Johns Hopkins University Bloomberg School of Public Health; University of California at Berkeley and Los Angeles; University of Minnesota; University of North Carolina; University of Pittsburgh; University of Washington ([Healthy Americas, 2011](#)).

**Title:** US Warns Of Bioweapon Threat From Gene Assembly

**Date:** December 7, 2011

**Source:** [The Guardian](#)

**Abstract:** U.S. Secretary of State Hillary Rodham Clinton has warned of the potential that new gene assembly technology could be used by terrorist to create biological weapons.

Clinton says the emerging gene synthesis industry offers benefits to researchers "but it could also potentially be used to assemble the components of a deadly organism."

The U.S. government has cited efforts by terror groups like al-Qaeda to develop biological weapons as a national security concern.

Clinton spoke Wednesday at meeting in Geneva aimed at reviewing the 1972 Biological Weapons Convention ([The Guardian, 2011](#)).

**Title:** Pentagon Says Allied Partnerships Key To Preventing Bioattacks

**Date:** December 9, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** According to a senior U.S. Department of Defense official, the Pentagon sees stronger allied partnerships as extremely important in the attempt to prevent the use of chemical and biological weapons.

The official said that unique threats in the future will become even more critical as defense budgets decline globally, Defense News reports. Agreements with countries like Canada, Australia and the United Kingdom will help them work together to stop terrorist attacks.

"We recognize, more so than ever, it's our partnerships that's going to enable us to field the best capabilities for our forces, for our nations working together," the official, speaking on the condition of anonymity, said, according to Defense News.

Over the course of the next decade, the Pentagon is facing more than a \$450 billion reduction to planned spending. It is as of yet unclear how the reductions to the Pentagon's budget will impact the biological and chemical division.

"There's a shared understanding that the [weapons of mass destruction] threat is very real, very serious and it is still a very high priority," the official said, according to Defense News.

Pentagon officials are currently conducting an analysis of biological and defense programs to address the spending reductions. The Pentagon has also started participating in exercises with South Korea to examine the biodefense problem in the region.

"We're helping our colleagues there go through some of the learning experiences we had in the United States in that interagency environment," the official said, Defense News reports. "It's a new challenge for them, but the threat is ever more present on the peninsula today" ([Bio Prep Watch, 2011](#)).

**Title:** U.S. Warns Of Development Of Bioweapons By Terrorist Groups

**Date:** December 12, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** The United States recently warned that the threat of terrorist groups developing or using biological weapons is growing.

U.S. Secretary of State Hillary Clinton called for greater international cooperation and for countries to strengthen their ability to detect and respond to suspicious disease outbreaks that could be caused by pathogens that have fallen into the wrong hands, according to Reuters.

"Unfortunately the ability of terrorists and other non-state actors to develop and use these weapons is growing. Therefore this must be a renewed focus of our efforts," Clinton said, Reuters reports. "Because there are warning signs and they are too serious to ignore."

Clinton said that al-Qaeda in the Arabian Peninsula has urged those with degrees in microbiology and chemistry to develop a weapon of mass destruction for use against the West. She also said that a weapon could be made without the need for highly trained experts. A small sample of widely available pathogens, inexpensive equipment, and college-level biology or chemistry would be sufficient.

The secretary made the statements while addressing a global conference held every five years in Geneva to review the 1975 Biological Weapons Convention.

The United States currently sees no need to negotiate a verification regime as it would be far too difficult to detect biological material and much research can serve dual purposes.

"False verification is worse than no verification, in the sense that it gives you this sense of security that is not warranted," an anonymous U.S. official said, Reuters reports [\(Bio Prep Watch, 2011\)](#).

**Title:** The Bioterrorist Next Door

**Date:** December 15, 2011

**Source:** [Foreign Policy](#)

**Abstract:** In September, an amiable Dutchman stepped up to the podium at a scientific meeting convened on the island of Malta and announced that he had created a form of influenza that could well be the deadliest contagious disease humanity has ever faced. The bombshell announcement, by virologist Ron Fouchier of Erasmus Medical Center, sparked weeks of vigorous debate among the world's experts on bioterrorism, influenza, virology, and national security over whether the research should have been performed or announced and whether it should ever be published.

Meanwhile, a joint Japanese-American research team led by the University of Wisconsin's Yoshihiro Kawaoka says that it, too, has manufactured a superflu. Additionally, a team at the U.S. Centers for Disease Control and Prevention (CDC) in Atlanta has acknowledged doing similar research, without successfully making the über flu. The U.S. National Science Advisory Board for Biosecurity is now deliberating whether to censor publication of the Fouchier and Kawaoka papers, though it lacks any actual power to do so: It could so advise scientific journals, but editors would still decide. The advisory board is expected to release its decision on Dec. 15.

The interest in this brave new world of biology is not limited to the scientific community. U.S. Secretary of State Hillary Clinton made a surprise visit to Geneva on Dec. 7, [addressing the Biological Weapons Convention](#) review conference. The highest-ranking U.S. official to speak to the biological weapons group in decades, Clinton warned, "The emerging gene-synthesis industry is making genetic material widely available. This obviously has many benefits for research, but it could also potentially be used to assemble the components of a deadly organism."

"A crude but effective terrorist weapon can be made by using a small sample of any number of widely available pathogens, inexpensive equipment, and college-level chemistry and biology," Clinton also stated. "Less than a year ago, al Qaeda in the Arabian Peninsula made a call to arms for, and I quote, 'brothers with degrees in microbiology or chemistry to develop a weapon of mass destruction.'"

Noting that "It is not possible, in our opinion, to create a verification regime" for biological weapons compliance under the convention, Clinton called for voluntary transparency on biological experimentation among the 165 countries that have signed the agreement.

Officials throughout the U.S. government are declining to comment on the influenza experiments or elaborate on Clinton's comments and appearance in Geneva. The influenza scientists were politely but firmly instructed recently by U.S. officials to keep their mouths shut and provide no data or details regarding their experiments to anybody. Sources inside the Dutch, German, and French governments say that discreet agreement was reached among Western leaders to greet the influenza pronouncements with a wall of silence, pending the advisory board's decision and detailed analysis of the experiments by classified intelligence and scientific bodies. The list of attempts by governments to stifle scientific information is lengthy and marked by failure. I was at a [1982 optical engineering meeting](#) in San Diego that was disrupted by a censorship order handed down by the Ronald Reagan administration's security chief, Adm. Bobby Ray Inman, compelling seizure of about 100 papers. The administration claimed the findings in those mathematics papers would, in Soviet hands, pose an existential threat to the United States --an assertion that proved laughable when the studies soon saw the light of day. In 2006, George W. Bush's administration [tried to block](#) climate change-related presentations by NASA scientist James Hansen; every single one of Hansen's data points swiftly appeared on the Internet.

Rather than trying to censor research because its inevitable release might be harmful, we ought to be having a frank, open discussion about its implications. The correct questions that scientists, national

security and political leaders, and the public ought to be asking are: How difficult was it to perform these experiments? Could they be replicated in the hands of criminals or would-be terrorists? What have these experiments shown us about the likelihood that the H5N1 "bird flu" virus will naturally evolve into this terrifying form? Are we safer, or less secure, today due to the post-2001 anthrax-inspired proliferation of high-security biological laboratories?

### **What Genie Has Popped from Which Bottle?**

In 1997, the form of influenza now dubbed H5N1, or avian flu, emerged in Hong Kong, killing [six people](#) and forcing the destruction of every chicken in the protectorate. The virus had been circulating in aquatic migratory birds and domestic poultry flocks within mainland China for at least two years, but it was not recognized as a unique entity until the Hong Kong outbreak. The spread of H5N1 was temporarily halted by Hong Kong health official Margaret Chan, who ordered the mass culling of the area's poultry. Chan now serves as director general of the World Health Organization (WHO).

The virus reappeared in Thailand in 2003, killing flocks of chickens and ducks that November and infecting humans in January 2004 in Thailand and Vietnam. The H5N1 virus mutated in 2005 as it spread among various species of birds migrating through northern China, giving avian flu the capacity to infect a far greater range of bird species, as well as mammals -- including human beings. That year, human and animal outbreaks of H5N1 appeared across a vast expanse of the globe, from the southernmost Indonesian islands, up to central Siberia, and as far west as Germany.

By mid-2011, H5N1 had become a seasonal occurrence in a swath of the world spanning 63 countries of Asia, the Pacific Islands, Eastern and Western Europe, the Middle East, and North and West Africa. Since its 2004 reappearance, H5N1 has sickened at least 565 people, killing 331, for an overall mortality rate of 59 percent. The Ebola virus can be more lethal -- as high as 90 percent -- but is not terribly contagious. Rabies, in the absence of vaccination, is 100 percent lethal, but it can only be transmitted through the bite of an animal. It is estimated that in pre-vaccine days, the smallpox virus killed about a third of the people it infected.

Only influenza holds the potential of both severe contagion and, in the case of H5N1, astounding mortality rates, ranging from about 35 percent in Egypt (where the virus circulates widely) to more than 80 percent in parts of Indonesia (where 178 confirmed cases have resulted in 146 deaths). The virulence of H5N1 is far higher than that seen with any other influenza, including the notorious 1918 flu that killed an estimated [62 million people](#) in less than two years. (Some reckonings of 1918 death tolls in poor countries that lacked epidemic reporting systems, such as China, India, and all of Africa, put the final mortality at 100 million, when the world population was just 1.8 billion and commercial air travel did not exist.) Six years ago, the spread of H5N1 sparked concern in the Executive Office of the Secretary-General of the United Nations, the White House, and many of its counterpart centers of government worldwide. Tremendous efforts ensued to kill infected domestic poultry, rapidly identify outbreaks, and pool scientific resources to track and scrutinize various H5N1 strains as they emerged. Some 400 million domestic birds were killed between 2004 and 2010, at an estimated global cost of \$20 billion. It all seemed to work: By the end of 2008 the annual number of poultry outbreaks of H5N1 had shrunk from 4,000 down to 300.

In fearful anticipation, health and virus experts also watched for signs that the virus was spreading from one person to another. Although there were clusters of victims, infected families, and isolated person-to-person possible infections, the dreaded emergence of a form of humanly contagious H5N1 never occurred. By 2010, many leading virologists concluded that H5N1 was a terrifying germ -- *for birds*. The confident consensus, however, was that the mutations that avian flu would have to undergo to be able to spread easily from one human lung to another's were so complex as to approach evolutionary impossibility.

By mid-2011 the global response to avian flu had grown lethargic and complacent. Predictably, in the absence of vigilant bird-culling and vaccination efforts, trouble emerged as outbreaks mounted across

Asia. Between January 2010 and the spring of 2011 more than 800 outbreaks were dutifully logged by government officials worldwide. In late July, a 4-year-old [girl died of H5N1 in Cambodia](#), making her the seventh avian flu mortality in a country that had been free of the microbe for a long time.

On Aug. 29, the Food and Agriculture Organization sounded a [mutation alarm](#), noting a new strain of the virus, dubbed H5N1-2.3.2.1, had surfaced in wild and domestic bird populations in Vietnam. Vietnam was one of six countries (including Bangladesh, Egypt, Indonesia, China, and India) in which avian flu had become *endemic*, meaning it permanently circulated among local and migratory birds. A week later, a Boston biotech company called Replikins announced the [discovery of a mutant combination](#) of the avian H5N1 flu and the so-called "swine flu" that spread swiftly among people during the 2009 global pandemic. Replikins's claim implied that the highly virulent bird flu could gain the capacity to spread rapidly between people by absorbing infection genes from the contagious-but-wimpy H1N1 swine influenza.

Although these announcements sparked a minor panic in Asia, further scrutiny of both the 2.3.2.1 and Replikins's claim left the WHO convinced that no new human threat loomed. In early September, a collective sigh of public-health relief was expelled.

Three days later, the conference of the European Scientists Fighting Influenza (ESWI, the Romance-language acronym) convened in Malta, opening with scientific evidence of current [pandemic potentials](#). The stage was set by renowned University of Hong Kong flu scientist Malik Peiris, who described with exquisite precision which genetic factors made the "swine flu," H1N1, highly contagious between pigs, ferrets, humans, and other mammals. Peiris offered evidence that the 2009 H1N1 pandemic started among American pigs but had been circulating in swine populations throughout North America and China for decades before making the mutational steps that sparked global spread.

Fouchier, the Dutch scientist, who has tracked H5N1 avian flu outbreaks in Indonesia for years, then suggested that vaccines used for years on chicken farms are now failing. Perhaps under selective evolutionary pressure, forms of vaccine-resistant H5N1 have appeared, Fouchier told the Malta meeting, [adding](#), "We discovered that only one to three substitutions are sufficient to cause large changes in antigenic drift." In other words, naturally occurring, infinitesimal changes in the flu's genetic material are sufficient to render vaccines useless.

Fouchier went on to describe what he dubbed his "[stupid](#)" experiment of infecting ferrets in his lab [sequentially with H5N1](#). One set of the animals would be infected, and then Fouchier would withdraw nasal fluid from the ferrets and use it to inoculation-infect a second set of animals. After 10 repeats, the superkiller H5N1 emerged, [spreading through the air rapidly](#), killing 75 percent of the exposed animals. (Because Fouchier's work has not been published, accounts of the experiment vary, based on reporting from those who were present to hear his Malta speech. In some accounts the superlethal bird flu resulted from only five serial passages in ferrets -- a number far more likely to occur randomly in nature.)

"This virus is airborne and as efficiently transmitted as the seasonal virus," Fouchier [told](#) the Malta crowd, adding that he had identified which specific five mutations were necessary. Only five minute switches in RNA nucleotides -- the most basic elements of genetics -- were needed.

"This is very bad news, indeed," a sober Fouchier [concluded](#).

The five dire mutations (technically, single nucleotide changes occurring inside two genes) have been separately found in influenza viruses circulating in the world. The actual mutations are not, therefore, unique. Fouchier's only innovation was in making all five occur inside the same virus at once. The more famous flu researcher from Erasmus, Albert Osterhaus, told reporters that what is done in the lab [can happen in nature](#), adding, "Expect the unexpected.... *The mutations are out there, but they have not gotten together yet.*"



Under questioning in Malta, Fouchier said his ferret form of H5N1 would certainly spread among humans and is "one of the most dangerous viruses you can make."

Shortly after Fouchier's announcement, Kawaoka, the University of Wisconsin scientist, let it be known that he, too, has made an airborne-transmissible H5N1 that readily spreads among mammals. Kawaoka's efforts were jointly executed by teams he heads at the University of Wisconsin and the University of Tokyo. No further details regarding this effort are publicly available, though Kawaoka has submitted a paper detailing his techniques and discoveries for review by the U.S. National Science Advisory Board for Biosecurity, as has Fouchier. Both scientists wish to publish their work in major scientific journals.

Scientists are deeply divided regarding publication. "If I were a journal editor and I received an article that said how to make a bioweapon, I'd never publish it, but that would be based on self-regulation, not any government restriction," anthrax expert and retired Harvard University professor Matt Meselson [told](#) an interviewer. "I've never heard of a case where the government has restricted publication. I don't think it would work." But fellow anthrax researcher Paul Keim, who chairs the advisory board, [told reporters](#), "I can't think of another pathogenic organism that is as scary as this one. I don't think anthrax is scary at all compared to this."

Perhaps the most intriguing comments came from Australian scientist Ian Ramshaw, who suggested that the Fouchier or Kawaoka papers could serve as bioterrorism blueprints: "As a researcher you do the good thing, but in the wrong hands it could be used for evil. In this case I'm not so worried about bioterrorism. It's the disgruntled researcher who is dangerous -- the rogue scientist," [Ramshaw warned](#), according to the *Canberra Times*. Ten years ago Ramshaw accidentally made a [superkiller form of mousepox](#), the rodent version of smallpox, in his Australian National University laboratory. He injected lab mice with the pox virus to test out a completely unrelated contraceptive vaccine, but the experiment transformed the virus into a deadly monster with a 100 percent fatality rate. In 2001 Ramshaw's work spurred high-level concern about the use of genetically modified smallpox by a rogue nation or terrorist group, launching the vigorous, multibillion-dollar post-9/11 American smallpox vaccine effort, as detailed in my new book, [I Heard the Sirens Scream](#).

Within two years of Ramshaw's accidental mousepox creation, separate labs deliberately created viruses. In 2002, researchers at the State University of New York in Stony Brook built a polio virus from its genetic blueprint. This constituted a proof of principle, demonstrating that in a sufficiently skilled laboratory, all that is required to make a deadly virus is its nucleotide sequence -- details of which are now routinely published for everything from anthrax to the Ebola virus. At the time, Eckard Wimmer, the lead scientist on the project, [warned](#): "The world had better be prepared. This shows you can re-create a virus from written information."

The following year another scientific team deliberately mimicked Ramshaw's mousepox accident, not only with the rodent form of pox but also with pox viruses that infect rabbits and cows. And in 2005 the CDC famously joined fragments of RNA from thawed tissue of victims of the 1918 flu, re-creating the original superkiller.

### **The Genie Is Out of the Bioterrorism and Pandemic Bottles: How Scared Should We Be?**

This April, a team of CDC scientists published word that it had tried to [manipulate H5N1 genes](#) to render the avian virus a human-to-human spreader, but could not make it work. The team used a different method from the one apparently deployed by Fouchier and Kawaoka's team: The CDC group directly altered the genes of viruses, rather than sequentially infecting ferret after ferret. The CDC [concluded](#), "An improvement in transmission efficiency was not observed with any of the mutants compared to the parental viruses, indicating that alternative molecular changes are required for H5N1 viruses to fully adapt to humans and to acquire pandemic capability."

That seemed comforting.

But in 2007 a [different CDC team](#) did to the SARS virus what Fouchier apparently has done to H5N1, with lethal results. Just as Fouchier produced highly infectious bird flu in ferrets by sequentially infecting one group of animals after another, the CDC group passed the SARS virus through one group of mice after another. Mice are normally harmlessly infected by SARS, which cannot cause disease in the rodents. But after 15 such passages, the team got a 100 percent fatal form of the virus. Moreover, it was an [airborne killer](#), sniffed out the air. (SARS, or severe acute respiratory syndrome, killed more than 900 people worldwide in 2002 and 2003, mostly in China.)

The University of Minnesota's Michael Osterholm, an expert on both bioterrorism and pandemics, thinks that understanding how animals might pass a virus like SARS or H5N1 among themselves, in a fashion in nature that mimics the laboratory experiments, may hold a vital key to predicting future epidemics. "We don't want to give bad guys a road map on how to make bad bugs really bad," he recently [told](#) *Sciencereporter* Martin Enserink. Health experts, however, do applaud the controversial research because it shows which mutations are necessary and at least one way they might arise.

There is no way to put a number on the probability of such natural mutational events. Are the odds 50-50 that a deadly, contagious form of H5N1 will wreak havoc across the world in the next 10 years? Anybody who claims to answer such a question, or pooh-pooh the asking of it, is a fool or a charlatan. It is an unknown.

### **What About the Proliferation of High-Security Biology Labs: Good or Dangerous?**

Before the anthrax mailings terrorized America in 2001, there were only a handful of top security Biosafety Level 4 (BSL-4) labs in the world and a few dozen of the next-level BSL-3 facilities. The CDC and U.S. Army had the two largest pre-2001 BSL-4 labs, which nested like [matryoshka](#) dolls, with one layer of security inside another and another. The innermost labs required identity clearance, scientists wore protective space suits, and all air and water were specially cleansed and filtered to prevent accidental escape of Ebola, smallpox, and dozens of other superlethal organisms. The world's most dangerous known microbes were carefully kept under lock and key in a clearly identified handful of BSL-4 labs.

Even the less-secure BSL-3 labs required that scientists undergo security checks, wear spacesuits, and breathe through special respirators. Their numbers were finite and known, and researchers working on influenza, anthrax, or other deadly-but-treatable microbes represented a fairly small pool of scientists.

Since the 9/11 terrorist attacks, however, the number of such laboratories has proliferated spectacularly, not only inside the United States, but all over the world. In 2001 the United States had five "centers of excellence," as they were called, devoted to bioterrorism. By the end of 2002, more than 100 such centers were named, amid a record-breaking expansion in the numbers of laboratories and scientists studying anthrax, smallpox, Ebola, botulism, and every other germ somebody thought could be weaponized. After 9/11, the European Union saw the number of BSL-4 labs grow from six to 15. In the United States: from seven to 13. Canada built a BSL-4 complex in Winnipeg. Just as possession of rockets in the 1950s or nuclear power plants in the 1960s seemed the marks of a serious state power, so having BSL-3 and BSL-4 labs suddenly became a mark of national significance in the world -- an achievement to which countries should aspire. This year India opened its first BSL-4 facility, and it is rumored that Pakistan is now building one.

The proliferation of high-security labs means a great deal more than the mere construction of physical buildings. Where 10 years ago a finite pool of predominantly senior scientists toiled in such facilities, today thousands of graduate students, postdoctoral fellows, technicians, and senior researchers work in facilities stocked with humankind's worst microbial foes. Accidents have occurred with alarming regularity since the lab proliferation commenced, as I have detailed in my book. The facilities also constitute locations wherein individuals could theoretically execute experiments to produce supergerms without risking harm to themselves or others, regardless of whether the intent were noble, as appears to be the



case for Fouchier and Kawaoka, or whether the intent were evil, as was the case with those responsible for the anthrax mailings.

Since 2005, several flu experiments conducted under BSL-3 conditions have raised eyebrows, as critics have charged the work should have been done inside the far more difficult but secure BSL-4 conditions. The original 1918 virus was "revived" from a long-frozen human body and grown inside a BSL-3 lab. Experiments were done on the 1918 virus in an effort to discover what genes made it so lethal. And the research that the CDC team, Fouchier, and Kawaoka performed on the H5N1 virus was all done in BSL-3 labs.

In September, when news of the Fouchier work started to appear in science magazines, Thomas Inglesby of the Center for Biosecurity at the University of Pittsburgh [told New Scientist](#), "Small mistakes in biosafety could have terrible global consequences." His Pittsburgh colleague D.A. Henderson concurred: "The potential for escape of that virus is staggering."

According to the FBI, the culprit behind the 2001 anthrax mailings was Bruce Ivins, who worked in the U.S. Army's BSL-3 and BSL-4 labs in Maryland. Whether or not the FBI caught the right man -- a point of controversy among scientists -- it remains extraordinary that the response to what the agency calls "Amerithrax" is the creation of more such facilities in which more "Ivins" might toil.

The questions that arise from these H5N1 experiments have nothing to do with publication of the Fouchier and Kawaoka papers. We should be asking what we can do to ensure that such terrible man-made viruses never accidentally escape their laboratory confines or are deliberately released. And we should heed the question posed in the recently released Hollywood thriller [Contagion](#) when a Homeland Security character queries a CDC scientist:

"Is there any way someone could weaponize the bird flu? Is that what we're looking at?"

"Someone doesn't have to weaponize the bird flu," the CDC scientist responds, "The birds are doing that" ([Foreign Policy, 2011](#)).

**Title:** U.S. Bio-Security Officials Sound Warning After Scientists Create Deadly New Strain Of Bird Flu

**Date:** December 20, 2011

**Source:** [Fox News](#)

**Abstract:** The U.S. government is sounding the alarm after reports that Dutch scientists have created a highly-contagious and deadly airborne strain of bird flu that is potentially capable of killing millions, The Independent reported Tuesday.

The U.S. National Science Advisory Board for Biosecurity is currently analyzing how much of the scientists' information should be allowed to be published—given the inherent risks of having the information fall into the hands of terrorists or rogue states.

"The fear is that if you create something this deadly and it goes into a global pandemic, the mortality and cost to the world could be massive," a senior US government adviser told The Independent.

Scientists, too, are questioning whether the science should ever have been performed in the first place.

"There are people who say that the work should never have been done, or if it was done it should have been done in a setting where the information could be better controlled," a source close to the US biosecurity board told the newspaper.

"With influenza now it is possible to reverse engineer the virus. It's pretty common technology in many parts of the world. With the genomic sequence, you can reconstruct it. That's where the information is dangerous."

The mutated form of the H5N1 strain of avian influenza was created by a Dutch team of scientists led by Ron Fouchier, of Rotterdam's Erasmus Medical Centre, and the researchers are now hoping to publish the details of how they developed the new strain.

The new virus differs from H5N1—which is only known to be transmitted between humans who have very close contact with each other—because it can be transmitted through the air in coughs and sneezes.

Fouchier, who declined to answer The Independent's questions, said in a statement that it only took a small number of mutations to change the avian flu virus.

"We have discovered that this is indeed possible, and more easily than previously thought. In the laboratory, it was possible to change H5N1 into an aerosol-transmissible virus that can easily be rapidly spread through the air," he said ([Fox News, 2011](#)).

**Title:** Alarm As Dutch Lab Creates Highly Contagious Killer Flu

**Date:** December 20, 2011

**Source:** [The Independent](#)

**Abstract:** A deadly strain of bird flu with the potential to infect and kill millions of people has been created in a laboratory by European scientists – who now want to publish full details of how they did it.

The discovery has prompted fears within the US Government that the knowledge will fall into the hands of terrorists wanting to use it as a bio-weapon of mass destruction.

Some scientists are questioning whether the research should ever have been undertaken in a university laboratory, instead of at a military facility.

The US Government is now taking advice on whether the information is too dangerous to be published.

To see the graphic: [The last outbreak - A deadly virus even before the latest twist](#)

"The fear is that if you create something this deadly and it goes into a global pandemic, the mortality and cost to the world could be massive," a senior scientific adviser to the US Government told The Independent, speaking on condition of anonymity.

"The worst-case scenario here is worse than anything you can imagine."

For the first time the researchers have been able to mutate the H5N1 strain of avian influenza so that it can be transmitted easily through the air in coughs and sneezes. Until now, it was thought that H5N1 bird flu could only be transmitted between humans via very close physical contact.

Dutch scientists carried out the controversial research to discover how easy it was to genetically mutate H5N1 into a highly infectious "airborne" strain of human flu. They believe that the knowledge gained will be vital for the development of new vaccines and drugs.

But critics say the scientists have endangered the world by creating a highly dangerous form of flu which could escape from the laboratory – as well as opening a Pandora's box for fanatical terrorists wishing to make a bio-weapon.

The H5N1 strain of avian influenza has killed hundreds of millions of birds since it first appeared in 1996, but has so far infected only about 600 people who came into direct contact with infected poultry.

What makes H5N1 so dangerous, though, is that it has killed about 60 per cent of those it has infected, making it one of the most lethal known forms of influenza in modern history – a deadliness moderated only by its inability (so far) to spread easily through airborne water droplets.

Scientists are in little doubt that the newly created strain of H5N1 – resulting from just five mutations in two key genes – has the potential to cause a devastating human pandemic that could kill tens of millions of people. The study was carried out on ferrets, which when infected with influenza are the best animal "model" of the human disease.

The details of the study are so sensitive that they are being scrutinised by the US Government's own National Science Advisory Board for Biosecurity, which is understood to have advised American officials that key parts of the scientific paper should be redacted to prevent terrorists from using the information to reverse-engineer their own lethal strain of flu virus.

In an unprecedented move, the Biosecurity board is believed to have told the US Government that there is a serious possibility of potentially dangerous information being misused if the full genetic sequence of the mutated H5N1 virus were to be published in open scientific literature.

A senior source close to the Biosecurity board, who wished to remain anonymous, told The Independent that the National Institutes of Health, which funded the work, is about to make a decision on how much of the scientific paper on the H5N1 super strain should be published, and how much held back.

"There are areas of science where information needs to be controlled," the scientist said. "The most extreme examples are, for instance, how to make a nuclear weapon or any weapon that is going to be used primarily to kill people. The life sciences really haven't encountered this situation before. It's really a new age."

The study was carried out by a Dutch team of scientists led by Ron Fouchier of the Erasmus Medical Centre in Rotterdam, where the mutated virus is stored under lock and key, but without armed guards, in a basement building.

Dr Fouchier, who declined to answer questions until a decision is made on publication, said in a statement released on the university's website that it only took a small number of mutations to change the avian flu virus into a form that could spread more easily between humans.

"We have discovered that this is indeed possible, and more easily than previously thought. In the laboratory, it was possible to change H5N1 into an aerosol-transmissible virus that can easily be rapidly spread through the air," Dr Fouchier said. "This process could also take place in a natural setting."

"We know which mutation to watch for in the case of an outbreak and we can then stop the outbreak before it is too late. Furthermore, the finding will help in the timely development of vaccinations and medication."

A second, independent team of researchers led by Yoshihiro Kawaoka of the universities of Wisconsin and Tokyo is understood to have carried out similar work with similar results, which has underlined how easy it is to create the super virus with a combination of deliberate mutations and random genetic changes brought about by passing avian flu manually from the nose of one ferret to another.

Some scientists have privately questioned whether such research should have been done in a university department that does not have the sophisticated anti-terrorist security of a military facility. They also point

out that experimental viruses kept in seemingly secure laboratories have escaped in the past to cause human epidemics – such as a 1977 flu outbreak.

"There are people who say that the work should never have been done, or if it was done it should have been done in a setting where the information could be better controlled," said the source close to the biosecurity board.

"With influenza now it is possible to reverse engineer the virus. It's pretty common technology in many parts of the world. With the genomic sequence, you can reconstruct it. That's where the information is dangerous," he said.

"It's scary from a number of different angles. You want to have the vaccines and therapeutics in place, and you need to have as much information as you can about a particular virus, but you also worry about it from a biosecurity perspective."

### **Profile: Researcher Behind the Science: Ron Fouchier**

The Dutch virologist started as an expert in HIV, having received his PhD from the University of Amsterdam in 1995. After research at the University of Pennsylvania School of Medicine, he began a new career in the virology department at Erasmus Medical Centre in Rotterdam, studying the molecular biology of the influenza A virus.

At a conference in Malta in September, he described his work as something that was "really, really stupid," but ultimately useful for the development of vaccines ([The Independent, 2011](#)).

**Title:** It's Too Late To Keep Details Of Deadly Flu A Secret! U.S. Scientists Say Details Of Virus Created In Laboratory 'Are Already Out There', Sparking Renewed Terror Alert

**Date:** December 22, 2011

**Source:** [Daily Mail](#)

**Abstract:** A super-strain of bird flu that could infect and wipe out millions will not be published by the virologist developers.

Dutch scientists who created 'probably one of the most dangerous viruses you can make' have agreed to leave out details on how to construct the virus from published reports. But the scientists warned that the data had already been shared with hundreds of researchers.

The decision was made after the US government warned releasing the details could kill millions of people if it was used as a weapon of biological warfare.

Their research focused on what it took to convert bird flu – which can kill more than half of those infected but does not spread easily – into a highly contagious virus.

Developer Ron Fouchier of Erasmus Medical Center in Rotterdam, Netherlands, said this knowledge would be vital for the development of vaccines and drugs to prevent a possible pandemic.

But others argue the virus should never have been created – and warn the potential if it escaped from the lab is 'staggering'. There are also fears the recipe will be seized on by terrorists looking for a biological weapon.

National Science Advisory Board for Biosecurity chairman Paul Kiem, an anthrax expert, said: 'I can't think of another pathogenic organism that is as scary as this one. I don't think anthrax is scary at all compared to this.'

The results, which were to be published in U.S. journal Science, were impeded in an unprecedented move by the National Science Advisory Board for Biosecurity, ABCNews reported.

The group is an independent advisory committee to the U.S. Department of Health and Human Services and other government agencies.

'Due to the importance of the findings to the public health and research communities, the NSABB recommended that the general conclusions highlighting the novel outcome be published, but that the manuscripts not include the methodological and other details that could enable replication of the experiments by those who would seek to do harm,' the committee said in a statement.

In response, Erasmus Medical Center said: 'The researchers have reservations about this recommendation but will observe it.'

In terms of how the virus will be used, Mr Fouchier said: 'We know which mutation to watch for in the case of an outbreak, and we can then stop the outbreak before it is too late.'

'Furthermore, the finding will help in the timely development of vaccinations and medication.'

However, others pointed out that similar fears – raised six years ago when another team of scientists recreated the Spanish flu virus that killed up to 50million in 1918 – proved groundless.

The latest controversy surrounds the H5N1 bird flu virus. In 2005, there were warnings of a potential bird flu global pandemic which would kill hundreds of millions.

Of the 573 people that have caught the bug so far worldwide, 336 have died. However, the germ's inability to spread easily from person to person means the predicted pandemic has never materialised.

Now, scientists at the Erasmus Medical Centre in Rotterdam have created a H5N1 bird flu that spreads as easily as winter flu.

In experiments on ferrets – whose flu symptoms are most like humans' – just five mutations in two key genes turned the 'normal' bird flu into a highly contagious, super-spreader.

The scientist behind the project, Ron Fouchier, said: 'We now know which mutations to watch for in the case of an outbreak and we can stop the outbreak before it is too late.'

A university spokesman said: 'If this type of research is carried out under maximum safety conditions, the benefits are greater than the risks.'

But Donald Henderson, an expert in biosecurity who spearheaded the worldwide drive to eradicate smallpox, told New Scientist magazine if a highly contagious virus with a 50 per cent kill rate got loose, 'a catastrophe would result'.

Last night, the journal Science said the U.S. government's request to publish only an abbreviated version of Dr Fouchier's work was being taken very seriously.

Science's editor-in-chief Bruce Alberts said the journal was taking the NSABB's recommendation 'very seriously' but that they have 'concerns about withholding potentially important public-health information from responsible influenza researchers.'

'Many scientists within the influenza community have a bona fide need to know the details of this research in order to protect the public, especially if they currently are working with related strains of the virus,' said Alberts in a statement reported by ABCNews ([Daily Mail, 2011](#)).

**Title:** Too Late To Contain Killer Flu Science, Say Experts

**Date:** December 22, 2011

**Source:** [The Independent](#)

**Abstract:** Attempts to censor details of controversial influenza experiments that created a highly infectious form of bird-flu virus are unlikely to stop the information from leaking out, according to scientists familiar with the research.

The US Government has asked the editors of two scientific journals to refrain from publishing key parts of research on the H5N1 strain of bird-flu in order to prevent the information falling into the hands of terrorists intent on recreating the same flu strain for use as a bioweapon.

However, scientists yesterday condemned the move. Some said that the decision comes too late because the information has already been shared widely among flu researchers, while others argued that the move could obstruct attempts to find new vaccines and drugs against an infectious form of human H5N1 if it appeared naturally.

Professor Richard Ebright, a molecular biologist at Rutgers University in Piscataway, New Jersey, said that the research, which was funded by the US Government, should never have been done without first assessing the risks and benefits.

"The work posed risks that outweighed benefits and that were clearly foreseeable before the work was performed," Professor Ebright said.

"The work should have been reviewed at the national or international level before being performed, and should have been restricted at a national or international level before being performed," he said.

Two teams of researchers, one led by Ron Fouchier of Erasmus Medical Centre in Rotterdam and the other by Yoshihiro Kawaoke of the University of Wisconsin-Madison, have submitted manuscripts on bird-flu virus to the journals Nature and Science. In them, they describe how they deliberately mutated the H5N1 strain of bird-flu into an "airborne" strain that can be transmitted in coughs and sneezes between laboratory ferrets, the best animal "model" of human flu.

In an unprecedented move, the US National Institutes of Health (NIH), which funded both projects, requested the deletion of key details of the methodology and viral genetic sequences from the manuscripts prior to publication. It did so following recommendations of its own independent advisers on the US National Science Advisory Board for Biosecurity.

Professor Paul Keim, chairman of the biosecurity board, said that the request to withhold certain details of the research is not the same as censorship and, although it sets a precedent in the biological sciences, it is common in other areas of science where there is potential for dual use of research in both civil and military applications.

"The US Government doesn't have the legal authority to stop these publications. They have requested that the journals and scientists refrain from publishing the full details of their work, at this time," Professor Keim said.

"It is hard to call that censorship. If the data and methods are restricted by the authors and journals, it is a voluntary action on their part. I also think that it is the responsible action for the current situation, and so does the US Government," he said.

However, Dr Fouchier at the Erasmus Medical Centre in Rotterdam said that although his institute has agreed to abide by the voluntary restrictions on publication, he said it will be almost impossible to guarantee the confidentiality of the information given that the scientific data has already been shared with hundreds of researchers and governments in open scientific meetings.

Flu scientists in Britain, meanwhile, said that it is doubtful whether the details of the two experiments can be kept secret even if Science and Nature agree to the redaction of key parts of the scientific manuscripts – which they seem to have accepted.

"The exact mutations that made this transformation possible were not particularly novel or unexpected so anyone with a reasonable knowledge of influenza virology could probably guess at them if they so wished," said Wendy Barclay, professor of influenza virology at Imperial College London.

"I'm very wary that information should be withheld from the scientific literature because we move forward by sharing information. It's important to know if viruses such as H5N1 are capable of tolerating the mutations that would allow human-to-human transmission," Professor Barclay said.

"We need to know the mutations to look out for. If we don't know what the mutations are that make the virus more transmissible, we won't know what to look out for when we monitor the spread of new flu viruses. This type of information is generated for a good reason – it's to help us to be prepared," she said.

Professor John Oxford, a flu expert at Queen Mary University of London, agreed: "The study by Fouchier is a huge service to all of us because it reminds us of how wafer thin the barrier is between a benign H5N1 virus and one that could spread easily. The 120 WHO flu labs around the world can use the DNA sequence information to identify and stop the spread of new H5N1 variants" ([The Independent, 2011](#)).

**Title:** Biological Weapons Convention Conference Issues Final Document

**Date:** December 23, 2011

**Source:** [Nuclear Threat Initiative](#)

**Abstract:** The seventh review conference for the Biological Weapons Convention ended on Thursday with a call for all member states to demonstrate their adherence to the accord's rules, the United Nations announced (see [GSN](#), Dec. 7).

Participating states agreed to a revised reporting document that nations would submit annually as a means of promoting confidence that their biological research and development activities have no warfare component.

"The conference recognizes the urgent need to increase the number of states parties participating in confidence-building measures and calls upon all states parties to participate annually," BWC nations said in the final declaration to the 14-day conference in Geneva, Switzerland. They also called on "those states parties, in a position to do so, to provide technical assistance and support, through training for instance, to those states parties requesting it to assist them to complete their annual confidence-building measures submissions."

A U.N. press. release did not provide details of the updated reporting forms. In speaking to the conference earlier this month, U.S. Secretary of State Hillary Clinton said the revision should "ensure that each party is answering the right questions, such as what we are each all doing to guard against the misuse of biological materials."



The 1975 pact bans the development, production, stockpiling and use of biological materials for nonpeaceful purposes. It has been ratified by 165 nations, while another 12 states are signatories to the convention. Review conferences are scheduled every five years to consider the operation of the convention and possible threats to its strictures.

"In the final declaration, the conference reaffirms that under all circumstances the use of bacteriological (biological) and toxin weapons is effectively prohibited by the convention and affirms the determination of states parties to condemn any use of biological agents or toxins other than for peaceful purposes, by anyone at any time," the conference-ending document states.

Delegates agreed to maintain the "intersessional program" of annual meetings that are held between the five-year review conferences. A total of 10 days would be allowed each year for separate gatherings of experts and officials from member nations. "Standing agenda items" to be discussed annually from 2012 to 2015 are "cooperation and assistance, with a particular focus on strengthening cooperation and assistance under Article 10; review of developments in the field of science and technology related to the Convention; and strengthening national implementation," according to the final report.

Among the matters to be raised within those agenda items are advancements in science and technology that could lead to breaches of the convention, promoting responsible research by the scientific, academic and industry sectors; and augmenting states' implementation of the BWC rules.

"These are the three areas that the United States emphasized when Secretary Clinton spoke to the conference on Dec. 7," Thomas Countryman, assistant secretary of State for international security and nonproliferation, said on Friday. "They were adopted not because the United States pushed them, but because we selected the topics that it is clear the majority of states party agree are essential for future development."

Nations in Geneva also agreed upon the importance of achieving universal membership in the convention.

"The conference underlines that the objectives of the convention will not be fully realized as long as there remains even a single state not party that could possess or acquire biological weapons," they stated. "The conference urges states parties to take action to persuade non-parties to accede to the convention without delay, and welcomes regional initiatives that would lead to wider accession and adherence to the convention."

Participants also approved the creation of a database to "facilitate requests for and offers of exchange of assistance and cooperation among states parties." The BWC Implementation Support Unit was designated to produce and operate the system (United Nations Office at Geneva [release](#), Dec. 22).

"We are happy with the results," Countryman told reporters during a teleconference. "We think they are significant for not only the United States, as we move ahead on advancing the president's national strategy for countering biological threats, but that they have the same value for all of our partners around the world who share this concern about potential biological and toxic threats" ([Nuclear Threat Initiative, 2011](#)).

**Title:** '2012: What's In Store...'

**Date:** December 26, 2011

**Source:** [Russia Today](#)

**Abstract:** The Private Global Power Elite embedded in major governments is dead set on imposing World Government on us sooner rather than later. Let's look at 12 mega-processes – veritable "Triggers" – that we infer they are using to achieve their goals.

All roads lead to World Government. This should come as no surprise. London's Financial Times openly articulated this view in an article by their chief foreign affairs commentator, Gideon Rachman, published on 8 December 2009, whose title said it all: "And Now for a World Government." These goals are echoed by the Trilateral Commission, CFR and Bilderberg insiders – even by the Vatican.

Macro-managing planet Earth is no easy matter. It requires strategic and tactical planning by a vast think-tank network allied to major elite universities whereby armies of academics, operators, lobbyists, media players and government officers interface, all abundantly financed by the global corporate and banking superstructure.

**They do this holistically, knowing that they operate on different stages moving at very different speeds:**

1. Financial Triggers move at lightning speed thanks to electronic information technology that can make or break markets, currencies and entire countries in just hours or days;
2. Economic Triggers move slower: manufacturing cars, aircraft, food, clothes, building plants and houses takes months;
3. Political Triggers tied to the "democratic system" put politicians in power for several years;
4. Cultural Triggers require entire generations to implement; this is where PsyWar has reached unprecedented "heights".

Risk-managing this whole process takes into account the many pitfalls and surprises in store. So each plan in every field counts, with "Plan B's" – even Plans "C" and "D" – which can be implemented if needed.

### **Twelve Triggers for World Government**

Today, the Global Power Elite are wrapping up globalization and ushering in World Government. Paraphrasing the tightrope walker in German philosopher Friedrich Nietzsche's "Thus Spake Zarathustra," this implies "...a dangerous crossing, a dangerous wayfaring, a dangerous looking-back, a dangerous trembling and halting..."

These 12 Triggers are interlinked and interlocked in a highly complex, holistic matrix, very flexible in its tactics but rigidly unbending in its strategic objectives. When read as a whole, the picture that unfolds shows that whole being far more than the sum of its parts.

**1. Financial Meltdown.** Since 2008, the Global Financial System continues on life-support. Ben Bernanke, Timothy Geithner and the US economic hit team – Robert Rubin, Larry Summers and Goldman Sachs, CitiGroup, JPMorganChase mega-bankers working with the Bank of England and the European Central Bank – have not and will not take any measures to help the populace and ailing economies. They just funnel trillions to the banking elite, imposing the media myth that certain banks are "too big to fail" (Orwellian Newspeak for "too damn powerful to fail"). Why? Because it's not governments overseeing, supervising and controlling Goldman Sachs, CitiCorp, HSBC, Deutsche Bank, JPMorganChase, but exactly the other way around...

**2. Economic Crises.** Today, "Destructive Extreme Capitalism" is collapsing national and regional economies, reformatting them into international slave-labour Gulag-like entities that Joseph Stalin would envy. Our woes lie not with the world's real economy (mostly intact), but with the fake world of finance, banks, and speculation;

3. Social Upheavals. Meltdowns in Greece, Ireland, Portugal, Iceland and – soon to come – Italy, Spain and others, trigger violent social uprisings, even in the US and UK;
4. Pandemics. Get ready for more “flu surprises” leading to mandatory vaccinations: a discreet opportunity to slip RFID chips into our bodies and test “intelligent viruses” targeting specific DNA strains. Racially and ethnically selective viruses as part of mass depopulation campaigns?
5. Global Warming. As the global economy sinks into zero growth mode, economic drivers shift from growth expansion to consumption contraction. Will coming “carbon credits” open the path to full societal control?
6. Terrorist “False Flag” Mega-Attacks. The Elite have this wildcard up their sleeve to jump-start new “crises” as short-cuts towards world government. Will new “attacks” dwarfing 9/11 justify further global wars, invasions and genocide? A nuclear weapon over a major city to be blamed on the Elite’s “enemies”?
7. Generalized War in the Middle East. As we speak, naval forces, bombers, entire armies are poised to attack and invade Syria, Iran...
8. Ecological/Environmental “Accidents”. The 1986 Chernobyl nuclear accident sparked the beginning of the end of the former USSR by showing the world and the Soviets themselves that their State could no longer manage their own nuclear facilities. April 2010 saw the BP “Deepwater Horizon” oil rig eco-catastrophe in the Gulf of Mexico; since March 2011, Japan and the world have been grappling with a much larger nuclear accident in the Fukushima Daiichi nuclear complex. Was foul play involved?
9. Assassination of a major political or religious figure to be blamed on an Elite enemy. Mossad, CIA, MI6 are really good at playing this type of dirty trick;
10. Attacks on “Rogue States” – Iraq, Libya... Who’s next? Iran? Syria? Venezuela? North Korea?
11. Staged “Religious” Event. The growing need of the masses for meaning in their lives makes them easy victims of a Hollywood-staged, 3D virtual reality hologram show, orchestrating a “second coming”. An electronically engineered “messianic figure” acting in sync with Elite global objectives? Who would dare go against God himself?
12. Staged “Alien Contact.” This too may be in the works. For decades, large sectors of world population have been programmed to believe in aliens. Here too, hologram technology could stage a “space vehicle landing” – on the White House lawn, of course – highlighting the “need” for Mankind to have “unified representation” in the face of extraterrestrials. Further justification for world government?

What do such interlocking “crises” have in common? Global warming, pandemics, “international terrorism”, financial collapse, economic depression, even alien contacts? They all serve to show that they cannot be addressed by any single nation state, thus “justifying” the need for World Government. 2012: We must stay especially alert, understanding things the way they really are and not the way the global TV Masters want us to believe they are ([Russia Today, 2011](#)).

**Title:** Should Medical Journals Print Info That Could Help Bioterrorists?

**Date:** December 27, 2011

**Source:** [TIME](#)

**Abstract:** Bird flu is deadly, but it generally does not spread easily from human to human. Now, scientists in Wisconsin and the Netherlands have created a strain of bird flu that can spread through the air — a virus that could kill millions if terrorists managed to create a batch and weaponize it. This raises a thorny question: Should medical journals be allowed to print the details of how the virus is made?

A government advisory board has urged two scientific journals to omit some of the specifics about the virus — the first time it has issued such a request. Supporters insist that the board's request is a much-needed precaution that could save millions of lives. But critics say that the government is engaging in censorship and interfering with academic freedom.

It is a classic clash of liberty versus security. The question is such a difficult one because whichever course the government takes carries risks and costs. Which option — blocking publication or allowing it — is the lesser of two evils?

It is not hard to see why the government is seeking to keep details of the virus out of print. The H5N1 bird-flu virus rarely infects humans. But when it does cross the species barrier, the mortality rate can be as high as 60%. If terrorists were able to use the new research to make a contagious strain of the virus, the result could be a real-world version of the movie *Contagion*. That is: worldwide panic and mass deaths.

The government is trying to avoid this by urging scientific journals to describe the virus only in general terms and keep out the sort of details that could be used to replicate it. The National Science Advisory Board for Biosecurity, which was created after the deadly anthrax attacks of 2001, asked the journals *Science* and *Nature* to be selective when they published articles on the highly contagious strain of H5N1.

So what's the problem? Critics say the government is engaging in censorship by telling the media what it should and should not write about. It sets a terrible precedent, they argue, for the government to set itself up as a national-security censor. The next time, they say, the government will try to prevent the publication of information that is far less dangerous than contagious bird flu.

Press-freedom watchdogs have a point: the government often trots out national security to try to intimidate the press into not doing its job. A few years back, the New York *Times* was about to expose the NSA spying program, in which the government was intercepting emails and phone calls without getting court orders. President George W. Bush called the paper's top brass down to the White House and warned them that exposing the program would compromise national security. The *Times* went ahead and published — and we are all still here.

The skeptics raise another important concern: the long tradition of scientific openness. Research science works by having experiments reported publicly, so other scientists can test the findings — and build on them with their own research. This tradition breaks down when the government puts a shroud of secrecy on some research.

The editor of *Science* has suggested that his journal might agree to withhold the information the advisory board is worried about — provided that the government creates a system that would allow legitimate scientists to access the full results.

That sounds like the right answer. We should be wary of government attempts to stop the media from publishing information. But in extreme cases, it may be necessary — and weaponizable highly contagious bird flu could be just such a case.

What factors should we be looking for in considering whether the government should try to stop publication? First, the threat of harm should be real and it should be truly extraordinary. That is a test the contagious strain of H5N1 seems to meet. Second, it should be clear that the government has no ulterior motives — that it is acting to protect the nation, not to advance a political agenda.

That can be a tough thing to evaluate — governments that use national-security arguments for political goals are quick to deny that they are doing so. The best check on this sort of politicization is making sure that anyone who feels pressure from the government not to publish or speak is able to challenge the policy in court. Judges are in the best position to balance risks of serious harm against the infringement on speech — and to determine whether the government is crossing any First Amendment lines.

Those who oppose the Scientific Advisory Board's decision are right that we must be wary whenever the government tries to suppress speech. As Supreme Court Justice Potter Stewart said, censorship is "the hallmark of an authoritarian regime." But the board's defenders are right that ultimately the government has a duty to protect the public from the most serious threats. They can cite Supreme Court Justice Robert Jackson, who noted that the Constitution is not a suicide pact ([TIME, 2011](#)).

**Title:** Should Scientists Create Deadly Viruses? Yes, Says Bioethicist

**Date:** December 27, 2011

**Source:** [MSNBC](#)

**Abstract:** One of the predictable consequences of science's rapidly growing knowledge of genetics is that the knowledge can be put to use to kill, harm or terrorize. Controlling dangerous knowledge is not easy and rarely foolproof—just look at the history of successful spying to get the secrets to make nuclear weapons or crack secret codes. The ability to make a new nasty class of biological weapons that could be used against us raises two important questions — should scientists try to make dangerous microbes and, if they do, who should they tell about their work?

Recently, scientists working for the U.S. government made a deadly flu virus, H5N1, [even more contagious by making it airborne](#). In its natural form, H5N1 kills more than half the people it infects, but almost never spreads from person to person. The new modified strain changes that. Last week, there was a kerfuffle when government advisers asked the details be kept secret and not published in scientific journals to keep the information from falling into the wrong hands.

The scientists who tweaked the H5N1 virus say their work was necessary because they had to see if it was possible for the virus to mutate – and if it was, so that countries could take more dramatic steps to eradicate it, [reported the New York Times](#).

But others say it should never have been created in the first place, it's too dangerous and could get out of the lab and into the population. So should scientists even be studying or making nasty microbial critters? The answer is yes. The only way to anticipate and respond to changes in nature that convert a relatively harmless strain of flu to a pandemic killer or to figure out ways to deal with horrors like flesh eating bacteria is to create and study them.

The second question becomes the key one—who should have access to this knowledge?

We need to do all we can to keep dangerous information out of the hands of both the bad and the irresponsible guys. This means not publishing the full formula for lethal microbes. It also means keeping an eye on where biological samples are shipped, who is invited to study at key laboratories and teaching ethical responsibility over and over again to budding scientists. It also means issuing government guidelines that journals, publishers, website managers and meeting organizers can follow to restrict what is made public that is obviously dangerous.

Some will sneer and say censorship has absolutely no place in science. But given the ways in which patents and trade secrets shape who has access to findings and data, that view is simply naïve. Others will say once the government starts dictating who can know what, the slope gets very slippery. But, the government should not make the rules — scientists, in consultation with other experts, should.

Some say no restrictions will work—information always gets out in the end. But we don't have to make the end easy to reach. The dangerous uses of genetic knowledge should be kept as restricted as we can make them ([MSNBC, 2011](#)).

**Title:** Debate Persists On Deadly Flu Made Airborne

**Date:** December 27, 2012

**Source:** [NDTV](#)

**Abstract:** The young scientist, normally calm and measured, seemed edgy when he stopped by his boss's office.

"You are not going to believe this one," he told Ron Fouchier, a virologist at the Erasmus Medical Center in Rotterdam. "I think we have an airborne H5N1 virus."

The news, delivered one afternoon last July, was chilling. It meant that Dr. Fouchier's research group had taken one of the most dangerous flu viruses ever known and made it even more dangerous - by tweaking it genetically to make it more contagious.

What shocked the researchers was how easy it had been, Dr. Fouchier said. Just a few mutations was all it took to make the virus go airborne.

The discovery has led advisers to the United States government, which paid for the research, to urge that the details be kept secret and not published in scientific journals to prevent the work from being replicated by terrorists, hostile governments or rogue scientists.

Journal editors are taking the recommendation seriously, even though they normally resist any form of censorship. Scientists, too, usually insist on their freedom to share information, but fears of terrorism have led some to say this information is too dangerous to share.

Some biosecurity experts have even said that no scientist should have been allowed to create such a deadly germ in the first place, and they warn that not just the blueprints but the virus itself could somehow leak or be stolen from the laboratory.

Dr. Fouchier is cooperating with the request to withhold some data, but reluctantly. He thinks other scientists need the information.

The naturally occurring A(H5N1) virus is quite lethal without genetic tinkering. It already causes an exceptionally high death rate in humans, more than 50 percent. But the virus, a type of bird flu, does not often infect people, and when it does, they almost never transmit it to one another.

If, however, that were to change and bird flu were to develop the ability to spread from person to person, scientists fear that it could cause the deadliest flu pandemic in history.

The experiment in Rotterdam transformed the virus into the supergerm of virologists' nightmares, enabling it to spread from one animal to another through the air. The work was done in ferrets, which catch flu the same way people do and are considered the best model for studying it.

"This research should not have been done," said Richard H. Ebright, a chemistry professor and bioweapons expert at Rutgers University who has long opposed such research. He warned that germs that could be used as bioweapons had already been unintentionally released hundreds of times from labs in the United States and predicted that the same thing would happen with the new virus.

"It will inevitably escape, and within a decade," he said.

But Dr. Fouchier and many public health experts argue that the experiment had to be done.

If scientists can make the virus more transmissible in the lab, then it can also happen in nature, Dr. Fouchier said.

Knowing that the risk is real should drive countries where the virus is circulating in birds to take urgent steps to eradicate it, he said. And knowing which mutations lead to transmissibility should help scientists all over the world who monitor bird flu to recognize if and when a circulating strain starts to develop pandemic potential.

"There are highly respected virologists who thought until a few years ago that H5N1 could never become airborne between mammals," Dr. Fouchier said. "I wasn't convinced. To prove these guys wrong, we needed to make a virus that is transmissible."

Other virologists differ. Dr. W. Ian Lipkin of Columbia University questioned the need for the research and rejected Dr. Fouchier's contention that making a virus transmissible in the laboratory proves that it can or will happen in nature. But Richard J. Webby, a virologist at the St. Jude Children's Research Hospital in Memphis, said Dr. Fouchier's research was useful, with the potential to answer major questions about flu viruses, like what makes them transmissible and how some that appear to infect only animals can suddenly invade humans as well.

"I would certainly love to be able to see that information," Dr. Webby said, explaining that he has a freezer full of bird flu viruses from all over the world. "If I detect a virus in our activities that has some of these changes, it could change the direction of what we do."

Some scientists dismiss fears of bioterrorism via influenza, because flu viruses would not make practical weapons: they cannot be targeted, and they would also infect whoever deployed them.

Dr. Fouchier said it would be easier to weaponize other germs. Which ones? He would not answer.

"That should tell you something," he said. "I won't tell you what I as a virologist would use, but I would publish this work."

However, some experts argue that appeals to logic are useless.

"You can't know who might try to re-create H5N1," said Michael T. Osterholm, director of the Center for Infectious Disease Research and Policy at the University of Minnesota.

The A(H5N1) bird flu was first recognized in Hong Kong in 1997, when chickens in poultry markets began dying and 18 people fell ill, 6 of them fatally. Hoping to stamp out the virus, the government in Hong Kong destroyed the country's entire poultry industry - killing more than a million birds - in just a few days. Buddhist monks and nuns in Hong Kong prayed for the souls of the slaughtered chickens, and world health officials praised Hong Kong for averting a potential pandemic.

But the virus persisted in other parts of Asia, and reached Europe and Africa; that worries scientists, because most bird flus emerge briefly and then vanish. Millions of infected birds have died, and many millions more have been slaughtered. Since 1997, about 600 humans have been infected, and more than half died.

Dr. Donald A. Henderson, a leader in the eradication of smallpox and now a biosecurity expert at the University of Pittsburgh, noted that even the notorious flu pandemic of 1918 killed only 2 percent of patients.

"This is running at 50 percent or more," Dr. Henderson said. "This would be the ultimate organism as far as destruction of population is concerned."

Dr. Fouchier was working on AIDS when the first bird flu outbreak occurred. He immediately became fascinated by the new disease and gave up AIDS to study it. He has worked on bird flu for more than a



decade.

The medical center in Rotterdam built a special 1,000-square-foot virus lab for this work, a locked-down place where people work in spacesuits in sealed chambers with filtered air and multiple precautions to keep germs in and intruders out and to protect the scientists from infection. Dr. Fouchier said that even more security measures had been added recently because of the publicity about his work.

The Dutch government and the United States Centers for Disease Control and Prevention approved the laboratory, and the National Institutes of Health gave the Erasmus center a seven-year contract for flu research.

Because a government advisory panel has recommended that the full recipe for mutating the bird flu virus not be published, Dr. Fouchier declined to explain much about how it was done.

But he previously described the work at a public meeting, and various publications have reported that the experiment involved creating mutations in the virus and then squirting it into the respiratory tracts of ferrets. When the ferrets got sick, the researchers would collect their nasal secretions and expose other ferrets to the virus. After repetitions of this process, a strain of virus emerged from sick ferrets last summer that could infect animals in nearby cages without being squirted into them - just by traveling through the air.

The published reports say five mutations were all it took to transform the virus. Dr. Fouchier declined to confirm or deny that, and would say only that it took "a handful" of mutations.

Looking back on that day in July with Sander Herfst, the member of his team who told him the virus had gone airborne, Dr. Fouchier said, "We both needed a beer to recover from the shock."

Then they planned their next step, repeating the experiment to make sure the results were reliable. There was one major obstacle: they had run out of ferrets. They ordered a new shipment from Scandinavia. So they had to wait several weeks to find out whether their discovery was real. Dr. Herfst took a vacation, timed to end the day the ferrets arrived.

They ran the tests again. Once more, A(H5N1) went airborne ([NDTV, 2011](#)).

**Title:** NYPD Prepares Bioattack Contingency For New Year's Eve

**Date:** December 29, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** The New York Police Department will utilize biological and radiation detection devices in Times Square this year to guard against a terrorist attack on New Year's Eve.

In addition to the detection devices, decontamination facilities will also be set up, backpacks will not be allowed, garages will be search and surveillance operations will be conducted.

"It will be a full fledged deployment of our resources," Commissioner Ray Kelly told MyFOXNY.com. "We assume New York is the number one target and we've assumed that since January 2002. There are no guarantees. We are doing more than any other city to keep us safe from a terrorist attack, but there are no guarantees. We live in a dangerous world."

The NYPD refers to its suite of protections, which also includes a massive police presence and officers scanning the crowds, as a counterterrorism overlay.

Little has been done to adjust to any terrorist threats following the recent attempted terrorist attack of a U.S. airplane in Detroit. The NYPD has said that its security plan is comprehensive and did not need to be changed.

There are no known or published biological threats against the city at this time, but the security measures that are in place are being called the most sophisticated safeguards against biological and chemical weapons since the Sept. 11, 2001 terror attacks.

Hundreds of thousands of revelers are expected to take part in Manhattan's New Year's Eve festivities, Times Square Alliance's web site estimates, making it a prime target for a biological based attack ([Bio Prep Watch, 2011](#)).

**Title:** WHO Concerned That New H5N1 Influenza Research Could Undermine The 2011 Pandemic Influenza Preparedness Framework

**Date:** December 30, 2011

**Source:** [WHO](#) (World Health Organization)

**Abstract:** The World Health Organization (WHO) takes note that studies undertaken by several institutions on whether changes in the H5N1 influenza virus can make it more transmissible between humans have raised concern about the possible risks and misuses associated with this research. WHO is also deeply concerned about the potential negative consequences. However, WHO also notes that studies conducted under appropriate conditions must continue to take place so that critical scientific knowledge needed to reduce the risks posed by the H5N1 virus continues to increase.

H5N1 influenza viruses are a significant health risk to people for several reasons. Although this type of influenza does not infect humans often, when it does, approximately 60% of those infected die. In addition, because these viruses can cause such severe illness in people, scientists are especially concerned that this type of influenza could one day mutate so it spreads easily between people and causes a very serious influenza pandemic.

Research which can improve the understanding of these viruses and can reduce the public health risk is a scientific and public health imperative. In order to enable those public health gains, countries where these viruses occur should share their influenza viruses for public health purposes while countries and organizations receiving these viruses should share benefits resulting from the virus sharing. Both types of sharing are on equal footing and equally important parts of the collective global actions needed to protect public health.

While it is clear that conducting research to gain such knowledge must continue, it is also clear that certain research, and especially that which can generate more dangerous forms of the virus than those which already exist, has risks. Therefore such research should be done only after all important public health risks and benefits have been identified and reviewed, and it is certain that the necessary protections to minimize the potential for negative consequences are in place.

In May 2011, the new Pandemic Influenza Preparedness (PIP) Framework came into effect. This Framework was adopted by all WHO Member States as a guide to the sharing of influenza viruses with pandemic potential and the resulting benefits. One specific requirement of this Framework, which pertains to influenza viruses of pandemic potential, and is in keeping with best scientific practice, is for laboratories receiving them through WHO's Global Influenza Surveillance and Response System (GISRS) to collaborate with, and appropriately acknowledge, scientists in countries where the virus originated when initiating research.

WHO recognizes that the scientists who led the work of the new studies received their virus samples from the WHO Global Influenza Surveillance Network (GISN), which preceded GISRS, and before negotiations on the new PIP Framework began. However, now that the Framework has been adopted by all WHO Member States, WHO considers it critically important that scientists who undertake research with influenza viruses with pandemic potential samples fully abide by the new requirements.

Since the PIP Framework represents a major step forward and was agreed upon only after several years of difficult negotiations, WHO stresses that this H5N1 research must not undermine this major public health achievement. WHO will work with Member States and other key parties to ensure scientists understand the new requirements that have been agreed to with the Framework ([WHO, 2011](#)).

# Bio & Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following propaganda was published within the calendar year of 2012. While some of the following reports may have been legitimate news stories, most if not all of them appear to be blatant propaganda with the overall goal of convincing American and the World that it is on the precipice of a bio-terror induced pandemic. The fact that this propaganda exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and military control of society.

**Title:** Newly Identified Compound Could Stop Smallpox

**Date:** January 5, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Scientists from the Boston University School of Medicine recently identified a compound that stops viruses from replicating.

The researchers, who collaborated with the U.S. Army Medical Research Institute for Infectious Diseases, believe their findings could lead to the development of compounds that could potentially inhibit the spread of poxviruses, according to CIDRAP News.

The study, which has been published online in the Journal of Virology, involved experiments on the emerging infectious disease Monkeypox.

Poxviruses, including smallpox, the vaccinia virus and the Monkeypox virus, replicate inside host cells after invading them. Utilizing state of the art screening techniques, the scientists were able to identify several compounds that could stop the replication process of vaccinia virus once it was inside human cells.

After focusing their attention on one of these compounds, they were able to understand how it inactivated a critical piece of viral machinery.

USAMRIID researchers then tested the compound's efficacy on the Monkeypox virus and demonstrated similar results.

"The compound we identified forces the catastrophic failure of the normal virus amplification cycle and illustrates a new drug-accessible restriction point for poxviruses in general," Dr. John Connor of BUSM said, CIDRAP News reports. "This can help us in developing new compounds that fight poxviruses infection" ([Bio Prep Watch, 2012](#)).

**Title:** Flu Season

**Date:** January 5, 2012

**Source:** [Foreign Policy](#)

**Abstract:** Making a superbug that can infect thousands of people is easier than ever. Is there anything governments can do to prevent terrorists from learning how to make a devastating bioweapon?

When flu scientist Ron Fouchier of Erasmus University in Rotterdam announced in September that he had made a highly contagious, supervirulent form of the bird-flu virus, a [long chain of political events unfolded](#), mostly out of the public eye. Fouchier told European virologists at a meeting in Malta that he had created a form of the H5N1 avian flu -- which is naturally extremely dangerous to both birds and mammals, but only contagious via birds -- that was both 60 percent fatal to infected animals and readily transmitted through the air between ferrets, which are used as experimental stand-ins for human beings. The University of Wisconsin's Yoshihiro Kawaoka, one of the world's top influenza experts, then announced hours later that his lab had achieved a similar feat. Given that in some settings H5N1 has killed more than 80 percent of the people that it has infected, presumably as a result of their contact with an ailing bird, Fouchier's announcement set the scientific community and governments worldwide into conniption fits, with visions of pandemics dancing in their heads.

[Clinton told](#) the Palais des Nations audience that the threat of biological weapons could no longer be ignored because "there are warning signs," including "evidence in Afghanistan that ... al Qaeda in the Arabian Peninsula made a [call to arms](#) for -- and I quote -- 'brothers with degrees in microbiology or chemistry to develop a weapon of mass destruction.'" (Al Qaeda in the Arabian Peninsula is the terrorist group's Yemeni-based affiliate and perhaps its most aggressive arm today, with connections to a number of ambitious plots.)

Then, in what has widely been interpreted as an allusion to the superflu experiments, [Clinton added](#), "The nature of the problem is evolving. The advances in science and technology make it possible to both prevent and cure more diseases, but also easier for states and nonstate actors to develop biological weapons. A crude, but effective, terrorist weapon can be made by using a small sample of any number of widely available pathogens, inexpensive equipment, and college-level chemistry and biology. Even as it becomes easier to develop these weapons, it remains extremely difficult ... to detect them, because almost any biological research can serve dual purposes. The same equipment and technical knowledge used for legitimate research to save lives can also be used to manufacture deadly diseases."

By the end of 2011, few governments or scientific committees were satisfied with the actions that had been taken to date to limit publication of the methods Fouchier and Kawaoka deployed, and most were frankly frightened. The Fouchier episode laid bare the emptiness of biological-weapons prevention programs on the global, national, and local levels. Along with several older studies that are now garnering fresh attention, it has revealed that the political world is completely unprepared for the synthetic-biology revolution.

So far, the rules -- weak and inconsistent as they may be -- have never been broken. Neither the Dutch virologist who created the roughly 90 percent mammalian transmissible form of superkiller H5N1 bird flu, nor the researchers who published a botulism cookbook -- and not even the scientists who [re-created the horrible 1918 flu virus](#) or the fellows who constructed a polio virus from scratch -- broke any existing rules. In every case, the researchers consulted with approval committees, sent their papers off when asked for review to various government committees, and then published their work openly in major scientific journals.

The problem is that there are no consistent, internationally agreed-upon regulations governing synthetic biology, the extraordinarily popular and fruitful 21st-century field of genetic manipulation of microorganisms. The chief agreement governing bioweapons work is the [Biological Weapons Convention](#) (BWC) which was created in the early 1970s as a bilateral accord between U.S. President Richard Nixon and Soviet Premier Leonid Brezhnev. Entered into force in 1975, the BWC now has 165 states that are party to it. Clinton's now-infamous Dec. 7 speech in Switzerland was to a BWC gathering. The institution's current president is Paul van den Ijssel of the Netherlands, Fouchier's home country. Van den Ijssel advocates "[ambitious realism](#)" in pursuit of policies that can make the BWC an effective instrument for control of dangerous science, terrorism, and biological weapons. His ambition is to modernize the BWC, giving it long-sought teeth for verifying weapons violations and monitoring compliance. Currently the BWC is toothless.

At the BWC's creation in 1975, biologists were just beginning to figure out so-called genetic engineering, moving genes from one bacterial species to another, typically using viruses as the vehicles on which the targeted gene hitchhiked from cell to cell. It was tedious work that was prone to contamination, and few political leaders had even a vague comprehension of what the scientists were up to. As a result, in its conception the BWC framed the bioweapons question in classic nation-state conflict terms. In many ways the original BWC bore more resemblance to nuclear weapons treaties than anything else, imagining stockpiles of vats full of dangerous microbes under the possession of national armies and "weaponized" to be hurled at enemy territories in some vague concept of biological warfare. The conceit was so crude and nightmarish that most political leaders and their intelligence advisors for decades dismissed the entire biowarfare notion as a ridiculous fantasy. The most common cry from skeptics was that no country would use biological weapons because they might kill more of their own people than the toll the microbes would take among the enemy. The microbes, it was thought, were uncontrollable and therefore unusable.

As I describe in detail in my new book, [\*I Heard the Sirens Scream\*](#), the 9/11 attacks and 2001 anthrax mailings shook political establishments worldwide out of their complacencies. The United States, in particular, has spent trillions of dollars over the last decade in anticipation of bioterrorism, buying vaccines, treatments, alleged detection devices, and protective gear for civilian and military first-responders; staging drills and war-games scenarios; and practicing mass-casualty care in hospitals all over the country. On the civilian side alone, 2010 spending [topped \\$5 billion](#), most directed to the National Institutes of Health (NIH) and Centers for Disease Control and Prevention (CDC) for research on specific microbes.

At the behest of President George W. Bush's administration, the CDC created a list of organisms and biotoxins considered possible weapons and encouraged a vast research-and-development effort. The numbers of biodefense centers, featuring high-security laboratories and stockpiles of the world's deadliest microbes, [mushroomed](#) over the last decade from an easily named handful to hundreds around the world, far too many meeting Biosafety Level (BSL) 3 or 4 standards. (Most biology research is conducted in lower-security facilities, but many universities and governments now have BSL-3 setups.) The flu experiments at Erasmus and the University of Wisconsin were executed in such settings. Researchers wear basic protective gear, and the actual microbes are held behind a glass barrier in a specially vented negative pressure space that sucks up all errant germs into a filter system. As added protection, the researchers breathe air that is pumped into their masks from a separate, safe source.

BSL-4 facilities are far more difficult to work in, more costly, and theoretically more secure. The scientists wear spacesuits and toil inside a facility that is itself nested inside at least one other secure layer. All air, food, water, and products are hygienically processed going into the lab and cleaned or destroyed rather than exiting the facility. Only the humans may freely leave the laboratory's confines. Yet despite all the security and protections provided by BSL-3 and -4 facilities, [leaks and accidents](#) have happened.

Remarkably, influenza research of all kinds -- including creation of superbugs -- is classified as BSL-3, and the Erasmus and Wisconsin facilities did their work in basic vented labs located on campuses. Fouchier did not blithely wade into his flu experiments, as some news reports have claimed, but followed all rules governing biosecurity in the Netherlands. In 2008, the Royal Netherlands Academy of Arts and Sciences released its [Code of Conduct for Biosecurity](#), stipulating what types of science, under what conditions, can be executed and published by Dutch researchers. Fouchier very strictly adhered to the Dutch code.

Because Fouchier and Kawaoka are funded by the U.S. NIH, their research also had to meet American biosecurity guidelines. And it did -- at least, as those codes are currently conceived.

The rules governing such American research were largely created after the 2001 anthrax scare. Following the attacks, then-Secretary of Health and Human Services Tommy Thompson ordered creation of a cross-government committee to address the dual-use conundrum, finding a way to deter terrorist or other malicious use of scientific discoveries without impeding the pace of basic discovery and invention. The National Science Advisory Board on Biosecurity (NSABB) was the outcome, formally created in 2004. In



its original charter, signed by Thompson, the NSABB was supposed to review all questionable research -- every so-called dual-use study -- before experiments were executed. The NSABB was supposed to recommend special precautions, including prohibiting some experiments, and referee decisions regarding ultimate publication of discoveries. In the post-anthrax political environment, Thompson wanted a very tough NSABB, even if it meant some scientists would believe their work was constricted or censored.

By the time, however, that the NSABB convened in late 2011 to review the Fouchier and Kawaoka cases, the board's mandate had been pared down considerably. In a new [charter](#) signed by Secretary of Health and Human Services Kathleen Sebelius in 2010, the board functioned in a strictly advisory role, offering no review of experiments themselves. Its primary clout was over publication of the results once the experiments were performed. The scientists who served on the NSABB were themselves opposed to any pre-experimental regulation and had only modest faith in the powers of publication restriction. In 2007, the [NSABB advised](#) weakening its own authority, arguing that "a code of conduct can make good people better, but probably has negligible impact on intentionally malicious behavior."

Britain's Research Councils [advised](#) a similar policy in 2007, admonishing the government of then-Prime Minister Gordon Brown that, "systems should be based on self governance within the academic community." Similar advisories flowed from scientific expert bodies to governments across Europe, Japan, India, China, South Korea, and several Latin American countries. It seemed scientists wanted no additional oversight over dual-use research and no limits on publication of their discoveries.

"The rules governing the publication of research results follow from the rules for the performance of research," [states the Dutch code](#). "Here too, publication is the rule and non-publication the rare exception."

Following Fouchier's dramatic September speech in Malta, both he and Kawaoka submitted their studies for publication to the American journal *Science* and Britain's *Nature*. The NSABB intervened, asking the journals to refrain from publishing pending the board's review. Shortly before Christmas, the NSABB [advised](#) that publication of the papers was OK so long as the actual methods used to create the superbugs were excised or so obscured as to be useless guidance for would-be terrorists. That put the entire burden of ethics and global dual-use biosecurity on the shoulders of the editors of these journals. Government punted, instructing publishers to please use their heads.

Bruce Alberts, the current editor of *Science*, faced similar instruction from the U.S. government in 2005 when Stanford University's Lawrence Wein and Yifan Liu, then also of Stanford, [submitted a paper](#) titled, "Analyzing a bioterror attack on the food supply: The case of botulinum toxin in milk." The authors carefully analyzed the expected human kill rates produced by inserting botulinum toxin at various stages of milk production in the United States, from the actual milk farm all the way to supermarket shelves lined with cartons. "We have a reasonably accurate estimate of the number of people who could be poisoned," [the authors wrote](#) -- as many as 568,000 victims, with death rates unknown but undoubtedly frighteningly high.

Bush administration officials were appalled and pleaded with the editor of the *Proceedings of the National Academy of Sciences* -- Alberts, at the time -- to decline the paper. As Bush security experts scrambled to find a legal way to force classification of the paper, Alberts noted that the then-new NSABB was not yet ready to offer advice. He was on his own. Alberts opted to publish, [concluding](#), "If the types of calculations and analyses in the Wein and Liu article are carried out only by government contractors in secrecy, not only are the many actors in the U.S. system who need to be alerted unlikely to be well informed, but also the federal government itself may become misled."

The Fouchier and Kawaoka papers have yet to be published. While Alberts and his *Nature* counterpart mull their options, policymakers ought to consider what a bizarre predicament we are in. Why should such weighty decisions rest on the shoulders of editors? Every time serious dual-use conundrums have reached government, political leaders have demurred and ultimate decisions have similarly fallen to



publishers. In every known case, publishers have, as can be expected, opted to publish. This happened in 2001 when Australian scientists accidentally made a 100 percent lethal form of mousepox, the rodent equivalent of smallpox. It also happened when an American team used that same method to make superdeadly cowpox and other pox viruses. Similarly, publication was the choice for a lab-modified version of the 1918 flu virus, ultralethal forms of SARS, a man-made polio (published with a detailed how-to section), and dozens more potentially dual-use discoveries.

In their defense, the relevant scientists and editors argued that there was no evidence that evildoers made use of any of this information. In response to this view, Stuart Nightingale, a biosecurity consultant to the U.S. Department of Health and Human Services, [recently wrote](#) in the *Journal of the American Medical Association*, "this does not mean, however, that such articles have not been or will not be used to do so. Well-organized, valid information with the imprimatur of respected peer-reviewed journals could be especially valued by a malevolent actor over any information that might be available on the Internet."

Outside of police states, though, [censorship is impossible to enforce](#) and ultimately useless within scientific circles. No professional group is as cybersavvy as scientists, save the actual computer-industry coders. Indeed, the Internet was originally created decades ago to encourage the exchange of information among scientists. Most researchers have tight collegial relationships with their peers, among whom discoveries are shared almost instantly. Methods, samples, reagents, and the basic intellectual tools of science are freely exchanged, and scientists who opt out of this fluid process are shunned, even condemned, by their peers. This is true at all tiers of the scientific process, from the senior-investigator level all of the way down to undergraduates toiling inside campus laboratories for school credit. [Electronic information leaks](#), gets hacked, or "disappears" all the time. It is profound folly to imagine that global biosecurity can be attained through censorship. Even the NSABB decision to allow publication with methods omitted misses the point: Most of us (I include myself) already know how, in broad terms, Fouchier made his supervirus, and dozens of leading scientists all over the world know the work in sufficient detail to replicate it.

Still, recognizing the limitations of current codes and the BWC, some members of the European Union now advocate policing of science. A movement is afoot to allow police authorities to examine lab notebooks and scour laboratories across the continent on a routine, proactive basis. In a controversial editorial in the December edition of the European Molecular Biology Organization's journal, editor [Howy Jacobs argued](#), "Some might argue that the state has no place in an academic laboratory, but I believe the threat is real enough that this blanket appeal for trust and virtue is insufficient as a response.... No security system can be perfect. But democratic societies and responsible scientists need to be vigilant and proactive."

Jacobs's plea is not likely to find many adherents among biologists, who as a group strongly believe in sharing information. The social norm of sharing is at its most extreme among self-described "life hackers" and "DIY (do-it-yourself) synthetic biologists." By definition, these biologists think that science ought to, in the Internet era, be a vast collective enterprise for the good of humanity, wherein thousands of researchers toiling inside home pseudo-labs, colleges, or enormous professional facilities work together to solve pressing problems. They are trying to turn algae into genetically modified solar collectors, use viruses as switch signals in tiny biocomputers, make vital food crops drought- or pest-resistant, create living art from genetically modified assemblages of organisms, and cure diseases by growing genetically altered cell colonies that can be surgically implanted or injected into ailing people. Some adherents to the DIY biology movement insist that their collective amateur laboratories are akin to the garage days of the development of Apple and Microsoft hardware and software in Northern California. From a scientific viewpoint, it would be hard to name any time in the history of biology as exciting as this.

Even in traditional pharmaceutical, biotechnology, and academic environs, the synthetic-biology movement, coupled with extraordinary advances in genetic sequencing, have [upped the ante](#) on both what is possible and what constitutes "dual-use" potential. A decade ago, sequencing the human genetic blueprint was a monumental feat costing millions of dollars, executed in hundreds of labs around the world. Today an individual's genetic blueprint can be fully sequenced in a couple of days at a cost of

about \$1,000; biotech company [Illumina](#) advertises the service at \$4,000. New technology coming out of the pipeline will bring that time and [cost down more than 90 percent](#) this year. Sequencing far smaller microbes is now so cheap and easy that deciphering the deadly details of plague or AIDS can be performed by, as Clinton [phrased it](#), anybody with "college-level chemistry and biology." A perfectly functional DIY synthetic-biology lab, complete with gene sequencer, costs about \$25,000 today; it will go for \$5,000 soon.

Industry is moving full-bore on synthetic biology as well. Maverick biologist J. Craig Venter, famous for setting up a private company that raced the NIH to be the first to synthesize the human genome more than a decade ago, violated no rules in 2010 when his [private research institute](#) published detailed how-to steps for inserting the genome of one species of bacteria into a different species, creating the ultimate Trojan horse that could sneak by human immune system defenses to deliver a lethal cargo. The experiments were so bold and dramatic that in 2010 the U.S. Presidential Commission for the Study of Bioethical Issues was tasked with finding guidelines to control private and industrial synthetic-biology experiments. It opted instead for free, unfettered science, except for first out-of-laboratory uses of man-made organisms.

In October, *Nature* published the genetic blueprint of *Yersinia pestis*, the bacterium that caused Europe's 14th-century Black Death. This followed a long list of microbial blueprint publications, complete with detailed analysis of what, genetically speaking, makes the bacteria or viruses tick: Here is the virulence sequence that kills human cells, scientists point out; these nucleotides control transmission from one human cell to another; thanks to these genes the microbe can evade the human immune system; and so on. The whole point of the work is to demonstrate *how* microbes infect and destroy cells, including those of human beings.

Political leaders can no longer relegate questions about bioterrorism, biological accidents, bioweapons, or bio-homicide to scientific review panels or, worse, journal editors. It is time to rethink both the BWC and the various biosecurity codes countries have created, without resorting to doomed calls for censorship.

In a 2007 speech to the NSABB, C. Kameswara Rao of India's Foundation for Biotechnology Awareness and Education almost pleaded with his American and European counterparts. India's burgeoning pharmaceutical industry is now taking in \$2 billion annually, and enterprises akin to DIY biology have sprouted up from Bangalore to Mumbai. What might have once been considered unthinkable to Indians became ugly reality with the 2008 terrorist attacks in Mumbai. More than 300 people were injured and 172 [died](#) in the worst mass-casualty event in modern Indian history. Developing countries like India, Rao argued, are in desperate need of international guidelines, global governance of dual-use research, and basic know-how. Wealthy countries must, [he stated](#), "share and provide state-of-the-art technical know-how" on biosecurity and surveillance of violations. There is a desperate need to globally "[coordinate and monitor](#) diagnostic, preventive, and remedial action." And an international funding agency must be created to support such preventive action in developing countries in order, Rao concluded, "to prevent human tragedy for want of technical know-how and financial resources." Rao was calling for nothing less than a massive global effort to train government institutions in poor and middle-income countries in the legal, biological, and public health tools necessary to control and respond to release of dangerous man-made contagions, whether deliberate or accidental.

Yanzhong Huang, senior fellow at the Council on Foreign Relations, finds a similar state incapacity to limit and surveil biothreats in China. In his [estimation](#), Beijing has no capacity to prevent "biocrimes" or limit the synthetic-biology activities of its mushrooming biotech industry and academic science. Between them, India and China comprise much of the world's population and economic growth, have the lion's share of the new biotechnology and drug industry that could potentially execute dual-use research, and lack regulatory capacity to monitor such developments. That ought to worry all of us, whether we are in Beijing and Bangalore or Boston and Bangkok.

Developing countries' concerns put the World Health Organization (WHO) in a particularly difficult position on the H5N1 experiments and larger biosecurity issues. As H5N1 spread throughout Asia from 2003 to

2009, Indonesia experienced the majority of human cases and deaths, and virologists were eager to obtain samples of the flu viruses circulating around that vast island nation in order to comprehend why. The government declined to share viral samples, citing several concerns chiefly related to vaccine development, patents, and profits. After years of difficult negotiations, Indonesia and the World Health Assembly, the WHO's governing body, last year agreed to guidelines permitting sharing of both viruses and the profits derived from them. The resulting [Pandemic Influenza Preparedness Framework](#) is a fragile agreement governing the WHO's emerging-diseases and flu activities.

In an unusually [harsh statement](#) on Dec. 30, the WHO condemned the H5N1 experiments and demanded that the methods used to obtain superbugs remain secret, but also cited concern that any further restrictions on the flow of scientific information might undermine the fragile flu framework. Noting the extreme dangers posed by H5N1, which since 1997 has killed 60 percent of infected human beings, the WHO [said](#), "Research which can improve the understanding of these viruses and can reduce the public health risk is a scientific and public health imperative" that requires open sharing of all viruses and information.

Meanwhile, bird flu is back, causing human and bird infections and deaths in Hong Kong, mainland China, India, Bangladesh, and Egypt. A Shenzhen bus driver [died of H5N1](#) on Dec. 31; the source of his infection has not been determined. Nature carries out its own mutations. Indeed, all five of the mutations that were the key in Fouchier's experiments to transforming garden-variety bird flu into a supercontagious mammalian killer have already occurred separately in nature. Yes, the birds and viruses have already done it -- but not with all five mutations in a single viral strain. The biological clock is ticking. In late December, the U.S. CDC [issued a warning](#), noting that yet another flu threat looms, combining the 2009 H1N1 "swine flu" with a H3N2 influenza now circulating in American commercial pig farms. The naturally occurring recombinant flu had infected a dozen Americans by Christmas ([Foreign Policy, 2012](#)).

**Title:** An Engineered Doomsday

**Date:** January 7, 2012

**Source:** [New York Times](#)

**Abstract:** Scientists have long worried that an influenza virus that has ravaged poultry and wild birds in Asia might evolve to pose a threat to humans. Now scientists financed by the National Institutes of Health have shown in a laboratory how that could happen. In the process they created a virus that could kill tens or hundreds of millions of people if it escaped confinement or was stolen by terrorists.

We nearly always champion unfettered scientific research and open publication of the results. In this case it looks like the research should never have been undertaken because the potential harm is so catastrophic and the potential benefits from studying the virus so speculative.

Unless the scientific community and health officials can provide more persuasive justifications than they have so far, the new virus, which is in the Netherlands, ought to be destroyed. Barring that, it should be put in a few government-controlled laboratories with the highest containment rating, known as biosafety level 4. That is how the United States and Russia contain samples of smallpox, which poses nowhere near the same danger of global devastation.

In the future, it is imperative that any such experiments be rigorously analyzed for potential dangers — preferably through an international review mechanism, but also by governmental funding agencies — before they are undertaken, not after the fact as is happening in this case.

The most frightening research was done by scientists at the Erasmus Medical Center in Rotterdam, who sought to discover how likely it is that the "bird flu" virus, designated A(H5N1), might mutate from a form that seldom infects or spreads among humans into a form highly transmissible by coughing or sneezing. Thus far the virus has infected close to 600 humans and killed more than half of them, a fatality rate that far exceeds the 2 percent rate in the 1918 influenza pandemic that killed as many as 100 million people.

Working with ferrets, the animal that is most like humans in responding to influenza, the researchers found that a mere five genetic mutations allowed the virus to spread through the air from one ferret to another while maintaining its lethality. A separate study at the University of Wisconsin, about which little is known publicly, produced a virus that is thought to be less virulent.

These findings led to an unprecedented request from an American federal advisory board that the researchers and the two scientific journals that plan to publish the studies omit any details that might help terrorists figure out how to unleash a devastating pandemic. That presumably includes details on how the engineered virus was made and details on the precise mutations that allowed it to go airborne.

We doubt that anything at all should be published, but it seems clear that something will be.

The two journals reviewing the papers seem inclined to follow the advisory board's recommendations that the research be published in a redacted form, provided there is some way for researchers who need the information to gain access to the full details. The Erasmus team believes that more than 100 laboratories and perhaps 1,000 scientists around the world need to know the precise mutations to look for. That would spread the information far too widely. It should suffice to have a few of the most sophisticated laboratories do the analyses.

Defenders of the research in Rotterdam claim it will provide two major benefits for protecting global health. First, they say the findings could prove helpful in monitoring virus samples from infected birds and animals. If genetic analysis found a virus somewhere that was only one or two mutations away from going airborne, public health officials would then know to bear down aggressively in that area to limit human contact with infected poultry and ramp up supplies of vaccines and medicines.

But it is highly uncertain, even improbable, that the virus would mutate in nature along the pathways prodded in a laboratory environment, so the benefit of looking for these five mutations seems marginal.

A second postulated benefit is that the engineered virus can be used to test whether existing antiviral drugs and vaccines would be effective against it and, if they come up short, design new drugs and vaccines that can neutralize it. But genetic changes that affect transmissibility do not necessarily change the properties that make a virus susceptible to drugs or to the antibodies produced by a vaccine, so that approach may not yield much useful new information.

We cannot say there would be no benefits at all from studying the virus. We respect the researchers' desire to protect public health. But the consequences, should the virus escape, are too devastating to risk ([New York Times, 2012](#)).

**Title:** We Need To Fix The Holey Biosafety Net

**Date:** January 13, 2012

**Source:** [NewScientist](#)

**Abstract:** Physics lost its innocence on 16 July 1945, when researchers involved in the Manhattan Project witnessed the first detonation of an atomic bomb. Years later, Robert Oppenheimer recalled that he was haunted by a verse from the Hindu scripture, the *Bhagavad Gita*: "I am become death, the destroyer of worlds."

Ron Fouchier and Yoshihiro Kawaoka haven't yet revealed their thoughts on learning that they had created flu viruses that could potentially kill tens of millions of people ([see "One mistake away from a worldwide flu pandemic"](#)). But with opinion divided on the wisdom of running the experiments, biology may have crossed a similar line.

The circumstances are very different, of course. Oppenheimer and his colleagues were trying to defeat tyranny. Fouchier and Kawaoka were motivated by a desire for knowledge that they argue will make the world safer.

The trouble is that in the wrong hands, or if handled carelessly, these viruses may be just as dangerous as a nuclear bomb. Fouchier and Kawaoka believe that understanding how the deadly H5N1 virus can become easily transmissible between people is crucial knowledge. Others argue that the experiments don't mimic what might happen in nature, and that the risks outweigh any benefits.

But what is done is done. The question now is, what can be learned from this episode?

First and foremost we must ask how it came to this. The research was first reported at a conference last September, yet the US National Science Advisory Board for Biosecurity (NSABB) was not asked for its opinion until later, as two papers describing the work neared publication. The board has now recommended that key details should be withheld from these papers - though whether that will be enough to neutralise any danger is debatable.

While no one doubts the researchers' good intentions, one has to ask how the work progressed so far without a wider debate. In 2007, NSABB [drew up a framework](#) for proactively weighing up the risks and benefits of experiments that might provide a recipe for bioterror. It was supposed to serve as a springboard for action, but has simply gathered dust. Before the framework, *New Scientist* flagged up a grant to Kawaoka which eventually paid for his flu experiments in an article on the pros and cons of such research ([14 October 2006, p 20](#)).

The US National Institutes of Health, which funded Fouchier's and Kawaoka's work, says that the US government will now develop a policy to "[augment existing approaches](#)" to evaluating such research - though it has not said what this means in practice.

Better late than never. But it is important not to overreact. As we [warned](#) more than five years ago, some security specialists see bioterrorists under every bed. If their views were to dominate, important research would become tangled in red tape.

The reality is that a vanishingly small number of projects present such dilemmas. But those that do need to be flagged up earlier in the game and subjected to scrutiny. The scientists involved must also accept that others can legitimately question whether everything that can be done should be done, lest they follow in Oppenheimer's deadly footsteps ([NewScientist, 2012](#)).

**Title:** Universal Flu Vaccine Could Be Available by 2013

**Date:** January 13, 2012

**Source:** [U.S. News](#)

**Abstract:** Annual flu shots might soon become a thing of the past, and threats such as avian and swine flu might disappear with them as a vaccine touted as the "holy grail" of flu treatment could be ready for human trials next year.

That's earlier than the [National Institutes of Health estimated in 2010](#), when they said a universal vaccine could be five years off. By targeting the parts of the virus that rarely mutate, researchers believe they can develop a vaccine similar to the mumps or measles shot—people will be vaccinated as children and then receive boosters later.

That differs from the current '60s-era technology, according to Joseph Kim, head of Inovio Pharmaceuticals, which is working on the universal vaccine. Each year, the seasonal flu vaccine targets three or four strains that researchers believe will be the most common that year. Previous seasons'



vaccines have no effect on future strains of the virus, because it mutates quickly. The seasonal vaccine also offers no protection against outbreaks, such as 2009's H1N1 swine flu. A universal vaccine would offer protection against all forms of the virus.

"It's like putting up a tent over your immune system that protects against rapidly mutating viruses," Kim says. At least two other companies are working on a similar vaccine. In late 2010, Inovio earned a [\\$3.1 million grant from the National Institutes of Health](#) to work on the vaccine.

"It's a completely different paradigm than how [the vaccines] are made seasonably every year," Kim says.

Kim says early research has been promising. Flu strains fall into different "buckets," he says. All H1N1 strains share similar characteristics, as do all H5N1 strains, including the the Asian bird flu strain that has killed more than 60 percent of the 500 or so people it has infected over the past decade.

Kim says Inovio has already made and completed successful human tests for vaccines that protect against all H1N1 and H5N1 flu strains.

In late 2011, two research groups [created a strain of H5N1 bird flu that could be passed from human to human](#), leading the [World Health Organization](#) to issue a statement that said they were "deeply concerned about the potential negative consequences" that publishing their research could cause. Some news outlets have called the new strain "engineered doomsday" and wondered whether terrorist organizations could create and distribute a similar virus. Kim says not to worry.

"I am very certain our vaccine can already neutralize that newly made virus," he says. "We're trying to get our hands on it."

Inovio is working on vaccines that'll protect against other strains, such as H3N2, [which is seen in a newly-emerged swine flu virus](#). Those vaccines will be combined with the already-developed H1N1 and H5N1 vaccines to be delivered in one shot by the 2013 flu season. Researchers are taking a similar approach to HIV vaccine development, but working on the flu might be easier.

"Unlike other diseases, we have 50 plus years of diagnostics on the flu," Kim says. "There are lots of toolkits that let us know if our approach will work or not. ... Our goal is to have a vaccine strategy that can protect us from all mutations" ([U.S. News, 2012](#)).

**Title:** Soligenix Unveils Positive Results From Anthrax Vaccine Studies

**Date:** January 18, 2012

**Source:** [Proactive Investors](#)

**Abstract:** [Soligenix](#) (OTCBB:SNGX) unveiled Wednesday results from long-term stability studies of its proprietary DNI, or dominant negative inhibitor, anthrax vaccine, known as SGX204.

SGX204 is a hyperimmunogenic derivative of protective antigen and is being developed as a vaccine to protect against anthrax disease either as a pre-exposure preventative vaccine, or post-exposure vaccine.

The company said "positive stability" was seen when the DNI rPA, or recombinant protective antigen, was subjected to temperatures as high as 70°C for one month.

DNI rPA retained native configuration, with no evidence of denaturation that typically occurs in water buffers under the same thermal conditions, the company said.

The DNI protein was formulated with common excipients that allow for the preservation of protein structure in the dried state.

Long-term stability of DNI rPA was also demonstrated after refrigerated storage for more than seven years, [Soligenix](#) said.

More importantly, when DNI rPA was combined with a potent adjuvant formulation, animals vaccinated with the combination developed high-titer neutralizing antibodies for protection against anthrax disease.

"We are very excited about these extraordinary stability results," said chief scientific officer, Robert N. Brey, PhD.

"We believe that the combination of long-term stability over several years with stability at such elevated temperatures has the potential to confer a distinct advantage over other anthrax vaccine technologies currently in development.

"Further, SGX204 is highly immunogenic and thereby offers the potential for complete immunization with just one or two doses. As with any biodefense product, our goal is to have SGX204 stockpiled by the US government."

Anthrax is an acute infectious disease that is easily transmitted to humans by spores that are produced by *Bacillus anthracis* and is therefore considered a Category A bioterror threat. Infection can happen through the skin, inhalation or through gastrointestinal ways.

Inhaled spores are particularly threatening, as these spores are transported to lymph nodes near the lungs where they germinate, releasing vegetative bacteria into the bloodstream. This leads to shock and organ failure.

Treatment of anthrax involves long-term antibiotic therapy, since ungerminated spores can lie dormant in the lungs for up to 60 days.

Once the toxin has entered the bloodstream, however, antibiotics are ineffective, and only toxin-specific therapy is effective.

[Soligenix](#) has entered into an option agreement with Harvard University to negotiate a license under patent rights that cover prophylactic uses of a modified anthrax toxin protein.

Initial development work will be covered under a previously issued \$9.4 million National Institute of Allergy and Infectious Disease (NIAID) grant.

The option consists of an issued U.S. patent that covers engineered variants of protective antigen developed in the Harvard Medical School laboratory of Dr. John Collier, the company said.

[Soligenix](#) is a development stage biopharmaceutical company developing products to treat life-threatening side effects of cancer treatments and serious gastrointestinal diseases, as well as vaccines for certain bioterrorism agents.

Through its biodefense division, [Soligenix](#) is developing its RiVax vaccine, which is designed to protect against the lethal effects of exposure to ricin toxin, in addition to SGX204 ([Proactive Investors, 2012](#)).

**Title:** US Army Burns Off Final Chemical Weapons In Utah

**Date:** January 19, 2012

**Source:** [NPR](#)

**Abstract:** Gary McCloskey may have destroyed more chemical weapons than any man alive, but he barely reacted when the final weapons from the world's largest stockpile of warfare agents came out of an incinerator.



McCloskey, a 63-year-old engineer and manager for URS Corp.'s Federal Services division, was on hand as a U.S. Army depot in Utah finished destroying the last of 1.3 million munitions filled with a witches' brew of toxins, blister and blood agents. He was on a Pacific atoll in 1986 when the Army destruction campaign started, living just 300 yards from an incinerator.

"These things really are detoxified and are safe," McCloskey said Wednesday at the Deseret Chemical Depot, watching a video feed of mustard agent projectiles leave an incinerator on a conveyor belt. "This is the last tray of the last weapons to go through this plant."

The last 23 projectiles were baked for two hours at 1,500 degrees, purging them of mustard agent, which can produce painful skin blisters. The Utah depot — which at its peak held 13,600 tons of chemical agents, making it the world's largest — expects to complete the job by the weekend when it incinerates bulk supplies of Lewisite, a powerful skin, eye and lung irritant.

By then, the U.S. Army will have destroyed about 90 percent of its aging chemical weapons that accumulated through the Cold War.

"We can honestly say that the destruction of chemical agents ... has made the world a safer place," said Col. Mark Pomeroy, commander of the Deseret Chemical Depot.

The U.S. is part of an international treaty to rid the world of chemical weapons, a campaign taking place with spotty success around the globe. The goal was supposed to be accomplished by April 29 but will take years longer.

"Clearly, it's still a tremendous example of what the world can do," said Craig Williams, director of the Chemical Weapons Working Group in Berea, Ky., an advocate for safe disposal. "You've got 188 of 194 countries on the planet signing the treaty. It's an impressive effort, a great step forward for the safety of the world."

The U.S. has acknowledged it will take as long as 2021 to finish destroying the final 10 percent of its chemical weapons at depots in Pueblo, Colo., and Richmond, Ky. Russia is farther behind in its effort, having destroyed only about 48 percent of a large cache of chemical weapons, according to the Organisation for the Prohibition of Chemical Weapons in The Hague, Netherlands.

An international tribunal voted last month to waive trade or other sanctions and instead subject the U.S. and Russia to increasing pressure and inspections. Each country must submit plans by April 29 detailing how they will finish the job "in the shortest time possible."

A third country, Libya, also is expected to miss the deadline. The recent uprising in Libya interrupted that country's work and exposed more chemical weapons depots than were thought to exist, Williams said.

In the U.S., the Army has finished destroying chemical weapons at depots in Anniston, Ala.; Pine Bluff, Ark.; Newport, Ind.; Aberdeen, Md.; Umatilla, Ore.; and a Pacific atoll where the work started in 1986, according to the Army's Chemical Materials Agency.

That leaves a stockpile of mustard agent in Pueblo, Colo., and a mixed inventory of mustard and nerve agents at Kentucky's Blue Grass Army Depot.

The Deseret Chemical Depot in Utah once contained 44 percent of the nation's supply of chemical agents. The depot didn't just hold obsolete U.S. weapons. A supply of nerve agent seized from Nazi Germany at the end of World War II was destroyed only months ago.

McCloskey said about 1,100 URS contract workers are being let go with generous severance, sent into early retirement or transferred to other chemical weapons depots. Others took advantage of the company's college benefits to learn a new trade. A small number will remain for cleanup duty. The Deseret Chemical Depot will be turned into an Army storage site for conventional weapons.

The heavily guarded Utah incinerator sits in the middle of a desolate base of nearly 3 square miles, surrounded by barbed wire and chain-link fences in remote Rush Valley. Underground bunkers were used to store the explosive shells, mortars, land mines, projectiles, rockets, spray tanks for use by war planes and bulk storage containers.

The Deseret Chemical Depot logged 14 million man-hours destroying weapons since 1996 without a single serious accident, Pomeroy said.

Chemical weapons were introduced into warfare during World War I, killing 90,000 troops on battlefields, according to the Organisation for the Prohibition of Chemical Weapons.

As far as is known, the U.S. has never fired a chemical weapon in anger, although some consider the use of the defoliant Agent Orange during the Vietnam War a chemical attack, Williams said ([NPR, 2012](#)).

**Title:** Bio-Terror Fear Halts Bird Flu Research

**Date:** January 21, 2012

**Source:** [Fox News](#)

**Abstract:** Scientists who created easier-to-spread versions of the deadly bird flu said Friday they're temporarily halting more research, as international specialists debate what should happen next.

Researchers from leading flu laboratories around the world signed onto the voluntary moratorium, published Friday in the journals Science and Nature.

What the scientists called a "pause" comes amid fierce controversy over how to handle research that's high-risk but potentially could bring a big payoff. Two labs — at Erasmus University in the [Netherlands](#) and the University of Wisconsin-Madison — created the new viruses while studying how bird flu might mutate to become a bigger threat to people.

The U.S. government funded the work but last month urged the teams not to publicly reveal the exact formula so that would-be bioterrorists couldn't copy it. Critics also worried a lab accident might allow the strains to escape. The researchers reluctantly agreed not to publish all the details as long as the government set up a system to provide them to legitimate scientists who really need to know. The [National Institutes of Health](#) is creating such a system.

"We recognize that we and the rest of the scientific community need to clearly explain the benefits of this important research and the measures taken to minimize its possible risks," lead researchers Ron Fouchier of Erasmus and Yoshihiro Kawaoka of Wisconsin wrote Friday in the letter. They were joined by nearly three dozen other flu researchers.

They called for a public international meeting to debate how to learn from the work, safely. And they agreed to hold off on additional research with the existing lab-bred strains or that leads to any new ones for 60 days.

A U.S. official praised the development.

The moratorium "is a really good idea, because a lot of very important issues are at hand," said Dr. Anthony Fauci, director of the NIH's National Institute of Allergy and Infectious Diseases, who expects

most flu researchers doing such work to sign on. "There aren't a lot of people who are doing that, I can assure you."

The U.S. also wants international input; researchers are talking with the [World Health Organization](#).

Today, the so-called H5N1 bird flu only occasionally infects people, mostly those who have close contact with sick poultry. But when it does, it's highly lethal. The lab-bred H5N1 strains were a surprise because they showed it was easier than previously thought for the virus to mutate in a way that lets it spread easily between at least some mammals — in this case, ferrets ([Fox News, 2012](#)).

**Title:** Bird Flu Mutation Study Stopped In Fear Of Deadly Global Outbreak

**Date:** January 21, 2012

**Source:** [Russia Today](#)

**Abstract:** Under pressure to put their research on hold due to fear of a biological disaster, an international team of scientists have voluntarily suspended their study on an advanced, incredibly deadly mutation of the H5N1 bird flu.

In an effort to better understand the deadly bird flu virus, Ron Fouchier of Erasmus Medical College in the Netherlands, Adolfo Garcia-Sastre of Mount Sinai School of Medicine in New York and Yoshihiro Kawaoka of the University of Wisconsin, Madison have been slaving over their study of the avian influenza. In conducting their own research, the team of scientists was able to mutate the original H5N1 virus into a much more lethal form to see how the outbreak could increase in intensity if not controlled outside of the lab. As word came around late last year that their research had returned a variation able to induce an international outbreak, however, the scientific community urged them to abandon their study in fear that the mutated strain would escape the lab and cause a deadly, worldwide outbreak.

With the fear failing to subside weeks later, the team of scientists has temporarily halted their research.

In its natural form, the bird flu virus has led to nearly 600 known cases and 340 deaths since it was discovered in 2003. That year there were only four outbreaks, all in East Asia, although in the years since an outbreak has claimed lives as far west as Egypt. The scientists were studying what damage a mutated strain of the virus could bring, but the US National Science Advisory Board for Biosecurity cautioned them to refrain from publishing the results of their finding, fearful that it would influence budding bioterrorists to use the study to create their own strain and launch an epidemic.

Despite the Board's urging, others in the science community were skeptical. *"In the end, is the likelihood of misuse outweighed by the danger of beginning a Big Brother society?"* Professor Wendy Barclay of Imperial College London asked the Daily Mail last month.

The researchers say in a letter published in the journals Nature and Science on Friday that they will take a two-month break from their efforts. Since news of their study caught wind, the US government, the World Health Organization and other international bodies have been evaluating a way to go about publishing the findings in periodicals eventually, taking into account their research but avoiding the publishing of a how-go guide for biological warfare.

*"We realize that organizations and governments around the world need time to find the best solutions for opportunities and challenges that stem from the work,"* the scientists write.

*"We hope that by having a calm and reasoned discussion of the facts, scientists and biosecurity experts can reach a better understanding and find ways to enable the research to go forward while minimizing risks,"* adds Kawaoka ([Russia Today, 2012](#)).

**Title:** Has Bird Flu Biology Opened Bioterror Box?

**Date:** January 25, 2012

**Source:** [USA Today](#)

**Abstract:** It was a public health nightmare: A deadly flu bug spread like wildfire around the world, killing tens of millions of people.

That was nearly a century ago. Fears that the nightmare could return today — perhaps with even more terrifying consequences — have set off a heated debate among scientists and, for the first time, delayed the publication of scientific flu research in two professional journals.

The object of those fears: a threatening new version of the bird flu virus that didn't emerge from nature but was born out of experiments in a lab.

Researchers in the Netherlands and at the [University of Wisconsin-Madison](#), who were trying to determine what genes might mutate and make bird flu attack humans, created a strain that can pass easily among ferrets.

Why should we care that ferrets get the bird flu?

Ferrets are the closest lab animal models to humans for flu vaccine studies. Until now, cases of bird flu passing from infected birds to humans were limited to people — farmworkers usually — who worked closely with the birds. And bird flu almost never passes from person to person.

So creation of a bird flu strain easily transmissible between mammals poses frightening scenarios: What if the strain escaped from the lab and spread among humans? David Nabarro, a [World Health Organization](#) expert, estimated that such a pandemic could kill 20 million to 150 million people worldwide.

What if terrorists intent on doing harm learned enough from the published scientific work to reproduce the strain on their own? They could release it to start a pandemic.

The federal National Science Advisory Board for Biosecurity (NSABB) reviewed the work, and last month, it requested for the first time ever that two prominent scientific journals, *Science* and *Nature*, withhold from the public details of the two potentially dangerous bird flu studies.

Journal editors, sensitive to the security issues, have delayed publication of the studies.

"We have to protect the public by making sure the critical information doesn't get into the hands of those who might misuse it," says *Science* editor-in-chief Bruce Alberts.

On the other hand, he says, "this knowledge could be essential for speeding the development of new treatments to combat this lethal form of influenza."

Last week, leaders of the two labs involved announced a two-month halt to research on bird flu viruses engineered to pass among mammals, citing "perceived fears" that the microbes may escape from the lab. They called for the World Health Organization to discuss the risks and benefits of their research.

"I think it is a reasonable first step," says [University of Michigan](#) virologist Michael Imperiale, a member of the federal NSABB group.

The strains are securely locked down in labs in the Netherlands and Wisconsin, but the episode raises questions about whether such experiments should be done in the first place.

"I'm not convinced a 'doomsday' strain is what we have here," says NSABB chief Paul Keim, an anthrax researcher at Northern Arizona University in Flagstaff, "but now at this point, we can see the trajectory creating something of very grave concern."

### **A High Rate of Death**

Why the concern? Bird flu, or [H5N1](#) avian flu, has killed 342 people in the past decade out of 581 who were infected, a death rate of almost 60%, according to the World Health Organization. That percentage is much debated by researchers, who argue it's skewed because many milder cases aren't reported. That rate is about 120 times higher than for the 1918 flu, and roughly 600 times greater than for the 2010 seasonal flu.

The 1918 flu virus strain that killed perhaps 50 million people, including 675,000 Americans, according to the federal Centers for Disease Control and Prevention (CDC), hangs heavy over the debate. That bug, emerging near the end of [World War I](#), had new genetic features and wreaked havoc on the unprepared immune systems of people at the time.

The nightmare for scientists today is that the mutation-prone bird flu virus — which they say is similarly foreign to the human immune system — could evolve into a strain that could be transmitted from person to person and trigger a similar deadly outbreak. In the ferret flu studies, biologists may have completed that step in the laboratory. The researchers reinfected ferrets with bird flu until a strain evolved that seemed able to move from ferret to ferret by sneeze, raising fears it could travel the same way among people if it escaped.

Outside the lab, some question the wisdom of putting the world at this kind of risk. Bioterror expert Michael Osterholm of the University of Minnesota asks what good it is to identify threatening new flu genes in a lab when no way exists to monitor Asia's poultry cages for an outbreak.

"We have worried about this for a long time," says microbiologist Ronald Atlas of the University of Louisville. Atlas was a member of the 2004 National Academy of Science panel that described this very scenario — a lab creation aimed at combating a disease triggering pandemic fears — and called for the creation of the NSABB. "My sense is the scientific community is really divided on this," Atlas says.

### **'Tickling the Dragon's Tail'**

At the dawn of the atomic era, weapons scientists tried "tickling the dragon's tail," in the words of [Manhattan Project](#) physicist [Richard Feynman](#), handling radioactive blocks just close enough together to gauge where nuclear chain-reactions start, at considerable risk to themselves and everyone in the vicinity.

Today's biological equivalent comes from "dual-use" microbes, grown in labs to be strong enough to test vaccines but running the risk the microbes could accidentally escape or be hijacked for bioterrorism.

Case in point: the anthrax attacks in 2001, which killed five people. The strain of Ames anthrax bacteria used in the attacks was specifically grown for vaccine testing.

[FBI](#) investigators concluded the culprit was a lab insider, researcher [Bruce Ivins](#), who committed suicide in 2008 while the investigation was underway.

Over the past decade, a litany of other microbe reports have drawn concern:

- In 2002, Stony Brook (N.Y.) University researchers reported the re-creation of polio virus from stitched-together [DNA](#) fragments. The study raised concerns that bioterrorists could patch together attack bugs from gene scraps alone, not even needing the bugs themselves in a Petri dish.

- In 2005, federally funded researchers published a reconstructed gene map of the 1918 flu virus after a review by Keim's panel. Then-CDC chief [Julie Gerberding](#) called the research "critically important in our efforts to prepare for pandemic influenza."

- Last year, the [National Research Council](#) reported that the FBI and the "[U.S.](#) intelligence community" had inspected a suspected al-Qaeda bioterror lab during the anthrax murder investigation. Critics of the FBI case, such as Rep. [Rush Holt](#), D-N.J., worried that terrorists were growing microbes for bioterror purposes.

Much like the knowledge that atomic bombs were possible spurred nuclear proliferation during the [Cold War](#), news that bird flu can be made transmissible to mammals could suggest ideas to a well-trained, would-be bioterrorist, Keim says. "The research is out there," he says.

### **Scientific Disagreement**

The pages of one journal in the middle of the debate, *Nature*, reveal the wide disagreement among scientists about whether publishing the lab-made bird flu strain represents a step too far.

"I believe that the risk of future outbreaks in humans is low," wrote flu genetics expert Peter Palese of the Mount Sinai School of Medicine in New York in a Jan. 12 opinion piece.

Bird flu has had millions of chances in tightly packed chicken coops of evolving the capability of transmitting among people, he argues, a natural experiment showing there is little chance of the bug triggering a pandemic.

"Slowing down the scientific enterprise will not 'protect' the public — it only makes us more vulnerable," Palese said.

Palese and some other researchers question the high mortality rate ascribed to bird flu, saying it more likely reflects deaths among the very sickest patients, ones who headed for the hospital.

Mild cases never showed up in records, they suggest. The death rate from the dreaded 1918 flu was about 0.5% (still very high for the flu — that's one in 200 patients), according to a U.S. Armed Forces Health Surveillance Center review.

On the other hand, smallpox researcher D. A. Henderson of the University of Pittsburgh's Center for Biosecurity in Baltimore wrote in *Nature's* Jan. 19 edition, "We should not publish a blueprint for constructing such an organism." The lab creation, in his estimation, produced "the ultimate biological threat."

### **Looking for Middle Ground**

"The real question is, where do we find some middle ground, to make a system that preserves scientific openness but also safety?" Atlas says. "The irony is that we do have the bones of a biosafety system already in place. Everyone seems to forget that."

Under federal law, bird flu must be investigated within a "Biosafety Level 3" lab, requiring special training, equipment, ventilation and oversight. Related regulations require that labs register "select agents," including bird flu.

"Obviously, it went through that process," says spokesman Terry Devitt of the University of Wisconsin-Madison, who notes that the [National Institutes of Health](#) approved the research in the first place.

However, Atlas points out the 2004 [National Academy of Sciences](#) report that called for the creation of the NSABB also said extra "biosafety" reviews should be conducted at the university level. Devitt acknowledges this wasn't part of the school's review process.

Some researchers, such as chemical biologist Richard Ebright of Rutgers University, have called for assigning the ferret study virus strains to Biosafety Level 4, the highest level of security.

Worldwide, at least 42 labs investigate bird flu, or bugs just as deadly, according to Lynn Klotz of the Center for Arms Control and Non-Proliferation in Washington, and Ed Sylvester of Arizona State University.

Looking at the history of lab infections, such as the SARS death in 2004 of a student in Beijing who caught the disease from two graduate students infected in a lab, they put the odds of a lab "escape" at 80% within four years. An escape doesn't mean a pandemic, but it does offer one an avenue.

Federal officials, according to Keim, have asked the NSABB to review the safety of communication of similar bird flu infection studies.

"We had a debate a decade ago and decided that this science was too important to restrict," Atlas says. "The real responsibility for control has to come from the scientific community" ([USA Today, 2012](#)).

**Title:** WHO Director-General Addresses Unprecedented Meeting On Neglected Tropical Diseases

**Date:** January 30, 2012

**Source:** [WHO](#) (World Health Organization)

**Abstract:**

Dr Margaret Chan  
Director-General of the World Health Organization

Ladies and gentlemen,

Today's event sends a strong message of encouragement.

At a time of severe financial constraints, it is still possible to set ambitious targets for diseases, secure unprecedented commitments, and accelerate action to meet those targets.

This message is all the more heartening given the people who will benefit. The bottom billion. The poorest of the poor. People with little visibility and even less political voice.

For decades, WHO has been the champion of these people, steadily working to give them the vision of a better life. This leadership, supported by research, partners, and industry donations, has changed the face of NTDs.

Once considered inevitable companions of poverty, many NTDs are now being brought to their knees, with stunning speed.

Last week, WHO issued a roadmap for accelerating work to overcome these diseases. The targets for implementation are ambitious yet feasible, based on the best science available, but also on impressive results under some of the most challenging conditions in the world.

With the boost to this momentum being made today, I am confident almost all of these ancient diseases can be eliminated or controlled by the end of this decade.



The strategies set out in the WHO roadmap are tested and proven to be effective. Let me assure you: WHO knows how to deliver on these commitments in ways that bring results.

The roadmap follows two overarching approaches being covered today.

That is, using what exists while maximizing the impact through smart programme management. And innovation to improve or repurpose existing tools and develop better ones.

We know that programmes for disease elimination or eradication that stress innovation have the best chance of success. This is what we all want: success in relieving the misery of more than a billion people.

The payback will be enormous.

Thank you ([WHO, 2012](#)).

**Title:** Panel: Biologists Face Bioterror Risk "Crossroads"

**Date:** January 31, 2012

**Source:** [USA Today](#)

**Abstract:** A federal advisory panel Tuesday warned microbiologists that their research now raises bioterror dangers akin to the proliferation risks faced by the early atomic scientists.

"We are in the midst of a revolutionary period in the life sciences," says the National Science Advisory Board for Biosecurity in a statement released by the journals [Science](#) and [Nature](#). "However, there is also a growing risk that the same science will be deliberately misused and that the consequences could be catastrophic."

The panel of 22 senior scientists made headlines last month by requesting that the journals *Science* and *Nature* withhold [details of two bird flu transmission studies](#) from publication. The studies dealt with strains of the deadly flu able to transmit among ferrets, the closest animal models to humans. In the statement, the NSABB explains their decision, made at the request of the federal government:

"Our concern is that publishing these experiments in detail would provide information to some person, organization, or government that would help them to develop similar mammal-adapted influenza A/H5N1 viruses for harmful purposes. We believe that as scientists and as members of the general public, we have a primary responsibility "to do no harm" as well as to act prudently and with some humility as we consider the immense power of the life sciences to create microbes with novel and unusually consequential properties," says the statement.

The heads of the two study teams recently announced a two-month halt to their research for a World Health Organization symposium on the risks and benefits of the research. The NSABB panel compares the current moment in biology to ones faced before by atomic scientists and recombinant DNA researchers in the 1970's.

"The life sciences have reached a crossroads. The direction we choose and the process by which we arrive at this decision must be undertaken as a community and not relegated to small segments of government, the scientific community, or society. Physicists faced a similar situation in the 1940s with nuclear weapons research, and it is inevitable that other scientific disciplines will also do so," said the statement.

In a separate commentary, NSABB chief Paul Keim of Northern Arizona University in Flagstaff, further explained the panel's reasoning, calling for the scientific community as an international endeavor to

decide on steps for controlling "dual-use" microbiological research. "What is gratifying and essential is that the debate is occurring; it is occurring on an international stage, and it is occurring rapidly," Keim said, in the statement released by the *mBio* journal ([USA Today, 2012](#)).

**Title:** Scientists Created Bird Flu Superbug That Could Set Off Next Global Pandemic

**Date:** January 31, 2012

**Source:** [Natural News](#)

**Abstract:** During roughly the same time period that health experts worldwide have been warning that the infamous H5N1 avian flu virus could soon morph into a highly-transmissible, exceedingly-deadly "super strain" capable of killing millions, scientists from around the world have been exposed deliberately developing such a strain in laboratories.

Last month, we [reported](#) about research work conducted by Ron Fouchier from Erasmus Medical College in the Netherlands that had successfully created a super-deadly strain of H5N1. Fouchier and his colleagues had originally planned to publish their controversial findings in medical journals until the scientific community and many members of the public decried the research, calling for an immediate end to it.

Not only is the publishing of critical data about a deadly new strain of H5N1 a massive public health risk, but the research itself is a huge risk as well, as the strain could end up escaping from labs and quickly spreading around the world. Bio-terrorists could also gain hold of the strain -- or produce a similar one themselves -- to be used for starting the next global pandemic.

Whatever the case may be, it is all too coincidental that such research has been taking place for the past several years at the same time that authorities from around the world have been fear-mongering about how H5N1 could eventually mutate. As it currently stands, H5N1 has not naturally become more virulent. The only seriously virulent strains in existence right now are those deliberately created by scientists using public funds.

Opposition to Fouchier's work has continued so fervently since day one that he and his team have [decided](#) to temporarily halt any further research on their H5N1 strain, according to *Russia Today*. The damage has technically already been done, though, as the strain has already been created. However, details of the methodology used to create it have not been published, at least not yet.

Arguments in favor of Fouchier and the others research on H5N1 simply do not hold water, as they appear to offer nothing more than a convenient excuse for the intentional creation of a deadly, bio-weaponized viral strain. If and when the next global pandemic finally does arrive, in other words, we will all know who to blame if it happens to be a mutated form of H5N1 ([Natural News, 2012](#)).

**Title:** No More Bullshit: James Cameron Runs From Threat Of Bio Attack, Economic Collapse

**Date:** February 1, 2012

**Source:** [Infowars](#)

**Title:** Biodefense Panel Begins 2012 Work

**Date:** February 3, 2012

**Source:** [NTI](#)

**Abstract:** A senior U.S. Health and Human Services Department official on Thursday requested that the [National Biodefense Science Board](#) begin preparing an update to the U.S. program for developing the strongest possible stockpile of vaccines and other medical treatments for WMD materials, the Center for Infectious Disease Research and Policy reported (see [GSN](#), Oct. 26, 2011).

The 13-member panel of experts, which conducted its first meeting of 2012 on Thursday, was established through 2006 legislation "to provide expert advice and guidance to the secretary of the U.S. Department

of Health and Human Services (HHS) on scientific, technical, and other matters of special interest to HHS regarding activities to prevent, prepare for, and respond to adverse health effects of public health emergencies resulting from chemical, biological, nuclear, and radiological events, whether naturally occurring, accidental, or deliberate."

It has been five years since the board last conducted a significant assessment of U.S. ambitions for its holdings of medical treatments against biological, chemical or other unconventional materials that could be used against the nation. Such examinations are usually conducted at intervals of five to seven years, according to Nicole Lurie, Health and Human Services assistant secretary for preparedness and response.

"We need a new strategy and implementation plan that takes advantage of what we have learned from experience," according to Lurie ([NTI, 2012](#)).

**Title:** Biological Attack Threat Cited As Pentagon Bolsters Defenses

**Date:** February 4, 2012

**Source:** [Bloomberg](#)

**Source:** The Pentagon is increasing spending to combat biological threats, such as highly toxic ricin, as U.S. spy agencies warn that a terrorist group might conduct a "limited" attack "in the next year."

While a mass attack by foreign terrorist groups using a chemical, biological or radiological weapon in the U.S. is "unlikely" in the next 12 months, intelligence agencies "worry about a limited" attack domestically or abroad, Director of National Intelligence James Clapper told a Senate panel yesterday. He cited interest expressed in such attacks by al-Qaeda in the Arabian Peninsula, which operates in [Yemen](#) and [Saudi Arabia](#).

American intelligence agencies judge that lone actors abroad or in the U.S. "are capable of conducting at least limited attacks in the next year," Clapper said in written testimony submitted to the Senate Intelligence Committee before his hearing.

Culprits might include criminals or "homegrown violent extremists" who have been influenced by terror groups or literature advocating similar attacks, he said.

The threat assessment follows the Pentagon's unveiling last week of revised budget priorities for the next five years that protect spending on programs to counter weapons of mass destruction and that increase funding in the field of biological weapons. Secretary of State [Hillary Clinton](#) warned of the threat at a biological weapons meeting in Geneva in December.

### **Crude but Effective**

"A crude, but effective, terrorist weapon can be made by using a small sample of any number of widely available pathogens, inexpensive equipment and college-level chemistry and biology," Clinton said. "Even as it becomes easier to develop these weapons, it remains extremely difficult -- as you know -- to detect them."

Clinton cited what she said was a "call to arms" by al-Qaeda in the Arabian Peninsula for supporters with degrees in microbiology or chemistry to develop a weapon of mass destruction.

"That's probably one of the reasons they're ramping up the threat assessment for biological weapons," said Kelsey Gregg, project manager of the Virtual Biosecurity Center at the Federation of American Scientists in Washington.

In contrast, last year's joint threat assessment from U.S. intelligence agencies devoted only three sentences to the terrorist threat involving chemical, biological, radiological or nuclear weapons. It said some terror groups remain interested in acquiring the weapons and threaten to use them, and that stockpiles that were poorly secured might provide material for attacks.

### **Increasing Capability Worldwide**

The Pentagon said the increased focus on biological defense wasn't spurred by any specific intelligence assessment. President [Barack Obama](#)'s 2009 National Strategy for Countering Biological Threats was the impetus, said Air Force Lieutenant Colonel April Cunningham, a Pentagon spokeswoman.

"A key part of the strategy is a broad effort to increase capability worldwide to conduct effective and timely disease surveillance" and counter disease outbreaks, Cunningham said.

The Obama administration is due to release its budget recommendations on Feb. 13 for the fiscal year starting Oct. 1.

"I would put ricin at the top of the list" of threats, Gregg said. "You can get a deadly amount of it pretty easily."

The Defense Department first revised its chemical and biological weapons programs for the year that started Oct. 1 "to increase focus on biological capabilities such as bio surveillance and medical countermeasures," Cunningham said in an e-mailed response to questions.

### **Downplaying Some Aspects**

She said the department now is increasing funding for the next fiscal year to expand work under the Cooperative Threat Reduction program, which involves joint work with other nations.

This year's assessment downplays concern that countries may have supplied help in developing or obtaining weapons of mass destruction.

"We assess that no nation-states have provided WMD assistance to terrorist groups and that no non-state actors are targeting WMD sites in countries with unrest," Clapper said in the written statement ([Bloomberg, 2012](#)).

**Title:** Government 'May Sanction Nerve-Agent Use On Rioters', Scientists Fear

**Date:** February 7, 2012

**Source:** [Independent](#)

**Abstract:** Leading neuroscientists believe that the UK Government may be about to sanction the development of nerve agents for British police that would be banned in warfare under an international treaty on chemical weapons.

A high-level group of experts has asked the Government to clarify its position on whether it intends to develop "incapacitating chemical agents" for a range of domestic uses that go beyond the limited use of chemical irritants such as CS gas for riot control.

The experts were commissioned by the Royal Society, the UK's national academy of sciences, to investigate new developments in neuroscience that could be of use to the military. They concluded that the Government may be preparing to exploit a loophole in the Chemical Weapons Convention allowing the use of incapacitating chemical agents for domestic law enforcement.

The 1993 convention bans the development, stockpiling and use of nerve agents and other toxic chemicals by the military but there is an exemption for certain chemical agents that could be used for "peaceful" domestic purposes such as policing and riot control.

The British Government has traditionally taken the view that only a relatively mild class of irritant chemical agents that affect the eyes and respiratory tissues, such as CS gas, are exempt from the treaty, and then only strictly for use in riot control.

But the Royal Society working group says the Government shifted its position to allow the development of more severe chemical agents, such as the type of potentially dangerous nerve gases used by Russian security forces to end hostage sieges. "The development of incapacitating chemical agents, ostensibly for law-enforcement purposes, raises a number of concerns in the context of humanitarian and human-rights law, as well as the Chemical Weapons Convention (CWC)," the report says.

"The UK Government should publish a statement on the reasons for its apparent recent shift in position on the interpretation of the CWC's law enforcement position." The Royal Society group points to a 1992 statement by Douglas Hogg, the then Foreign Office Minister, who indicated that riot-control agents were the only toxic chemicals that the UK considered to be permitted for law-enforcement purposes. But in 2009 ministers gave a less-restrictive definition suggesting the use of "incapacitating" chemical agents would be permitted for law-enforcement purposes as long as they were in the categories and quantities consistent with that permitted purpose.

Professor Rod Flower, a biochemical pharmacologist at Queen Mary University of London, said the latest scientific insights into human brain is leading to novel ways of degrading human performance using chemicals ([Independent, 2012](#)).

**Title:** Mugabe Calls Typhoid Outbreak "Biological Warfare"

**Date:** February 8, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Zimbabwe's President Robert Mugabe's Zanu-PF party has blamed a typhoid fever outbreak that has impacted 1,500 people in the country's capital Harare on biological warfare.

Claudious Mutero, a spokesperson for Zanu-PF, made the claim in Harare. Meanwhile, Henry Madzorera, the Health and Child Welfare minister, cautioned that the outbreak would spread to other areas due to collapsing sewer and water infrastructure, [Africa Review](#) reports.

"The sanctions induced typhoid does not discriminate whether one is MDC (Movement for Democratic Change) or Zanu-PF as it attacks all people irrespective of their sex, ethnic or religious background," Mutero said, according to [Africa Review](#). "We suspect biological warfare by imperialists who are using nationals worldwide as conduits. Councilors must unite and call for the removal of these sanctions."

Mugabe blamed the sanctions imposed on his inner circle for Zimbabwe's economic collapse and said that the West was interested in re-colonizing the continent. Critics of Mugabe said that these claims of renewed imperialism are attempts to mask a failed land grab that ravaged the country's economy, which is based on agriculture.

"This is not the first time that Zanu-PF has made ridiculous claims against foreign countries," Madzorera said, according to [Africa Review](#). "A few years ago, the struggling party alleged that the foreign countries were responsible for the abnormal rainfall in the country."

Madzorera said that the government must put more money into sanitation and water to prevent recurring outbreaks.

"As a country, we should not be suffering from medieval diseases," Mazdorera said, [Africa Review](#) reports. "The problem is that we are receivers of a failed economy" ([Bio Prep Watch, 2012](#)).

**Title:** D.A. Henderson Warns U.S. Unprepared For Bioterror Attack

**Date:** February 8, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** An epidemiologist who led the global effort to eradicate smallpox has spoken out against the government's inability to coordinate response plans and preparations in the event of a biological attack or pandemic.

D.A. Henderson, who was named the chief of the Office of Public Health Preparedness shortly after the 2001 anthrax attacks, gave a preview of a speech he plans to make later in February at the Public Health Preparedness Summit. He said that despite a decade of work to improve biodefense at all levels of government, an overall strategy has yet to be developed, [Huffington Post](#) reports.

"I've kept quiet about this for a long time, but I'm deeply concerned," Henderson said, according to [Huffington Post](#).

Henderson followed the sentiment of other red flags that have been raised about the country's bioterrorism preparedness. The Bipartisan WMD Terrorism Research Center gave the country failing grades in its Bio-Response Report Card in October with respect to its readiness to counteract a large-scale pandemic.

"This has been discussed for years," Henderson said, according to [Huffington Post](#). "It's still not decided – what do we recommend? Nobody is really in charge. Somebody has got to take the lead."

While Henderson said that it is impossible to prevent a biological attack and that the only defense is quick action to reduce the damage, he worries that the nation will not be ready when the time comes.

"I've come to the point I really have to talk about it," Henderson said, according to [Huffington Post](#). "We've really got to crack this thing loose and get people on it. They will say they have the report, the plan is made, it's ready to go. That's what I was told a year and half ago" ([Bio Prep Watch, 2012](#)).

**Title:** CDC Warns Untreatable Gonorrhea Is On The Way

**Date:** February 13, 2012

**Source:** [U.S. News](#)

**Abstract:** Gonorrhea, one of the most common sexually transmitted diseases in the United States, is increasingly showing resistance to one of the last known effective antibiotic treatments, leading researchers from the Centers for Disease Control to "sound the alarm" about potentially untreatable forms of the disease.

"During the past three years, the wily gonococcus has become less susceptible to our last line of antimicrobial defense, threatening our ability to cure gonorrhea," Gail Bolan, director of the CDC's sexually transmitted disease prevention program, wrote in *The New England Journal of Medicine* last week.

According to the CDC, gonorrhea has a long history of developing immunity to antibiotics, but doctors have always had a stronger medicine up their sleeves to treat patients. Not anymore—about 1.7 percent of gonorrhea is now resistant to cephalosporins, the last line of defense against gonorrhea. That might not seem like much, but it's a 17-fold increase since 2006, when about one tenth of one percent of gonorrhea was believed to have resistance to cephalosporins.

According to Bolan, the strains are showing up most often in the western states, where 3.6 percent of gonorrhea has shown resistance to cephalosporins, and in men who have sex with men, with nearly 5 percent of gonorrhea showing resistance.

The disease has been estimated to affect 600,000 Americans annually, causing burning with urination, abdominal pain, itching, and genital discharge.

Nikki Mayes, a spokesperson for the CDC, wrote in an email that by using a combination of cephalosporins and other antibiotics, American doctors have been able to prevent anyone from getting a completely untreatable case of gonorrhea. But she says it's only a matter of time.

"The trends in decreased susceptibility that we're seeing, coupled with the history of emerging resistance and reported treatment failures in other countries point to the likelihood of treatment failures on the horizon," she writes.

Not much help is on the way, according to both Mayes and Nicole Mahoney, senior officer of the antibiotics and innovation project at PEW Charitable Trusts.

"As far as gonorrhea goes, I'm not aware of any new drugs in the pipeline," says Mahoney. "This is just one more example of a bigger problem—bacteria are developing resistance faster than we're inventing new medicines to fight them."

Mahoney says Congress and the Food and Drug Administration should encourage and reward pharmaceutical companies to devise new antibiotics. According to a PEW report, only two new classes of antibiotics have been introduced since 1968 because antibiotics are difficult to produce and are less profitable than other drugs.

Bolan writes in the medical journal that a vaccine to prevent gonorrhea "remains key to prevention and control," but that it is a "distant goal."

"The threat of untreatable gonorrhea is emerging rapidly," she adds ([U.S. News, 2012](#)).

**Title:** WHO Calls For Stepped-Up Fight Against Leprosy

**Date:** February 14, 2012

**Source:** [AFP](#)

**Abstract:** The World Health Organization called Monday for greater efforts to fight leprosy, warning the disfiguring disease was defying efforts to wipe it out across many countries in the Asia-Pacific region.

"We opened the champagne too early," said Shin Young-soo, chairman of the WHO's Western-Pacific region that covers 37 countries at the start of a three-day conference looking at how to combat leprosy and treat its victims.

There are 5,000 new cases being reported each year in the Western Pacific, according to Shin.

He said the problem was most severe in Micronesia, the Marshall Islands and Kiribati, which had failed to meet the WHO's technical definition of "elimination" of fewer than one case per 10,000 people.

Even in the Philippines, where the disease was officially "eliminated" in 1998, 2,000 new cases are still recorded every year, according to Shin.

Outside of the Western Pacific, the problem is worse.



India leads the world with more than 130,000 new leprosy cases every year since 2006, while Brazil is second with about 40,000 new cases annually, according to WHO documents.

Shin called for a renewed commitment to fight leprosy, stressing that it had to be long-term because the disease could incubate for as long as 20 years.

"We have the drugs, we have the knowledge. It does not take a lot of money. We must make a final push," he said.

Leprosy is an infectious bacterial disease that has been recorded for thousands of years. If left untreated it can damage the nerves, leading to paralysis in the extremities of the body and horrible disfigurements.

However it is curable with early detection and modern drugs.

The WHO has been providing free drug therapy to patients anywhere in the world since 1995.

Shin said that, with the medical hurdles overcome, the major challenge in countries with enduring leprosy was to ensure long-term commitment from governments ([AFP, 2012](#)).

**Title:** 'Lay Down Your Arms!' Anonymous Attacks US Tear-Gas Maker

**Date:** February 14, 2012

**Source:** [Russia Today](#)

**Abstract:** Hackers have sent a sweet Valentine to an American weapons manufacturer, knocking out its website. The group says it was an act of retaliation for the company's arming of security forces against pro-democracy protests in Egypt, Bahrain, and the US.

The one-year anniversary of the Arab Spring uprising in Bahrain seems to have ignited pro-protest feelings in the hackers' hearts. The Anonymous-aligned activists have accused Combined Systems, a tear-gas maker located in the US, of selling "*mad chemical weapons to military and cop shops around the world*."

Putting out the company's website, the hackers slammed the producer over alleged war profiteering on demonstrations in Egypt and elsewhere.

*"You shot and gassed protesters, running them off public parks in the US. Several dozen died because of your tear gas used in Egypt. Did you think we forgot? Why did you not expect us?"* read the statement.

It is unclear if the hackers accuse Combined Systems of selling tear gas to Mubarak's government or the country's current ruling Supreme Council of the Armed Forces. However, they accuse the company of working for governments and armies, and as they see it, that is a good enough reason for an attack.

*"Combined Systems, lay down your arms: you just lost the game. In the past we have marched on your offices in Jamestown, Pennsylvania: now it is time to march on your websites."*

The website for Combined Systems Inc. was down on Tuesday. Messages to the site's administrative staff were not immediately returned ahead of business hours.

In addition to defacing the website, the hackers say they have stolen and published personal information belonging to clients and employees of the company.

The latest attack has been credited by the shady collective as part of both the HackVDay Valentine's Day rampage and protests commemorating the Bahrain uprising's first anniversary.

Bahraini activists have called for demonstrations on Sunday, Monday and Tuesday to commemorate the Shiite-dominated protest that erupted last year. At least 40 people have been killed during months of unprecedented political unrest in Bahrain, inspired by the Arab Spring uprisings ([Russia Today, 2012](#)).

**Title:** How Secure Are Labs Handling World's Deadliest Pathogens?

**Date:** February 15, 2012

**Source:** [Reuters](#)

**Abstract:** To reach his office in Galveston National Laboratory, where scientists study deadly pathogens such as the Ebola and Marburg viruses, director James Le Duc swipes his key card at the building's single entrance, which is guarded 24/7 by Texas state police.

As he walks the hallways, more than 100 closed-circuit cameras watch him. Seven more locked doors stand between him and his destination. Entering a research lab requires another card swipe and, for labs housing especially dangerous microbes, a fingerprint scan.

To keep deadly viruses from escaping, each lab uses negative air flow and dedicated exhaust systems. Workers wear full-body air-supplied suits. To test its security, Galveston ran an exercise with the Federal Bureau of Investigation simulating a would-be intruder and another, with the University of Texas, war-gaming a campus shooter. The facility passed both tests.

Galveston's strict security underlines a little-known fact about hundreds of labs working with bacteria and viruses that could make the 1918-19 Spanish flu epidemic - when as many as 40 million people died - seem like a summer cold. Many of the precautions it takes are not required by law.

"A lock on the door is the only specified requirement," said Rutgers University virologist Richard Ebright. "There is no explicit requirement for guards, bio-identity checks, or video monitoring like 7-Elevens have. The rules require very strict paperwork but no real physical security."

Labs whose experiments on dangerous pathogens are funded by the U.S. government must follow specific rules to keep the microbes from escaping, but those rules are not enforceable for researchers working with private funds. Outside the country, security and safety requirements vary widely, experts say.

"It's all subject to interpretation," said a scientist close to the U.S. National Science Advisory Board for Biosecurity, which monitors research that might pose a bioterrorism threat.

If a lab receiving U.S. government funding violates the guidelines, the Centers for Disease Control and Prevention can cut off the flow of money, "but it can't shut you down," the scientist said. "I don't have a lot of confidence in our biosafety right now."

### **Immediate Concern Over Bird Flu Research**

Questions about biosafety - keeping dangerous microbes from escaping labs - and biosecurity - keeping out bad actors intent on releasing or stealing the pathogens - are front and center for global health officials due to a growing controversy over experiments with the bird flu virus.

Scientists and government officials will meet on Thursday and Friday at the World Health Organization in Geneva to hash out the safest way to deal with the studies and address fears that lab-engineered viruses could either escape or be used as a bioterror weapon.

Last year, labs at the University of Wisconsin, Madison, and Erasmus MC in Rotterdam independently created mutant forms of avian influenza, known as H5N1, that can be transmitted directly among mammals. The natural strain can be caught only through close contact with infected birds.

One immediate question is what level of safety should be required for that research. So far, it has been conducted at biosafety-level 3 labs. Under U.S. guidelines, BSL-3 applies to agents that cause "serious or lethal disease" but do not ordinarily spread between people and for which treatments or preventives exist. BSL-4 applies to agents with no preventives or treatment.

The Wisconsin and Erasmus scientists received approval to conduct their experiments under BSL-3 conditions because, they argued, antiviral drugs can treat avian flu. Erasmus was subject to U.S. guidelines because its experiments were funded by the National Institutes of Health.

"The viruses generated here are sensitive to influenza antivirals" so they fit the BSL-3 criteria, said Rebecca Moritz of the University of Wisconsin's Office of Biological Safety. There are "multiple physical barriers and the facilities are monitored at all times."

All lab workers there wear disposable jumpsuits and powered respirators in addition to scrubs, shoes, shoe covers, and double gloves, she said. Each time scientists leave the lab, they must remove their protective equipment and shower before putting on their street clothes. Erasmus does the same.

The labs said they have emergency and security plans for a wide variety of threats. Neither would provide specifics on those security measures on the grounds the details could aid any would-be attackers.

Such precautions are not foolproof, however. According to a 2009 report by the Government Accountability Office, there were 400 accidents at BSL-3 labs in the United States in the previous decade.

Some scientists therefore argue that the experiments creating contagious H5N1 mutants should be done only at BSL-4 facilities.

"An escape would still produce the worst pandemic in history," said Michael Osterholm of the University of Minnesota and a member of the NSABB, at a symposium at the New York Academy of Sciences this month.

"The risk of this agent, if in fact it can be readily transmitted between humans, is catastrophic," he told Reuters. "Until we know how this virus actually acts in humans, I think you have no choice but to move this (research) to BSL-4."

## **Space Suits**

BSL-4 labs, like the one in Galveston, have all the BSL-3 precautions and are also in isolated facilities with dedicated exhaust, vacuum, and other systems to prevent escape. In addition, workers must wear what are essentially space suits.

But the BSL guidelines relate to biosafety, not security.

The debate over H5N1 experiments has also raised the question of how secure BSL-3 and BSL-4 labs are. It has assumed a greater urgency as the number of known U.S. BSL-3 labs has surged from 415 in 2004 to 1,495 in 2010.

Hundreds or thousands of BSL-3 laboratories may be unknown, however, because "no federal agency is required to track the number of biocontainment labs," found a 2011 report by the National Research Council, an arm of the U.S. National Academy of Sciences.

Globally, BSL-3 labs have recently been built or are under construction in Bangladesh, India, Indonesia, China, [Brazil](#), and Mexico, among others, the NRC found. Yet "many countries have few or no regulations," the NRC concluded.

BSL-4 labs are also proliferating. A 2011 workshop in Istanbul organized by the NRC was told that there are 24 BSL-4 facilities, including in [Germany](#), Gabon, Sweden, Russia, South Africa and Canada. The United States has six, including Le Duc's, which is part of the University of Texas Medical Branch.

"We are now in a proliferation race for BSL-3 and 4 labs," said Laurie Garrett, the senior fellow for global health at the Council on Foreign Relations in New York. "Having such a facility is a mark of national sophistication. But the spread of these labs allows the unfettered proliferation of the world's most dangerous microbes."

Indeed, deadly microbes have escaped high-security labs. Between 1978 and 1999, just over 1,200 people acquired infections from BSL-4 labs around the world; 22 were fatal. Since then, lab workers have been killed by Ebola and SARS, or severe acquired respiratory syndrome. Thieves tried to steal animal pathogens from an Indonesian lab in 2007, the NRC workshop was told.

### **Guidelines, Not Law**

U.S. research on dangerous human pathogens must follow safety guidelines set by the CDC. They may or may not be followed at labs elsewhere in the world, concluded the NRC workshop.

In part, that is because BSL-3 and BSL-4 designations "have very wide interpretations," said Ren Salerno, senior manager for cooperative threat reduction programs at Sandia National Laboratories, part of the U.S. Department of Energy.

Although U.S. government-funded research must adhere to biosafety guidelines, they "do not have the force of law," said Ebright. "If you're a private lab, privately funded, there is no requirement that you comply." The CDC declined to make a spokesperson available to discuss biosafety and biosecurity.

Many labs in developing countries say they adhere to guidelines as tough as those applied to U.S. facilities. If they receive U.S. funding, lab personnel must pass an FBI security risk assessment, for instance.

In [Thailand](#), police check the background of all staff members and require fingerprints to access freezers containing microbes.

A BSL-4 lab in [Australia](#) employs a security staff of 10. It is housed in a fenced, isolated building and has infrared cameras to detect intruders. Gabon's BSL-4 lab is surrounded by electric fences and has a guard on duty at all times. Only three people know the code to the freezer holding Ebola.

U.S. biosecurity requirements are laid out in the 2001 Patriot Act, which says that facilities storing "select agents" - microbes and toxins that could be used as bioweapons - must develop and implement a plan to keep them secure. Such labs must also provide the government the names of everyone with access to the pathogens; none can be on a terrorism watch list.

Experts dismiss Hollywood's nightmare scenarios such as bombing a BSL-4 lab or crashing a 737 jumbo jet into one.

"The one nice thing about pathogens is that they'll self-destruct under intense heat," said Salerno.

What Salerno does give credence to is either an accidental escape or a plot to steal a pathogen by lab employees acting on their own or under duress.

"As more of this kind of research occurs, and it will, especially internationally, the risks of both accidental release or potential theft and misuse will increase as well," Salerno said. "The science is way ahead of governments' ability to regulate the science" ([Reuters, 2012](#)).

**Title:** Study Questions U.S.'s Ability To Detect Biothreats

**Date:** February 17, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A recently published workshop summary by the Institute of Medicine revealed that the goal of creating an integrated biosurveillance system in the United States to detect threats to human and animal health remains a long way off.

A biosurveillance system, called for in a 2004 presidential directive, still faces complex obstacles, including a lack of trust between relevant agencies, according to [CIDRAP News](#).

The IOM workshop's participants cited a range of problems that face the U.S. Department of Homeland Security's National Biosurveillance Information System. According to the report, there is still a lack of built-in authority to regulate the agencies that collect the relevant data.

Dr. William Raub, a former science advisor to the U.S. Health and Human Services secretary, recently said that the obstacles represented a serious challenge to the formation of a robust and relevant system.

"The collaboration, the sharing, and the integration are difficult in the context of multiple agencies with multiple missions and a rich variety of data sets, including areas where the data sets are nonexistent," Raub said, [CIDRAP News](#) reports. "If it were easy, it would be done."

The workshop was held last September. Its account was recently published as "Information Sharing and Collaboration: Applications to Integrated Biosurveillance: Workshop Summary." The IOM is part of the Academy of Sciences, but the report reflects only the views of the participants, not those of the IOM.

This entry was posted in [U.S. Bioterror Policy](#) and tagged [U.S. bioterror policy](#). Bookmark the [permalink](#) ([Bio Prep Watch, 2012](#)).

**Title:** Experts Fear Diseases 'Impossible To Treat'

**Date:** February 20, 2012

**Source:** [Independent](#)

**Abstract:** Britain is facing a "massive" rise in antibiotic-resistant blood poisoning caused by the bacterium E.coli – bringing closer the spectre of diseases that are impossible to treat.

Experts say the growth of antibiotic resistance now poses as great a threat to global health as the emergence of new diseases such as Aids and pandemic flu.

Professor Peter Hawkey, a clinical microbiologist and chair of the Government's antibiotic-resistance working group, said that antibiotic resistance had become medicine's equivalent of climate change.

The "slow but insidious growth" of resistant organisms was threatening to turn common infections into untreatable diseases, he said. Already, an estimated 25,000 people die each year in the European Union from antibiotic-resistant bacterial infections.

"It is a worldwide issue – there are no boundaries," he said. "We have very good policies on the use of antibiotics in man and in animals in the UK. But we are not alone. We have to think globally." Between 2005 and 2009 the incidence of E.coli "bacteraemias" [the presence of bacteria in the blood] rose by 30 per cent, from 18,000 to over 25,000 cases. Those resistant to antibiotics have risen from 1 per cent at the beginning of the century to 10 per cent.

"Only one in 20 of infections with [resistant] E.coli is a bacteraemia, so the above data are only the tip of an iceberg of infected individuals," says a report produced by Professor Hawkey's group, commissioned by the Department of Health and the Department for Environment, Food and Rural Affairs.

Dame Sally Davies, the Government's chief medical officer, has pledged £500,000 to fund research into the threat. Drug companies have lost interest in developing new antibiotics because it is increasingly difficult to find new agents and it is not commercially viable – antibiotics are taken for a few days, compared with, say, a heart drug which may be taken for life.

"There are only so many antibiotics available and as we lose them it becomes more and more difficult to replace them," Professor Hawkey said.

The rapid rise in E.coli blood poisoning is thought to be linked with the ageing of the population. E.coli is a common cause of urinary-tract infections but may also cause wound infections following surgery or injury. These are regarded as minor conditions, but if they became untreatable they would be life-threatening.

E.coli infections pose a much bigger problem than MRSA because the bacterium is more common. Only one in 10 people is a carrier of MRSA, but E.coli is present in everyone. "Those who get ill [with E.coli] are rare – but because it is so common it is a big problem," Professor Hawkey said.

Using standard antibiotic regimens, there is a one in 10 chance that treatment of an E.coli infection will fail because the bug is resistant. But, as numbers of resistant infections rise, there will be increasing pressure to use more powerful antibiotics, called carbapenems, which are the last line available. And resistance to those is already emerging. "In the last two or three years we have seen [organisms] develop which destroy carbapenems. That is a great worry," Professor Hawkey said. The warnings follow increasing reports from Europe of patients with infections that are almost impossible to treat. In November, the European Centre for Disease Control and Prevention (ECDC) said up to 50 per cent of cases of blood poisoning with the bacterium K.pneumoniae, a common cause of urinary and respiratory conditions, are resistant to carbapenems in some countries.

Across Europe, the percentage of carbapenem-resistant K.pneumoniae has doubled from 7 per cent to 15 per cent, the ECDC said. Marc Sprenger, the director, said: "The situation is critical. We need to declare a war against these bacteria."

Meanwhile, the UK Health Protection Agency warned doctors in October to abandon a drug usually used to treat a common sexually transmitted disease because it was no longer effective. The agency said that gonorrhoea – which caused 17,000 infections in 2009 – should be treated with two drugs instead of one.

### **Explained: how bugs adapt to beat antibiotics**

Bugs are like all other life forms: they must adapt to survive. Unlike human beings, however, for whom evolution is measured in millennia, reproduction is so rapid among bacteria that they can change in months or years.

With the introduction of a new antibiotic, natural selection goes to work. Most bacteria are killed by the new drug but the natural variation that occurs in any species means a few examples may, by chance, have some quirk in their genetic structure that allows them to survive.

These bacteria are then selected out by the antibiotic, which kills the rest. The mutant bacteria grow in numbers until they become the dominant species ([Independent, 2012](#)).

**Title:** Lack Of Security At Labs Handling World's Deadliest Pathogens Could Lead To Epic Pandemic

**Date:** February 20, 2012

**Source:** [Natural News](#)

**Abstract:** The mainstream media appears to be priming the public consciousness once again for the inevitable release of a highly-deadly pathogen in the very near future. A recent *Reuters* report explains that many of the world's biosafety level-3 (BSL-3) and biosafety level-4 (BSL-4) laboratories, which house some of the deadliest pathogens in existence, may not be as safe and secure as people think they are because federal regulations technically require nothing more than a single locked door at such facilities as a security measure.

According to the report, some labs voluntarily employ rigorous safety and security measures, including the Galveston National Laboratory in Texas, which is a highly-protected complex with at least eight levels of secured entry, closed-circuit video monitoring, and negative air flow and dedicated exhaust systems to prevent the accidental release of deadly pathogens. But many other such labs do not have this same tight level of a security, as federal law does not regulate the safety protocols used by private research labs.

"Galveston's strict security underlines a little-known fact about hundreds of labs working with bacteria and viruses that could make the 1918-19 Spanish flu epidemic -- when as many as 40 million people died -- seem like a summer cold," says the report. "Many of the precautions it takes are not required by law."

### **Will the militarized H5N1 avian flu strain be 'accidentally' released from an unsecured BSL facility?**

The report conveniently comes just a few months after it was first announced that scientists in Europe had deliberately created a weaponized H5N1 avian bird flu strain capable of spreading between humans ([http://www.naturalnews.com/034228\\_bioterrorism\\_flu\\_strain.html](http://www.naturalnews.com/034228_bioterrorism_flu_strain.html)). And since that announcement, there has been a lot of chatter about whether or not the results of this creation should be published in scientific journals, and what the likelihood is that this vicious strain will someday get released into the wild where it could kill off populations around the world at pandemic levels.

The stage is being set, in other words, for the "accidental" release of one of these pathogens at some point in the future, upon which there will be a host of scapegoats to blame. And since all this private research being conducted on deadly viral and bacterial strains at private BSL-3 and BSL-4 labs around the world is apparently not much of a security concern to the federal government, it appears that it is only a matter of time before something catastrophic occurs.

There are also few specifics on the types of research that must be conducted in BSL-4 labs versus BSL-3 labs, which means that the deadly new H5N1 mutant strain can technically be conducted at either, even though BSL-3 labs are intended for less-serious bacterial and viral strains. This is highly concerning because, according to a 2009 Government Accountability Office (GAO) report, there were 400 accidents at BSL-3 labs just in the U.S. alone that year ([Natural News, 2012](#)).

**Title:** Expert Warns Of Bioattack On U.S. Cattle Industry

**Date:** February 21, 2012

**Source:** [Bio Prep Watch](#)



**Abstract:** According to a terrorism expert, a low-tech biological attack on the cattle industry of the United States using virulent foot and mouth disease may be a simple way for terrorists to damage the economy.

According to an article in the FBI's Law Enforcement Bulletin, Dean Olsen, a former commander of the Douglas County Sheriff's Department in Omaha, Neb., said that agroterrorism has become more attractive to terrorists dealing with dwindling resources and leadership. Such an attack would lead to major economic stress, but would be relatively simple and cheap to implement, [Government Security News](#) reports.

"Every level of the food chain, including farms, feedlots, chemical storage facilities, meatpacking plants, and distribution operations, remains vulnerable to agroterrorism," Olsen said, according to [Government Security News](#).

Olsen, who participated in the regional Joint Terrorism Task Force before his retirement in 2008, recommended that law enforcement agencies put plans into place to prevent such attacks before they happen. He said that experts agree that foot and mouth disease, which can affect cloven hoofed animals like deer, pigs, sheep and cattle, is the most ominous threat to the food chain in the U.S.

Olsen said that an outbreak could be spread to 25 states in five days when animals are moved from one farm to another. He warned that law enforcement officers investigating livestock thefts should look at them from an agroterror perspective and that such incidents should be reported to their state intelligence fusion centers or threat-integration centers ([Bio Prep Watch, 2012](#)).

**Title:** CDC Warns That New Swine Flu Strain Has 'Pandemic Potential'

**Date:** February 22, 2012

**Source:** [Chicago Tribune](#)

**Abstract:** A paper published Tuesday by scientists at the [Centers for Disease Control](#) suggests a new [swine flu virus](#) has the potential to cause an outbreak.

The A(H3N2)v swine flu strain that has [infected at least 18 Americans since Sept. 2010](#) has shown the potential for human-to-human transmission. According to the paper, which was published in the [Proceedings of the National Academy of Sciences](#), the H3N2 strains "resemble viruses with pandemic potential." Terrence Tumpey, one of the authors of the study, says the current seasonal [flu vaccine](#) won't protect against this swine flu strain, although he says the CDC is working on creating a [vaccine for swine flu](#) variants such as the one he studied.

In November, the CDC suggested that "limited human-to-human transmission" of H3N2 had occurred in Iowa, but the most recent findings show that the virus is more easily transmissible than originally thought, leading the authors to warn that "swine-origin H3N2 viruses have the potential to cause additional human disease." Since August, people in at least five states (Indiana, Iowa, Maine, Pennsylvania and West Virginia) have caught the strain.

The paper warns that people born after the mid-1990s may be "particularly susceptible to infection" because of a virus that circulated in the early part of that decade that may have given some people a low level of protection.

The virus was shown to be highly transmissible from ferret to ferret, an animal which has long been used to explore the possibility of human-to-human transmission of viruses.

"The use of the ferret model has become indispensable for understanding the virulence and transmission of influenza viruses, partly because ferrets and humans share similar [lung](#) physiology," the paper says.

The CDC hasn't received any new reports of infection since December, which has scientists stumped.

"I wish we had a good answer for why it hasn't taken off in humans. We don't fully understand the factors involved," Tumpey says.

The resulting flu from H3N2 viruses have generally been more severe than seasonal flu viruses, according to Tumpey. "Overall, the cases have been fairly mild, but there have been a few cases of hospitalization," he says.

From mid-August to late December 2011, the CDC received 12 reports of human infections from H3N2. The CDC has not reported any additional cases in 2012, but last week the organization warned that the 2012 season is the "latest flu season in nearly three decades" and that America will likely see more infections in the coming weeks.

"We've been lucky nothing has occurred so far in 2012," he says. "This study underscores the need for continued public health surveillance" ([Chicago Tribune, 2012](#)).

**Title:** Bird Flu Cases More Common Than Thought: Study

**Date:** February 23, 2012

**Source:** [AFP](#)

**Abstract:** Bird flu is believed to be a rare disease that kills more than half of the people it infects, but a US study out Thursday suggests it may be more common and less lethal than previously thought.

The research could help soothe concerns about the potential for a deadly pandemic that may kill many millions of people, sparked by the recent lab creation of a mutant bird flu that can pass between mammals.

Researchers at Mount Sinai School of Medicine in New York analyzed 20 previous international studies that tested the blood of nearly 13,000 participants worldwide, according to the study in the journal Science.

They found that between one and two percent of those tested showed evidence of a prior H5N1 avian flu infection, meaning millions of people may have been infected around the globe.

The World Health Organization's figures currently show just 573 cases in 15 countries since 2003, with 58.6 percent of those resulting in death.

The researchers said the WHO may be overlooking cases by focusing only on hospitalizations and severe illnesses, and recommended a new approach to calculating the true number of bird flu cases.

The findings could also mean that the death rate from bird flu is underestimated, largely because many of the people who get sick from it live in rural farming areas where medical care may be difficult to come by.

"We suggest that further investigation, on a large scale and by a standardized approach, is warranted to better estimate the total number of H5N1 infections that have occurred in humans," the authors wrote.

Researchers in the Netherlands and the United States have sparked international alarm with lab research that was successful in creating a mutant form of bird flu that was found to be transmissible among ferrets.

US health authorities have urged major science journals to publish only heavily edited forms of the studies in order to prevent the data from falling into terrorists' hands.

However, an international group of experts meeting at WHO headquarters in Geneva last week decided that the studies should eventually be published in full, but that a further risk assessment is needed before that can happen ([AFP, 2012](#)).

**Title:** England's Shadow Defense Secretary Warns Of Lack Of Biopreparedness

**Date:** February 23, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** England's shadow defense secretary has warned the United Kingdom that the country is unprepared for a bioterror attack.

Shadow Defense Secretary Jim Murphy predicted that fanatics armed with deadly biological agents such as anthrax or smallpox pose a greater threat to British security than those with conventional explosives, according to the [Mirror](#).

Murphy presented his assessment at the launch of the Labor party's new defense review. The former Europe minister sees the changes being brought about by the Arab Spring as potentially making the world a more dangerous place, with terrorists able to choose among numerous weak and failing states for safe havens.

Meanwhile, England's response to a doomsday-type attack remains untested while scientific advances are poised to give terrorists new means of delivering existing biological agents.

"Bioterrorism both exposes significant weaknesses in our security architecture and is a threat which could cause mass suffering," Mr. Murphy said during his speech, the [Mirror](#) reports. "It is unclear whether the UK and our allies are sufficiently prepared. Existing international organizations have not been tested to respond to an attack with the potential scope and complexity of a mass bioterrorist incident, which there are limited international stocks of vaccine" ([Bio Prep Watch, 2012](#)).

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**Title:** Bird Flu, Pig Flu, Now Bat Flu? Human Risk Unclear

**Date:** February 28, 2012

**Source:** [Fox News](#)

**Abstract:** For the first time, scientists have found evidence of flu in bats, reporting a never-before-seen virus whose risk to humans is unclear.

The surprising discovery of genetic fragments of a flu virus is the first well-documented report of it in the winged mammals. So far, scientists haven't been able to grow it, and it's not clear if - or how well - it spreads.

Flu bugs are common in humans, birds and pigs and have even been seen in dogs, horses, seals and whales, among others. About five years ago, Russian virologists claimed finding flu in bats, but they never offered evidence.

"Most people are fairly convinced we had already discovered flu in all the possible" animals, said Ruben Donis, a Centers for Disease Control and Prevention scientist who co-authored the new study.

Scientists suspect that some bats caught flu centuries ago and that the virus mutated within the bat population into this new variety. Scientists haven't even been able to grow the new virus in chicken eggs or in human cell culture, as they do with more conventional flu strains.

But it still could pose a threat to humans. For example, if it mingled with more common forms of [influenza](#), it could swap genes and mutate into something more dangerous, a scenario at the heart of the global flu epidemic movie "Contagion."

The research was posted online Monday in the journal Proceedings of the [National Academy of Sciences](#).

The CDC has an international outpost in [Guatemala](#), and that's where researchers collected more than 300 bats in 2009 and 2010. The research was mainly focused on rabies, but the scientists also checked specimens for other germs and stumbled upon the new virus. It was in the intestines of little yellow-shouldered bats, said Donis, a veterinarian by training.

These bats eat fruit and insects but don't bite people. Yet it's possible they could leave the virus on produce and a human could get infected by taking a bite.

It's conceivable some people were infected with the virus in the past. Now that scientists know what it looks like, they are looking for it in other bats as well as humans and other animals, said Donis, who heads the Molecular Virology and [Vaccines](#) Branch in the CDC's flu division.

At least one expert said CDC researchers need to do more to establish they've actually found a flu virus.

Technically, what the CDC officials found was genetic material of a flu virus. They used a lab technique to find genes for the virus and amplify it.

All they found was a segment of genetic material, said Richard "Mick" Fulton, a bird disease researcher at Michigan State University.

What they should do is draw blood from more bats, try to infect other bats and take other steps to establish that the virus is spreading among the animals, he continued. "In my mind, if you can't grow the virus, how do you know that the virus is there?"

Donis said work is going on to try to infect healthy bats, but noted there are other viruses that were discovered by genetic sequencing but are hard to grow in a lab, including [hepatitis C](#) ([Fox News, 2012](#)).

**Title:** Congress Should Take Agroterror Threat Seriously, Expert Says

**Date:** March 12, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** According to an editorial by Tom Quaife of the Dairy Herd Network, the threat of agroterrorism should be taken much more seriously by members of Congress and the Obama administration.

Quaife has attended four agroterrorism conferences sponsored by the Federal Bureau of Investigation since 2005. Upon seeing the seriousness of the issue and simulations of how quickly infectious animal diseases could spread within the United States, he said that it has been difficult watching the uncertainty behind the proposed animal disease testing facility in Manhattan, Kan., [Dairy Herd Network](#) reports.

"It's been hard to watch the political haggling that is taking place over the proposed National Bio- and Agro-Defense Facility in Manhattan, Kan.," Quaife said, according to [Dairy Herd Network](#). "The Obama administration wants to reassess the cost and scope of the project and Congress has been slow to approve funding."

According to Quaife, if an international attack were to occur on the world's food supply, it could cost billions of dollars and undermine the public's confidence. While Quaife was comforted that the proposed state-of-the-art facility would be built to address agroterrorism threats, he is concerned that the facility wouldn't be operational until 2018.

"The need is there and a plan is in place to address it," Quaife said, according to [Dairy Herd Network](#). "It is time that the Obama administration and Congress start paying attention to the threat and back it up with a solid commitment to the NBAF" ([Bio Prep Watch, 2012](#)).

**Title:** U.S. Travelers To Olympics May Bring Home Measles, CDC Warns

**Date:** March 19, 2012

**Source:** [USA Today](#)

**Abstract:** Health officials are bracing for the possibility of a measles outbreak in the [USA](#), fueled by unvaccinated American tourists returning home from this summer's [Olympic Games](#).

The Centers for Disease Control and Prevention warns that the Olympics in London, as well as the Euro 2012 soccer cup in Poland and Ukraine, will be huge draws for American travelers and will increase the risk for measles infection. The virus is much more prevalent in Europe, leading to eight deaths and 26,000 illnesses last year.

"Disease knows no borders," said Rebecca Martin, director of the [CDC's](#) Global Immunization Division. "We are concerned about Americans coming back from the Olympics this summer and unknowingly infecting others."

The Olympics in London starts July 27 and the Euro 2012 soccer cup on June 8 in Poland and Ukraine.

Martin urges Americans who plan to travel this summer to be up-to-date on measles vaccinations. Measles infections have been on the rise in the [U.S.](#) even though vaccinations eliminated the routine spread of the disease here in 2000.

Most U.S. cases of the measles are imported by U.S. travelers who have not been vaccinated. Before routine vaccinations, the virus killed between 3,000 and 5,000 Americans each year.

"We usually have about 50 cases a year, but last year we had a record number of importations" — at least 214 cases — says Greg Wallace, a measles specialist with the CDC's division of viral diseases. About 30% of those cases required hospitalization.

## **Vaccine Breakdown**

### **Who should get the measles vaccine?**

- Children should get two doses of the Measles, Mumps and Rubella (MMR) vaccine. The first at 12-15 months, the second at 4-6 years.
- Any adult who hasn't been vaccinated for measles.
- People who have been exposed to measles but weren't vaccinated may benefit from getting the MMR vaccine prophylactically. Consult your health care professional.

### **Who shouldn't get the measles vaccine?**

- People who have had a life-threatening allergic reaction to gelatin, the antibiotic neomycin or a previous dose of MMR vaccine.
- Women should avoid getting pregnant for four weeks after getting the MMR vaccine.
- Pregnant women should wait until after they have given birth before getting the MMR vaccine.

### **Some people should check with their doctor about whether they should get the MMR vaccine, including:**

- Those with HIV/AIDS or another disease that affects the immune system.
- People being treated with drugs that affect the immune system, such as steroids, for two weeks or longer.
- People with cancer.
- People who have had a low platelet count (a blood disorder).

*Source: Centers for Disease Control and Prevention*

Last year, England and Wales had 1,086 cases of measles, according to the U.K. Health Protection Agency. "Ukraine is experiencing a large measles outbreak right now," Martin says.

Measles strikes worldwide but is of special concern in [Western Europe](#), Wallace says. The disease had been under control there until a 1998 paper in the British medical journal *The Lancet* purported a link

between autism and the measles, mumps and rubella vaccine. It also said the vaccine caused gastrointestinal disorders in children.

Vaccination rates fell after the paper gained widespread publicity. It was later revealed that Andrew Wakefield, the main author, had faked his research. The paper was retracted in 2010, and Wakefield was banned from practicing medicine. Vaccination rates are again rising in Europe, but in England and France they remain too low to fully control the disease.

The CDC, which is part of a global effort called the [Measles Initiative](#) to fight the disease, maintains a Web page for Americans going overseas at [cdc.gov/travel](http://cdc.gov/travel).

Many U.S. parents who chose not to vaccinate rely on "herd immunity," the protection against infection offered by vaccination rates of 95% or higher. But with so many Americans traveling overseas, you can be exposed anywhere.

In California, three children under a year old, too young to be vaccinated, were infected in a doctor's waiting room when a 7-year-old who had caught measles in Switzerland came in to be seen, says Kathleen Harriman, an epidemiologist with the state Department of Public Health.

In 2011, 214 people in the [United States](#) got the measles and 68 were hospitalized.

All travelers' packing lists should include "passports and immunization records," says Erika Jenssen, the director of communicable disease outbreaks in [Contra Costa County](#), a suburban county east of [San Francisco](#). You can be vaccinated at any age. "It's the most serious and critical thing you can do, both to make sure you're protected while you're there and so that you don't bring it back home" ([USA Today, 2012](#)).

**Title:** Big Pharma Creates Resistant "White Plague" Through Mass Drugging

**Date:** March 21, 2012

**Source:** [Natural Society](#)

**Abstract:** Thanks to widespread and unnecessary usage of antibiotics throughout the modern world, a heavily drug-resistant form of tuberculosis is now striking fear into the hearts of scientists and doctors alike. Affecting both poor and rich, those affected with the disease are put into quarantine and injected with a large number of super drugs. If the disease were to spread and develop, tuberculosis experts are worried that medical professionals would be helpless to stop it — at least when it comes to more of big pharma's drugs. Natural solutions do exist, and they don't involve the very drugs that *spawned* the 'white plague' in the first place.

India is receiving the bulk of the blame for spurring on the drug-resistant killer, as the country is known for its massive overuse of antibiotics. In fact, India has the most cases of multi-drug resistant tuberculosis in the world, with more than 100,000 cases of the disease. While multi-drug resistant tuberculosis is still quite deadly, it is the 'extensively drug-resistant' and 'totally drug-resistant' tuberculosis that worries many health organizations and officials.

### **'Totally a Man Made Disease'**

Make no mistake that this is not a 'natural' evolution of disease, but a result of excessive drug use made possible by big pharma and mainstream health officials. Even members of the World Health Organization's 'Stop TB Partnership' are outraged over the man-made disease progression, with member Lucica Ditiu [stating that](#) the drug-resistant TB "is a totally man-made disease". Dr. Zarir Udwadia, also a TB specialist from India, had similar statements, explaining that that resistant strains were "an accident waiting to happen."



Dr. Udwadia published a report in the journal *Clinical Infectious Diseases* last year documenting four cases of totally drug-resistant tuberculosis. Currently, he has about twelve cases of the resistant disease with no treatment options left, and three have already died. Each medicine the doctor used to combat the mutated bacteria failed, with the bacteria immune to 12 drugs total. Dr. Udwadia explains that to even get to the point of developing such a drug resistant strain, it requires severe misuse of antibiotic drugs:

“To get to this stage, you have to have amplified resistance over years, with loads of misuse of (antibiotic) drugs. And no other country throws around second-line drugs as freely as India has been doing.”

### Real Solutions

It is clear that the resistant strain is a real threat to public health, with many experts concerned about a potential pandemic. Unfortunately these very same individuals who blow the whistle over the new resistant ‘white plague’ being a man-made disease are turning to even more pharmaceuticals to ‘treat’ the condition. This is a serious web of drug use, with drugs creating problems that require even *more* drug usage. There’s simply no room for a cure within this drug paradigm, because even if they make a drug powerful enough to wipe out the resistant tuberculosis bacteria, it comes with an onslaught of symptoms that ‘require’ more drugs.

In one case of treatment, for example, Anna Watterson was given so many drug injections in an attempt to treat the resistant disease that she was heavily bruised, constantly nauseous, and *unable to go out into the sun*.

Instead of subjecting yourself to this ‘drug web’, you can utilize natural solutions that will also serve to enhance other biological aspects of your life as well. Vitamin D3, for example, can not only boost your overall immunity and resistance to tuberculosis, but it can also help fight the disease once you’ve been infected. Scientists [have even found](#) that [vitamin D](#) intake can significantly reduce tuberculosis associated mortality on a global scale. But what if you’re infected with the totally resistant mega bacteria?

Garlic [has been found](#) to outpace drugs in the treatment of resistant tuberculosis, putting pharmaceuticals to shame and of course boosting your overall health in the process. This has been proven by more than one piece of peer-viewed research, with scientists finding garlic to be one of many natural solutions that should be considered by all medical professionals. Amazingly, there are [43 other](#) natural substances documented as powerful solutions to tuberculosis, virtually all of which most doctors ignore. In the [abstract](#) of the study from the University of Health Sciences in Pakistan, scientists state:

“Alternate medicine practices with plant extracts including garlic should be considered to decrease the burden of drug resistance and cost in the management of diseases. “

Big pharma’s drugs spawned this new plague, so why take them to fight it? Empower your health naturally through nutrient-dense foods, supplements, and pure water. In particular, stock up on vitamin D and [turmeric](#) — they will be highly beneficial in the event of a pandemic or disease outbreak ([Natural Society, 2012](#)).

**Title:** Putin Argues That Russia Must Be Prepared For Bioattack

**Date:** March 28, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Russian President-elect Vladimir Putin recently argued that Russia must be prepared for the use of future weapons systems, including those based on genetics, which will alter how states achieve their aims and protect themselves.

Putin, writing as prime minister shortly before being re-elected as president, said that Russia must mobilize its military and scientific resources in order maintain an effective deterrent strategy, according to [Premier.gov.ru](#).

Putin's essay appeared in Rossiiskaya Gazeta, the Russian government's daily newspaper, as part of a series about the country's problems running up to his bid to return to the presidency, according to Foreign Policy.

"Such hi-tech weapons systems will be comparable in effect to nuclear weapons but will be more 'acceptable' in terms of political and military ideology," Putin wrote, [Premier.gov.ru](http://Premier.gov.ru) reports. "In this sense, the strategic balance of nuclear forces will play a gradually diminishing role in deterring aggression and chaos.

"[Russia's] armed forces, special services and other security-related agencies should be prepared for quick and effective responses to new challenges. This is an indispensable condition for Russia to feel secure and for our partners to heed our country's arguments in various international formats."

Russian Defense Minister Anatoly Serdyukov recently returned to the subject of "genetic" weapons, as well as those of a "beam, geophysical, wave and psychophysical" nature, during a meeting with Putin and several cabinet ministers to discuss implementing the ideas put forth in the essays.

David E. Hoffman, a contributing editor to Foreign Policy, acknowledged that Putin appeared to be making the point that weapons based on genetically engineered pathogens are a potential threat, but argued that the president-elect should be more circumspect.

"Putin did not react, but he should have stopped this loose talk," Hoffman wrote, [Foreign Policy](#) reports. "'Genetic' weapons – and more broadly, all biological weapons – are banned by the 1972 Biological and Toxin Weapons Convention. Russia has insisted that it is in compliance and is not working on biological weapons of any kind."

Hoffman said that the Soviet Union built a massive biological weapons program despite signing the BTWC.

"Perhaps someone needs to remind the defense minister and the re-elected president," Hoffman said, according to Foreign Policy ([Bio Prep Watch, 2012](#)).

**Title:** London Warns Of Hand Cream Olympics Terror Plot

**Date:** March 29, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Islamic extremists recently posted a series of detailed instructions online for how to launch a terrorist attack during the 2012 Olympic Games in London.

One member of the group, called Abu Hija Ansari, called for cyanide to be mixed into hand cream so victims can absorb it through their skin. Ansari warned those attempting the recipe to wear gloves for their own protection, according to the [Telegraph](#).

"Through skin: 1 – cyanide, 2 – skin cream," Ansari wrote in Arabic, the [Telegraph](#) reports. "Mix the ingredients. The skin cream will open the pores in the skin and speed up the absorption and effectiveness of the poison."

A British newspaper, the Sun, said the website, which it reportedly accessed using a false identity, has approximately 17,000 members and known links to several terrorists working with the group Al-Qaeda.

A second terrorist wrote her missive under the logo of the 2012 games.

"It's time to prepare for the event, as once again they are interfering with innocent Muslims," she said, the [Telegraph](#) reports.

U.K. security services remain on high alert, looking for any potential threat to the games, which begin on July 27 in east London. Jonathan Evans, the director-general of MI5, recently briefed the British Cabinet on terrorist threats the U.K. might face in the run-up to the opening ceremony ([Bio Prep Watch, 2012](#)).

**Title:** Government To Reconsider Nerve Agent Pesticides

**Date:** March 31, 2012

**Source:** [Independent](#)

**Abstract:** The Government is to reconsider its refusal to ban neonicotinoid pesticides, the nerve-agent chemicals blamed for the collapse of bee colonies worldwide, the chief scientist at the Department of the Environment, Sir Robert Watson, told *The Independent*.

Sir Robert, a former head of the UN climate panel, moved quickly to begin a comprehensive re-evaluation of the Government's stance after two new scientific studies, from Britain and France, strongly linked neonicotinoid use to bee declines.

He said the new studies, and others, would be closely analysed.

The Government has refused previous requests to consider a precautionary suspension of the chemicals, which have been banned in France and Italy, despite mounting evidence that they are harmful to bees and other pollinating insects, even in minute doses.

Bees' role in pollinating crops is worth billions of pounds annually to global agriculture.

Even on Thursday, after the new studies were published, a spokesman for Defra said the new research did not change the Government's position, and that "the evidence shows that neonicotinoids do not pose an unacceptable risk to honey bees".

But yesterday Sir Robert said: "The real Defra position is the following: we will absolutely look at the University of Stirling work, the French work, and the American work that came out a couple of months ago [a study by the US government's leading bee researcher, Dr Jeffrey Pettis, which showed that exposure to microscopic doses of neonicotinoids weakened bees' resistance to disease]. We must look at this in real detail to see whether or not the current British position is correct or is incorrect.

He added: "I want to get a really careful analysis of all three papers, and I've asked for a briefing on some ongoing work that we've been doing ourselves. I want this all reassessed, very, very carefully" ([Independent, 2012](#)).

**Title:** Real Or Fake? Pentagon Proposal To Lobotomize 'Terrorists' Using Virus

**Date:** April 2, 2012

**Source:** [Prison Planet](#)

**Abstract:** A video on You Tube appears to show a Pentagon briefing in which the idea of lobotomizing terrorists to remove their religious fanaticism using a manufactured virus containing a vaccine is seriously proposed, although debate has raged about whether the clip is authentic or not.

The footage shows a speaker giving a lecture to a handful of attendees and is accompanied by authentic-looking Department of Defense project ID numbers. According to the text on the clip, the lecture took place inside a Pentagon briefing room.

The speaker discusses how certain people are predisposed to be religious fundamentalists because they have an aggressive VMAT 2 (God) gene which causes them to act on their beliefs in fanatical ways.

After a member of the audience asks the speaker if the idea is to “by spreading this virus....eliminate individuals who are going on to a bomb fest, who are going into a market and blowing it apart,” the speaker confirms, “by vaccinating them against this, we’ll eliminate this behavior.”

The question of how to implement the vaccine is answered by the speaker when he responds to the man in the audience, who raises doubts over the feasibility of performing CT scans on suspected terrorists rather than just “putting a bullet in their head”.

“The virus would immunize against this VMAT 2 gene and that would....essentially turn a fanatic into a normal person, and we think that would have major effects in the Middle East,” states the speaker.

The audience member then asks, “How do you suggest this can be dispersed, via an aerosol?” – to which the speaker responds, “The present plan and the tests we’ve done so far have used respiratory viruses such as flu and we believe that’s a satisfactory way to get the exposure of the largest part of the population.”

The speaker confirms that the name of the proposal is “Funvax – the vaccine for religious fundamentalism.”

Debate over the video’s authenticity has raged over the course of the past year since the video was uploaded to You Tube.

[Skeptics argue](#) that the image of the brain scan used in the lecture, which according to the time stamp on the video took place in June 2005, is actually taken from a 2010 Neurology.org article on a completely different subject. The two images are also clearly the same brain, whereas the speaker in the clip claims they are from two different people.

The other point made by skeptics to illustrate that the clip is a hoax is the claim that the audio is not in time with the speakers on the video. This is a weaker argument – the audio would not be in perfect sync on a You Tube clip anyway, plus the back and forth exchanges between the two speakers allied with their hand gestures do appear to be authentic, in that the audience member is expressing genuine shock at the scope of the idea.

The only information about ‘Funvax’ comes from a single source, [a website](#) run by “supporters” of an individual named Joey Lambardi. There is no other confirmation or discussion of ‘Funvax’ from any official source or mainstream website.

Whatever the true providence of the video clip, the fact that brain eating vaccines which alter brain chemistry to perform a de facto lobotomy on the subject have been developed are now being promoted to the general public is a fact.

Back in 2010, Dr Robert Sapolsky, professor of neuroscience at Stanford University in California, [announced that he had created](#) a vaccine to impose a state of “focused calm” by altering brain chemistry.

The proposals ominously hark back to George Lucas’ 1971 dystopian chiller *THX 1138*, in which the population is controlled and subjugated through the use of special drugs to suppress emotion.

Feeling stress, getting angry, expressing emotion and displaying passion are all innate, natural and vital aspects of human behavior. Reacting with stress to dangerous or uncomfortable situations is an essential and healthy response, and is one shared by just about every living thing on the planet.

However, scientists are now telling us that getting angry, upset and passionate is abnormal and needs to be “treated” through a fresh dose of pharmaceutical drugs and injections that will virtually lobotomize us into submissive compliance.

Likewise, the notion that populations should be unwillingly vaccinated to lobotomize them of their religious beliefs is also clearly an abomination against free will and represents the ultimate tool of a scientific dictatorship ([Prison Planet, 2012](#)).

**Title:** Expert: U.S. Unprepared For Bioterrorism Attack

**Date:** April 5, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A recent essay published in Forbes magazine supports the contention that the United States remains woefully unprepared, if not uninterested, in the chances that it will face an attack using biological weapons.

James Glassman, a former undersecretary of state for public affairs and public diplomacy and the founder of the George W. Bush Institute, said that the United States remains vulnerable to an attack that could potentially kill hundreds of thousands of people because it lacks a means of producing needed medical countermeasures, according to [Forbes](#).

Three years ago, a Congressional commission concluded that there is 50 percent chance that there will be an attack using a weapon of mass destruction somewhere in the world by 2013. The Commission on the Prevention of WMD Proliferation and Terrorism declared that the weapon used would more likely be biological than nuclear.

Regardless, Glassman said that the public has heard little about bioterrorism since the anthrax attacks in 2001, despite the considerable risk.

“Terrorists could spray *Bacillus anthracis* from crop-dusters over football stadiums,” Glassman wrote, [Forbes](#) reports. “Or they could send intentionally infected fanatics out to spread the smallpox virus through a crowded city, doing far more damage than a brigade of suicide bombers.”

Glassman pointed to last October’s Bio-Response Report Card study, issued last year by the Bipartisan WMD Terrorism Research Center, as proof that the country needs to do more to confront the threat of bioterrorism. The report card gave the United States a “D” grade for its detection and diagnosis capability and for the availability of medical countermeasures.

Glassman said that larger biopharmaceutical firms have done little to develop countermeasures, but small firms have filled the gap with mixed success.

“Today, largely because of these small firms, we currently have enough drugs to limit the impact of a small-to-medium attack using anthrax or similar pathogens, but we would probably be helpless against an attack using mutant strains,” Glassman said, according to [Forbes](#). “Here is the challenge: Unless the U.S. government makes a clear, long-term commitment to the development and purchase of medical countermeasures to bioterrorism, the companies that produce and develop these medicines will not be able to continue to make them. The market is limited, the liability risk is high, and the firms have to make long-term investments that now seem highly dubious without more certainty from the federal government” ([Bio Prep Watch, 2012](#)).

**Title:** Handshakes  
**Date:** April 5, 2012  
**Source:** [ESPN](#)

**Title:** No Consensus Reached On Keeping Potentially Dangerous Studies From The Public  
**Date:** April 6, 2012  
**Source:** [Bio Prep Watch](#)

**Abstract:** Scientists at a two day meeting recently held in London achieved little consensus concerning whether some potentially dangerous studies should be kept from the public for security reasons.

Bruce Alberts, the editor of the journal Science, told an audience at the Royal Society that it could take years before an international understanding could be reached on whether or not it is appropriate to publish censored versions of scientific papers, according to the [Washington Post](#).

"My fear is that now this crisis is over, nobody will work on this," Alberts said, the [Washington Post](#) reports.

The London meeting was called after the journals Science and Nature agreed to redact portions of two independent studies on H5N1 avian influenza in response to a request by the U.S. government. Both journals recently received a go-ahead to print revised versions of the studies.

The issue touches on the very nature of modern scientific research, its openness, funding, cybersecurity and the regulation of human behavior.

The papers in question described the successful efforts to create a strain of H5N1 that is transmissible in human being through the air.

The U.S. National Science Advisory Board for Biosecurity, a committee that advises the U.S. government on issues relating to federally funded research, made the request. Both studies received money from the U.S. government, according to the [Washington Post](#).

The NSABB recently altered its decision after learning more specific information about why the studies were conducted and what their potential impact could be on further H5N1 research ([Bio Prep Watch, 2012](#)).

**Title:** Riots May Be Controlled With Chemicals  
**Date:** April 9, 2012  
**Source:** [Guardian](#)

**Abstract:** Future riots could be quelled by projectiles containing chemical irritants fired by [police](#) using new weapons that are now in the final stages of development.

The [Discriminating Irritant Projectile \(Dip\)](#) has been under development by the Home Office's [centre for applied science and technology \(Cast\)](#) as a potential replacement for plastic bullets.

[Documents obtained by the Guardian](#) reveal that last summer's riots in England provided a major impetus to Home Office research into new-generation riot control technology, ranging from the Dip to even more curious weaponry described by Cast technicians as "skunk oil".

The briefing by Cast for the Police Service of [Northern Ireland](#) says that last year's disorder sparked a surge of ideas to the Home Office from the public as well as companies manufacturing police technology. To capitalise on the interest, Cast convened a "brainstorming" event in October. Participants included

police from [London](#) and Northern Ireland, the Police Federation, the [Serious Organised Crime Agency \(Soca\)](#) and the Ministry of Defence's [Defence Science and Technology Laboratory](#).

"No ideas too stupid or 'off the wall' to consider," the briefing notes record.

The November briefing, The Development of New Less Lethal Technologies, suggests that the Dips would be loaded into guns used to fire the existing generation of plastic bullets. They would be intended to be accurate at a range of up to 65 metres.

It is understood that the Dip, which was originally supposed to have been introduced in 2010, would be loaded with CS gas, pepper spray or another irritant.

Other parts of the briefing, released under the Freedom of Information Act, refer to a need in the short term by police to develop "counter laser dazzle" technology to protect officers from being dazzled by people using lasers like those used in recent Greek riots.

Large sections of the briefing were redacted by the Home Office, which designated them as "commercially sensitive". However, the Guardian understands that the "less lethal" technology discussed included heat rays and sound weapons. One weapon that particularly interested police officers was something Cast technicians referred to as "skunk oil".

The system would involve pellets containing foul-smelling liquids being fired from weapons similar to paintball guns. Such would be the smell that individuals hit by the pellets would want to go home to change their clothes, while associates would be reluctant to stay close to them.

The Guardian has also obtained figures illustrating the extent of recent spending by police forces around the country on the existing generation of plastic bullets, now referred to as attenuating energy projectiles (AEPs).

Some forces appear to have decided to considerably boost their stocks. Leicestershire constabulary spent £19,630 buying AEPs in 2010-11, doubling its spending on the previous year. So far in 2011-12 it has spent more than £10,000. Even a relatively small force, Avon and Somerset, which faced serious disorder in Bristol last year during the English riots and on a previous occasion amid anger over a controversial Tesco store, has spent more than £70,000 in the last three years. It also currently possesses 28 AEP launchers. That is 16 more than the larger West Midlands police, which still nevertheless spend more than £53,000 stocking up on AEPs in the last three years.

Gloucestershire police, whose territory was the scene of one of the more surprising outbreaks of rioting last summer, decided to considerably boost its AEP stocks last year. It spent £32,060 doing so, more than double its combined spending in 2009 and 2010. Elsewhere, Greater Manchester said it had sufficient supplies last year after spending more than £76,000 in the previous two years, while Nottinghamshire has spent £74,000 in the past three years.

A number of forces, including Merseyside and West Yorkshire, declined to provide information. Merseyside used the Home Office's claim that terrorism remains a "substantial" threat as a reason for not providing the information.

A final response has not been provided by the [Metropolitan police](#). The Met commissioner, Bernard Hogan-Howe, [told a meeting of the Metropolitan police authority last November](#) that the force authorised the deployment of plastic bullets on at least 22 different dates last year.



Another freedom of information request from the Guardian found that the Home Office supplied £4.4m worth of AEPs between 2007 and March last year to police forces across England and Wales. The projectiles are supplied to the Home Office by the Ministry of Defence for police use.

While the Home Office invoiced forces for £700,000 worth in 2007-08, this rose to £1.2m in each of the following years and to £1.3m in 2010-11 ([Guardian, 2012](#)).

**Title:** Censoring Data On Influenza Could Increase Bioterror Threat

**Date:** April 9, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** The attempt to censor science by redacting scientific research may cause the very bioterrorism problems it is trying to prevent, a leading cyber-security specialist has revealed.

Bruce Schneier, the chief security technology officer for the London-based telecommunications firm BT, spoke before a meeting of flu and security experts last week at the Royal Society in London. He warned the assembled experts that the redaction could lead to additional bioterrorism problems, [New Scientist](#) reports.

The meeting came in the wake of a decision by the U.S. National Science Advisory Board for Biosecurity to publish two scientific papers reporting on an H5N1 flu strain that spreads among mammals. The board previously called to have details omitted from the papers so that bioterrorists would not be able to construct the viruses themselves. The board changed its mind, but the U.S. government published a policy regulating such research in March.

Schneier said that computer hackers are not likely to search the internet looking for random files related to science to hack into.

"If no one knows about it, it's safe," Schneier said, according to [New Scientist](#). "If you announce that you have sensitive information by putting out a redacted paper, then if someone wants to know, they will. Any computer can be hacked."

Schneier emphasized that he was talking about both scientific papers being hacked along with experimental notes and data kept electronically in laboratories ([Bio Prep Watch, 2012](#)).

**Title:** Group Releases Recommendations For Response To Botulinum Attack

**Date:** April 13, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A working group from the United States recently made a series of recommendations for how medical and public health professionals should respond to a bioterror attack using botulinum toxin.

Dr. Stephen S. Arnon and his colleagues from organizations such as the California Department of Health Services, the U.S. Army Medical Research Institute of Infectious Diseases, the U.S. Centers for Disease Control and Prevention, the U.S. Department of Health and Human Services, Science Applications International Corporation and the Johns Hopkins University School of Public Health analyzed studies from 1960 to 1999 as the basis for the guidance, according to [UPI](#).

After examining the literature, the group sought further opinions from experts on the treatment and management of botulinum infection.

Exposure to botulinum as an aerosolized or food-borne weapon would generally cause the onset of symptoms within 12 to 72 hours of exposure. Responding effectively to a release would require timely clinical diagnosis, case reporting and epidemiological investigation.

“Persons potentially exposed to botulinum toxin should be closely observed, and those with signs of botulism require prompt treatment with antitoxin and supportive care that may include assisted ventilation for weeks or months,” the researchers said, [UPI](#) reports. “Treatment with anti-toxin should not be delayed for microbiological testing.”

The results of the working group’s work were recently published in the Journal of the American Medical Association ([Bio Prep Watch, 2012](#)).

**Title:** DHS: Anthrax Attack Remains A “Serious Threat”

**Date:** April 18, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Testifying before the House Subcommittee on Emergency Preparedness, Response and Communications, James Polk, the principal deputy assistant secretary and deputy chief medical officer of the Office of Health Affairs at the Department of Homeland Security, stressed the ongoing threat of an anthrax attack in the U.S.

“The threat of an attack using a biological agent is real and requires that we remain vigilant,” Polk said. “A wide-area attack using aerosolized *Bacillus anthracis*, the bacteria that causes anthrax, is one of the most serious mass-casualty biological threats facing the US.”

Polk went on to note that anthrax is nearly 100 percent fatal without treatment, and pointed out that “a successful anthrax attack could potentially encompass hundreds of square miles, expose hundreds of thousands of people, and cause illness, death, fear, societal disruption and significant economic damage.”

Anthrax is considered a major threat because it can be easily produced in vitro and aerosolized. In 2001, letters containing anthrax were mailed to two Democratic senators and several news offices, infecting 22 and killing five ([Bio Prep Watch, 2012](#)).

**Title:** Navy Launches Fleetwide Effort Against Biological Weapons

**Date:** April 20, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** The U.S. Navy has taken major steps against biological weapons by launching an effort to equip sailors more effectively for biological and chemical warfare.

A decade ago, a Navy crew would only know if it had been infected with a biological agent after people started getting sick. Even just a few months ago, many ships might not have known for at least a few hours, the [Virginian-Pilot](#) reports.

“By then, everything could be contaminated,” Jeff Smith, a civilian engineer with the Naval Surface Warfare Center in Dahlgren, Va., said, according to the [Virginian-Pilot](#). “It had to get faster.”

The Navy anticipates that by 2016, almost half its fleet will be outfitted with new technology that can identify biological agents in a matter of minutes. By 2018, all surface ships are expected to have equipment to detect most chemical threats immediately.

"We know there are many countries that have the capability to launch these kinds of attacks," Smith said, according to the [Virginian-Pilot](#). "No question, it's a threat that our sailors have to be able to counter quickly."

While Navy ships have had the capacity for detecting chemical and biological warfare agents for years, the new systems are faster, more accurate and easier to use. The biological attack system has now been installed on more than 50 ships. Sailors just need to flip a switch to turn on the automated system mounted permanently within the ship.

"You know almost immediately if there's a problem," Lt. Junior Grade Arthur Bond, the damage control assistant aboard the Norfolk, Va.-based Mahan, said, according to the [Virginian-Pilot](#). "So you can start dealing with it immediately" ([Bio Prep Watch, 2012](#)).

**Title:** The NBC Triad- Realistic Threat Assessment And Destroying Prepper Dogma

**Date:** April 24, 2012

**Source:** [APN](#)

**Abstract:** On the Friday the 13<sup>th</sup> show, Karen and I tackled the NBC boogeymen and the dogma, myths, and misconceptions often bandied about in the Prepper community. NBC, originally a military acronym, denotes nuclear, biological, and chemical threats. The new acronym is CBRN for [chemical, biological, radiological](#), and Nuclear threats. The show drew a large audience, and we did a full 90 minutes and only scratched the surface of the layman's version of understand the NBC threat. You can download this show on the player below. We also announced our upcoming 5-week long preparedness trivia promotional giveaway of fire starters that will begin on April 27, 2012.

I opened with an excerpt from a blog that I did on the subject published on January 30, 2012. The full blog can be found at <http://maryland.preppersnetwork.com/> and the excerpt is as follows:

Over a decade ago, (after getting out of active duty), I was in the private security world, (where) I consulted and trained corporate security clients, as well as law enforcement agencies. After 9/11, I had clients, and even police departments, approach me concerning the NBC threat. I admit that I have never been impressed with the response plans that we trained on (in the military). They were too (optimistic, in my opinion)..

Let us look at a typical multi-story business or apartment (building.) What are the three biggest infiltration points on these buildings? The answer is the doors, windows, and HVAC systems. Even IF the residents were able to secure the doors and windows, what about the HVAC systems? It takes time to isolate buildings from outside air intake, especially in larger buildings.

But before we even got to that point, what WARNING would civilians get? In the Gulf War, aircraft were flying through airborne agents released by the bombing...and ground crews were later scrambling...over the (aircraft) fuselages to service (them). The detectors did not pick up these trace agents and as such many crewmen were contaminated in repetitive low doses. If NATO detectors were not able to accurately detect trace agents, then what would tell Joe Six-Pack that something was (wrong)?

What would (building) maintenance (crews) wear if they...went... into a contaminated environment? What would...warn (them) to initiate such precautions? Seriously, do you think the government is able to get the warning out in time, PRIOR to such an attack?

When...the military are operating in an increased NBC threat environment, (they usually operate in reduced MOPP levels, (Mission Oriented Personal Protection). (These) levels dictate how much gear is worn versus carried. In MOPP 2, the over boots and garment (are worn) but the outer gloves, glove liners, and mask (are carried). From MOPP 2, a full minute can be used by TRAINED troops to don,

tighten, clear, fit check, and buddy check...the mask and gloves. How well and how fast is Joe Six-Pack going to don his gear, assuming he even does it all correctly?

I told (my clients) to isolate (themselves and the) building as much as they could. The good news is that most agents are non-persistent and that dispersal is the bane of any agent delivery system. Let the emergency responders decon evacuation routes before releasing their people. I advised against trying to use off the shelf chemical protection devices...because without the training,...(they) may lead to more deaths if used.

Now, I realize that there is a certain...(bulletproof) attitude in (the prepper) community and that a significant number of (Preppers) have military surplus NBC (gear). But the simple (truth is that) the VAST majority of Americans have never had any military or [first responder](#) training. (Additionally, this surplus military gear is) of dubious quality and origin to begin with, and...are not inspected by trained technicians on a regular basis.

(Most) people have NO IDEA HOW DEBILITATING everyday operations in these suits are. I was once in an exercise where the unit was transported, within 24 hours, from a winter environment to a humid southern environment and forced to operate for HOURS under the sun in MOPP 4 condition. Fully 20% of the unit was sent to the hospital for dehydration and heat (related injuries).

How will (the average prepper) hold up? Have you ever run in a mask? Without excellent fitness and psychological preparation, many will end up hyperventilating because of the amount of air you can intake through a mask valve. What about [water](#)? (Do you have the proper equipment to drink water while in protective gear?) How many cartridges do you have? What are their lifespans? Do you even know what your mask and suit protect against? What is your decon plan? How bad would it be to make a successful foray outside only to die because you deconned improperly (and) introduced agent into your shelter?

The answers to these questions will probably reveal a vast ignorance of counter NBC operations. So what then is the answer? How do you counter this potential threat or do you go meekly into the void and surrender yourself to a fatalistic attitude? (That is what we shall look at tonight...)

The show proceeded with a thumbnail summarization of the various nuclear, radiological, biological and chemical threats, with an emphasis on militarized threats; however, industrial threats were discussed, as well. We defined the threats as the military and emergency management personnel community does, to give the audience a chance to experience the commonality of language that the professionals use. In the process, we cleared up some misnomers and myths about size, complexity, lethality, and employment of various NBC threats, such as what a "suitcase" nuke really is.

We talked about the history of employment of such weapons and industry accidents by governments and terrorists. We talked about the prevalence or, in some cases, the extreme rarity of the threats being employed. We even informed of cases of NBC terrorism on US soil throughout our history.

We took time to talk about the non-engineered biological threats that can and regularly do appear after major disasters due the breakdown of sanitation systems. I talked about Haiti and my experiences during the Katrina response.

We briefly touched upon the nature of the chemical threats and how blood, blister, and nerve agents, as well as, certain hazardous industrial chemicals behaved and attacked the human body. From there we moved on to realistic threat assessment.

Here was where we really began to depart from the popular dogma of the Prepper community that seems to be equal parts bravado, cavalier disregard of reality, and eternal optimism. We burst the bubbles of the glow worm doom and gloom Preppers by relegating the nuclear and chemical weapon threats to the

bottom of the threat ladder. We explained how [bio-weapons](#) are the easiest threat to employ because they are so easy to conceal in a population, due to incubation periods and the variety of transmission methods. We emphasized how easy disease epidemics take hold post-disasters.

We then talked about industrial accidents briefly and moved into the radiological or “dirty bomb” threats. We followed it all up with our reasons why militarized chemical and nuclear threats were almost non-issues. I explained the difficulty of employing nuclear weapons and the engineering challenges of chemical dispersal, by highlighting the Tokyo Subway attacks by Aum Shryenko using homemade sarin gas.

We touched upon some threat mitigation and response information as we discussed the various threats. Keep in mind that future shows will discuss this more thoroughly.

As usual, we had some very interesting callers offer their viewpoints and questions. One caller in particular stands out because of her concern that her proximity to an old uranium breeder reactor increased her chances of having her community attacked by rogue states with intercontinental ballistic missile capabilities. We set her mind at ease as we discussed the SALT treaties and gave some SIOP (system integrated operational planning) insights to Cold War era targeting protocols of both NATO and the Warsaw Pact.

We ended the show by briefly talking about the detection of these threats. We emphasized the likelihood of high civilian casualties should these threats materialize. We talked about the logistics of emergency management to respond to such threats on the local level. It was a very frank admission of government’s limitations.

So, in closing, on behalf of my co-host Karen and I, we want to thank you for supporting our show as we grow weekly. Without you, our audience, we would not have a purpose to share our experiences. Thank you and you can join us every Friday evening at 9pm Eastern/8pm Central at [prepperbroadcasting.com](http://prepperbroadcasting.com) (APN, 2012).

**Title:** Research Shows Psychological Impact Of Anthrax Attack On Seattle

**Date:** April 27, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A new study recently assessed the potential consequences of a major anthrax attack directed at Seattle, Washington, in order to gain a better insight into how residents would react in such a situation.

Researchers at the University of Southern California’s Center for Risk and Economic Analysis of Terrorism Events examined the potential psychological and economic impact an attack would have by interviewing hundreds of Seattle residents, according to [NeonTommy.com](http://NeonTommy.com).

The U.S. Department of Homeland Security-funded study focused on perceptions of risk, health awareness and the possible changes that would occur after an anthrax attack claimed 50,000 victims. The study examined how government actions could make a difference in whether or not people returned to the city or chose to live somewhere else.

“The way we did this is by using the Department of Homeland Security’s national planning scenarios of an anthrax attack,” Heather Rosoff, a post-doctoral research associate at CREATE, said, [NeonTommy.com](http://NeonTommy.com) reports. “What we did is we took the language of the scenario and developed it further into short videos segments starting with the initial attack and extending out over a two year period.”

The video segments were designed to emulate real news coverage of the event. Participants in the study watched the videos and then responded to a survey.

The study showed that an attack would have long-term consequences for the economic health far beyond Seattle's city limits.

"An anthrax attack like this could have a devastating impact on the real estate market," researcher Adam Rose said, [NeonTommy.com](#) reports. "It would really cause a major decline in property values."

The decline could extend far into suburban areas and the surrounding region. A significant number of residents would leave and business would most likely follow. If Seattle were the target, underwater mortgage levels in the city could increase by up to \$15 million and foreclosures could reach 70,000.

In addition, the stigma of living in a city that was attacked by a bioterror agent would cause more residents to eventually leave. The study determined that up to 20 percent of the population would seek to live elsewhere. In Seattle, this would mean 300,000 people. More than 200,000, however, would be affected by foreclosures.

Government intervention would have to be gauged appropriately. Too much intervention, according to researcher Richard John, could stigmatize the population.

"We found the more it was suggested the government would implement certain policies, the more afraid residents were," John said, according to [NeonTommy.com](#) ([Bio Prep Watch, 2012](#)).

**Title:** 'Washing Hands Has Saved More Lives Than Any Medical Breakthrough In A Generation': MRSA Cases Plummet As Campaign Helps Hospitals Clean Up Their Act

**Date:** May 4, 2012

**Source:** [Daily Mail](#)

**Abstract:** Thousands of deaths have been prevented in hospitals because medical staff are being more diligent about washing their hands, a study has claimed.

The high-profile Clean Your Hands campaign to encourage doctors and nurses to use soap and water or alcohol gel between patients has saved more lives than any medical development for a generation, according to the report published in the British Medical Journal today.

Following the launch of the drive in 2004, the amount of soap and alcoholic hand rub bought by NHS trusts almost tripled.

Over the same period of time MRSA rates in hospitals fell by more than half, while there was a significant drop in the number of Clostridium difficile infections.

Sheldon Paul Stone who led the study, estimated that around 10,000 lives were saved because of the campaign which encouraged medical staff to take the simple step of washing their hands.

He added: 'If hand hygiene were a new drug, pharmaceutical companies would be out selling it for all they were worth.'

There were around 1,000 deaths from MRSA and 4,000 deaths from C.diff each year in the mid-2000s, with the National Audit Office estimating that it cost over £1billion a year to treat people who developed the infection.

Rates for the superbugs MRSA rose significantly in the 1990s from just 100 a year to a peak of 7,700 in 2003 to 2004. Following the launch of the hand-washing campaign rates fell steadily each year to 1,481 cases in 2010 to 2011.



The Clean Your Hands campaign reminded visitors and staff to go back to basics by scrubbing their hands before touching patients, eating food and after going to the toilet.

Thousands of posters were put up by bedsides to drive the message home and regular checks were made to ensure hands were kept clean.

The BMJ study found that the number of patients infected with MRSA fell from 1.88 cases per 10,000 bed days to 0.91 over the four-year period.

Over the same time rates of C.diff infection dropped from 16.75 to 9.49 cases, while the cases of MSSA - a bacteria found on the skin - did not fall.

The study also found that hospital trust procurement of soap and alcohol hand rub rose from a combined 21.8ml to 59.8ml per patient bed day over the period.

The increased levels of soap in hospitals was linked to reduced rates C.diff infection, while rising levels of alcohol hand rub were associated with a reduction in MRSA cases.

The number of MRSA infections fell to 1,114 for the period 2011-12.

Studies in 2004 showed one in four doctors and nurses in Britain still did not wash their hands reliably between every patient.

The campaign which ended in 2010 cost £500,000 over four years.

Researchers from University College London Medical School and the Health Protection Agency say 'strong and independent associations' between the rise in soap orders and the fall in infection rates 'remained after taking account of all other interventions' ([Daily Mail, 2012](#)).

**Title:** Poison Drones Carrying Biological Weapon Are New Olympic Threat, Warns Colonel In Charge Of Keeping London Calm

**Date:** May 5, 2012

**Source:** [Daily Mail](#)

**Abstract:** A senior Army officer has warned that unmanned drones carrying deadly poison could be used in a devastating terrorist attack during the Olympic Games.

Lieutenant Colonel Brian Fahy delivered the grim warning at a meeting intended to allay the fears of residents worried about the Army's plans to place missiles on the rooftops of flats.

He said it was 'feasible' that remote-controlled aircraft filled with poison and small enough to fit into a backpack could be used as a biological weapon in the capital.

He told The Mail on Sunday: 'An Unmanned Aerial Vehicle (UAV) can be put in a backpack. They come in all sorts of sizes and it's feasible they could be filled with something noxious and flown by remote-control.'

Lieut Col Fahy – the officer responsible for community relations during the Games – made his remarks on Friday in Leytonstone, East London, near one of six sites which could see the deployment of surface-to-air missile batteries in order to shoot down aircraft attempting to infiltrate an Olympic 'no fly' zone.

During the meeting at Buxton School, his team showed locals a 'dummy' missile battery and allowed children to play on the unarmed weapon.



Lieut Col Fahy declined to elaborate on what type of poison might be used during an aerial attack.

He said: 'For the duration of the Olympics anyone flying into controlled airspace is to file their flight plan with the Civil Aviation Authority.

'The range of threats varies in size and capability. It could be a commercial airliner hijacked by somebody with malicious intentions or a protest group using a microlight to get their name in the papers.'

His poison warning came as it was revealed that SAS troops have had anthrax emergency training at the Government's top-secret military research establishment at Porton Down, Wiltshire.

Sources say the elite soldiers wore biochemical protection suits, gloves and masks during exercises over the past few months to prepare for any attack using the deadly bacteria.

Such an incident could threaten the lives of thousands of people attending the Games this summer.

Lieut Col Fahy told The Mail on Sunday: 'We have worked up a comprehensive plan to protect against the potential hijacking of a commercial airliner down to slow-moving microlights or radio-controlled planes.'

Asked if they would fire a missile at a protester flying a microlight near the Olympic site, Lieut Col Fahy said: 'We would not take it out. For something like that we would scramble helicopters to go and look at it.

'There will be an RAF sniper on board if there was serious evidence to suggest something like that represented a threat. That information gets passed on and it's a political decision to engage.

'It's the same politicians who will decide whether we fire surface-to-air missiles at a potential threat. It's a decision that I'm quite happy not to make. It will weigh very heavily.'

Defence Secretary Philip Hammond has made it clear he is ready to give the order to shoot down any aircraft threatening the Olympics with a 9/11-style attack.

Lieut Col Fahy also revealed that armed police would guard any missile sites being used in case any attempts were made to steal them or protest against their deployment.

He added: 'What we are doing is unusual. Londoners are not used to seeing a lot of soldiers around. Some people feel uncomfortable about the missiles but the vast majority, I think, appreciate we are doing this.'

HMS Ocean, one of the UK's biggest warships, is based in the Thames, with the capability to fire a hail of missiles at a terrorist aircraft.

The awesome array of military hardware ready to thwart an attack includes four RAF Typhoon jets, three Royal Navy Sea King and two RAF Puma helicopters.

A Ministry of Defence spokesman said last night: 'We are prepared for any eventuality' ([Daily Mail, 2012](#)).

**Title:** Drug-Defying Germs From India Speed Post-Antibiotic Era

**Date:** May 7, 2012

**Source:** [Bloomberg](#)

**Abstract:** Lill-Karin Skaret, a 67-year-old grandmother from Namsos, [Norway](#), was traveling to a lakeside

vacation villa near India's port city of Kochi in March 2010 when her car collided with a truck. She was rushed to the Amrita Institute of Medical Sciences, her right leg broken and her artificial hip so damaged that replacing it required 12 hours of surgery.

Three weeks later and walking with the aid of crutches, Skaret was relieved to be home. Then her doctor gave her upsetting news. Mutant germs that most antibiotics can't kill had entered her bladder, probably from a contaminated hospital catheter in India. She risked a life-threatening infection if the bacteria invaded her bloodstream -- a waiting game over which she had limited control, Bloomberg Markets magazine reports in its June issue.

"I got a call from my doctor who told me they found this bug in me and I had to take precautions," Skaret remembers. "I was very afraid."

Skaret was lucky. Eventually, her body rid itself of the bacteria, and she escaped harm from a new type of superbug that scientists warn is spreading faster, further and in more alarming ways than any they've encountered. Researchers say the epicenter is [India](#), where drugs created to fight disease have taken a perverse turn by making many ailments harder to treat.

India's \$12.4 billion pharmaceutical industry manufactures almost a third of the world's antibiotics, and people use them so liberally that relatively benign and beneficial bacteria are becoming drug immune in a pool of resistance that thwarts even high-powered antibiotics, the so-called remedies of last resort.

### **Medical Tourism**

Poor hygiene has spread resistant germs into India's drains, sewers and drinking water, putting millions at risk of drug-defying infections. Antibiotic residues from drug manufacturing, livestock treatment and [medical waste](#) have [entered water](#) and sanitation systems, exacerbating the problem.

As the superbacteria take up residence in hospitals, they're compromising patient care and tarnishing India's image as a medical tourism destination.

"There isn't anything you could take with you traveling that would be useful against these superbugs," says Robert Moellering Jr., a professor of medical research at Harvard Medical School in [Boston](#).

The germs -- and the gene that confers their heightened powers -- are jumping beyond India. More than 40 countries have discovered the genetically altered superbugs in blood, urine and other patient specimens. [Canada](#), [France](#), [Italy](#), [Kosovo](#) and [South Africa](#) have found them in people with no travel links, suggesting the bugs have taken hold there.

### **Post-Antibiotic Era**

Drug resistance of all sorts is bringing the planet closer to what the [World Health Organization](#) calls a post-antibiotic era.

"Things as common as strep throat or a child's scratched knee could once again kill," WHO Director-General Margaret Chan said at a March [medical meeting](#) in Copenhagen. "Hip replacements, organ transplants, cancer chemotherapy and care of preterm infants would become far more difficult or even too dangerous to undertake."

Already, current varieties of resistant bacteria kill more than [25,000 people](#) in [Europe](#) annually, the WHO said in March. The toll means at least 1.5 billion euros (\$2 billion) in extra medical costs and productivity losses each year.

"If this latest bug becomes entrenched in our hospitals, there is really nothing we can turn to," says Donald E. Low, head of Ontario's [public health](#) lab in Toronto. "Its potential is to be probably greater than any other organism."

### **Promiscuous Plasmids**

The new superbugs are multiplying so successfully because of a gene dubbed NDM-1. That's short for [New Delhi](#) metallo-beta-lactamase-1, a reference to the city where a Swedish man was hospitalized in 2007 with an infection that resisted standard antibiotic treatments.

The superbugs are proving to be not only wily but also highly sexed. The NDM-1 gene is carried on mobile loops of DNA called plasmids that transfer easily among and across many types of bacteria through a form of microbial mating. This means that unlike previous germ-altering genes, NDM-1 can infiltrate dozens of bacterial species. Intestine-dwelling *E. coli*, the most common bacterium that people encounter, soil-inhabiting microbes and [water-loving](#) cholera bugs can all be fortified by the gene.

What's worse, germs empowered by NDM-1 can muster as many as nine other ways to destroy the world's most potent antibiotics.

### **Untreatable Killers**

NDM-1 is changing common bugs that drugs once easily defeated into [untreatable killers](#), says [Timothy Walsh](#), a professor of medical microbiology at Cardiff University in [Wales](#). Or as in Skaret's case, the gene is creating silent stowaways poised to attack if they find a weakness -- or that can pass harmlessly when the body's conventional microbes win out.

Cancer patients whose chemotherapy inadvertently ulcerates their gastrointestinal tract are especially vulnerable, says Lindsay Grayson, director of infectious diseases and microbiology at Melbourne's Austin Hospital.

"These bugs go straight into their bloodstream," Grayson says. Newborns, transplant recipients and people with compromised immune systems are at higher risk, he says.

Six infants died in a small hospital in Bijnor in northern India from April 2009 to August 2010 after NDM-1-containing bacteria resisted all commonly used antibiotics.

### **India Vulnerable**

India is susceptible because it has many sick people to begin with. The country accounts for more than a quarter of the world's pneumonia cases. It has the most [tuberculosis](#) patients globally and [Asia's](#) highest incidence of [cholera](#).

Most of India's 5,000-plus drugmakers produce low-cost generic antibiotics, letting users and doctors [switch around](#) to find ones that work. While that's happening, the germs the antibiotics are targeting accumulate genes for evading each drug. That enables the bugs to survive and proliferate whenever they encounter an antibiotic they've already adapted to.

India's inadequate sanitation increases the scope of antibacterial resistance. More than half of the nation's 1.2 billion residents defecate in the open, and 23 percent of city dwellers have [no toilets](#), according to a 2012 report by the WHO and Unicef.

Uncovered sewers and overflowing drains in even such modern cities as New Delhi spread resistant germs through feces, tainting food and water and covering surfaces in what Dartmouth Medical School researcher Elmer Pfefferkorn describes as a [fecal veneer](#).

## Tap Water

Germs with the NDM-1 gene existed in 51 of 171 [open drains](#) along the capital's streets and in two of 50 samples of public tap water, Walsh found in 2010.

Abdul Ghafur, an infectious diseases doctor in [Chennai](#), southern India's largest city, sees patients every week who suffer from multidrug-resistant infections. He and others who used to successfully combat infections with such common antibiotics as amoxicillin now must use more-expensive ones that target a broader range of germs but typically cause greater side effects. Some infections don't respond to any treatment, evading all antibiotics, he says.

That's bad news because the more frequently the NDM-1 gene is inserted into different bacteria, the more likely it will enter [virulent forms](#) of E. coli, sparking outbreaks that may be impossible to subdue, says David Livermore, who heads antibiotic resistance monitoring at the U.K.'s [Health Protection Agency](#) in [London](#).

## Black Death

The gene may even spread to the microbial cause of [bubonic plague](#), the medieval scourge known as Black Death that still persists in pockets of the globe.

"It's a matter of time and chance," says Mark Toleman, a molecular geneticist at Cardiff University. Plasmids carrying the NDM-1 gene can easily be inserted into the genetic material of [Yersinia pestis](#), the cause of plague, making the infection harder to treat, Toleman says.

"There is a tsunami that's going to happen in the next year or two when antibiotic resistance explodes," says Ghafur, 40, seated at a polished wooden table in a consulting room in Chennai as patients fill 20 metal chairs in the waiting area, forcing others into the corridor. "We need wartime measures to deal with this now."

R.K. Srivastava, India's former director general of health services, says the government is giving top priority to antimicrobial resistance, including increasing surveillance of hospitals' antibiotics use.

## Name Shame

At the same time, it's trying to preserve the country's [health-tourism](#) industry. [Bristling](#) that foreigners coined a name that singles out their capital to describe an emerging health nightmare, officials say the world is picking on India for troubles that impede all developing nations.

When Indian researchers joined international teams studying the NDM-1 gene, the government questioned the data and methods of the scientists, among them Chennai microbiologist Karthikeyan K. Kumarasamy.

"These bacteria were present globally," says Nirmal K. Ganguly, a former director general of the Indian Council of Medical Research and one of 13 members of a government task force created in September 2010 to respond to the NDM-1 threat.

"When you are blamed, the only reaction is that you put your back to the wall and fight."

## Ulterior Motive?

S.S. Ahluwalia, a former deputy opposition leader in the upper house of India's parliament and a member of the [Bharatiya Janata Party](#), says Western rivals want to muscle in on the medical tourism industry. Josef Woodman, founder of the guidebook "[Patients Beyond Borders](#)," values the industry globally at \$54 billion a year.

"These reports are meant to destabilize India's emergence as a health destination," says Ahluwalia, whose term ended in April.

About 850,000 medical tourists traveled to India in 2010 for treatments from lifesaving cancer operations to cosmetic surgeries, generating \$872 million in [revenue](#), according to the Associated Chambers of Commerce and Industry of India, or Assocham. The number of foreign patients is predicted to almost quadruple by 2015, the trade body says.

Manish Kakkar, a doctor researching infectious diseases at the New Delhi-based [Public Health Foundation of India](#) and a task force member, says the government has its priorities wrong.

"We have been in a phase of denial," he says. "Rather than responding to the situation scientifically, we've completely diverted attention, saying that it's attacking our medical tourism."

### **'That's What's Scary'**

Kakkar and others worry about NDM-1 because unlike germs such as [VRE](#), short for the vancomycin-resistant enterococci bug that can cause infection around a patient's surgical incision, NDM-1 is spreading beyond hospitals.

[Two travelers](#) from the Netherlands picked up an NDM-1 bug in their bowels after visiting India in 2009 although they hadn't received medical care there, says Maurine Leverstein-van Hall, a clinical microbiologist at the University Medical Center in the Dutch city of Utrecht.

"That's what's scary," she says. "It's not just surgery or being near a hospital. In some way, you get it through the food chain or through the water."

For now, it's impossible to tell how common NDM-1 infections are or how often the mutant germs kill because testing and surveillance are inadequate in [developing countries](#), says Keith Klugman, the William H. Foege chair of global health at Emory University's Rollins School of Public Health in Atlanta.

### **'Perfect Breeding Ground'**

Cardiff's Walsh estimates 100 million Indians carry germs that harbor the NDM-1 gene, based on an extrapolation of studies in New Delhi and from neighboring [Pakistan](#).

"It's not measured, and that's the problem," says Klugman, who pinpoints India as the epicenter.

India's jammed cities, [poor sanitation](#) and abundant antibiotics produce an ideal incubator, Harvard's Moellering says.

"You have almost no control over the prescription of antibiotics," says Moellering, who has studied drug resistance for four decades. "You have horrible [sanitation](#) problems in many parts of the country. You have incredible poverty, and you have crowding. When you put those four things together, it's the perfect breeding ground for multidrug-resistant bacteria."

Antibiotics even [pollute](#) India's rivers, streams and soil. The bacteria that thrive in these places do so because they've developed resistance to the drugs they encounter. People or animals who ingest the water or soil may become [colonized](#) by the resistant germs.

### **Mining Cipro**

Until the government built a pipeline to a modern sewage plant in 2010, the Patancheru Enviro Tech Ltd. treatment facility on some days released the equivalent of [45,000](#) daily doses of ciprofloxacin into the Isakavagu stream outside Hyderabad in southern India, Swedish researchers [reported](#) in 2007. The plant treated wastewater from drug-making factories.

Residue from ciprofloxacin, a mainstay treatment for E. coli infections, was so prevalent in [river sediment](#) downstream that lead researcher Joakim Larsson of the University of Gothenburg jokes, “Had ciprofloxacin been a little bit more expensive, we could probably mine it from the ground.”

India’s antibiotics overload is forcing doctors to rely on ever-more-powerful drugs. Many now turn to a class called penicillin-based [carbapenems](#) to treat ailments as routine as urinary tract infections, says Grayson, who was editor-in-chief of medical text “[Kucer’s The Use of Antibiotics](#)” (Hodder Arnold/ASM Press, 2010).

### **‘Antibiotic Stewardship’**

NDM-1 has rendered even carbapenems useless, sometimes leaving no way to fight infections. Two drugs potentially capable of treating NDM-1 bacteria have toxic side effects in some patients that include an increased risk of death.

“It’s an example of why we need to have good surveillance and why we need to have good antibiotic stewardship,” says Thomas R. Frieden, director of the U.S. Centers for Disease Control and Prevention in Atlanta. “We are looking at the specter of untreatable illness.”

Drugmakers have been slow to respond with new medicines. Most abandoned antibiotic discovery during the past decade, says Karen Bush, a microbiologist at Indiana University in Bloomington. She led teams that developed five bacteria-fighting drugs beginning in the 1970s in laboratories that are now part of [AstraZeneca Plc \(AZN\)](#), [Bristol-Myers Squibb Co. \(BMY\)](#), Johnson & Johnson and [Pfizer Inc. \(PFE\)](#)

Companies instead pursued hypertension and high-cholesterol drugs that patients take for a lifetime rather than a few weeks, she says.

### **International Uproar**

Kumarasamy, the Chennai microbiologist, says he thought he was doing his country a favor when he helped track down the cause of unexplained deaths inside India. Instead, he sparked an international uproar over NDM-1.

Beginning in June 2000, Kumarasamy, now 36, studied bacteria and went from hospital to hospital in Chennai to collect specimens. He says he witnessed a steady increase in difficult-to-treat infections. Patients were dying, and doctors couldn’t identify what type of resistant germs killed them, he says.

“No matter how skilled or intelligent the doctor is, they are helpless when it comes to these infections,” he says over lunch of rice and curry in a noisy Chennai food court. He didn’t keep a tally of the deaths.

Kumarasamy, who received a Bachelor of Science degree from [Navarasam Arts & Science College](#) in Tamil Nadu state in 1997, says he began isolating bacteria from the blood, sputum, pus and urine of patients and freezing the samples. He quit his lab job in 2007 to study resistant germs for a doctorate in microbiology at the [University of Madras](#). He’s winding up his thesis on carbapenem-resistant bacteria.

### **Festering Bedsores**

Kumarasamy’s curiosity spiked in 2008 when he realized he was dealing with something totally new. He reached out to Walsh, whose Cardiff lab was at the forefront of international antibiotic resistance research.

Around that time, Walsh was studying the case of a diabetic stroke patient of Indian origin. The man had [festering bedsores](#) and had been transferred from New Delhi to his home in [Sweden](#) for treatment. When bacteria cultured from his urine and feces evaded more than a dozen drugs, including last-resort carbapenems, Christian G. Giske, a clinical microbiologist at Stockholm’s Karolinska University Hospital, sent the samples to Walsh’s lab.



## **Stockholm Hotel**

In a hotel room in the Swedish capital, Walsh and Giske named the gene that made the bacteria immune to virtually all these antibiotics New Delhi metallo-beta-lactamase-1.

Beta-lactams are a class of antibiotics that includes penicillins, cephalosporins and carbapenems. Beta-lactamase is an enzyme that destroys those drugs. Metallo-beta-lactamases are so named because they contain zinc and destroy carbapenems, the most powerful beta-lactams.

Kumarasamy, suspecting something similar in his own specimens, asked Walsh to share the DNA sequence of this new bacterial gene. Walsh did -- and Kumarasamy got a match.

Kumarasamy began visiting Chennai hospitals anew to look for drug-resistant specimens. He also got samples from researchers in India's northern Haryana state.

When his collection was added to those Walsh and his colleagues were studying, the researchers discovered the same NDM-1 gene from four countries: India, Pakistan, Bangladesh and the U.K. For most of the [British patients](#), the link was recent [travel](#) to India or neighboring Pakistan.

In Kumarasamy's samples from inside India, many cases emerged in people who hadn't recently been hospitalized. That suggested the bacteria were spreading in the community.

## **'Unsung Hero'**

"He is India's unsung hero," Walsh says.

The University of Madras initially thought so, too. It feted Kumarasamy after he became the youngest scholar from the 155-year-old institution to have research appear in any publication of the British medical journal "The Lancet." His [August 2010 paper](#), in "The Lancet Infectious Diseases," became that publication's most-read article that year.

The mood soured a few days later. Officials at India's [Ministry of Health & Family Welfare](#) balked at the gene's name, which threatened medical tourism's public image.

"There was a lot of stress and tension, and I could not sleep properly for two months," says Kumarasamy, who says he developed gastric reflux and heartburn.

The next month, authorities at the ministry grilled the eight Indian contributors to the "Lancet" report, including lead author Kumarasamy, according to two co-authors who declined to be identified because their employers don't permit them to speak to the media.

## **'Batten Down the Hatches'**

Officials questioned their data and chastised them for sending specimens overseas without approval, saying the researchers had violated a 13-year-old regulation, according to two in the group.

The [Indian Council of Medical Research](#) says it requires researchers to submit detailed proposals to send any bacterial collections abroad. The process may take at least four months.

"The regulations were already in place," says Sandhya Visweswariah, a professor at the [Indian Institute of Science](#) in Bangalore.

The researchers countered that the rules were nebulous and were rarely enforced.

"It is suppression of scientific freedom," Walsh says of the government behavior. "They just try to batten down the hatches and make everything very, very difficult and pretend nothing has happened."



## Front-Page News

After front-page stories on the superbug appeared in Indian newspapers, the government formed an antibiotic resistance task force. It recommended in [April 2011](#) that antibiotic use be tracked in the country's 100,000 hospitals to find excessive prescribing. The group advised making it harder to get antibiotics without a prescription by requiring pharmacists to keep records for two years to aid audits and inspections.

Current rules make a prescription mandatory, but regulations are rarely enforced and it's easy to get potent antibiotics, even intravenous ones, without a doctor's assent. The group advised enacting rules allowing drug inspectors to immediately cancel the license of pharmacists dispensing unprescribed antibiotics.

Task force member Ganguly says tracking antibiotic use will be difficult.

"How do you regulate 1.2 billion people with so much diversity?" he asks.

## Dying Babies

While Kumarasamy was documenting NDM-1 in Chennai hospitals, pediatrician Vipin Vashishtha was discovering how deadly the gene can be.

In June 2010, new father Sanjeev Thakran, 28, rushed his half-hour-old son in a car through monsoon-soaked streets to Vashishtha's [Mangla Children's Hospital](#) in Bijnor. His wife, Lalita, had delivered baby Tapas in a maternity hospital across town three weeks early, and the infant was laboring for air.

Nurses in green scrubs warmed the 4-pound (1.8-kilogram) newborn in a dome-covered crib and fed him milk and medicines through a nasal tube. About 2 feet away, a frail-looking baby was connected to a ventilator, Sanjeev Thakran says.

Vashishtha, seated on a leather swivel chair in his consulting room, recalls thinking that Tapas might need only a few days of intensive care. Instead, the baby spent weeks in and out of the unit. Blood sometimes trickled from his nose and shriveling umbilicus, according to medical records.

Even though he was being treated with a carbapenem, the most powerful class of antibiotic, bacteria raged inside his tiny lungs and bloodstream, eventually attacking membranes covering his brain and spinal cord.

## Incurable Scourge

Other infants in the eight-crib neonatal intensive care unit were suffering, too. Vashishtha, 48, had tried several antibiotics without success. When carbapenems didn't work, he says, he felt helpless because he knew he was dealing with a potentially incurable scourge.

Tapas died 11 weeks after he was admitted. Lab results identified the culprit a month later: NDM-1. The gene was in bacteria known as [Klebsiella pneumoniae](#). The germ exists in people's gastrointestinal tract and can cause pneumonia and urinary-tract infections in hospital patients.

The lab also found two soil-borne species that normally cause trivial infections but that were suddenly becoming killers.

Tapas was one of [14 infants](#) at the hospital who were infected with NDM-1-containing bacteria over the course of 17 months. Six of the babies died. Among the eight survivors, half developed meningitis, arthritis or water on the brain, Vashishtha wrote to an Indian medical journal in February 2011.

### **'Horrific Period'**

"It was the most horrific period," Vashishtha says as he fixes his eyes on the playpen where he amuses children in his office. "I was losing neonates at regular intervals. I suspected we were dealing with something quite different, something quite new."

Vashishtha says he has improved infection control, walling off part of the ICU for contagious, complicated cases.

He can't, however, control what happens outside his hospital. Sewage from nearby homes flows in an [open drain](#) along one wall of the two-story building.

Bijnor, like other small cities in Uttar Pradesh, lacks a modern underground drainage system. During the rainy season, it's impossible not to wade through [sewage water](#), the doctor says.

### **'Wash Hands Properly'**

So far, Vashishtha has prevented more NDM-1 deaths. He fumigates his wards every four weeks and applies fresh paint every three months. He keeps hand-sanitizing liquid in his office, along the corridors and next to every bed in intensive care. Nurses must wash their hands with running water and soap and scrub with an antimicrobial sanitizer before handling patients.

"The first and foremost step to avoiding hospital-acquired infection is to wash hands properly," he says.

India's major hospitals are marshaling tactics from common cleanliness to computerized databases to outsmart resistant bacteria and prevent more tragedies.

[Artemis Health Institute](#), a private, 300-bed specialty hospital in Gurgaon, southwest of New Delhi, employs an infection-control officer who collects data every month on the hospital's four most troublesome bacteria to review patterns of drug resistance. The officer, Namita Jaggi, also serves as national secretary of a Buenos Aires-based group that collates infection information worldwide.

### **'Infection Surveillance 24/7'**

About 3 miles (4.8 kilometers) away, cardiac surgeon Naresh Trehan's medical complex, [Medanta-The Medicity](#), requires patients transferring from other hospitals to be screened for resistant bacteria. This procedure, routine in some Nordic countries, isn't standard in India.

Medanta has a strict hand-washing policy and a 40-member team to monitor infections, says Trehan, 65, who trained in cardiac surgery at [New York University](#) and worked at Bellevue Hospital in [Manhattan](#) before returning to India in 1988.

"We have a very senior person whose sole responsibility is to keep the whole hospital under infection surveillance 24/7," he says.

Livermore at the U.K.'s Health Protection Agency says these efforts may not be enough in a country where 626 million people defecate in the open and that treats only 30 percent of the 10.1 billion gallons of [sewage](#) generated each day. Even the most modern hospitals can't exist as islands of cleanliness, he says.

"How does the hospital -- however good its surgeons and physicians -- isolate itself when its patients, staff and food all come from outside, where they are exposed to this soup of resistance?" he asks.

### **'Hope for the Future'**

Bush, the antibiotics researcher, has been investigating novel ways to fight bacteria since 1977. She says

combinations of existing drugs, including an experimental compound from AstraZeneca in late-stage patient studies, may neutralize some carbapenem-destroying enzymes.

Should these mixtures pan out, they may help the superdrugs regain at least some of their potency, potentially extending their usefulness for a decade or more, she says.

A drug candidate from Basel, Switzerland-based [Basilea Pharmaceutica AG \(BSLN\)](#) in early-stage trials shows some promise against NDM-1, she says.

"What's frustrating is to see that companies refused to address the issue until the last few years," Bush says. "There are still some that are trying, and that's the hope for the future."

### **'Very Cautious'**

Drugs that could once again tackle the world's most resistant germs would be a relief for people worldwide, Norway's Skaret among them. She spent more than six months fearing a microbial time bomb until she learned that the NDM-1 supergerms had passed from her system.

Even though she escaped physical harm, Skaret says, NDM-1 made her feel isolated. She says therapists, concerned about their own exposure, refused to help her with rehabilitation to recover from the car accident. Neighbors who delivered food were careful not to get too close.

"When they heard about it, they were very cautious," she says.

If Walsh's projection is accurate, 100 million Indians may be carrying the NDM-1 gene unwittingly and doing little to contain its spread. The number of countries reporting NDM-1 will continue to grow as more bacteria pick up the gene and people transport it around the globe.

To prevent a worldwide catastrophe, microbiologists Kumarasamy and Walsh -- along with scores of scientists and doctors inside and outside India -- are sounding an alarm.

"Combine sophisticated medicine, poor sanitation and heavy antibiotic usage, and you have a rocket fuel to drive the accumulation of resistance," Livermore says. "That surely is what India has created" ([Bloomberg, 2012](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following quotes are in respect to bio-terrorism and the pandemic that will follow. These quotes come from politicians and scholars from every walk of life and essentially state that a bio-terror related pandemic is not a matter of "if", but "when". Based on the quotes, in the aftermath of the coming pandemic, martial law will be instituted and America will no longer exist as a free nation.

"The Department of Homeland Security may be dangerous to your health." ~**U.S. Strategy For Bioterrorism Emergency Medical Preparedness And Response**

"A thinking enemy, armed with biological weapons, could change the very nature of America -- our economy, our government and even our social structure. America does not yet have adequate bio-response capability to meet fundamental expectations during a large-scale biological event." ~**Former U.S. Senator Bob Graham**

"Pandemics are global in nature, but their impact is local. When the next pandemic strikes, as it surely will, it is likely to touch the lives of every individual, family, and community. Our task is to make sure that when this happens, we will be a Nation prepared." ~**Michael O. Leavitt, Secretary, U.S. Department of Health and Human Services**

"No act of modern warfare...has the potential to threaten as many lives and cause as much disruption to the global economy as the H5N1 avian influenza would if it makes the evolutionary leap that allows it to spread among humans as quickly and as lethally as it has among birds." ~**Stephen Flynn, Senior Fellow at the Council on Foreign Relations**

The U.S. military assumes that North Korea, as well as Iraq, has samples of the smallpox virus, and it's possible the two countries have exchanged information on that and other biological weapons, Henchal said. He said "it's a bit of a fantasy" to assume that the only smallpox samples in the world are the two publicly declared samples in the United States and Russia. "It's clear from intelligence that the genie is out of the bottle," Henchal said of smallpox ~**Col. Erik Henchal, Head of U.S. Army's Biological Defense Laboratory, USAMRIID**

"As a researcher you do the good thing, but in the wrong hands it could be used for evil. In this case I'm not so worried about bioterrorism. It's the disgruntled researcher who is dangerous -- the rogue scientist." ~**Ian Ramshaw, Australian scientist who suggested that the Fouchier or Kawaoka papers could serve as bioterrorism blueprints**

"The potential for escape of that virus is staggering." ~**D.A. Henderson, Center for Biosecurity at the University of Pittsburgh**

"Small mistakes in biosafety could have terrible global consequences." ~**Thomas Inglesby, Center for Biosecurity at the University of Pittsburgh**

"Unless the world community acts decisively and with great urgency, it is more likely than not that a weapon of mass destruction will be used in a terrorist attack somewhere in the world by then end of 2013...Terrorists are more likely to use a biological weapon than a nuclear weapon, and the U.S. government needs to move more aggressively reduce the prospect of a bioterror attack." **~WMD Center**

"And the enormous expansion of high-containment laboratories has greatly increased the numbers of people with access to dangerous pathogens and toxins, ironically increasing the likelihood of an attack by a rogue insider." **~Center For Arms Control And Non-Proliferation, Biological Threats: A Matter of Balance**

"The bioterrorist threat has been greatly exaggerated." **~Center For Arms Control And Non-Proliferation, Biological Threats: A Matter of Balance**

"That's the leadership that we are providing — engagement that advances the common security and prosperity of all people...And we are launching a new initiative that will give us the capacity to respond faster and more effectively to bioterrorism or an infectious disease — a plan that will counter threats at home and strengthen public health abroad." **~U.S. President Barack Obama, 2010 State of the Union**

"The [Defense Science Board] task force believes that there will be another, probably more extensive, biological attack within the next few years. It could take on any form—airborne agents; contagious agents; contamination of food, water, or medical supplies; or an agricultural attack, for example. The best defense against such a threat is to begin planning and practicing for response now. A 1970 World Health Organization (WHO) study estimated that 50g of *Bacillus anthracis* released over an urban population of 5 million would sicken 250,000 and kill 100,000 people, and a 1993 Office of Technology Assessment (OTA) study estimated that between 130,000 and 3 million deaths would follow the release of 100kg of *B. anthracis*." **~U.S. Army War College Report**

"A crude, but effective, terrorist weapon can be made by using a small sample of any number of widely available pathogens, inexpensive equipment, and college-level chemistry and biology. Even as it becomes easier to develop these weapons, it remains extremely difficult — as you know — to detect them, because almost any biological research can serve dual purposes." **~Hillary Rodham Clinton, Secretary of State, December 7, 2011**

In 2001, we found evidence in Afghanistan that al-Qaida was seeking the ability to conduct bioweapons attacks. And less than a year ago, al-Qaida in the Arabian Peninsula made a call to arms for — and I quote — "brothers with degrees in microbiology or chemistry to develop a weapon of mass destruction." **~Hillary Rodham Clinton, Secretary of State, December 7, 2011**

"All too often I think our sources on WMD terrorism threats come from Hollywood. It's kind of the work of science fiction that people have in their head. But, unfortunately the drama is all too real and that the real threats are out there and the international system is not fully a system on some of these issues." **~Robert Orr, Chairman of the Counter-Terrorism Implementation Task Force (CTITF)**

"I think a small terrorist cell could very easily develop an insect-based weapon. Probably be much easier" than developing a nuclear or chemical weapon, arguing: "The raw material is in the back yard. It would be a relatively easy and simple process. A few hundred dollars and a plane ticket and you could have a pretty good stab at it." **~Jeffrey Lockwood, Professor of Entomology at Wyoming University**

"To put it bluntly, it is the same logic by which the superpowers continue the possession of the nuclear weapons; they wish to hold on to the smallpox virus as a super bio-weapon." **~Kalyan Banerjee, Indian Virologist, Former Member of WHO Advisory Committee on Smallpox Research**

"The threat of bioterrorism has not subsided," while the challenge of predicting or preventing a major biological attack remains "daunting." **~Robert Hooks, U.S. Department of Homeland Security Deputy Assistant Secretary for WMD and Biodefense**

"Consider, for example, a terrorist attack involving smallpox, which is often cited as the worst-case scenario for several reasons. First, smallpox is a highly contagious disease. Second, the population has little or no immunity to the disease. Third, even with large stockpiles of smallpox vaccine, given our highly mobile life style, it would be difficult to contain an outbreak. We must, however, keep this threat in perspective. Despite the catastrophic effects of a smallpox attack, the probability of such an attack is extremely low, especially compared to the probability of other scenarios. First, smallpox as a naturally occurring disease has been eradicated. Second, the virus that causes smallpox is known to exist in only two high-security laboratories--one in Atlanta at the Centers for Disease Control and one at the Vector Laboratories in Siberia, Russia. Therefore, it would be extremely difficult for a terrorist to acquire the smallpox virus. Moreover, the effects of a smallpox attack would be uncontrollable and, therefore, could also affect the terrorists and their supporting constituencies. If we look at all of these factors, we must conclude that a smallpox attack is a potential contingency, even, perhaps, the most damaging potential contingency, but the probability of occurrence is very low. Nevertheless, smallpox has received the lion's share of attention and has drawn attention away from the wide range of other agents that could be used."

**~Michael J. Powers & Jonathan Ban, Research Associates at the Chemical and Biological Arms Control Institute in Washington, D.C.**

"The terrorist attacks of last fall underscored the acute need for this new regulation. Today's action will help make certain essential new pharmaceutical products available much sooner -- those products that because of the very nature of what they are designed to treat cannot be safely or ethically tested for effectiveness in humans."

**~Lester M. Crawford, Deputy Commissioner of the FDA**

"Bioterrorism is not going to go away. We are concerned with a comparatively short list of dangerous diseases that would be catastrophic and potentially destabilizing. They are smallpox, anthrax, plague, tularemia, botulinum toxin and the group of diseases that manifest themselves as hemorrhagic fevers."

**~D.A. Henderson, Chairman of the Department of Health and Human Services' Council on Public Health Preparedness**

"It looks like the age of synthetic bioweapons is upon us."

**~Edward Hammond of the Sunshine Project**

"We must come together to prevent, detect, and fight every kind of biological danger whether it is a pandemic like H1N1, a terrorist threat, or a treatable disease."

**~U.S. President Barack Obama, United Nations General Assembly, September 22, 2011**

"Biological terrorism is our future, and smallpox is a serious threat."

**~Ken Alibek, Former Head of Soviet Union's Biological Weapons Program and Vice Chairman of Advanced Biosystems**

"The CDC regulates the possession, use, and transfer of select agents and toxins that have the potential to pose a severe threat to public health and safety. The CDC Select Agent Program oversees these activities and registers all laboratories and other entities in the United States of America that possess, use, or transfer a select agent or toxin."

**~Center for Disease Control and Protection**

"Preparing for potential bioterrorist attacks involves unique considerations that are distinct from emergency and disaster preparations necessary for other forms of terrorism, such as those that use conventional, chemical, or, possibly nuclear weapons. Bioterrorism does not announce itself with large explosions. One cannot smell, taste, or see biological agents. The attack will not be known until sick patients begin arriving in hospitals and doctor's offices, usually days later—long after the terrorist has left the scene."

**~U.S. Senator Bill Frist**

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The actual reality of the bio-terror and pandemic situation is far different than what the public has been led to believe. The following collection of articles show beyond the shadow of a doubt that the government is complicit in the funding, planning, drilling and war-gaming a future bio-terror generated pandemic. The mass killing of millions is on the agenda; only an informed population can stop it.

**Title:** Tinkering With The Genes Of Biological Weapons: Genetic Engineering Is Regularly Used To Produce Lethal Bacterial

**Date:** July 13, 2000

**Source:** [Sunshine Project](#)

**Abstract:** Investigations by the Sunshine Project show that genetic engineering has been used in the past decade to tinker with the genes of biological weapon agents. Researchers in the USA, UK, Russia, Germany and other countries introduced genes into hazardous bacteria that are likely to enhance the biowarfare possibilities of these microbes. Strains have been designed that can withstand antibiotics, are undetectable by traditional equipment, can overcome vaccines, or that cause unusual symptoms, thereby hampering diagnosis. In general, gene transfer can be used to build more effective biological weapons, it could be used to broaden the military biological warfare spectrum, making it more difficult to fight and control bioweapons.

*"Military research seems to be out of control", says Jan van Aken, genetic engineering expert of the Sunshine Project. "Many research projects have a clear offensive potential. To just stick the label 'defense' on it is not enough. We urgently have to draw clear lines and prohibit genetic engineering with biological weapon agents."*

At the same time, it is very unclear that efforts to strengthen the Biological Weapons Convention will succeed in the round of negotiations currently underway in Geneva. In light of the increasing biowarfare threat, the international community decided in 1994 to negotiate a Protocol to strengthen the Biological and Toxin Weapons Convention (BTWC). (1)

Considering that the biowarfare threat is dramatically increasing due to the speedy development of genetic engineering, a Bioweapons Convention that is not updated to reflect new technological realities will not create global security. *"In light of recent advancements in genetic engineering, updating and reinforcement of international law that outlaws bioweapons is urgently needed."* says Edward Hammond of the Sunshine Project's Seattle office. A strong Protocol will be a first step, that enhances transparency, making it more difficult for countries to conceal a bioweapons program, for example, in the guise of pharmaceutical research.

### **Genetic Engineering: A New Class Of Biological Weapons**

It sounds like science fiction, but it is a deadly reality: lethal microbes, with no cure, invisible to detection systems, and able to overcome vaccines. In 'defensive' programs, researchers in the USA, UK, Russia and Germany have genetically engineered biological weapons agents, building new deadly strains. And this is probably only the tip of the iceberg.



Genetic engineering can be used to broaden the classical bioweapons arsenal. Through genetic engineering, bacteria can not only be made resistant to antibiotics or vaccines, they can also be made even more toxic, harder to detect, or more stable in the environment. By using genetic methods that are standard procedures in thousands of labs worldwide, bioweapons can be made more virulent, easier to handle, and harder to fight. In short, more effective.

Military experts are perfectly aware of the danger of genetically engineered bioweapons, as their traditional defense measures - e.g. detection methods or vaccines - are easily sidestepped by the artificial microbes. The speedy development of genetic engineering is one driving force to strengthen the Bioweapons Convention and establish a verification system.

### **Example 1: Bacteria Causing Unusual Symptoms**

Researchers from Obolensk near Moscow inserted a gene into *Francisella tularensis*, the causative agent of tularemia and a well known biological weapon agent. The gene made the bacteria produce beta-endorphin, an endogenous human drug, which caused changes in the behaviour of mice when infected with the transgenic bacteria. (2) According to the published results, the endorphin gene was not introduced into a fully virulent strain, but only into a vaccine strain.

If inserted into virulent *F. tularensis*, the victims would not show the usual symptoms of tularemia, but instead unusual symptoms that would obscure the diagnosis and delay therapy. Development of symptom-altered BW-agents has been identified as one possible application of genetic engineering for BW purposes by the US Department of Defense. (3)

### **Example 2: Transferring A Lethal Factor To Harmless Human Gut Bacteria**

Genetic engineering could make previously harmless bacteria lethal biological weapons by introducing deadly genes from a highly pathogenic organism. This was done by US researchers as early as 1986. They isolated the gene for the lethal factor of *Bacillus anthracis*, the causative agent of anthrax, and introduced into *Escherichia coli*, a normally harmless gut bacteria. The US team reported that the lethal factor protein was active in *E. coli* and displayed the same deadly effects as it did when in its native *B. anthracis*. (4)

### **Example 3: Antibiotic Resistant Anthrax And Tularemia**

Antibiotic resistance is often used as a marker gene in genetic engineering experiments. However, the very same genes could render biological weapons more dangerous by making agents less treatable. Any experiment with biological weapons agents using antibiotic resistance genes has a strong offensive potential, even if in the context of "defensive" research. Despite this obvious problem, there is a long list of questionable experiments:

German military researchers at the *Santitaetsakademie der Bundeswehr* in Munich, the main BW research facility of the German army, cultured genetically engineered *Francisella tularensis* subsp. *holarctica* bacteria (5), a close relative of the causative agent of tularemia. An antibiotic resistance marker gene (tetracycline) was been inserted into these bacteria.

Recently, researchers from Porton Down in the UK used genes conferring resistance to antibiotics for genetic studies in fully virulent strains of anthrax. (6) In the late 1980s, a researcher at the University of Massachusetts in Amherst also introduced antibiotic resistance genes into anthrax, making it less treatable with antibiotics. (7)

There are even more cases: Researchers from the Institut Pasteur in Paris (8) and from a Russian laboratory in Obolensk (near Moscow) (9) introduced antibiotic resistance genes into anthrax bacteria.

All these studies are allegedly "basic research", where antibiotic resistance is used as a marker gene. But it is obvious that the very same genetically engineered bacteria can be used to design more effective bioweapons compared to the natural anthrax strains.

#### **Example 4: Invisible Anthrax**

In December 1997, the same Russian research group from Obolensk published a paper in a British scientific journal on another effort to genetically engineer anthrax. (10) By putting new genes into fully pathogenic strains of anthrax, the scientists altered anthrax's immunopathogenic properties, making existing anthrax vaccines ineffective against the new genetically-engineered types.

In most cases, detection of bioweapons relies on molecular recognition of the microbe using antibodies similar to the human immune system. Altering the immunogenicity not only overcomes vaccinations; but also the detection systems.

Western military experts were alarmed by this work. The chief of the bacteriology division at the US Army Medical Research Institute of Infectious Diseases (USAMRIID) in Fort Detrick, Md, Col. Arthur Friedlander, commented: "*This is the first indication we're aware of in which genes are being put into a fully virulent strain. They genetically engineered a strain that's resistant to their own vaccine, and one has to question why that was done*". (11)

The Russian researchers also constructed a new vaccine against the new strain. This is of particular importance, as it could enable an army to use such a bioweapon by vaccinating their soldiers against a specific strain, while the enemy remains vulnerable. The case is an example of the frightening potential of genetic engineering applied to biological weapons research ([Sunshine Project, 2000](#)).

**Title:** Avoiding Bioterrorism Starts With US

**Date:** September 19, 2001

**Source:** [Sunshine Project](#)

**Abstract:** The United States decision to respond to the terrorist attacks on New York and Washington with military force could destabilize controls on biological weapons and trigger chemical and biological war. To prevent a slide down this dangerous and slippery slope, the United States' four recent key mistakes in biological weapons control must be corrected. Failure to take these steps may worsen conditions conducive to terrorist use of weapons of mass destruction.

Equally important, the US must not succumb to the temptation to use less lethal chemical and biological weapons - such as caltrops and other riot control agents - in the war it has declared on terrorism. Please see the News Release "[The Destabilizing Danger of 'Non-Lethal' Chemical and Biological Weapons in the War on Terrorism](#)", also issued today, for more information on this threat.

#### **Correcting Critical Policy Mistakes**

As fear of a terrorist use of weapons of mass destruction skyrockets, the US must analyze and correct its policies that contribute to biological weapons instability. There are four recent critical missteps:

1. First, the US Central Intelligence Agency (CIA) is conducting a secret program of biodefense research that, in the opinion of many experts, violates the Biological and Toxin Weapons Convention. This work, revealed in the New York Times, involves testing mock biological bombs and construction of a bioweapons production facility in Nevada. If any other country conducted this research, it would have drawn the US's harshest denunciations and, quite possibly, military attack. The longer the United States insists on this biological weapons research double standard, the more determined its enemies will be, and the greater the risk to its own and allies' citizens.

2. Second, the United States failed to disclose the CIA's research in annual declarations of biodefense activities to the Bioweapons Convention, deliberately evading a UN mechanism to enhance transparency and trust between nations. The significance of this US failure is difficult to overstate. Secret US biological weapons research has drawn suspicion from the US allies and undermined faith in voluntary confidence building measures. To US enemies, the CIA's work is nothing short of a biological weapons threat. Failing

corrective action, pious declarations about the danger of bioweapons will ring hollow and be understood by US enemies as lies - or even threats.

3. Third, while it may shock many Americans, it is no secret to arms control experts that the United States has menaced Afghanistan (and Colombia, home to three groups on the US State Department's terrorist list) with the threat of a biological attack since at least 1998. This threat is through plans to use the fungus *Pleospora papaveracea*, a biological weapon, to forcibly eradicate opium poppy crops. Transcripts of Kabul Radio clearly indicate that the Taliban is aware of the plan and opposes it. Through the United Nations Drug Control Program, the US has attempted to veil the fungus in legality by obtaining the approval of the Afghan government in exile, which has no de facto power. The Taliban is thought to willingly harbor terrorists who use weapons of mass destruction. The US and its allies are foolish, hypocritical, and courting disaster to continue to threaten such a state with a biological weapons attack.

4. Fourth, in July, the United States trashed six years of negotiations to develop a Protocol for international verification of the Bioweapons Convention. Not only did it anger the world by being uncooperative, the US even said it would block other nations' attempts to proceed with new controls on biological weapons. Close US allies were publicly appalled; but few publicly suggested it was because the US itself intended to violate the treaty. With the New York Times revelation and the new, dangerous atmosphere following the terrorist attacks, the size and ramifications of the USA's terrible miscalculation are now fully apparent.

**At a minimum, the US needs to take the following actions:**

1. The CIA's research program must be immediately and entirely terminated. Because of frail US credibility on this issue, this decision must be made and explained in clear detail by a high-ranking US official and;

2. In light of incontrovertible evidence that it has not complied with confidence building measures, the US has no peaceful alternative but to endorse a United Nations system of bioweapons verification requiring broad declarations and mandatory, short-notice, and comprehensively-equipped UN inspections of commercial and military biotechnology facilities. Nothing less will restore faith in US compliance. Dubious arguments about shielding US facilities in deference to commercial interests are outmoded by recent events and no longer tenable. Lives cannot be put at risk in the interest biotechnology profits, even if the US Defense Secretary once headed Searle, the former pharmaceutical division of Monsanto;

3. The Drug War cannot be a pretext for undermining biological weapons controls and escalating the war on terrorism. The United States and the United Nations Drug Control Program must immediately and unequivocally renounce the development and use of biological agents in forced crop eradication. The US-supported research facility at the Institute for Genetics in Tashkent, Uzbekistan must be immediately locked and the key thrown away. Research efforts in the United States must be similarly halted. The government of the United Kingdom, which has provided lukewarm support for the research, should announce that in light of the current political situation it must withdraw its support in the interests of peace and security.

4. The United States must come back to the table at the Verification Protocol negotiations and signal its intention to cooperate. The US does not have the ability to inspect suspected biological weapons facilities worldwide. A UN system could possess this strength and obtain access and apply verification technology not possible for any state to use alone. US policymakers say they are developing new ideas for verification, which they and other countries - should bring to the 5th Review Conference of the BTWC in November. But political reality dictates that the current negotiating text must be the starting point. The vast majority of countries have already agreed to a number of measures to improve verification. Scrapping existing work and developing a new text is an option unlikely to be possible for at least several years ([Sunshine Project, 2001](#)).

**Title:** Two Fisted Assault On Biological Weapons Control: Will The Bioweapons Convention Be Left Standing?

**Date:** October 22, 2001

**Source:** [Sunshine Project](#)

**Abstract:** Even as its citizens suffer through the greatest biological weapons scare of modern times, and perhaps ever, the United States is promoting a plan to undermine international controls on biological weapons. The proposals come four weeks before a major UN meeting to review international efforts to prevent biological weapons from being used.

The plan was announced on October 10th and is currently being presented to the US's European allies. It is a direct attack on the core article of the Biological and Toxin Weapons Convention, proposing a shift in the focus of arms control that will remove barriers on the development, acquisition, and stockpiling of biological weapons. If governments, including indecisive Europe, do not move to counter these proposals, a green light will be given to potential developers of offensive biological weapons.

### **Assault on the Bioweapons Convention**

The proposals were first unveiled on October 10th in a UN speech by Assistant Secretary of State Avis Bohlen, a US arms control chief. Other US officials are currently on a round of shuttle diplomacy, trying to sell their ideas to allies. What the US wants is to redesign Article I of the Biological and Toxin Weapons Convention, a unique achievement of international law that prohibits an entire class of weapons, all biological agents and toxins used for hostile purposes. (A copy of [Bohlen's statement is here](#).)

The United States purpose in destroying this valuable cornerstone is to permit a stratification of biological weapons into "good" and "bad" ones. This would permit the United States (and other countries) to continue work on a number of biological weapons under development, including anti-crop fungi ("Agent Green"), Pentagon work on so-called "non-lethal weapons" to control (in the US military's words) "potentially hostile civilians", and the US Navy's genetically-modified superbugs that consume materials, such as plastics, jet fuel, rubber, and asphalt.

### **Perversion of International Law**

In addition to the dismantling Article I of the BTWC, the US attack on bioweapons control includes another dangerous proposal to shift the arms control focus away from prevention of biological weapons development. Instead of stopping development of these weapons in the first place, the United States is promoting a perverted form of extraterritorial jurisdiction that focuses international efforts on criminal punishment of use of some kinds of biological weapons. The result would be abrogation of domestic jurisprudence in favor of application of America's law abroad, with attendant extradition conflicts (or kidnapping), and possible show trials as the US seeks to avenge terrorist attacks.

International criminalization of biological weapons is a good idea that has been promoted by non-profits for years; but it must be applied fairly and evenly, to all persons, regardless of official position, who order, direct or knowingly give substantial assistance to development or use of biological weapons. In the US conception, however, penalties only apply to "lethal intent", meaning only to those people that use (or threaten to use) biological weapons, and only for weapons that kill humans. The proposal ignores many other types of bioweapons that target plants, animals, materials, and crops, such as Agent Green (or hoof and mouth disease), which can result in human suffering and death through starvation and poisoning of the environment. In the US conception, even some bioweapons used against people wouldn't be punishable, for example, the US "non-lethal" weapons under development.

### **Old Pretexts and a New Biological Arms Race**

Apart from relaxing controls on many kinds of biological weapons, the US emphasis on use (as opposed to prevention) is a paradigm shift in international efforts that paves the way for countries to embark on massive programs to develop biological - and, especially, biotechnological - weapons. Why? Because by focusing on use, the teeth of international law will not apply until after biological weapons are used,

instead of while they are being developed or stockpiled. Thus, countries with bad intentions will be given a green light to proceed with bioweapons research because they will have little to fear from the international community.

That situation amounts to a 75 year legal setback to the 1925 Geneva Protocol, which prohibited use; but not development of biological (and chemical) weapons. That Protocol was augmented by the BTWC in large part because it had only very limited success. Many countries made reservations upon ratifying the Geneva Protocol. European powers ratified; but several then prepared and used chemical weapons against in their colonial possessions in Africa and Asia. Fascist Italy, a Protocol party, invaded Ethiopia in 1935 and used more than 300 tons of chemical weapons against another sovereign state. The League of Nations did nothing. Prohibitions on use, in other words, have proven malleable and their enforcement depends on who is the victim. This phenomena did not end with decolonization. With a logic similar to that of European colonial powers, the US is presently using the Drug War as a pretext to deploy biological weapons in Latin America and Asia. (See the Sunshine Project website for a [list of examples of major power violation of use restrictions on chemical and biological weapons.](#))

### **Is the BTWC Dying?**

The attack on Article I has transformed the upcoming 5th Review Conference of the BTWC (beginning November 19th) into a do or die situation for biological arms control. If the world fails to emphatically and unequivocally reaffirm the Article I prohibition on all forms of biological weapons, the Convention's utility in preventing biological weapons development will be severely reduced. Future meetings, if any, would have to focus on arguments over which kinds of biological weapons are "acceptable" and which are not, a grave setback. The spirit of the convention would be dead.

Europe, so far, has signaled that it is happy to roll over and play dead, tucked in the poisonous embrace of the Bush administration. Instead of criticizing the recently revealed US projects "Clear Vision" and "Bacchus" to develop biological weapons production facilities in Nevada, to genetically-engineer anthrax, and to test biological bombs, Germany has endorsed the efforts. According to the German Foreign Ministry's chief Bioweapons Convention negotiator "*With regard to the research in the USA, the US government stated through a spokesperson of the Department of Defense that the projects aimed solely at the development of protection measures. The German government does not have any hints to the contrary.*" In other words, Germany has indicated agreement with the US proposal to open the floodgates on biological weapons research and development. With Europe so weak, the South may play the critical role in stopping the US proposals.

### **Other Options**

Stopping the US must be the first priority for civil society and diplomats; but with arms control agreements on the verge of failure to control biological weapons - especially biotechnological weapons - alternative means of prevention must be found. Among the options for civil society and supporting governments is taking verification of the BTWC into their own hands by developing a non-profit network that uses open sources and information freedom laws to promote transparency - and denounce violations of - the Biological and Toxin Weapons Convention.

In government, it is often the case that officials in agriculture, public health, and environment ministries have a strong understanding of the dangers of biological weapons and the authority to take steps to improve environmental and health security. In fact, the political South has already promoted addressing the dangers of hostile abuse of biotechnology in the UN's Cartagena Protocol on genetically modified organisms. Sadly, its efforts were beaten back by a short sighted and commerce-obsessed North.

Efforts by agriculture, public health, and environment ministries do reduce the biological weapons threat. For example, led by environmental and agriculture officials from over 30 countries, the African Union recently endorsed a continent-wide Model Law on Safety in Biotechnology that criminalizes all hostile use of genetic engineering. In the Philippines, health and environment officials quashed a proposal to use biological weapons to eradicate cannabis (marijuana). Even Colombia's Environment Ministry, which was

initially receptive, decided to reject anti-coca biological weapons after protests from civil society highlighted the environmental and human dangers.

### **Geneva Showdown**

Governments should urgently pursue non-arms control means to protect against the development of biological weapons. But in the coming weeks, all eyes turn to Geneva, where the BTWC will be tested as never before at its 5th Review Conference, which begins on November 19th. It is critical the Article I be upheld in its entirety, and that US proposals to create a system that is permissive of biological weapons development be emphatically rejected; but will governments have the will to stand up? ([Sunshine Project, 2001](#)).

**Title:** Biodefense Funding Creates Quandary: Increase Designed To Fight Terror Also Raises Risk Of Attack

**Date:** February 19, 2002

**Source:** [UCLA](#)

**Abstract:** Even as the FBI investigates a possible link between U.S. biodefense programs and last fall's anthrax attacks, a flood of new funding for bioterrorism research promises to increase rapidly the number of labs and people with access to such lethal pathogens.

Some scientists say that without new limits and tougher regulations, the law of unintended consequences could come into play. The biodefense research boom could lead to diversions of organisms or expertise for new terrorist attacks, making Americans less safe rather than safer.

"Each one of these labs in essence becomes a full-service shopping center for someone who wants to get hold of a lethal agent for nefarious purposes," says Richard H. Ebright, a Rutgers University chemist who helped spark a debate among scientists with a letter he co-wrote last month to the journal *Nature* calling for new restrictions. He says the number of laboratories approved to work with potential bioterrorist pathogens should be "fewer than five nationally," a drastic decrease from the scores of labs doing such work.

He acknowledges that, with the federal government budgeting \$2.4 billion in new money for bioterrorism preparedness, scientists aren't rallying to support him.

"No one wants to say anything that is likely to decrease funding," he says. "This money is going to attract applications from institutions that have no experience with these pathogens and no previous interest in them."

"It's a sticky problem," says Michael Mair, a molecular biologist at the Johns Hopkins Center for Civilian Biodefense Strategies. "The question is how to provide for security while not putting shackles on scientists. Science works best when there's a free flow of ideas."

The problem is illustrated by the situation of Ebright's co-author on the letter to *Nature*. Nancy D. Connell, director of the Center for Biodefense at the University of Medicine and Dentistry of New Jersey, is calling for tighter regulations even as she prepares her lab in Newark to handle dangerous organisms in bioterrorism research. The first supplies of such microbes, including the *Bacillus anthracis* bacteria that cause anthrax, are expected to arrive next month, she says.

In preparing her lab for the new work, Connell has voluntarily contacted local law enforcement agencies and imposed strict security rules. A "buddy system" will ensure that no scientist is left alone with the dangerous agents, and advance approval will be required for night and weekend work, she says.

But most of those precautions are not required by law. They should be, Connell says.

Connell, an associate professor of microbiology and molecular genetics, says she believes research on bioterrorism agents is important. She knows some colleagues may see her as trying to slam the door to bioterrorism research just after her lab has gotten approval from the Centers for Disease Control and Prevention in Atlanta to ship and receive dangerous pathogens.

But unless rules are tightened, "we're concerned that the increased research could actually decrease security," she says.

As a possible model, scientists point to the far stricter regulation of radioactive materials by the Nuclear Regulatory Commission and state agencies. NRC inspectors, for example, conduct surprise inspections of university laboratories, showing up unannounced to check inventories and record-keeping.

"Universities know exactly how much they have of every radioisotope and where it is," Ebright says. That's not the case with biological agents. After the anthrax attacks, some universities discovered poorly secured anthrax samples with few records of where they had come from or how they had been used.

That's because handling of deadly biological pathogens was not regulated until 1997, when an anti-terrorism act required labs that wished to ship or receive certain "select agents" to go through a demanding registration process with the CDC. The select agents are a nightmarish arsenal including 13 viruses, 12 toxins, seven kinds of bacteria and four other organisms.

There are a little more than 250 labs nationally that are registered to receive the select agents, and the number is growing at about one lab a week, says Jonathan V. Richmond, director of the CDC's office of health and safety. Since 1997, more than 1,500 shipments of such organisms have been reported to the CDC, he said.

But the regulation has many holes, scientists say. Labs that were using select agents in research before 1997 do not have to register, and the CDC can't keep up with the required lab inspections, they say. Bills pending in Congress would close some of the loopholes and tighten oversight.

Richmond says the CDC may not be the right agency to police the burgeoning bioterror field. "CDC's whole mission in life is to be part of the scientific effort, to be collegial with the people we work with," he says. "If CDC pushes the regulatory side too hard, that collegial element could dry up."

He suggests that the Food and Drug Administration, the Office of Homeland Security and the Department of Justice might be better suited to regulate labs.

Some scientists are skeptical about the need for more regulation. Steven M. Block, a biophysicist at Stanford University, notes that many of the lethal agents can be obtained from natural sources -- notably *Bacillus anthracis*, which infects cattle and other animals in dozens of countries.

"Anyone bent on obtaining anthrax doesn't have to raid Fort Detrick or a university lab," Block says. A natural source for the anthrax used in last fall's attacks can't be ruled out, though the FBI appears to be aggressively pursuing a possible connection to Army labs at Fort Detrick in Frederick or Dugway Proving Ground in Utah.

Block says he is worried about the possibility of attacks -- but that's why he wants to see more work on drugs, vaccines and defenses against genetically altered organisms. "I think we should encourage research on these pathogens, not discourage it," he says.

Mair, at the Hopkins Center for Civilian Biodefense Strategies, says regulation of radioactive materials may not offer a precise model for bioagents.



For one thing, a radioactive isotope is always decaying -- left alone, it becomes less of a problem over time. But biological agents can grow. A gram of *Bacillus anthracis* recorded in January may be a kilogram by March.

Inspections, too, are far harder. Radiation experts can use a Geiger counter to check a lab, determining instantly where radioactive substances are stored. But biological agents, stored in test tubes inside freezers, usually don't have a distinctive appearance. "If a vial is intentionally mislabeled, there's no way to know what it is without actually culturing it," Mair says.

Elisa D. Harris, a bioweapons expert at the University of Maryland and former National Security Council official, is helping lead a project at the university's Center for International and Security Studies to design an oversight system for bioagents.

"I'm afraid of an enormous increase in classified research in U.S. government and even university labs," she said. "That would stimulate concerns in other countries about whether we're really doing the work for defensive purposes" ([UCLA, 2002](#)).

**Title:** US Bioterror Effort May Impact Global Disease Fight

**Date:** April 16, 2002

**Source:** [UCLA](#)

**Abstract:** The United States' massive build-up of infrastructure to gird against bioterror attacks will probably help--but could actually hinder--the fight to contain the growing global problem of infectious disease, according to experts inside and outside the government.

President Bush asked Congress for nearly \$6 billion for anti-bioterrorism efforts in the wake of last October's still-unsolved anthrax attacks that left 5 dead on the East Coast. In addition to spending billions to develop and buy vaccines, much of the money is likely to be targeted at building up the nation's systems for detecting and treating infectious diseases.

Conventional wisdom so far among public health experts has been that the huge cash infusion for domestic bioterror defense will also benefit US efforts to combat global infectious diseases.

While most experts agree that some positive "spillover" is likely, many attending a National Academies of Science forum on global infectious diseases warned that the United States' new focus could slow moves to help developing nations slip out from under the crushing burden of diseases like malaria, tuberculosis and HIV/AIDS.

"The country does have an unprecedented opportunity to rebuild the public health system," said Dr. James Hughes, the assistant surgeon general and the director of the national center for infectious diseases at the Centers for Disease Control and Prevention.

At the same time, Hughes said, "there is a small pool of people out there with the kinds of skills that are going to be needed" for America's bioterror efforts. Microbiologists and other disease experts are likely to be recruited for new programs at the expense of the overseas infectious disease work policy makers now consider a national security priority.

"There is likely to be a diversion of interests," said Dr. Stanley Lemon, dean of medicine at the University of Texas Medical Branch in Galveston and the forum's vice-chair.

Public health experts and policy makers are increasingly concerned with the threat infectious disease poses to world economic and political stability. American politicians at the highest levels of government

have taken notice as HIV/AIDS, which infects some 40 million people, threatens to destabilize governments and cultures in Africa, Asia and Eastern Europe.

Meanwhile, tuberculosis bacteria infect up to one third of the world population, with 10% of those showing the full-blown respiratory disease. Most experts blame massive immigration waves and tourism travel, as well as poor disease surveillance, for rising rates of infection in many parts of the US.

Dr. Danielle Grondin, director of migration health for the International Organization for Migration in Geneva, said that wealthy countries can no longer rely on testing refugees and immigrants as a way to keep tuberculosis and other ailments from crossing their borders.

Recent research suggests that testing policies in the US and Canada have failed to detect massive numbers of visitors and immigrants who carry TB. "The rich countries need to do much more to promote testing in origin countries," she said in an interview.

American research experts, including leaders at the National Institutes of Health, have stepped up efforts to help developing countries improve their disease surveillance systems and extend disease treatment. They stress that the efforts will continue.

But others worried that those efforts will not immediately match up with the new American priorities of preventing anthrax, smallpox and tularemia attacks.

"You cannot expect them to care about 5 deaths from anthrax in our country," said Patrick Kelley, who directs the Pentagon's Global Emerging Infections Surveillance Response Systems ([UCLA, 2002](#)).

**Title:** Overuse of Anthrax Drug May Prove Deadly: Scientist

**Date:** September 11, 2002

**Source:** [UCLA](#)

**Abstract:** Overuse of the drug that was widely taken during the US [anthrax attacks](#) last year could lead to more deaths from antibiotic-resistant infections than from the bacteria, a British scientist said on Wednesday.

More than 30,000 prescriptions for Bayer AG's Cipro were written last year after anthrax-tainted letters, which killed five people, were sent to US government officials and media outlets in three states in the weeks following the September 11 attacks.

Many more people self-prescribed the drug after obtaining it from the Internet or abroad, which increased the risk of drug resistance as well as complications from serious side effects.

"Here we have a situation where a very important broad-spectrum antibiotic is massively used and we have the risk that more people can develop drug-resistant complications, which could lead to death, than would have actually been killed in the anthrax attacks," Dr. Chris Willmott told a science conference.

The professor at Leicester University in central England cited research from scientists at Johns Hopkins University in the United States, who modeled the impact of 5,000 prescriptions of Cipro. The results suggested it would have prevented nine cases of anthrax.

"At the same time, about two people per hour in American hospitals are dying of complications of drug-resistant bacteria. That equates to around about 17,000 people a year," Willmott added.

Cipro, or ciprofloxacin, is an antibiotic that is used for a wide range of bacterial infections and life-threatening illnesses such as pneumonia, meningitis and septicaemia, which unlike anthrax can easily be transmitted to other people.

Willmott told the British Association for the Advancement of Science festival that overprescribing Cipro increases the threat of resistance and could make people vulnerable to other infections.

The US Centers for Disease Control and Prevention now recommends doxycycline, a member of a different class of antibiotics, instead of Cipro against anthrax.

"The frenzy whipped up regarding Cipro as the only cure for anthrax led to widespread and unnecessary self-prescription of ciprofloxacin," said Willmott.

"It remains to be seen if there is a significant increase in resistance-associated fatalities resulting from this unregulated misuse of a vital antibacterial drug," he added.

Last month, scientists at Rockefeller University in New York announced they may have found a new treatment that would make it impossible for anthrax to mutate into a resistant form ([UCLA, 2002](#)).

**Title:** U.S. Supplied Germs To Iraq In '80s  
**Date:** October 1, 2002  
**Source:** [UCLA](#)

**Abstract:** Iraq's bioweapons program that President Bush wants to eradicate got its start with help from Uncle Sam two decades ago, according to government records getting new scrutiny in light of the discussion of war against Iraq.

The Centers for Disease Control and Prevention sent samples directly to several Iraqi sites that U.N. weapons inspectors determined were part of Saddam Hussein's biological weapons program, CDC and congressional records from the early 1990s show. Iraq had ordered the samples, claiming it needed them for legitimate medical research.

The CDC and a biological sample company, the American Type Culture Collection, sent strains of all the germs Iraq used to make weapons, including anthrax, the bacteria that make botulinum toxin and the germs that cause gas gangrene, the records show. Iraq also got samples of other deadly pathogens, including the West Nile virus.

The transfers came in the 1980s, when the United States supported Iraq in its war against Iran. They were detailed in a 1994 Senate Banking Committee report and a 1995 follow-up letter from the CDC to the Senate.

The exports were legal at the time and approved under a program administered by the Commerce Department.

"I don't think it would be accurate to say the United States government deliberately provided seed stocks to the Iraqis' biological weapons programs," said Jonathan Tucker, a former U.N. biological weapons inspector.

"But they did deliver samples that Iraq said had a legitimate public health purpose, which I think was naive to believe, even at the time."

The disclosures put the United States in the uncomfortable position of possibly having provided the key ingredients of the weapons America is considering waging war to destroy, said Sen. Robert Byrd, D-W.Va. Byrd entered the documents into the Congressional Record this month.

Byrd asked Defense Secretary Donald H. Rumsfeld about the germ transfers at a recent Senate Armed Services Committee hearing. Byrd noted that Rumsfeld met Saddam in 1983, when Rumsfeld was President Reagan's Middle East envoy.

"Are we, in fact, now facing the possibility of reaping what we have sown?" Byrd asked Rumsfeld after reading parts of a *Newsweek* article on the transfers.

"I have never heard anything like what you've read, I have no knowledge of it whatsoever, and I doubt it," Rumsfeld said. He later said he would ask the Defense Department and other government agencies to search their records for evidence of the transfers.

Invoices included in the documents read like shopping lists for biological weapons programs. One 1986 shipment from the Virginia-based American Type Culture Collection included three strains of anthrax, six strains of the bacteria that make botulinum toxin and three strains of the bacteria that cause gas gangrene. Iraq later admitted to the United Nations that it had made weapons out of all three.

The company sent the bacteria to the University of Baghdad, which U.N. inspectors concluded had been used as a front to acquire samples for Iraq's biological weapons program.

The CDC, meanwhile, sent shipments of germs to the Iraqi Atomic Energy Commission and other agencies involved in Iraq's weapons of mass destruction programs. It sent samples in 1986 of botulinum toxin and botulinum toxoid -- used to make vaccines against botulinum toxin -- directly to the Iraqi chemical and biological weapons complex at al-Muthanna, the records show.

Botulinum toxin is the paralyzing poison that causes botulism. Having a vaccine to the toxin would be useful for anyone working with it, such as biological weapons researchers or soldiers who might be exposed to the deadly poison, Tucker said.

The CDC also sent samples of a strain of West Nile virus to an Iraqi microbiologist at a university in the southern city of Basra in 1985, the records show ([UCLA, 2002](#)).

**Title:** U.S. Likely Sent Iraq Toxic Bugs

**Date:** October 2, 2002

**Source:** [UCLA](#)

**Abstract:** Evidence that the U.S. government once authorized and sent to Iraq germ cultures capable of being used for biological weapons underscores the sometimes fuzzy boundary separating research on public health from that on weapons of mass destruction.

Whether the disease is anthrax, smallpox or West Nile fever, science for the common good as well as evil ultimately depends on ready access to the same bugs.

Details of the potential germ warfare agents the Centers for Disease Control and Prevention in Atlanta and a Virginia biologics company shipped to Iraq in the 1980s are stirring concerns about the country's ability to control the export of deadly germs.

To Sen. Robert Byrd (D-W.Va.), the situation has created "the equivalent of a Betty Crocker cookbook of ingredients that the U.S. allowed Iraq to obtain and that may have been used to concoct biological weapons."

But CDC officials say the shipments, which occurred during a period when the United States viewed Iraqi President Saddam Hussein as an ally, are old news -- and part of an essential worldwide exchange of disease-causing bacteria, viruses and fungi.

"We ship over 300 agents to several dozen countries every year," said CDC spokesman Thomas Skinner. "It's important for the CDC to cooperate with international health authorities on research that . . . saves lives. At the same time it's equally important to us to work with the U.S. Commerce Department to see that these organisms don't fall into the wrong hands."

As with other exports, the Commerce Department has a list of countries and germs that are restricted in international trade. Iraq wasn't on the list of countries in the 1980s, but it is today, along with Iran, Syria, Libya, Sudan, North Korea and Cuba.

Because potentially deadly cultures could be reshipped for illicit use to a third country, the Commerce Department also lists dozens of possible bio-warfare agents -- including anthrax, smallpox, botulinum toxin and hemorrhagic fevers -- that require government approval before they can be exported at all.

Byrd says even tighter controls are needed to guard against a future in which "today's friend may be tomorrow's enemy."

CDC officials said absolute assurance that biological materials won't be misused is probably not possible.

#### Bugs for good and evil

Even within the United States, compartmentalizing medical and weapons research has not been entirely successful. The strain of microbe responsible for last year's [anthrax-by-mail](#) attacks closely matches one used by a number of U.S. research institutions -- including the U.S. Army Medical Research Institute of Infectious Diseases in Fort Detrick, Md.

In the case of Iraq, Byrd says at least 11 shipments -- a "witches brew of pathogens including anthrax, botulinum toxin and gangrene," came from the American Type Culture Collection, a nonprofit firm in Manassas, Va., that has supplied biological cultures and products for global research since 1925.

The company's products, including nearly 18,000 strains of bacteria and more than 2,000 viruses, can be ordered by fax, phone or online from the firm's Web site.

In a tersely worded statement Tuesday, company spokeswoman Nancy Wysocki dismissed the controversy as "old news" that surfaced in congressional hearings in 1993.

"The Department of Commerce approved all requests for shipments of biological samples by Iraq," Wysocki said, adding that the firm's shipments currently comply with all government regulations.

"As a global biological resources center, the American Type Culture Collection's mission is to provide resources to scientists in medicine, public health, industry and education," she said.

Between 1985 and 1988, the Commerce Department approved export licenses for more than 110 shipments of biological materials. The timing of the shipments coincides with the period during which Iraqi scientists turned from studying literature on biological weapons experiments to working with actual samples of anthrax and botulinum toxin.

The Bush administration's charges that Iraq is developing biological weapons have revived congressional interest in how and where the country got the raw materials.

Byrd doesn't contend that the government deliberately approved the shipment of potential seed stock for biological weapons. "It was simply a matter of business as usual, I suppose," he said.

Now, however, he said the risks of lax export controls are apparent. "We not only know that Iraq has biological weapons, we know the type, strain, and the batch number of the germs that may have been used to fashion these weapons," he said. "We know the dates they were shipped and the addresses to which they were shipped."

### **CDC Verified Shipments**

In a response to a congressional inquiry in 1993, former CDC Director David Satcher acknowledged eight shipments of "viruses, retroviruses, bacteria and fungi" from the agency's laboratories in Atlanta to researchers in Iraq.

Destinations for the CDC shipments included the Iraqi Ministry of Health in Baghdad, the University of Baghdad -- later identified by U.N. weapons inspectors as a front for the acquisition of biological weapons samples -- and at least one researcher in Al-Muthanna, a site 40 miles south of Baghdad that has the nucleus of Iraq's chemical weapons program.

Several months later, Satcher reported that the CDC had also discovered that additional cultures -- including the germ that causes dengue fever and a non-virulent strain of the bug that causes plague -- were hand-carried to Iraq in May 1985 by Dr. Mahammad Mahmud, a doctor who had just finished three months of research on mosquito-borne viruses at the CDC.

Of the dozens of approved biological materials shipped to Iraq by the government and corporate sources, a 1992 Defense Department report to Congress identified five so-called Class III pathogens as being of particular concern:

*Bacillus anthracis*, the anthrax bacterium whose finely powdered spores killed five people and sickened 17 others in the United States last year in the country's first brush with biological terrorism.

*Clostridium botulinum*, the bacterial source of a toxin that can cause vomiting, fever, partial paralysis and is often fatal.

*Histoplasma capsulatum*, which causes a disease that afflicts the liver and spleen and at least superficially resembles tuberculosis.

*Brucella melitensis*, a bacteria that causes chronic fatigue, nausea and damage to major organs.

*Clostridium perfringens*, a highly toxic bacteria that causes gas gangrene.

Although the United States has increased the number of biological agents and countries on its restricted export list since the Gulf War, the Bush administration has balked at efforts to strengthen the 1972 Biological Weapons Convention, which bans the development and stockpiling of germ warfare agents.

The treaty has been signed by 164 nations, including the United States and Iraq.

Over the objections of European allies, however, the State Department in July withdrew from negotiations to strengthen the treaty on the grounds that the proposed inspection system was ineffectual and measures to assure the compliance of rogue nations such as Iraq would not be legally binding.

U.S. officials have indicated they plan no further discussion on the treaty until 2006 to give them time to consider alternate means of enforcement ([UCLA, 2002](#)).

**Title:** Non-Profit Coalition Calls For A National Reassessment Of The Biodefense Building Boom

**Date:** October 14, 2002

**Source:** [Sunshine Project](#)

**Abstract:** A non-profit coalition is calling upon Congress and the public for an urgent national reassessment of America's biodefense spending. The coalition contends that the \$6 billion in biodefense that Congress hastily appropriated after last fall's anthrax attacks have triggered a laboratory rat race more likely to undermine US national and environmental security than to enhance it.

The groups dedicated to research safety, arms control, and scientific responsibility do not oppose all biodefense work; but cite a range of concerns and evidence in support of their demands (see attached quotes and contact sheet). The Coalition says that unless a national reconsideration is done, competition for biodefense funding and poor planning will combine with dangerous results, including a needless proliferation of facilities handling biowarfare agents and a spread of the knowledge needed to wage biowarfare. This poses dangers to local communities, to arms control, and US national security, they claim. Instead of emphasizing biotech band aids from facilities pursuing dream vaccines and working in secret, the coalition says spending should focus on unclassified, public research to bolster local public health capabilities.

"The number of new biodefense biosafety level 3 and 4 laboratories being developed far exceeds what is prudent and necessary, and we are asking Congress to freeze biodefense laboratory construction until a cross-cutting federal review ensures that the massive new investment isn't going awry, and wouldn't be better spent elsewhere," said Steve Erickson of the Citizen's Education Project in Salt Lake City. According to Edward Hammond of the Austin, TX-based Sunshine Project, "Government and academic labs are responding less to bona fide needs than the urge to build power and revenue centers for what they hope is a perpetual biodefense boom. This will result in a dangerous proliferation of bioweapons agents and the knowledge to use them."

"Too many agencies want too many facilities, likely leading to duplication and unnecessary danger," Colin King of Nuclear Watch of New Mexico in Santa Fe, "Agencies are confusing the public by trying to gain lab approval on a one-by-one basis, obfuscating the risks and ramifications of large national programs."

The coalition is calling for programmatic environmental impact assessments and insists that Congress and the General Accounting Office carefully examine the programs of the National Institutes of Health and the Departments of Defense, Energy, and Agriculture both individually and for their collective implications. "Congress and the GAO need to identify the pork, the overlap, the national and local dangers, and address the bigger question of whether the proposed construction of more than a dozen new (or upgraded) biodefense labs really serves America's domestic and international interests" argues Tara Dorabji of TriValley CAREs in Livermore, CA.

The coalition is currently working on biodefense lab and program expansions proposed at Lawrence Livermore National Laboratory in California, Los Alamos National Laboratory in New Mexico, Utah State University and Dugway Proving Ground in Utah, Rocky Mountain Laboratory in Montana, and the University of Texas in Galveston. Other new and upgraded BL3 and 4 labs are proposed in San Antonio and Lubbock, TX, Manhattan, KS, Albuquerque, NM, Davis, CA, Honolulu, HI, and Plum Island, NY. The National Institute of Allergy and Infectious Diseases (NIAID), part of NIH, is promising up to a dozen "Centers of Biodefense Excellence", each with BL3 and/or 4 capacity.

#### **Additional Information, Contacts, Quotes**

The coalition members are Citizen's Education Project (Salt Lake City, UT), Coalition for a Safe Lab (Hamilton, MT), Los Alamos Study Group (Santa Fe, NM), Nuclear Watch of New Mexico (Santa Fe), The Sunshine Project (Austin, TX), Tri-Valley CAREs (Livermore, CA) and Western States Legal Foundation (Oakland, CA). Members cite a range of concerns and evidence in support of their demands, including:



### **Domestic Threat**

The FBI's investigation of last fall's anthrax letters has determined that the attack was perpetrated with a US biodefense anthrax strain, and suggests that the author of the attacks was a biodefense insider with hands-on training courtesy of the federal government. Under current plans, thousands of new people will gain access to bioweapons agents and knowledge of their preparation and use. How is the government making sure that it isn't sowing the seeds of domestic terrorism?

### **Manipulation of the Facts**

In California, Lawrence Livermore National Laboratory (LLNL) wants a new biodefense lab smack dab in the middle of a major nuclear weapons design facility, and right next door to a bioreactor (fermenter) facility potentially capable of producing agents on a massive scale. These issues were brushed aside in the lab's draft environmental impact assessment. LLNL claims it needs the new facility because it has insufficient access to similar labs nearby and because the Department of Energy has no BL3 capacity. "LLNL is manipulating the truth to its convenience," says Tara Dorabji of Livermore-based Tri-Valley CAREs, "First, LLNL's environmental assessment fails to give due consideration to the civilian-mission BL3 facilities already in existence. Second, LLNL conveniently ignores the fact that DOE also wants to build a BL3 facility at the Los Alamos Lab in New Mexico. And, finally, new information has surfaced showing LLNL involvement in a proposal to build BL4 and BL3 labs in nearby Davis, California."

### **Opaque Proposals**

In Utah, the US Army's Dugway Proving Ground wants a 200% increase in its biodefense activity, including BL3 lab upgrades and another aerosol chamber, a very controversial piece of testing equipment with many potential offensive uses. The Army has produced a huge draft environmental impact assessment (DEIS); but according to Steve Erickson of the Citizens Education Project in Salt Lake City, "The DEIS is 1000 pages long, but it's so vague that it's impossible to fairly assess what the Army wants to do. They want to conduct many more in-lab and open-air tests, but won't say with what and when or under what conditions until future plans and studies are completed and rubber-stamped by the brass. There is no independent oversight of this facility, and given its penchant for secrecy and its track record of exposing civilians and contaminating the environment with its biological, chemical, and radiological tests, Dugway can't be trusted with such blanket permission to expand programs and missions."

### **Poor Community Consultation**

In Hamilton, Montana, the National Institutes of Health (NIH) wants to build a new BL4 facility at Rocky Mountain Labs (RML). NIH originally proposed to begin building in February 2003 with only a brief environmental assessment and a two week public comment period. Hamilton's Coalition for a Safe Lab demanded more public participation and a more thorough review of the project. NIH relented and is now conducting an Environmental Impact Statement, which will delay groundbreaking. Then, RML put together a community outreach committee; but decided the meetings would be by invitation only. The Coalition protested again. At the last minute, RML opened the meetings to the public; but still required interested people to call ahead and advise the lab that they would like to attend.

Coalition for a Safe Lab organizer Mary Wulff, says, "When we arrived for their meeting we were welcomed with the news that we needed a security escort to use the restroom. The meeting was scheduled for 2 hours. During that time we listened to NIH talk about public relations with their community, children's programs, and bus rides across the NIH campus. Ten minutes were left for our twenty community 'leaders' to comment and ask questions. Several of them didn't comment at all. Our Coalition previously presented RML with a comprehensive list of questions, which they have not yet answered. RML's assistant director said at the meeting that they definitely will not be working with smallpox or Ebola; but conflicting information was given to a Coalition by RML's biosafety committee chairman. The chairman said that if the world situation changes then 'all bets are off'. It's unfair to thrust a national facility like this on a small community, especially in the absence of a comprehensive national review."

### **Ephemeral Promises?**

In Galveston, Texas, the University of Texas (UT) is building a new BL4 lab. UT claims good community

relations for the effort, which began before September 11th, 2001. UT held public meetings and in July 2001, dispelled criticism that the lab's work might be "secret or ominous" with the public declaration that "No classified research will be performed." In September 2002, the Austin-based Sunshine Project wrote the lab's Director to verify that the University of Texas stands by its no secrets pledge, and to request the lab's biosafety committee transparency rules. The BL4 that prides itself on community relations did not reply.

### **Dangerous Relationships with Weaponsmaking**

In New Mexico, a number of non-profit organizations are asking tough questions of Los Alamos National Laboratory (LANL), which wants to build a new BL3 facility. Greg Mello of Los Alamos Study Group in Santa Fe says "Does it really make sense to put a biodefense lab at the nation's largest facility for designing, testing, and producing weapons of mass destruction? Los Alamos has little conspicuous expertise in biology, but it does have a 60-year history of secrecy and compartmentalization devoted to weapons development. What is the rest of the world going to think? What should they think? Los Alamos is not inspectable. A decision to build a bioweapons 'defense' facility at such a place could cripple efforts to build a better nonproliferation regime for biological weapons."

New Mexico non-profits are fed up with LANL's dismal environmental and safety compliance. In August, Nuclear Watch of New Mexico filed suit in federal court, arguing that LANL and DOE have failed to take the hard look at their bioweapons research program that is required under federal law.

"We hope to compel DOE to undergo a Los Alamos-specific Environmental Impact Statement, and a Programmatic EIS for the Chemical and Biological National Security Program. If we are successful, this will greatly increase public scrutiny of DOE's program, and make it more difficult for the agency to continue to avoid environmental and public health issues," said Nuclear Watch's Colin King.

### **Misplaced Priorities**

The coalition sees overinvestment in high-tech facilities to handle pathogens as the wrong emphasis for protecting the public against biological agents – whether naturally-arising or intentionally introduced by terrorists. Dr. Robert M. Gould, President of the San Francisco Bay Area chapter of Physicians for Social Responsibility states "We need to develop a comprehensive, primary-prevention approach towards all forms of infectious disease, which means providing adequate resources to combat AIDS, antibiotic-resistant tuberculosis, as well as the rise in diseases such as malaria predicted to increase from global climate change. According to a UN report from 2000, \$10 billion a year would provide enough clean water and sanitation to cut by up to one third the 4 billion cases of diarrheal disease that kill 2 million people every year."

### **International Ramifications**

According to the coalition, the emphasis on labs doing work such as aerosol challenge tests, particularly by the Defense and Energy Departments, runs terrible risks of being misinterpreted by other countries and triggering a bioweapons research race, or even worse. Says Jackie Cabasso of Western States Legal Foundation in Oakland, CA: "With biological weapons, the line between offense and defense is exceedingly difficult to draw. In the end, secrecy is the greatest enemy of safety. Last year, the US single-handedly blew apart an international system for inspections of these kinds of laboratories, a system that would have made great strides toward ensuring that biodefense labs aren't abused for offensive purposes. Having thumbed our nose at the world, the US is now massively expanding its biodefense program, mostly in secretive facilities. Other countries are going to be suspicious. This bodes badly for the future of biological weapons control" ([Sunshine Project, 2002](#)).

**Title:** Smallpox Strike Called Unlikely  
**Date:** December 13, 2002  
**Source:** [UCLA](#)

**Abstract:** It's the ultimate fear in the post-9/11 era: Terrorists infect themselves with smallpox, then before the telltale pustules spread across their bodies, they spend a day at LAX — talking, coughing, touching chairs and counters, spreading contagion via travelers to every corner of the nation.

Other scenarios are just as terrifying: the unleashing of a smallpox bomb that sprays a city with the deadly virus, or the release of genetically engineered smallpox for which there is no protection.

President Bush's expected announcement today of a nationwide smallpox vaccination plan has pushed these visions of horror to the forefront of the public consciousness.

But as the government prepares for a possible smallpox attack, some experts say that such scenarios, while possible, are not likely.

**Smallpox is difficult to handle and experts believe its victims are contagious for no more than a day before the excruciating rash erupts — an obvious sign of infection that would immediately mark any carrier, said Clarence J. Peters, director of the Center of Biodefense at the University of Texas medical school in Galveston. Before the disease's infectious phase, a would-be bioterrorist would show debilitating flu-like symptoms, making it difficult to move around in public inconspicuously. Peters said the disease also must be spread by close contact — more than merely crossing paths with a carrier or brushing past the same ticket counter.**

The scientific and technological challenges of creating smallpox bombs or genetically altered smallpox agents also make those possibilities somewhat distant, said Jonathan Tucker, author of "Scourge: The Once and Future Threat of Smallpox." Advanced bioweapons would cost millions to develop, yet would be difficult to test for all but the most advanced nations because of the extreme danger.

**"It's still quite unlikely that smallpox would be used as a weapon," Tucker said.**

Smallpox was declared eradicated from the world in 1980. The only legal stocks of the virus that were not destroyed are small amounts held by the U.S. and Russia in highly secured labs. Today's fears stem from former Soviet scientists who manufactured and maintained tons of the virus in violation of international law. Some of those experts may have sold deadly samples.

**But even if terrorists obtain stocks of smallpox, suicidal efforts to provoke an epidemic would be easily prone to failure.**

### **Life of Virus**

Once a person is infected, the incubation period is seven to 17 days, followed by body aches, high fever and dizziness — and often severe abdominal pain and even delirium. Yet the person would not be contagious until the appearance of a rapidly spreading rash, according to a consensus of the nation's leading smallpox experts published in the *Journal of the American Medical Assn.* in 1999.

**"The guy is going to feel terrible; he is going to be walking around, not shedding virus until maybe the day before, or the day of the rash," Peters said. "He may be obviously ill, a fever, a flushed face and bumps on his face."**

**If the carrier survives, contagion lasts until the very noticeable scabs from smallpox pustules have completely healed, three weeks or more later.**

In a few cases, terrible outbreaks have been started by a single unwitting victim. For example, a Yugoslav Muslim contracted smallpox during a pilgrimage to Mecca in 1972, returned home and started an epidemic that eventually caused 150 cases, including dozens of deaths. In response, authorities imposed a massive quarantine and vaccinated millions.

**Yet such single-source episodes are the exception, because smallpox is more difficult to transmit than many other infectious diseases. New contacts must have direct contact with viral particles shed from pustules on the skin, or those coughed up from the mouth or throat. Once in the open environment, the virus wouldn't survive for long, experts say, except in cool, dry conditions.**

**This combination of factors has historically caused smallpox to spread more slowly than such childhood ailments as chickenpox. In general, smallpox victims pass the disease to family members or hospital workers, rather than casual contacts.** Even the Yugoslav carrier spread contagion almost exclusively to hospital workers.

Unlike the Yugoslav authorities who were caught by surprise with their nation's first smallpox episode in more than four decades, this country is on a high state of alert. The U.S. public health infrastructure is better equipped to rapidly respond to an outbreak, the vast majority of victims can be saved by taking the vaccine within three days of exposure and even as long as seven days after exposure, the vaccine can reduce the severity of the disease.

**A lone, infected terrorist, or a small group "could certainly do some damage," Peters said. "But he's not going to cruise through [John F.] Kennedy [International] Airport and leave hundreds of people infected behind him. This whole scenario that there's going to be massive spread by people that nobody notices is not realistic."**

## **Russian Weapons**

In contrast, a smallpox bomb or sprayer that floats the virus over a wide area would be much more likely to spark an epidemic, experts say. Such weapons were developed in Russia well into the 1990s.

"Unfortunately, I know of a number of examples about possible involvement of some Soviet and Russian scientists in collaboration with some countries like Iraq and Iran," said Ken Alibek, formerly a top scientist in the Soviet biological warfare program. He defected to the United States in 1992, and now directs a biodefense institute at George Mason University, in Manassas, Va.

Yet even with expert help, such weapons would be technically difficult to construct, said Peters, who formerly headed the Disease Assessment Division at the Army's primary biological defense lab at Ft. Detrick, Md.

The smallpox virus must be grown in living cells, typically within fertilized eggs, he said, then refined under precise conditions. A gooey mass of smallpox-laden egg protein must be turned into a liquid or ultra-fine powder. It then must be packaged in a bomb or other disseminator that can gently release the microscopic particles so they are not destroyed and float freely in the air, Peters said.

Even if terrorist groups could overcome the technical problems, there is still a powerful disincentive for them to pursue such a strategy since developing the weapons would pose an enormous risk of accidental release.

Such stumbling blocks helped fuel a debate about how widely to vaccinate the population beyond health-care workers, soldiers and public safety officials. President Bush ultimately decided to offer the vaccine to all Americans on a voluntary basis when sufficient licensed supplies are available.

"It comes down to a weighing of risks," Tucker said.

**A terrorism-related smallpox epidemic could be contained with relatively few deaths, he said, but may still provoke widespread panic. In a national vaccination campaign many thousands of people would certainly suffer serious side effects, and as many as several hundred could die. Yet society as a whole might accept that toll as a fair price for a sense of greater security.**

The most horrifying smallpox scenario — the development of an altered strain engineered to defeat the vaccine — gained currency last year. A team of Australian researchers spliced the gene for the human hormone interleukin-4, which affects immune response, into mousepox, a virus related to smallpox that cannot infect people. Their goal was innocent: They wanted to reduce mouse fertility.

Their result sent chills through the biodefense community. The experiment created a super mousepox strain that even killed mice that had been previously immunized.

Most experts accept the possibility that a genetically engineered, super smallpox virus can be created. But aside from the tremendous dangers of handling so deadly and incurable a microbe, other drawbacks make them doubt anyone would try.

"You can add genes to smallpox, but what we don't know is whether you are getting the effect you want," Peters said. "I could never be sure it was a decent [biological warfare] agent unless I tested it."

Testing on humans would be a monumental gamble. Because only people contract smallpox, the weapon's effectiveness could not be tested on animals.

Such concerns reflect a more general skepticism about the efficacy of medical defenses against bioterrorism. Many diseases beyond smallpox have been turned into weapons in the past, so a sophisticated attacker might avoid smallpox if the target population has been vaccinated, and instead use a weapon such as plague or anthrax. Vaccinating against every possible threat is next to impossible.

**"When you talk about biological terrorism, I would not spend even a penny on vaccines," Alibek said. "Protecting an entire population [in advance] against biological warfare is not feasible"** ([UCLA, 2002](#)).

**Title:** Scientists Say Bioterror Threat 'Exaggerated'

**Date:** January 29, 2003

**Source:** [Science Editor](#)

**Abstract:** Politicians and the media have greatly exaggerated the likely consequences of any use of biological or chemical weapons for terrorism, scientists said on Wednesday.

Even the most feared weapons, such as smallpox or nerve agents, would cause far fewer casualties than most people imagine, according to experts at a press briefing in London.

**John Oxford, professor of virology at Queen Mary's medical school, London, said: "The smallpox virus is an old plodder, not a sure-footed fast-moving virus like 'flu or measles."**

Prof Oxford, an expert on smallpox, said he did not recognise "the virus I know" in some scenarios presented, particularly in the US, in which a smallpox epidemic started by terrorists could end up killing millions of people.

**According to Prof Oxford, smallpox can be passed on from person to person only by close physical contact, not simply by being in the same room as someone who is infected, and the number of cases in historical outbreaks of the disease built up quite slowly.** And he said that people

who were vaccinated against smallpox before the disease was officially eradicated in the 1970s would still have residual immunity 30 or 40 years later.

Prof Oxford acknowledged that it was reasonable to take some precautions against bioterrorism, for example by building up stocks of smallpox vaccine, but added: "It would not take much to divert all of us [infectious disease specialists] into anthrax and smallpox, when we should be focusing on the great natural killers such as HIV, TB and influenza."

**Tom Inch, who chairs the UK chemical weapons convention advisory committee, told the meeting that if terrorists used a chemical agent in a confined space such as the London Underground, "some people would die but not a huge number - high explosives would be far more dangerous." Fear and panic would probably do more harm than a nerve agent or toxin such as ricin.**

The problem for terrorists, Dr Inch said, is that even the deadliest chemicals are extremely difficult to distribute in a way that causes mass casualties.

Steve Emmett, an expert on nerve agents at Oxford University who now works for Synaptica, a university spin-out company, agreed. **"It's easy to play up the risks and encourage panic," he said. "In fact the risks of mass poisoning [from any chemical agent] are very low"** ([Science Editor, 2003](#)).

**Title:** Fear Is Still The Thing To Fear

**Date:** March 6, 2003

**Source:** [UCLA](#)

**Abstract:** Dr. Kenneth Lightface is a highly respected specialist in infectious diseases who works out of Hoag Hospital in Newport Beach. He is also a good friend who -- with his wife, Louise -- had dinner in our home last week.

Because I never get far from my journalistic roots, I broke one of the cardinal rules that kicks in when a physician is a guest in your home. I talked shop. His shop.

I wanted to hear his expertise on the smallpox shots being pushed on a reluctant society by our government.

Did he plan to get one? No. Did he think it was a good idea for the rest of us? No. Did he think smallpox was a weapon that terrorists could use effectively against us? No. Actually the greater threat, he said, was the use we might make of it ourselves.

So we were off and running.

**The only way smallpox can be transmitted, he said, is by a person with the disease. There is no data on spreading it in any other way. Putting it into a missile and releasing it in the air, for example, is highly unlikely to be dangerous because the virus is extremely fragile.**

**So to use it as a weapon, the terrorists would almost certainly have to infect one of their agents and send him or her to this country. If he could pass the infection along to a handful of Americans, he might be able to start a mini-epidemic. But the barriers in his way are formidable. The most important is his appearance. When the disease surfaces, he will be an unsightly bed of sores. And the disease is communicable only when it is obvious. So to pass the disease along, he would first have to get into the country and then move among us while he was marked with multiple sores on his face and extremities, a scenario that reads like a bad "B" movie.**

**On the other hand, Litwack said, the wholesale inoculation of our citizens against smallpox carries much greater likelihood of danger than its use as a weapon by terrorists. And not from the**

**one or two in a million chance that the inoculation will kill the recipient or even the much greater chance that there may be severe side effects but rather because those who are vaccinated can unwittingly pass the vaccine virus along -- with possibly fatal results -- to others whose immune systems have been weakened for a multitude of reasons. Thus, in a bizarre sort of way, the terrorists might more likely achieve their goals through the protections we put up against them.**

I asked Litwack if most physicians shared this view, and -- if so -- why it hasn't been passed along strongly to the public? He said that anyone educated in medicine would understand these reservations and that a good many doctors have appeared on panel talk shows to say so.

The problem, he said, is that these voices are drowned out by the party line -- centered in government health agencies -- that smallpox shots are an important weapon against terrorists rather than an expensive and counterproductive insurance policy against an exceedingly remote danger.

What about the other so-called "biological weapons of mass destruction?" Do they need to be better understood by the lay public?

**He said there are six possible biological weapons. In addition to smallpox, he named anthrax, botulism, plague, viral hemorrhagic fever and tularemia.**

**"It would take great expertise to weaponize any of these substances," he said, "and they would be extremely difficult to deliver. They would also be detected quickly if they ever were delivered. The system is in place for a quick response if an unusual case appears, and we would have plenty of time to immunize the victims.**

"Smallpox is in a class apart," he continued, "because there is no immunization for these other threatened substances. Nor is there an immunization for fear. 'Biological weapons for mass destruction' are buzz words that strike fear. We should respond to fear with accurate information."

Franklin Roosevelt, when he told America the only thing it had to fear was fear itself, made the same point. He was right.

Roosevelt assuaged our fears and dealt to our strengths. The present leaders of this country feed our fears and deal to our vulnerabilities.

Bio-terrorism clearly isn't the only threat to our homeland. Chemical weapons -- particularly nerve gas and nuclear devices -- also threaten us. But they also need to be dealt with intelligently and not with emotional buzz words.

Their availability, accuracy, method of delivery, pattern and degree of destruction, and modes of defense need to be understood -- as much as possible free of bias -- as far as the information is accessible. A good place to start is the Web site of the Centers for Disease Control at [www.bt.cdc.gov](http://www.bt.cdc.gov).

It has become clear that our own government is not going to provide information that doesn't support immediate policy needs. So we have to dig it out ourselves. Fear has become a potent player on the war team. Information is an antidote for fear with a great deal more effectiveness than smallpox shots.

Ken Litwack is an expert in a field where disseminating accurate information is a considerable public service. To deal with the chaos in which we all find ourselves these days, we need to listen to cool and unbiased expertise wherever we can find it to provide the balance we need to keep our own heads straight. We're lucky he's in our neighborhood to help ([UCLA, 2003](#)).



**Title:** US Army Patents Biological Weapons Delivery System, Violates Bioweapons Convention

**Date:** May 8, 2003

**Source:** [Sunshine Project](#)

**Abstract:** The United States Army has developed and patented a new grenade that it says can be used to wage biowarfare. This is in violation of the Biological Weapons Convention, which explicitly prohibits development of bioweapons delivery devices.

[US Patent #6,523,478](#), granted on February 25th 2003, covers a "*rifle launched non lethal cargo dispenser*" that is designed to deliver aerosols, including – according to the patent's claims - "*crowd control agents, biological agents, [and] chemical agents...*"

The development of biological weapons delivery devices is absolutely prohibited - "*in any circumstance*" - by Article I of the 1972 Biological and Toxin Weapons Convention, to which the US is a party. There is no exemption from this prohibition, neither for defensive purposes nor for so called non-lethal agents.

*"The development of weapons for biological payloads produces great uncertainty about the US commitment to the Biological Weapons Convention."* says Edward Hammond of the Sunshine Project US, *"Thirty four years after the US renunciation of biological weapons, the Pentagon is back in the bioweapons business."*

*"Hans Blix might have an easier time finding illegal weapons if he were inspecting near Baltimore instead of Baghdad,"* says biologist Jan van Aken from the Sunshine Project Germany, referring to the fact that two of the inventors work at the Army's Edgewood Arsenal north of Baltimore, Maryland. Other inventors work at an engineering firm in Orlando, Florida, where the US Special Forces operate from MacDill Air Force Base.

This grenade is yet another indication of prohibited biological and chemical weapons development projects in the US. It stands in a row with an illegal chemical weapons program focusing on so called non-lethal agents (see below), uncovered last September by the Sunshine Project, with research activities on material degrading microorganisms by the US armed forces (see below), and with a range of questionable biodefense activities that may well suit offensive purposes (see *New York Times*, 4 September 2001) ([Sunshine Project, 2003](#)).

**Title:** Ricin Breeding And Production Projects At Texas Tech University Raise Questions

**Date:** October 23, 2003

**Source:** [Sunshine Project](#)

**Abstract:** Since the mid-1990s, researchers at Texas Tech University (TTU) in Lubbock have conducted several projects to produce ricin, a toxin found in the seeds of the castor bean plant. Ricin is deadly in very small quantities and is subject to tight restrictions under both the Chemical and the Biological Weapons Conventions. At TTU, agriculture researchers bred castor to create high-ricin yielding plants specifically adapted for toxin production. TTU chemical engineers also built a machine to extract the highly potent toxin. The peaceful biomedical demand for ricin is extremely limited, and TTU's efforts far outstrip it in many aspects. TTU's public explanation of all its ricin projects is required. The activities are of particular concern because of TTU's quiet but intense involvement in Pentagon biodefense programs.

### **The Breeding Project**

TTU's castor breeding project, which began in 1995, has two aims - producing a variety of castor with low ricin content, and one with high content. A low ricin variety, called "TTU-LRC", is the one that the University likes to talk about. But the project also aimed to create a castor variety specifically adapted for ricin production, with the characteristics of being machine-harvestable, having high toxin content, and a low level of *Ricinus communis* agglutinin (RCA). RCA is a product of the seed that is harmful; but that is

difficult to separate from ricin. By breeding for lowered RCA and the other characteristics, TTU sought a new variety of castor fine-tuned for manufacturing ricin.

### **The Ricin Extraction Unit**

Parallel to the castor breeding effort, beginning in 1996, TTU's chemical engineering department designed and built a machine to automate the process of extracting purified ricin from seeds grown on the university's 2 acre (.81 hectare) experimental castor plot. According to recent statements by TTU, this machine ran test batches of 'denatured' castor beans that did not contain ricin; but was never used to actually produce toxin. Like the castor breeding, the construction of this machine has been justified by TTU with the explanation that ricin might be used in pharmaceutical products. Yet there are no approved pharmaceutical uses of the toxin. Medical experiments have utilized very small quantities of ricin for years; but no viable products have resulted. And biomedical researchers are able to produce the tiny quantities of ricin that they need on-site - without a castor field, without a ricin 'extraction unit', and without any need to produce, store, and ship large quantities of toxin.

### **Scale & Purpose**

In many countries, castor is grown for its oil, which has many uses. In commercial castor production, ricin is a dangerous nuisance, and it is systematically eliminated from the oil and byproducts. TTU efforts work in the opposite direction - they relate to producing the toxin at a scale for which there is absolutely no legitimate use. A small plot of many existing types of castor will produce many times more toxin than is needed for legitimate biomedical purposes. With TTU's ricin extraction technology, even its small test plot is capable of producing enormous amounts of toxin. With normal harvests and farming practices, TTU's two acre (.81 hectare) plot, sown with an average ricin-level variety, can yield in excess of 150 kilograms of toxin if it is efficiently extracted. By way of comparison, the international terrorism scare prompted by last year's discovery of ricin in Europe was provoked by a few grams of the substance.

### **GMOs with Ricin**

TTU scientists also developed ways to move the genetic code for ricin from the castor bean into other plants, such as cotton. Comparatively little is publicly available about this research although a notice on TTU's website indicates that TTU has developed transgenic ricin technology that is for sale. According to the notice, ricin production can be limited to parts of the plant that are not typically harvested. In this particular area, TTU's work follows that of others - University of Florida researchers produced ricin in tobacco as early as 1994, and have followed with work to produce ricin in laboratory cell cultures.

### **Conclusion**

The effort at TTU to develop ways to produce and use ricin involved a coordinated effort across several academic departments and activities that, if conducted in many countries, the US would consider proof of a weapons program. While TTU is not the only university to experiment with transgenic ricin, the creation, much less release, of genetically-modified ricin-producing species is an extraordinarily bad idea. Either through accidents or abuse, such plants could result in widespread problems from ricin toxin. TTU's work to breed a ricin production variety of castor is completely unwarranted. Selection for ricin production characteristics should never have been performed, and the germplasm should not be released. TTU's construction of a ricin extraction unit in the absence of any legitimate demand for the weapons agent product was sheer folly.

Because TTU ricin activities relate to production of a toxin subject to severe restrictions under the Chemical and Biological Weapons Conventions, TTU should provide a detailed public explanation of all of its ricin projects. Ricin production has little to no reasonable peaceful application, but it could be appropriated for military purposes. So, TTU should wish to avoid suspicion by clarifying that its ricin production projects have no relationship to any Army, Air Force, or other Pentagon biodefense research that is being conducted at the University. TTU's explanation should account for all the castor and any toxin that TTU has produced and fully describe the present status of all TTU ricin-related projects, including any at its Health Science Center or other affiliated environmental and health institutions. It should fully explain TTU's motives in the ricin work and every application to which the knowledge, plants, equipment, and toxin that it has produced have been applied ([Sunshine Project, 2003](#)).

**Title:** Institute Responsible For Anthrax Accident In California, In Charge Of Safety And Security At Chicago Biodefense Laboratory

**Date:** June 22, 2004

**Source:** [Sunshine Project](#)

**Abstract: Non-Profit Watchdogs Renew Call for a Moratorium on Construction of Biodefense "Hot Zones"**

Southern Research Institute, the military biodefense contractor recently in the news for sending live anthrax to the Children's Hospital of Oakland (CA), is also in charge of safety and security for a major new \$30 million biodefense facility being built at the Department of Energy's Argonne National Laboratory near Chicago.

The new Ricketts Regional Biocontainment Laboratory is funded by the National Institute of Allergy and Infectious Disease (NIAID) and is named after Howard T. Ricketts, a celebrated pathologist who acquired typhus in the course of research and died at age 39. It will begin biodefense work with studies of anthrax (Ames strain) and *Yersinia pestis*, the causative agent of plague.

Southern Research Institute, with major labs of its own in Frederick, Maryland and Birmingham, Alabama, has a \$75 million annual budget including biodefense contracts from an impressive roster of Pentagon agencies. Its Frederick, Maryland facility is located near the Army's biological weapons research headquarters at Fort Detrick, yet despite its biodefense prominence, Southern Research in Frederick does not maintain an institutional biosafety committee that complies with federal research rules. (And Southern Research in Birmingham has not honored requests for records of its institutional biosafety committee.)

"Southern Research's incompetence is plain to see. Its own house is in dangerous disarray and does not comply with federal research rules," said Edward Hammond, Director of the Sunshine Project. "That threat is bad enough; but even after leaking anthrax, the institute is still developing biosafety and operating procedures for new high containment labs."

According to a national coalition of biodefense watchdogs, formed in 2002 to monitor the US biodefense program, the Southern Research situation epitomizes their concern that biodefense laboratories are proliferating unsafely and with unsound planning, and that this could result in health, environment, and international security problems.

The watchdogs also point to Southern Research's links to classified biodefense research. (Southern Research's facilities and personnel have "secret" clearance.) "Public interest groups seeking information about military biodefense programs are being stonewalled by the Army and other agencies," says Steve Erickson of Citizen's Education Project in Salt Lake City, which monitors the Army's Dugway Proving Ground. "That Southern Research and other secretive military contractors are also insinuating themselves into civilian biodefense programs is cause for concern that we are witnessing a steady erosion of openness and accountability, not only at Pentagon labs; but at academic institutions and in work funded by the National Institutes of Health."

Two other Department of Energy (DOE) labs that design and develop the nation's nuclear weapons are also building new biosafety level three biodefense facilities. Both Lawrence Livermore and Los Alamos Labs have been sued by local community groups under the National Environmental Policy Act (NEPA). Inga Olson, Program Director at Tri-Valley CAREs, one of the groups that sued DOE, warns "Biodefense dollars are flowing like champagne at a wedding - into everywhere from nuclear weapons labs to children's hospitals - everyone wants a piece of the action. But a far more sober look is needed at whether the rapid spread of labs, pathogens, and bioweapons knowledge poses a greater threat than the problem we are trying to solve."

"After all," says Mary Wulff of Citizens for a Safe Lab in Hamilton, Montana (where NIH is building a new biosafety level four facility), "the Bush administration continues to rely on fear generated by the anthrax attacks and shaky allegations against other countries, like Iraq, to push billions and billions through Congress. Instead of an informed national discussion, the government's actions are based on fear and unsound information. The importance of reigning in knee-jerk reactions is underscored by the nearly tragic exposure of workers at Children's Hospital in Oakland, California."

The national coalition of nonprofit groups is calling for a moratorium on new biodefense labs until comprehensive national assessment is conducted, and transparency guarantees in place, and a binding and open federal system exists to review dual-use research with biological weapons agents ([Sunshine Project, 2004](#)).

**Title:** Has Biodefense Gone Overboard?

**Date:** February 28, 2005

**Source:** [Science Mag](#)

**Abstract:** The vast program to defend the U.S. from bioterrorism is hurting basic microbiology and could eventually undermine public health, according to an open letter signed by more than 750 microbiologists. The letter--scheduled to be sent to Elias Zerhouni director of the National Institutes of Health (NIH) this week--calls the billions spent on potential bioterror agents like plague and anthrax a "misdirection of NIH priorities" and asks Zerhouni to "take corrective action".

Biodefense research exploded after the 9/11 terror attacks and the subsequent anthrax letters; the annual budget of the National Institute for Allergy and Infectious Diseases (NIAID) went up by some 47% in 2003 and now includes \$1.7 billion for biodefense. Rutgers University microbiologist Richard Ebright, who took the initiative for the open letter, claims that the bonanza has coincided with waning support for nonbiodefense related science. The number of grants issued in two NIH 'study sections'-- Microbial Physiology and Genetics, and Bacteriology and Mycology--has fallen from 1117 between 1996 and 2000 to 746 since then, a drop of 33%. In the same period, the number of grants for six bacterial diseases that are on the priority bioweapons list but extremely rare in humans--tularemia, anthrax, plague, glanders, melioidosis, and brucellosis--shot up from 33 to 497.

Not only is less money going to research on bacteria that cause thousands of infections each year, the protesters say, but fundamental research on model agents such as *Escherichia coli*, *Bacillus subtilis*, and *Salmonella* is also in decline. Such basic work has led to vast advances in knowledge, paving the way for new antibiotics, says Stanley Falkow of Stanford University, who also signed the letter.

But NIH officials say the numbers cited in the letter are misleading. Biodefense research spending has come on top of existing budgets, says NIAID director Anthony Fauci, and nonbiodefense microbiology has fared no worse than NIH-supported research in general. NIAID's analysis of nonbiodefense bacterial physiology grants since 2000--defined more broadly and not limited to two study sections--finds awards have been stable, Fauci says, hovering between about 120 and 150 per year since 2000. "I wish those who signed [the letter] would take a careful look at the data," says Fauci. Moreover, studying biodefense agents is yielding valuable insights that will help fight other, more common diseases as well, Fauci adds.

Mark Wheelis, a biological arms control specialist at the University of California, Davis, says he's delighted to see the discussions unfurl. By and large, the three-and-a-half years since 9/11 have passed without an informed debate about exactly what's threatening the U.S. population and how much should be invested to avert those dangers. "This letter finally opens the debate," he says ([Science Mag, 2005](#)).

**Title:** U.S. Germ-Research Policy Is Protested By 758 Scientists

**Date:** March 1, 2005

**Source:** [New York Times](#)

**Abstract:** More than 700 scientists sent a petition on Monday to the director of the National Institutes of

Health protesting what they said was the shift of tens of millions of dollars in federal research money since 2001 away from pathogens that cause major public health problems to obscure germs the government fears might be used in a bioterrorist attack.

The scientists, including two Nobel Prize winners and a biologist who is to receive the National Medal of Science from President Bush in March, say grants for research on the bacteria that cause anthrax and five other diseases that are rare or nonexistent in the United States have increased fifteenfold since 2001. Over the same period, grants to study bacteria not associated with bioterrorism, including those causing diseases like tuberculosis and syphilis, have decreased 27 percent, the petition said.

The letter, which has been circulated among scientists for several weeks, was sent on Monday to Dr. Elias Zerhouni, the director of the institutes, and was posted on the Web site of the magazine Science.

"The diversion of research funds from projects of high public-health importance to projects of high biodefense but low public-health importance represents a misdirection of N.I.H. priorities and a crisis for N.I.H.-supported microbiologist research," the letter said.

The letter was signed by 758 scientists who have received grants from the institutes or have served on panels helping to distribute them in the fields of bacteriology and mycology, the study of fungi.

Scientists specializing in viruses were not asked to sign because their grants are handled separately, but some virologists have expressed interest in organizing a similar petition, said Richard H. Ebright, a molecular biologist at Rutgers University who was the primary organizer of the petition.

"A majority of the nation's top microbiologists - the very group that the Bush administration is counting on to carry out its biodefense research agenda - dispute the premises and implementation of the biodefense spending," Dr. Ebright said in an interview.

Dr. Zerhouni declined through a spokesman to comment on the letter. But Dr. Anthony S. Fauci, the director of National Institute of Allergy and Infectious Diseases, which controls about 95 percent of the institutes' biodefense research spending, said the petition's signers were mistaken on several points.

Dr. Fauci said the \$1.5 billion a year the administration decided to spend on biodefense research starting in 2003 was new money and was not taken from existing N.I.H. programs. Moreover, he said, much of the biodefense research should also help protect against natural emerging disease threats.

For example, he said, research centers around the country that his institute has designated for biodefense financing will also work on the possibility of an influenza pandemic, which he acknowledged is a greater threat today than bioterrorism.

"The United States through its leaders made the decision that this money was going to be spent on biodefense," Dr. Fauci said. If the institutes had not taken the money, it would have been spent by the Defense Department or the Department of Homeland Security for similar purposes, but without the influence of scientists through the traditional grant-reviewing mechanism of the institutes, Dr. Fauci said.

But signers of the petition insisted that the government was making poor trade-offs. "These projects obviously take money away from basic research in the United States," said Sidney Altman, a molecular biologist at Yale who won the Nobel Prize in Chemistry in 1989. He said that while a risk of bioterrorist attack existed, he considered it "a very minor factor" among all the threats faced by the nation. "There's no question that microbiology has suffered" by the focus on obscure organisms, Dr. Altman said.

The other Nobel laureate who signed is Arthur Kornberg, a biochemist at Stanford who won the medicine prize in 1959.

Charles Yanofsky, a biologist at Stanford set to receive the National Medal of Science on March 15, said in a statement that he had signed because he feared the current biodefense spending "will sacrifice progress by well-established investigators who are contributing to our overall understanding that is benefiting mankind in medical as well as many other areas."

Some scientists said they had signed because the institutes used a heavy hand in directing the money to six pathogens: those causing anthrax, tularemia, plague, glanders, melioidosis and brucellosis ([New York Times, 2005](#)).

**Title:** Disease By Design: 1918 "Spanish" Flu Resurrection Creates Major Safety And Security Risks

**Date:** October 5, 2005

**Source:** [Sunshine Project](#)

**Abstract:** The resurrection of 1918 influenza has plunged the world closer to a flu pandemic and to a biodefense race scarcely separable from an offensive one, according to the Sunshine Project, a biological weapons watchdog.

*"There was no compelling reason to recreate 1918 flu and plenty of good reasons not to. Instead of a dead bug, now there are live 1918 flu types in several places, with more such strains sure to come in more places," says Sunshine Project Director Edward Hammond, "The US government has done a great misdeed by endorsing and encouraging the deliberate creation of extremely dangerous new viruses. The 1918 experiments will be replicated and adapted, and the ability to perform them will proliferate, meaning that the possibility of man-made disaster, either accidental or deliberate, has risen for the entire world."*

The 1918 experiments are part of the US biodefense program and are of no practical value in responding to outbreaks of "bird flu" (H5N1). The 1918 virus is a different type (H1N1) of influenza than "bird flu". 1918 flu is more than eighty five years old and no longer exists in nature, posing no natural threat. While it is reasonable to determine the genetic sequence of 1918 and other extinct influenza strains, there is no valid reason to recreate the virulent virus, as the risks far outweigh the benefits.

But the most significant story isn't Tumpey, Taubenberger, and colleagues. It is the Centers for Disease Control's (CDC) attitude about the experiments and its implications. *"The biggest news about resurrecting 1918 flu is the US government's enthusiastic embrace of designer disease and the impact that it will have on our future," says Hammond, "By encouraging genetic riffs on influenza and other viruses with the explicit intent of building more dangerous pathogens, CDC is fueling the gathering dangers of competition to discover the worst possibilities of biotechnology applied to bioweapons agents. Some might do it just to keep up with the Americans, resulting in a further blurring of defense and offense and heightening the biological mistrust evident in US foreign policy."*

In addition to the potentially broad damage to international security and cooperation in the biological sciences if novel diseases continue to be created, the 1918 experiments heighten the chance that a flu lab will be the source of the next pandemic.

CDC says that it plans to keep its vials of 1918 flu under close guard in one place. But that's a red herring according to the Sunshine Project. Influenza with as many as five 1918 flu genes, and which are potentially pandemic, have already been handled at labs in at least four places other than CDC, including labs in Athens, GA, Winnipeg, MB (Canada), Seattle, WA, and Madison, WI. With the exception of the Canadian lab, none of these facilities has maximum (BSL-4) biological containment, and it is a virtual certainty that more labs will begin 1918 flu work now.

In fact, the only possible source of a new 1918 influenza outbreak is a laboratory. The situation of the 1918 flu is not dissimilar to SARS, whose natural transmission is believed to have been halted. The experience with SARS accidents is chilling: It has escaped three different labs to date. A 1918 influenza escape would be very likely to take a higher human toll. The US biodefense program has also had a



number of lab accidents since 2002, including mishandling of anthrax and plague and laboratory-acquired infections of tularemia. In Russia, a researcher contracted ebola and died last year.

Importantly, human error and equipment failures aren't the only ways for a disease agent to escape a lab - something vividly illustrated by the anthrax letters in the US four years ago. Unlike anthrax, however, 1918 influenza would transmit from human to human.

*"We are no safer from a pandemic today than yesterday. In fact, we're in greater danger, not only from influenza; but from the failure of the US to come to grips with and address the threats posed by the research it sponsors, in terms of legislation, ethics, and self-restraint."* concludes Hammond ([Sunshine Project, 2005](#)).

**Title:** Experts: Chemical Terrorism Not Likely to Work

**Date:** November 2, 2005

**Source:** [Fox News](#)

**Abstract:** After the warehouse raid in northern Jordan, the word from authorities horrified the people of Amman.

Terrorists linked to Al Qaeda had assembled a fearsome array of chemicals and planned a bombing that would send a 2-mile-wide "poison cloud" over this Middle Eastern capital, killing as many as 80,000 people, military prosecutors said.

Usama bin Laden's foot soldiers had finally concocted a weapon of mass destruction.

A year later, in the hard light of scientific scrutiny, that sinister scenario looks more fictional than factual.

"Eighty thousand! That would have been like Hiroshima. And that was an atomic bomb," says Samih Khreis, one of the alleged plotters' lawyers.

The defense attorneys aren't alone in scoffing at the "WMD" claim. International experts checking the suspects' supposed list of chemicals — from the industrial compound ammonium to the explosive nitroglycerin — say either the defendants or the Jordanian authorities, or both, had little inkling about the makings of a chemical weapon.

The compounds "may generate some toxic byproducts, but they're unlikely to result in significant deaths by poisoning," said Ron G. Manley of Britain, a former senior U.N. adviser on chemical weapons.

The poison cloud of Amman is one more dubious episode in the story of the terrorist quest for doomsday arms, a dark vision that has become an axiom of today's counterterrorist strategy.

Four years into the "global war on terror," half the Americans surveyed this summer said they worry "a lot" about the possibility of such a WMD attack, according to the U.S. polling firm [Public Agenda](#).

Concerns emerged in the 1990s when the Soviet Union's collapse left nuclear and other arms vulnerable to theft. Worries grew as "recipes" for mass-casualty weapons flashed around the Internet.

In 1998, Al Qaeda leader bin Laden told Time magazine that acquiring such arms to defend Muslims "is a religious duty." Three years later in Afghanistan, the U.S. military found Al Qaeda documents, crude equipment and other evidence of chemical and biological experimentation.

Al Qaeda's intent is clear, says a key U.S. intelligence analyst.



"The intent is there and you can see it in the 'fatwas' justifying the use" of WMD, Donald Van Duyn of the FBI's Counterterrorism Division said in a Washington interview.

One fatwa, or Muslim religious decree, issued by radical Saudi cleric Nasser al-Fahd in 2003 at bin Laden's request, "authorized" the use of ultimate weapons "if the infidels can be repelled from the Muslims only by using such weapons."

"It may be only a matter of time before Al Qaeda or another group attempts to use chemical, biological, radiological or nuclear weapons," CIA Director Porter Goss advised U.S. senators earlier this year.

Amid all the warnings, boasts and chilling tales, however, the daunting difficulties of fielding such weapons usually go unmentioned — along with Al Qaeda's glaring lack of expertise and stable home base, the unreliability of Internet "formulas," and the progress made worldwide in locking down the raw materials of the most destructive arms.

Amman's is one of many stories of exaggerated threats or ill-conceived plans. Others include:

— British police last year arrested eight people on suspicion of plotting a bombing that would spread osmium tetroxide, a dangerous corrosive compound. But this volatile chemical would have burned up in any explosion, scientists say.

— The long-jailed Jose Padilla, an American Al Qaeda member accused of planning a radioactive "dirty bomb" in the United States, is said by U.S. officials to have hoped to use uranium. But uranium has low radioactivity, and would have had no more impact than lead in a bomb, scientists note.

— Eight Algerian and Libyan defendants accused of "conspiracy to manufacture chemical weapons" were freed in London last April after authorities acknowledged tests showed a substance found in one of their apartments was not highly lethal ricin, as earlier alleged. The plant extract, effective as a poison dealt to individuals, was long ago dismissed by military arms-makers as an impractical mass-casualty weapon.

— American WMD specialists in Iraq reported that insurgents there last year recruited a Baghdad chemist to make the blistering agent mustard gas, a chemical weapon developed in World War I. They said he had the right ingredients, but he couldn't produce the compound.

The only known terrorist use of a chemical weapon occurred in 1995 in the Tokyo subway system, when Aum Shinrikyo cult members punctured plastic bags of sarin, unleashing nerve-agent vapor that felled thousands of commuters.

The cult, including scientists, is believed to have spent millions of dollars on the demanding, dangerous production process, but came up with only impure sarin. It killed 12 people — hardly a mass-fatality terror attack, specialists point out.

**"Regardless of what people say, this is very difficult to do, to inflict mass casualties with chemical or biological weapons," said Jonathan Tucker, an authority on unconventional arms with California's [Monterey Institute of International Studies](#). "One really needs large quantities."**

Oregon toxicologist Dr. Robert Hendrickson calculates that terrorists would need 1,900 pounds of sarin — more than 200 gallons — to kill half the people in a typical open-air baseball stadium. So much liquid, with dispersal devices, would be extremely difficult to conceal and to produce, probably taking 10 years in a basement-sized operation, experts say.

Thousands of tons of sarin and VX nerve agent already exist, in old U.S., Russian and other military arsenals. But those weapons' potency has degraded and they're being destroyed under the 1997 treaty

banning them. Security around the storage sites has been tightened since the Sept. 11, 2001, U.S. terror attacks.

If true chemical weapons prove beyond their reach, experts say, terrorists may turn to far less lethal but more available pesticides and caustic compounds. Large amounts of sulfuric acid, the "battery acid" for sale at \$2 a gallon on the Internet, were among the Jordanian group's chemicals.

"Terrorists are opportunistic," Tucker said of that group's motley collection. "They apparently figured it would produce some toxic mess that would do some harm."

The prime target in Amman was Jordan's General Intelligence Department, prosecutors said. Defense attorneys said the men admit planning a bombing, but their cache didn't include ammonium, potassium nitrate and some other compounds mentioned by prosecutors.

A televised "confession" to a chemical plot by alleged bombmaker Azmi al-Jayousi was coerced, said lawyer Khreis, who contended Jordan's U.S.-aligned government was exaggerating the threat because "they want approval of people in the street and of Parliament for their antiterror actions."

Military prosecutors, who wouldn't discuss the case on the record, claim a toxic cloud killed rabbits in the desert in a test explosion of the purported chemical cache. A Jordanian army chemical expert recently testified, however, that only considerable expertise and equipment could produce a mass killer from the mix.

"A chemical bomb needs a qualified chemist," Khreis said. "Al-Jayousi has a 6th-grade education."

Some analysts say the facts of chemistry may mean little in the end for those who want to terrorize populations, as long as the word "chemical" is heard on air or seen in headlines.

"One needs only to look at the adjectives used by the media to describe chemicals to understand why the general public is frightened: toxic, killer, lethal, deadly," said Hendrickson, of [Oregon Health and Science University](#).

Whether Internet "recipes" work or not, said the FBI's Van Duyn, "I'm not sure they need to be very effective" ([Fox News, 2005](#)).

**Title:** US House Votes To Advance Offensive Biological Weapons Plan

**Date:** March 15, 2006

**Source:** [Sunshine Project](#)

**Abstract:** In an titanic fit of myopia, the US House of Representatives has passed a bill that advances a US plan to wage biological warfare against Colombia and other countries where illicit narcotics are produced. If passed by the US Senate, the bill (HR 2829) will require the US Drug Czar to quickly formulate a plan to field test biological weapons designed to eradicate illicit crops.

The Biological Weapons Convention (BWC) prohibits all biological warfare, including attacks on crops. The BWC has no exemptions - not for the Drug War, nor for the US Congress. The US eradication project thus violates the BWC's Article I, which prohibits development and stockpiling of biological weapons.

The Sunshine Project will call upon the BWC to prevent violation of the treaty by the United States. In April, the Sunshine Project will distribute an Agent Green dossier to governments attending a preparatory meeting for the BWC's upcoming 6th Review Conference. If the US bill is signed into law, the Sunshine Project will press for multilateral action by the BWC 6th Review Conference itself, when it meets in November.

Opposition in South America, the primary target of the plan, spans the political spectrum. When first confronted by US biowarfare pressure in 1999-2000, the Colombian government decided against testing and use of biological agents to eradicate illicit crops. Other Andean countries also oppose the plan, as do many environmental and peace NGOs. So do indigenous peoples who grow coca for cultural purposes unrelated to the drug trade, a constituency that includes Evo Morales, the recently-elected President of Bolivia.

Speaking to the Colombian daily *El Tiempo* on Monday, former Colombian President Andrés Pastrana, now Bogotá's Ambassador in Washington, emphatically reiterated Colombia's opposition to the plan, telling the paper, "*During my government we opposed it. And Colombia's position, now under President Álvaro Uribe, has not changed.*"

The main biological weapons agents under US consideration are strains of the fungus *Fusarium oxysporum* that attack coca and other illicit crops. With its serious human health and environmental risks, *F. oxysporum* has been dubbed "Agent Green" by civil society opponents, who liken it to the defoliant Agent Orange that was used by the US in Vietnam. In the US conception, huge amounts of specially-formulated *Fusarium* would be sprayed from large military aircraft to blanket large portions of Colombia and, potentially, other countries.

The HR 2829 provision does not specifically mention Colombia or *Fusarium*, although it does specify that the testing plan should be for a "*major drug producing nation*". This opens the possibility that the tests could be conducted elsewhere, such as Central Asia, where the US has supported development of biological weapons for use against opium poppy. Given past events, however, the bill's language is widely interpreted to refer to Colombia.

The Sunshine Project hopes that the US Senate will catch this egregious mistake and that the provision will be struck from any related bill that it considers. With US fear about a biological weapons attack and spending on biodefense both at unprecedented levels, it is difficult to envision a more unwise US policy than for it to field test biological weapons and to seek to perpetrate a biological attack on other countries ([Sunshine Project, 2006](#)).

**Title:** [Bedfellows At The Biosecurity Board](#)

**Date:** October 30, 2006

**Source:** [Sunshine Project](#)

**Abstract:** How US science's *nouveau riche* bioweapons constituency is flexing its muscle to carve up safety and security rules.

Karl Rove would probably be impressed by the brand of government "oversight" being developed by the [National Science Advisory Board on Biosecurity](#) (NSABB). Like a Bush administration investigation of itself, on last Wednesday (October 25th) an NSABB working group moved to creatively thwart its charge. Although it was formed to recommend biosecurity rules to govern the new field of synthetic biology, the working group will instead assault regulation of a wide range of biodefense and biotech risks.

The working group's outlook is more political than technical. Its science is a veneer that disguises the maturing political muscle of a constituency of bioscientists that has become accustomed, perhaps addicted, to lavish federal biodefense funding. This constituency is challenging the regulations that apply to it and has allied itself with those seeking to block effective regulation of the emerging field of synthetic biology. As such, it will pose a major long-term obstacle bringing under control the wild proliferation of dangerous biodefense research in the US.

**The working group's politics deftly unite two distinct scientific camps** under the same banner. One camp is synthetic biology, a burgeoning, dangerous science that currently is an unregulated Wild West free-for-all, a condition that many practitioners believe is desirable. The working group also tapped a deep

vein of discontent among its other camp, infectious disease researchers. Specifically, the researchers that receive biodefense handouts; but who resent being required to comply with the Select Agent Rule, a law designed to protect the public from bioterrorism.

In biodefense, the synthetic biologists (who use DNA like building blocks) and the infectious disease bug jockeys (who work with full-blown dangerous microbes) usually don't get along very well. The synthetic crowd scoffs at the bug jockey's focus on vaccines and pills for specific microbes, dubbing the narrow approach a "Maginot Line" after the inflexible border defenses that failed to protect France from German invasion in 1940. Genetic tweaks and new bugs, the synthetic biologists say, can outflank these countermeasures. A subtext, of course, is that synthetic biologists think they should get a bigger piece of the biodefense pork pie from the federal budget.

The bug jockeys, on the other hand, argue that the synthetic guys are a bunch of nerdy engineers whose science of using genes like tinker toys is young and unproven. The bug jockeys claim that they can deliver here and now, whereas the synthetic folks are still in scientific diapers, working out basic principles of their discipline. Perhaps interesting down the road, the bug jockeys say, but what counts is the present. (Neither group questions the wisdom of the government bankrolling tens of billions of dollars in biodefense research at hundreds of places across the country.)

**What unites these two quarrelling factions?** Apart from the fact that their science is potentially dangerous, the two share an appetite for tax dollars and a disdain for federal security rules. The latter point has led to an NSABB marriage of convenience: The synthetic biologists want to shake pressure for new regulation while the bug jockeys want to assassinate the existing Select Agent Rule, enabling both to do as they please with less "interference" from Uncle Sam.

Thus was born a politico-scientific Coalition of the Willing that aims to invade federal rulemaking to take down what they perceive as a threat: biosecurity legislation designed to protect the public. By hijacking the NSABB, they are on well on their way to Mission Accomplished. And because the current political leadership of the US holds itself to its own unique (nonbinding) standards and sees little reason to reign in dual-use research for safety, security, or treaty compliance reasons, the NSABB working group probably won't have to waterboard anybody in the US government - unless there are radical changes in officialdom.

**The specifics of the working group recommendations?** They include unusual and dubious arguments about taxonomy, gene sequences, and law. These have far broader implications than the working group apparently paused to contemplate. More on that later.

From an unsurprising "finding" that microbial taxonomy systems are imperfect, the working group leaps to the illogical conclusion that this is justification to eviscerate government regulation of (but not cash handouts for) research with biological weapons agents. That's quite a jump. Considering the recommendations carefully, however, it is clear that the working group's intellectual shortcomings - its recommendations don't logically follow from its findings - stem from an attempt to paper over the distinctions between the need for synthetic biology regulation and the need for the select agent rule.

Synthetic biology may be new; but challenges to taxonomic conventional wisdom are not. Evolution happens. Genes turn up in new places, by the hand of man and through the many ways that biodiversity moves itself. The novel possibilities of synthetic biology are thus not without precedent in nature, in the sense that taxonomy is always encountering the difficult-to-classify and is currently incapable of fully describing naturally occurring diversity.

No matter what is cooked up in a synthetic biology lab, that doesn't change the fact that there are diseases out there that can kill you. Scientists know what most of them are, and can reasonably define them. Hence the need for the Select Agent Rule is unaltered by the powers to manipulate, even create, dangerous forms of life (and nucleic acids) that is possibly offered by synthetic biology.

**But don't tell the NSABB working group, because that would get in the way of its political agenda.**

That the working group's logic doesn't parse is unsurprising in view of the fact its science is merely a pretext to table a pre-emptive attack on regulation of synthetic biology and the extant Select Agent Rule. For good measure, the working group adds a pork barrel recommendation to loosen controls on smallpox virus and DNA that suffers from the same logical flaws as the other recommendations.

And, in an easy to overlook item, the working group suggests that biosafety of synthetic DNA can be handled by the failed genetic engineering oversight system known as the NIH Guidelines, designed three decades ago and declining ever since. It's another failure of the logic to parse. The synthetic biologists literally argue that their science antiquates biodefense before it like the Nazi blitzkrieg through Belgium outmoded the Maginot Line. But then they go on to reason that, for biosafety, the scientific equivalent of the Treaty of Versailles (NIH Guidelines) is sufficient to keep the peace!

**In the long run, this quagmire of faulty scientific-legal verbiage won't stop the real risks of biodefense proliferation.** It would take an intelligence failure of a very different type than Iraq in order for NSABB to be allowed to thwart its charge and debilitate proper federal oversight of dual-use research. But that may be exactly what NSABB does. Certainly that's the way that its working group on synthetic biology is heading. And if it is an indicator of how biodefense researchers, a sort of bioscience nouveau riche, intend to flex their political muscle, then we may be in for many more dangerous years before the wild excesses of the biodefense boom are brought under control ([Sunshine Project, 2006](#)).

**Title:** 113 Universities, VA Hospitals, And Pharmaceutical Houses Charged With Refusing To Reveal Biotech Research Ops As Required By Law

**Date:** January 8, 2007

**Source:** [Infowars](#)

**Abstract:** Some 113 university, government, hospital and corporate laboratories engaged in research often with potential to be used for germ warfare have refused to disclose their operations to the public as required by Federal rules, a nonprofit watchdog agency has charged.

Instead of shutting their operations down, however, the National Institutes of Health(NIH), of Bethesda, Md., the government agency tasked with oversight of these laboratories, allows them to continue to operate, a peculiar stance for an entity that describes itself as "the steward of medical and behavioral research for the Nation."

From California to New Jersey and from Boston to San Antonio, often in the heart of major centers of population, biological warfare labs lavishly financed with their share of about \$20-billion by the Bush administration since 2001 are literally crawling with deadly germs from Spanish flu to plague to anthrax to tularemia to rift valley fever. Reportedly, in some of the laboratories security is lax and safety procedures inadequate to protect the public from exposure to deadly pathogens.

Under U.S. law, recipients of Federal funds for biotech research must comply with guidelines issued by the NIH. These include making available to the public the minutes of the labs' Institutional Biosafety Committees(IBC) meetings, describing their operations and plans. In a number of instances, these IBC's have never bothered to hold a meeting. In other cases, the minutes they furnish are devoid of substance.

Basically, their operations in many cases are being kept secret, according to watchdog Sunshine Project of Austin, Tex., a nonprofit that attempts to protect the public from the risks of biotechnology experiments. The 1972 Biological Weapons Convention(BWC), which the US signed, prohibits research on offensive biological weapons. If the work is performed in secret, however, weapons designed for offensive use could be concealed. In the 1930s, the Japanese military masked its secret germ warfare scheme as a water purification project.

As the government-funded labs engage in "dual-use research," (pathogen research having both offensive

and defensive applications), Sunshine's Edward Hammond reports he "has encountered grave problems with the system." These include "risky experiments approved with dubious safety precautions and/or inadequate IBC review, dysfunctional and otherwise noncompliant committees, and other types of biosafety problems."

Francis Boyle, an international legal expert at the University of Illinois, Champaign, puts it more bluntly. He called the in-house university committees "a joke and a fraud" that provide "no protection to anyone." Boyle, who drafted the Biological Weapons Anti-Terrorism Act of 1989 enacted by Congress, states the Pentagon "is now gearing up to fight and 'win' biological warfare" pursuant to two Bush national strategy directives adopted "without public knowledge and review" in 2002.

Last November 7th, Hammond lodged a complaint with Dr. Amy Patterson, director of the Office of Biotechnology Activities at NIH, citing 113 institutions "for non-compliance with the NIH Guidelines," specifically for refusing to honor requests for IBC meeting minutes.

"Honoring these requests is not only mandatory under the NIH Guidelines that you are charged with enforcing (but) transparency is also a moral duty of institutions that conduct research, such as rDNA and select agent work that could endanger the public," Hammond added. He wrote Patterson, "Failing prompt compliance by these institutions we note that your office must do its duty under NIH Guidelines and terminate funding."

NIH's Dr. Patterson apparently had troubles of her own obtaining information from labs on the Federal payroll. On Dec. 6, 2004, she issued a "reminder" to universities engaged in research that stated "compliance with the NIH Guidelines is critical to the safe conduct of research and to the fulfillment of an institutional commitment to the protection of staff, the environment, and public health."

Since 9/11, biotech houses, military laboratories, and State and private universities across America, and others sited in Canada, Australia, and South Africa, have collectively lapped up record sums in Federal R&D dollars.

How big is this enterprise? At just one venue, the Southwest Foundation for Biomedical Research(SFBR) in San Antonio, Tex., there are 6,000 caged chimpanzees, baboons, and other primates, Sunshine reports, whose upkeep alone costs U.S. taxpayers \$6-million annually. SFBR genetically engineers monkeys and harbors some of the world's most dangerous viruses such as Ebola and Lassa, authorities state.

Again, the Battelle National Biodefense Institute(BNBI) of Columbus, Ohio, has just received a \$250-million, five-year award from the Department of Homeland Security to run the new biodefense analysis center under construction at Fort Detrick, Md., according to The Washington Post of December 25, 2006. Earlier, on July 30th of last year, The Post reported much of what transpires at the center may never be publicly known as the Bush administration "intends to operate the facility largely in secret."

Battelle also does not maintain an effective IBC, Sunshine charges. "Some of the research falls within what many arms-control experts say is a legal gray zone, skirting the edges of an international treaty outlawing the production of even small amounts of biological weapons," The Post reported. "The administration dismisses these concerns, however, insisting that the work...is purely defensive and thus fully legal. It has rejected calls for oversight by independent observers outside the (Homeland Security) Department's network of government scientists and contractors."

The paper quoted Milton Leitenberg, a weapons expert at the University of Maryland stating, "If we saw others doing this kind of research, we would view it as an infringement of the bioweapons treaty. You can't go around the world yelling about Iranian and North Korean programs ---about which we know very little ---when we've got all this going on."

The Post reported the operation would encompass about 160,000 gross square feet of working area and accommodate a staff of about 120. The Post noted, "Fort Detrick's history as the incubator of germ

warfare research casts a long shadow over the new lab. When the fort held the Pentagon's very highly classified and long abandoned biological warfare program, it was a magnet for antiwar protests in the Vietnam War era." In such labs, scientists can create new strains of disease for which those attacked would have no ready defense. Such weapons, once loosed, are notoriously difficult to control, and could ignite epidemics to sicken and terrify civilian populations.

Hammond believes there are about 400 bioweapons agents labs across the U.S., some of which encounter unexpected difficulty when they try to comply with the law.

David Perlin, president of the Public Health Research Institute(PHRI) of Newark, N.J., told Sunshine the FBI requested PHRI to enter into an agreement with them to "not publicly disclose which specific select agent pathogens and/or strains are stored at our facility."

Those who tend to dismiss NIH's laxity about enforcing its own regulations have only to recall the October, 2001, anthrax attacks on Congress and the media. The deadly strain released is believed to have come from a U.S. germ warfare lab at Fort Detrick although there is no certainty as the FBI has never solved the murders. Since then, the vast proliferation of such labs by the Bush administration has educated many new employees --- in some cases undergraduate students --- in germ warfare ops. Four employees at Fort Detrick are known to have died after performing lab work. Lack of transparency is cause for concern if only because of the history of secret CIA and Pentagon experiments in germ warfare that used the American people as guinea pigs. In "Rogue State," (Common Courage Press) reporter William Blum noted those agencies over two decades "conducted tests in the open air in the United States, exposing millions of Americans to large clouds of possibly dangerous bacteria and chemical particles."

Between 1949 and 1969, the Army tested the spread of dangerous chemical and bacterial organisms over 239 U.S. populated areas including San Francisco, New York and Chicago with no warnings to the public or regard for the health consequences, Blum wrote. The Pentagon even sprayed navy warships to test the impact of germ warfare on U.S. sailors. Even deadlier cocktails were secretly provided to dictator Saddam Hussein for his war of aggression against Iran. Washington denied supplying them but as Robert Fisk reported in Great Britain's "The Independent" last December 31st, "prior to 1985 and afterwards, US companies had sent government-approved shipments of biological agents to Iraq," including anthrax. Fisk gives this eye-witness account of what he saw on a military hospital train carrying stricken men from the front back to Tehran:

"I found hundreds of Iranian soldiers coughing blood and mucus from their lungs --- the very carriages stank so much of gas that I had to open the windows--- and their arms and faces were covered with boils. Later, new bubbles of skin appeared on top of their original boils. Many were fearfully burnt. These same gases were later used on the Kurds of Halabja."

Thus, the Reagan administration, which escalated germ warfare research and allowed the sale of the pathogens to Hussein, took its place in the dark annals of military history along with Italy under Benito Mussolini, whose aviators dumped mustard gas on the Ethiopians and Japan under Emperor Hirohito, whose Imperial Army's germ warfare attacks killed thousands of Chinese civilians.

Because of their comparative cheapness to manufacture, biological weapons have been dubbed "the poor man's nuclear bomb." Yet their potential may be even deadlier.

Jeremy Rifkin, author of "The Biotech Century"(Penguin), noted a government study in 1993 found "the release of just 200 pounds of anthrax spores from a plane over Washington DC could kill as many as three-million people."

The secret operations of the labs' would be less ominous if the Bush administration hadn't led the fight to demolish the international inspection system. Jackie Cabasso, executive director of Western States Legal Foundation, Oakland, Calif., warned, "Last year (2001), the U.S. single-handedly blew apart an international system for inspections of these kinds of (biological) laboratories, a system that would have



made great strides toward ensuring that biodefense labs aren't abused for offensive purposes. Having thumbed our nose at the world, the US is now massively expanding its biodefense program, mostly in secretive facilities."

According to Boyle, President Bush "sabotaged the Verification Protocol for the BWC" as it was on the verge of conclusion and success. He said the U.S. "fully intended to get back into the research, development and testing of illegal and criminal offensive biowarfare programs."

Boyle is the author of "Biowarfare and Terrorism," Clarity Press. And Elisa Harris, former arms control official under President Clinton, told The New York Times in 2003 "It (the administration's actions) will raise concerns in other capitals in part because the United States has fought tooth and nail to prevent the international community from strengthening the germ treaty."

Among pharmaceutical houses not in compliance with NIH disclosure requirements are Abbott Laboratories of Abbott Park and Worcester, Agencourt Bioscience Corp.; Antibody Science, Inc.; BASF Plant Science, Bristol-Myers Squibb and its Pharmaceutical Research Institute of Connecticut; Centocor, Inc.; Chiron; Discovery Genomics Inc.; DuPont Central Research and Development; Embrex, Inc.; Genentech, Inc., Genzyme Corp. of Cambridge and Framingham, Mass.; GlaxoSmithKline, Merck & Co., Inc. and its Rahway, N.J., research site; Integral Molecular; Introgen Therapeutics; L2 Diagnostics LLC; Merck & Co. Inc., West Point; Merck Research Laboratories, Rahway, N.J.; Meridian Bioscience Inc.; Monsanto Co. Mystic, Conn., research; New Link Genetics; NovaFlora, Inc.; NovoBiotic Pharmaceuticals; OSI Pharmaceuticals; Pfizer Inc., and Pfizer Pharmaceuticals of St. Louis, Roche Bioscience, Schering-Plough Research Institute; SelectX Pharmaceuticals; Serono Research Institution; Third Wave Technologies; and Vaxin, Inc. Federal entities involved include the Center for Disease Control, the Walter Reed Army Medical Center, VA hospitals in Stratton, Va.; the Jerry Pettis Memorial hospital and the VA Pittsburgh Healthcare System. Also, the Idaho National Laboratory, Lawrence Livermore National Laboratory, the Oak Ridge National Laboratory, Plum Island Animal Disease Center of the U.S. Department of Homeland Security, the U.S. Department of Agriculture, and Walter Reed Army Institute of Research and Navy Medical Research Center.

Other fund recipients include AERAS Global TB Vaccine Foundation, Battelle, CBR Institute for Biomedical Research, Inc.; Children's Hospital Oakland Research Institute, Children's National Medical Center, Cincinnati Children's Hospital Medical Center, Columbus Children's Research Institute, Hadassah Medical Organization, Lovelace Respiratory Research Institute, Memorial Sloan-Kettering Cancer Center, Mystic Aquarium & Institute for Exploration, and Scripps Clinic.

Among universities in non-compliance: Alabama A&M, Albany Medical College, Ball State, Brigham Young, Bucknell, Central Michigan, Drexel College of Medicine, Hackensack University Medical Center, Hunter College, Indiana State University, Purdue University, Loma Linda, Missouri State, New York Medical College, and Queens College of City University of New York. Also, Rider, Rockefeller University, Rosalind Franklin University of Medicine and Science, South Dakota State University, St. John's University, State University of New York at Binghamton, Brockport, and Buffalo; Towson, Robert Wood Johnson Medical School(UMDNJ), and University Medical Center of Southern Nevada. Also, the universities of Arizona, California at San Francisco, Maryland, Massachusetts, Miami, Fla.; Mississippi; Puerto Rico, Rhode Island, Southern Mississippi, Texas at Arlington and San Antonio, Tulsa, Utah State, Wake Forest, Washington University in St. Louis, Western Kentucky and Wilkes.

Foreign institutions include the University of Sydney, Australia; the University of British Columbia, and University of Witwatersrand, Johannesburg, South Africa. This listing covers most, but not all, of the names submitted to NIH by the Sunshine Project. Three years ago, Sunshine said if it had to pick the labs with the worst biosafety record-keeping, he would choose Princeton University, the University of Texas Southwestern at Dallas; the University of Vermont at Burlington and the University of Delaware at Newark.

Sunshine's Hammond said there has yet to be any formal response to his letter of last November from NIH. He added, "I doubt I will ever get one."

The NIH was asked to respond to the charges contained in this article but has yet not done so.

In sum, the costliest, most grandiose research scheme ever attempted having germ warfare capability is going forward today under President Bush and in apparent defiance of international treaties such as the Geneva Convention of 1925 that bans biological agents. What's more, where once the use of germ warfare was an isolated happenstance -- such as when an English general in 1767 gave smallpox-laced blankets to the Indians that decimated their tribes -- research in this grim area today suggests it has been elevated to an instrument of national policy. And this program, involving some of the world's deadliest and most loathsome pathogens, many of which could trigger plagues and epidemics, is being conducted largely in secret without adequate oversight and in flagrant contempt of NIH's own rules. Why? ([Infowars, 2007](#)).

**Title:** Engineering Warfare: A Close Look At Biological And Chemical Warfare

**Date:** February 20, 2008

**Source:** [Natural News](#)

**Abstract:** In this article, we will take a closer look at biological and chemical warfare from a global perspective as well as the use of pesticides and insecticides and how they helped pioneer these deadly toxins used in modern warfare and bio-terrorism as we know it today. I want to discuss the different types of diseases and viruses that are commonly used and researched today and of the past. I also want to discuss what kind of chemical weapons are used in modern warfare. We shall take a quick look at the science of genetic modification and engineering to create a virus from scratch using the most rudimentary tactics and the diseases that pose the largest threat to man-kind.

There is a real danger to our generation and even more-so to up-and-coming generations as the populations grow exponentially and governments grow more and more powerful and look for ways to reduce population size and or keep the masses in line. These threats can be seen in scare tactics across the globe and I want to inform you on the validity of these different areas so you may better understand what very-near future may come.

Biological weapons (BW) deliver toxins and microorganisms, such as viruses and bacteria, so as to deliberately inflict disease among people, animals, and agriculture. Biological attacks can result in destruction of crops, temporarily discomforting a small community, killing large numbers of people, or other outcomes. Several differences set BWs apart from other weapons of mass destruction like nuclear and chemical weapons. The release of an agent is not immediately detectable. There are systems that detect biological agents, but most have a delay between acquiring the agent and identifying it. The effects of an attack also are not immediately detectable. People may become exposed to an agent soon after its release, but the infection requires time to cause illness (the incubation period). Thus, one of the first indicators of a BW attack could be disease outbreaks. The effect of Biological Weapons, disease, can continue after its release. If a transmissible agent, such as the smallpox or Ebola virus, infects a person at the site of its release, that person could travel and spread the agent to others. This would result in secondary infections at areas far from initial release and unprepared for the disease.

Biological weapons have been a problem for society ever since their first recorded use in the sixth century B.C. According to the U.S. government, the earliest recorded uses of biological weapons goes back to the ancient Assyrians and the ancient Greeks, who used medicinal herbs to wreak havoc before the Christian era began. Another early adopter was the Mongol horde, which threw plague-infested corpses over the walls of a Crimean fortress they happened to be besieging in the 14th century. This was perhaps history's most devastating use of biological warfare, seeing as it may have caused the Great Plague in addition to very effectively wiping out its target.

Biological weapons have a long history of use. In 1346, the invading Tartar army catapulted the bodies of plague victims into the Crimean Peninsula city of Kaffa and infected its citizens. Granted, there's a limit to the effective delivery of plague corpses, especially in the age of intercontinental ballistic missiles. In 1763,

British troops under General Jeffrey Amherst gave the Delaware Indians blankets used by people with smallpox, possibly infecting the susceptible native population. Japan contaminated food and released plague-infected ticks during their conflict with China during World War II. The 2001 anthrax letter attacks in the United States infected 22 people and killed five.

As you can see, the use of biological weapons has occurred sporadically for centuries, culminating in sophisticated research and testing programs run by several countries. Biological weapons proliferation is a serious problem that is increasing the probability of a serious bioterrorism incident. The accidental release of anthrax from a military testing facility in the former Soviet Union in 1979 and Iraq's admission in 1995 to having quantities of anthrax, Botulinum toxin, and aflatoxin ready to use as weapons have clearly shown that research in the offensive use of biological agents continued, despite the 1972 Biological Weapons Convention. Of the seven countries listed by the U.S. Department of State as sponsoring international terrorism, at least five are suspected to have biological warfare programs. There is no evidence at this time, however, that any state has provided biological weapons expertise to a terrorist organization.

A wide range of groups or individuals might use biological agents as instruments of terror. At the most dangerous end of the spectrum are large organizations that are well-funded and possibly state-supported. They would be expected to cause the greatest harm because of their access to scientific expertise, biological agents, and most importantly, dissemination technology, including the capability to produce refined dry agent, deliverable in milled particles of the proper size for aerosol dissemination. The Aum Shinrikyo in Japan is an example of a well-financed organization that was attempting to develop biological weapons capability. However, they were not successful in their multiple attempts to release anthrax and Botulinum toxin. On this end of the spectrum, the list of biological agents available to cause mass casualties is small and would probably include one of the classic biological agents. The probability of occurrence is low; however, the consequences of a possible successful attack are serious.

The North Atlantic Treaty Organization handbook dealing with biological warfare defense lists 39 agents, including bacteria, viruses, rickettsiae, and toxins, that could be used as biological weapons. Examining the relationship between aerosol infectivity and toxicity versus quantity of agent illustrates the requirements for producing equivalent effects and narrows the spectrum of possible agents that could be used to cause large numbers of casualties. For example, the amount of agent needed to cover a 100-km<sup>2</sup> area and cause 50% lethality is 8 metric tons for even a "highly toxic" toxin such as ricin versus only kilogram quantities of anthrax needed to achieve the same coverage. Thus, deploying an agent such as ricin over a wide area, although possible, becomes impractical from a logistics standpoint, even for a well-funded organization.

The potential impact on a city can be estimated by looking at the effectiveness of an aerosol in producing downwind casualties. The World Health Organization in 1970 modeled the results of a hypothetical dissemination of 50 kg of agent along a 2-km line upwind of a large population center. Anthrax and tularemia are predicted to cause the highest number of dead and incapacitated, as well as the greatest downwind spread. A government study estimated that about 200 pounds of anthrax released upwind of Washington, D.C., could kill up to 3 million people. Here is a list of all of the recognized Biological Weapons.

## **Traditional biological warfare agents and agents associated with biocrimes and bioterrorism**

### **Pathogens**

1. *Bacillus anthracis*
2. *Ascaris suum*
3. *Brucella suis*
4. *Bacillus anthracis*
5. *Coxiella burnetii*
6. *Francisella tularensis*
7. *Giardia lamblia*

8. Smallpox
9. HIV
10. Viral encephalitides
11. Rickettsia prowazekii
12. Viral hemorrhagic feversb(typhus)
13. Yersinia pestisb
14. Salmonella Typhimurium
15. Salmonella typhi
16. Shigella species
17. Schistosoma species
18. Vibrio cholerae
19. Viral hemorrhagic
20. Fevers (Ebola)b
21. Yellow fever virus
22. Yersinia enterocolitica
23. Yersinia pestisb

### **Toxins**

1. Botulinumb
2. Ricinb
3. Cholera endotoxin
4. Staphylococcal enterotoxin B
5. Diphtheria toxin
6. Nicotine
7. Ricinb
8. Snake toxin
9. Tetrodotoxin

### **Anti-Crop Agents**

1. Rice blast
2. Rye stem rust
3. Wheat stem rust

(Includes agents which were used, acquired, attempted to acquire, involved in a threat of use or an expressed interest in using. Reprinted with permission from Carus WS. Table 6: Biological agents involved. In: Carus WS. Bioterrorism and biocrimes: the illicit use of biological agents in the 20th Century. Working Paper, Center for Counterproliferation Research, National Defense University. August 1998, revised March 1999.)

### **Now We Need to Take a Look at Chemical Warfare**

A chemical agent is a substance which is intended for use in military operations to kill, seriously injure or incapacitate a person because of its physiological effects. This definition does not include riot control agents, herbicides, smoke or flame. When a chemical agent is used in a wartime situation, it is generally used to effect the ability of the enemy combatants to fight to be weakened either by slowing the combatant down with protective gear or through diminishing their health. Most chemical agents are not used with the strict intention to kill. There are three categories of chemical agents. There are Nerve Agents, Blister Agents and Choking Agents. The nerve agents are a group of particularly toxic chemical warfare agents. They were developed just before and during World War II and are related chemically to the organ phosphorus insecticides.

**The principle agents in this group are:**

1. GA - Tabun
2. GB - Sarin
3. GD - Soman
4. GF - Cyclosarin
5. VX - Methylphosphonothioic acid

The "G" agents tend to be non-persistent whereas the "V" agents are persistent. Some "G" agents may be thickened with various substances in order to increase their persistence, and therefore the total amount penetrating intact skin. At room temperature, GB is a comparatively volatile liquid and therefore non-persistent. GD is also significantly volatile, as is GA though to a lesser extent. VX is a relatively non-volatile liquid and therefore persistent. It is regarded as presenting little vapor hazard to people exposed to it. In the pure state, nerve agents are colorless and mobile liquids. In an impure state, nerve agents may be encountered as yellowish to brown liquids. Some nerve agents have a faint fruity odor.

GB and VX doses which are potentially life-threatening may be only slightly larger than those producing least effects. Death usually occurs within 15 minutes after absorption of a fatal VX dosage. Although only about half as toxic as GB by inhalation, GA in low concentrations is more irritating to the eyes than GB. Symptoms appear much more slowly from a skin dosage than from a respiratory dosage. Although skin absorption great enough to cause death may occur in 1 to 2 minutes, death may be delayed for 1 to 2 hours. Respiratory lethal dosages kill in 1 to 10 minutes, and liquid in the eye kills almost as rapidly.

Blister or vesicant agents are likely to be used both to produce casualties and to force opposing troops to wear full protective equipment thus degrading fighting efficiency, rather than to kill, although exposure to such agents can be fatal. Blister agents can be thickened in order to contaminate terrain, ships, aircraft, vehicles or equipment with a persistent hazard. Vesicants burn and blister the skin or any other part of the body they contact. They act on the eyes, mucous membranes, lungs, skin and blood-forming organs. They damage the respiratory tract when inhaled and cause vomiting and diarrhea when ingested.

#### **The Vesicant Agents Include:**

1. HD - Sulfur mustard, or yperite
2. HN - Nitrogen mustard
3. L - Lewisite (arsenical vesicants may be used in a mixture with HD)
4. CX - Phosgene (properties and effects are very different from other vesicants)

HD and HN are the most feared vesicants historically, because of their chemical stability, their persistency in the field, the insidious character of their effects by attacking skin as well as eyes and respiratory tract, and because no effective therapy is yet available for countering their effects. Since 1917, mustard has continued to worry military personnel with the many problems it poses in the fields of protection, decontamination and treatment. It should be noted that the ease with which mustard can be manufactured and its great possibilities for acting as a vapor would suggest that in a possible future chemical war, HD will be preferred to HN.

Due to their physical properties, mustards are very persistent in cold and temperate climates. It is possible to increase the persistency by dissolving them in non-volatile solvents. In this way thickened mustards are obtained that are very difficult to remove by decontaminating processes. Exposure to mustard is not always noticed immediately because of the latent and sign-free period that may occur after skin exposure. This may result in delayed decontamination or failure to decontaminate at all. Whatever means is used has to be efficient and quick acting. Within 2 minutes contact time, a drop of mustard on the skin can cause serious damage. Chemical inactivation using chlorination is effective against mustard and lewisite, less so against HN, and is ineffective against phosgene oxime.

**Chemical agents which attack lung tissue, primarily causing pulmonary edema, are classed as lung damaging agents. To this group belong:**

1. CG - Phosgene
2. DP - Diphosgene
3. Cl - Chlorine
4. PS – Chloropicrin

The toxic action of phosgene is typical of a certain group of lung damaging agents. Phosgene is the most dangerous member of this group and the only one considered likely to be used in the future. Phosgene was used for the first time in 1915, and it accounted for 80% of all chemical fatalities during World War I. Phosgene is a colorless gas under ordinary conditions of temperature and pressure. Its boiling point is 8.2°C, making it an extremely volatile and non-persistent agent. Its vapor density is 3.4 times that of air. It may therefore remain for long periods of time in trenches and other low lying areas. In low concentrations it has a smell resembling new mown hay. The outstanding feature of phosgene poisoning is massive pulmonary edema. With exposure to very high concentrations death may occur within several hours; in most fatal cases pulmonary edema reaches a maximum in 12 hours followed by death in 24-48 hours. If the casualty survives, resolution commences within 48 hours and, in the absence of complicating infection, there may be little or no residual damage.

During and immediately after exposure, there is likely to be coughing, choking, a feeling of tightness in the chest, nausea, and occasionally vomiting, headache and lachrymation. The presence or absence of these symptoms is of little value in immediate prognosis. Some patients with severe coughs fail to develop serious lung injury, while others with little sign of early respiratory tract irritation develop fatal pulmonary edema. A period follows during which abnormal chest signs are absent and the patient may be symptom-free. This interval commonly lasts 2 to 24 hours but may be shorter. It is terminated by the signs and symptoms of pulmonary edema. These begin with cough (occasionally substantially painful), dyspnea, rapid shallow breathing and cyanosis. Nausea and vomiting may appear.

As the edema progresses, discomfort, apprehension and dyspnea increase and frothy sputum develops. The patient may develop shock-like symptoms, with pale, clammy skin, low blood pressure and feeble, rapid heartbeat. During the acute phase, casualties may have minimal signs and symptoms and the prognosis should be guarded. Casualties may very rapidly develop severe pulmonary edema. If casualties survive more than 48 hours they usually recover.

Scientists have now assembled the first synthetic virus. The U.S. researchers built the infectious agent from scratch using the genome sequence for polio. Scientists are divided about whether a virus is alive. For those that think it is, then this synthetic artifact would constitute a simple form of life. Responding to criticisms that such research could lead to bioterrorists engineering new lethal viruses, the scientists behind the experiment said that only a few people had the knowledge to make it happen.

To construct the virus, the researchers say they followed a recipe they downloaded from the internet and used gene sequences from a mail-order supplier. Having constructed the virus, which appears to be identical to its natural counterpart, the researchers, from the University of New York at Stony Brook, injected it into mice to demonstrate that it was active. The animals were paralyzed and then died. The reason they did it was to prove that it can be done and it now is a reality. Dr. Eckard Wimmer is the leader of the biomedical research team and co-author of the study published in the journal Science. Dr. Wimmer stated this approach has been talked about, but people didn't take it seriously.

Now people have to take it seriously. Progress in biomedical research has its benefits and it has its down side. There is a danger inherent to progress in sciences. This is a new reality, a new consideration. The polio virus assembled in the laboratory is one of the simplest known viruses. It was very easy to do. The more dangerous smallpox virus would be complex and difficult to assemble. It would probably in the future be possible. Smallpox has been eradicated in the wild, but specimens are stored in the United States and in Russia. Assembling the polio virus showed that eradicating a virus in the wild might not

mean it was gone forever because biochemists could now reconstruct those viruses from blueprints.

Following the terrorist and anthrax-by-mail attacks, U.S. officials became concerned about the threat of smallpox and arranged for the manufacture of enough vaccine to protect the U.S. population. He added that it was possible that viruses like Ebola could be assembled in laboratories, but there were only a few people in the world with that skill. Polio is on the brink of being eradicated worldwide and there are plans to stop inoculations against the disease after it disappears from nature. Dr. Wimmer said that this policy should be reconsidered. Stopping vaccination could lead to a generation of people highly susceptible to polio, enhancing its appeal as a weapon. The World Health Organization is planning to stockpile vaccines against a return of polio and Dr. Wimmer said that policy should be followed everywhere.

Some say that the AIDS virus was engineered. There is a close connection between the rise of genetic engineering and mixing of viruses in the early 1970s and the outbreak of HIV in the late 1970s. This connection persists in the form of the many unprecedented "emerging diseases" caused by "new viruses" that continue up to the present time.

In 1970 the discovery of a cell enzyme, called "reverse transcriptase" by Howard Temin and David Baltimore, allowed molecular biologists to detect so-called retroviruses in some animal cancers. It was soon recognized that retroviruses could be found normally in the genes of many animal cells, and that scientists could manipulate these viruses to produce detrimental effects on the immune system. In "species jumping" laboratory experiments, many viruses were transferred between different animal species and were also adapted to human cells.

As part of President Richard Nixon's "War on Cancer," genetic engineering of viruses became an integral part of the now largely forgotten Special Virus Cancer Program, conducted under the auspices of the NCI. Nixon also transferred part of the Army's biological warfare unit at Fort Detrick, Maryland, over to the NCI, thereby allowing secret biowarfare experimentation to be carried out under cover of bona fide cancer research. All this virus transfer and molecular manipulation was a biologic disaster waiting to happen. This culminated in a historic conference entitled "Biohazards in Biological Research" held at Asilomar, near Pacific Grove in California in 1973. Despite the biologic dangers, it was decided to continue this research.

By the late-1970s the War against Cancer and the Virus Cancer Program proved a failure with no cancer-causing retroviruses found in humans. The Program was winding down in 1978, at the exact time when government scientists were also enrolling thousands of gay men in New York City to serve as guinea pigs in the hepatitis B experiment that took place that same year at the New York Blood Centre in Manhattan. In 1979 the first cases of AIDS in gay men were reported from Manhattan. Five years later, Gallo, who had worked for the Virus Cancer Program, "discovered" the retrovirus that causes AIDS; and Duesberg, who also worked for the Virus Cancer Program, continues to declare that HIV is harmless.

The earliest AIDS cases in America can be clearly traced back to the time period when the hepatitis B experiment began at the New York Blood Centre. The Centre began injecting gay men with multiple doses of the experimental vaccine in November 1978. The inoculations ended in October 1979, less than two years before the official start of the epidemic. Most importantly, the vaccine was developed in chimpanzees – the primate now thought to contain the "ancestor" virus of HIV. Also downplayed is the Centre's pre-AIDS connection to primate research in Africa and also to a primate centre in the New York City area. The final experimental vaccine was also made by Merck and the NIH from the pooled serum specimens of countless gay men who carried the hepatitis B virus in their blood.

The New York Blood Centre is the largest independent blood supplier and distributor in the USA. In 1970, Alfred M Prince, M.D., head of the New York Blood Centre Laboratory of Virology, began his hepatitis research with chimps housed at Laboratory for Experimental Medicine and Surgery in downstate Tuxedo, NY. Until disbanded in 1997, Laboratory for Experimental Medicine and Surgery supplied New York area scientists with primates and primate parts for transplantation and virus research.

Founded in 1965, Laboratory for Experimental Medicine and Surgery was affiliated with New York



University Medical Centre, where the first cases of AIDS-associated Kaposi's sarcoma were discovered in 1979. NYU Medical Centre researchers were also heavily involved in the development of the experimental hepatitis B vaccine, and the Centre received government grants and contracts connected with biological warfare research beginning in 1969, according to Dr. Leonard Horowitz, author of *Emerging Viruses: AIDS and Ebola* (1996).

In 1974 Prince, with the support of Aaron Kellner, President of the New York Blood Centre moved the chimp hepatitis research to a new primate centre called Vilab II in Robertsfield, Liberia, in Africa. Chimps were captured from various parts of West Africa and brought to VILAB. The lab also prides itself by releasing "rehabilitated" chimps back into the wild. One cannot help but wonder if some of the purported "ancestors" of HIV in the African bush have their origin in chimpanzees held in African primate labs for vaccine and medical experimentation.

The hepatitis B experiment, which inoculated over 1,000 healthy gay men, was a huge success with 96% of the men developing antibodies against the hepatitis virus. This high rate of success could not have been achieved if the men were immune suppressed, because immune suppressed people do not easily form antibodies to the vaccine. The experiment was followed by similar hepatitis B experiments using gay men in Los Angeles, San Francisco, Chicago, Denver and St. Louis, beginning in March 1980 and ending in October 1981, the same year the epidemic became official.

In the mid-1980s the many blood specimens donated by the gay Manhattan men during the experiment were retrospectively examined for HIV infection by researchers at the NYBC. It was determined that 6% of the specimens donated in-between 1978 - 1979 was positive for HIV. By 1984 (the end of the study period) over 40% of the men tested positive for HIV.

The final fate of all the men in the experiment has never been revealed. However, the blood donated by these men is the oldest HIV-positive blood tests on record in the United States. The full story of this experiment and its aftermath are contained in my two books on man-made AIDS: *AIDS and the Doctors of Death* (1988), and *Queer Blood* (1993). One fact is obvious: There was no AIDS in America until the exact year the government began experimenting with gay men.

The most dangerous disease known to man is actually one that has not received much attention aside from the scare earlier this decade. It is the Avian Influenza. This is an infection caused by avian (bird) influenza (flu) viruses. There are many different subtypes of type "A" influenza viruses. These subtypes differ because of changes in certain proteins on the surface of the influenza "A" virus (hem agglutinin [HA] and neuraminidase "NA" proteins). There are 16 known "HA" subtypes and 9 known NA subtypes of influenza "A" viruses. Many different combinations of "HA" and "NA" proteins are possible. Each combination represents a different subtype. All known subtypes of influenza "A" viruses can be found in birds.

Usually, "avian influenza virus" refers to influenza A viruses found chiefly in birds, but infections with these viruses can occur in humans. The risk from avian influenza is generally low to most people, because the viruses do not usually infect humans. However, confirmed cases of human infection from several subtypes of avian influenza infection have been reported since 1997. Most cases of avian influenza infection in humans have resulted from contact with infected poultry (e.g., domesticated chicken, ducks, and turkeys) or surfaces contaminated with secretion/excretions from infected birds. The spread of avian influenza viruses from one ill person to another has been reported very rarely, and has been limited, inefficient and unsustainable.

"Human influenza virus" usually refers to those subtypes that spread widely among humans. There are only three known A subtypes of influenza viruses (H1N1, H1N2, and H3N2) currently circulating among humans. It is likely that some genetic parts of current human influenza "A" viruses came from birds originally. Influenza "A" viruses are constantly changing, and they might adapt over time to infect and spread among humans. During an outbreak of avian influenza among poultry, there is a possible risk to people who have contact with infected birds or surfaces that have been contaminated with secretions or excretions from infected birds.

Symptoms of avian influenza in humans have ranged from typical human influenza-like symptoms (e.g., fever, cough, sore throat, and muscle aches) to eye infections, pneumonia, severe respiratory diseases (such as acute respiratory distress), and other severe and life-threatening complications. The symptoms of avian influenza may depend on which virus caused the infection. Studies done in laboratories suggest that some of the prescription medicines approved in the United States for human influenza viruses should work in treating avian influenza infection in humans. However, influenza viruses can become resistant to these drugs, so these medications may not always work. Additional studies are needed to demonstrate the effectiveness of these medicines.

There are many other threats out there like Severe Acute Respiratory Syndrome or SARS, the "Superbug" staph infection or sexually transmitted diseases. None of this may ever come to fruition, or we could all die tomorrow in a freak accident. This paper is not to incite panic but to merely inform of the potential dangers we are faced with today, whether engineered by the very governments that protect and serve or whether nature will battle us with bacteria's and viruses. The preemptive strike is knowledge ([Natural News, 2008](#)).

**Title:** Bioterror In Context

**Date:** May 19, 2008

**Source:** [Miller-McCune](#)

**Abstract:** How and why the threat of bioterrorism has been so greatly exaggerated. A Miller-McCune interview of UCLA's William R. Clark.

William R. Clark, professor and chair emeritus of immunology at the University of California, Los Angeles, has been a research scientist for 30 years and has written a string of books for the general public. His latest, [Bracing for Armageddon?](#), published by Oxford University Press in May, examines the science and politics of [bioterrorism](#) in the United States.

His conclusion: We shouldn't be so worried. Although the United States will have spent \$50 billion on defense against a bioterrorism attack by the end of 2008, Clark argues that we have much more to fear from natural pandemic outbreaks, such as the viruses causing [SARS](#) and [H5N1 avian flu](#). He reviews all the worst-case bioterror scenarios — from agricultural terrorism to poisoning the water supply; from genetically engineered pathogens to the Centers for Disease Control and Prevention's official list of bioterrorist weapons — and writes: "It is almost inconceivable that any terrorist organization we know of in the world today, foreign or domestic, could on their own develop, from scratch, a bioweapon capable of causing mass casualties on American soil."

[Clark](#) chronicles the few (failed) attempts at launching large-scale bioterror attacks, beginning with the [Rajneesh cult in Oregon](#), which slipped salmonella into salad bars in an attempt to influence a local election in 1984; the cult's efforts sickened more than 700 people but killed none. [The Aum Shinrikyo cult](#) in Japan earned worldwide headlines in 1995 for releasing sarin nerve gas into the Tokyo subway system, killing 12 people. But this was a chemical attack, and despite millions of dollars in funding and a staff of scientists, Aum Shinrikyo's several attempts at producing biological weapons, including the development of a relatively harmless anthrax strain normally used for animal vaccinations, produced no significant casualties. In the early 1990s, a militia group called the Minnesota Patriots Council made some ricin — a potent poison derived from castor beans — and stored it in a jar but never figured out how to use it. And the [2001 postal anthrax attacks](#) spurred the government to develop a host of expensive countermeasures that are, Clark writes, largely unnecessary. These include the creation of a [Strategic National Stockpile](#) of vaccines and antidotes; the CDC's "push packages," cargo containers weighing a total of 94 tons whose medicine contents are constantly replenished and ready to be shipped to an emergency site; [Project Bioshield](#), which funds research for new vaccines; and the [Biowatch](#) and [Biosense](#) programs, which are early-warning systems of sensors and laboratories in major U.S. cities.

*Miller-McCune* talked to Clark about his book and his rather reassuring overview of the bioterror threat.

**Miller-McCune:** You've written a lot of other books for a mass audience, but you haven't written one about bioterrorism before. What piqued your interest in the subject?

**William Clark:** I'd just finished updating my latest book on immunology for the general public, [In Defense of Self](#). I was thinking, "What could I throw in at the end of this that would make people more curious about immunology?" Well, for 48 to 72 hours after a bioterrorism attack, should one happen, the only thing standing between us and instant death is our immune system. So I thought, well, OK, how would the immune system handle these various different putative bioterrorism agents? So the last chapter in that book is about your immune system and these various agents.

**M-M:** When did you begin suspecting that our bioterrorism fears might be a tad exaggerated?

**Clark:** The more I looked into it, I thought, "Jeez, what are these guys talking about?" What are the odds that a terrorist group, no matter how well financed, would be able to create a bioterror weapon? I began looking into what it takes to really make a successful bioterrorism agent, and I just became very skeptical of this whole thing. The (United States) military gave up bioweapons 30 years ago. They're too undependable; they're too hard to use; they're too hard to make. Then I started checking around, and I found there's a whole literature out there of people who've been screaming for years that this whole bioterrorism thing is really overblown; it's not practical; it's never going to work. Aum Shinrikyo couldn't get it to work; those guys put millions and millions of dollars into it. So you think of a bunch of guys sitting in a cave in Afghanistan — they're sure as hell not going to do it. Is any government going to do it? No. So that made me very skeptical, and I went back to Oxford and said, "This whole thing's a crock." And they said, "But that's even more interesting!"

**M-M:** Thus the question mark at the end of the title, *Bracing for Armageddon?*

**Clark:** Yeah, exactly. Scientifically, it is a crock. And this really verges into the political, but we've spent \$50 billion on it. So Oxford paid for me to take a trip back East and talk to a bunch of these voices that haven't been heard and interview them.

**M-M:** How much research was involved?

**Clark:** A couple of years. The science is pretty straightforward on paper. The kind of an organization you'd have to put together, with the varying expertise that is required to make one of these things and deploy it, takes a whole group of people with all kinds of different skills, from engineers to meteorologists. That's just not going to happen. You can run an airplane into an office tower, and you get instant everything you could ever possibly hope for. So why would anybody sit around for years and years? The Aum Shinrikyo guys tried for six, seven years and couldn't get it to work. And a lot of them had Ph.D.s.

**M-M:** But you start the book with the [Dark Winter scenario](#), a simulated smallpox outbreak that was performed in June 2001 for 50 government officials at Andrews Air Force Base. This was an exercise staged by several prestigious institutes and government agencies, and it paints an awfully grim portrait of our ability to counter the outbreak, with 100,000 deaths forecast and 1.6 million people coming in contact with smallpox. Was that the scariest thing you stumbled across?

**Clark:** Absolutely. As soon as I read that, I said, "Sign me up, I'm going to join the Army." But then, following through on it, I saw the number of people out there who had been basically debunking it — at higher government levels, in scientific journals, think tanks, white papers — and the government just blew them off. I spent a whole year and a half backtracking on Dark Winter, and I realized this is an industry. There are about a dozen of these exercises or workshops, and they scare the crap out of politicians, who go to these things and realize how little they know. I mean, look, some good stuff has come out of it; there's no doubt about that. Public health has been upgraded; communications among people who would be managing an attack like that have been improved. But I think there's a hell of a lot more to worry about from an avian influenza pandemic, by a factor of 100 or so. They're very different situations. A

bioterrorism attack is something that happens in a specific locality and requires a certain response, whereas pandemics just spread all over the whole freakin' country.

**M-M:** Reading your book, it does make one wonder whether we're fighting the last war. In this day and age, it seems like we face a much bigger danger from chemical weapons ...

**Clark:** ... Or from planes being flown into towers. These (terrorists) want immediate impact on television. The Dark Winter scenario is pretty graphic television, but the smallpox vaccines that are on hand now make it unlikely. That Dark Winter scenario really stretched things, cherry-picking some of the worst-case scenarios. So many experts have torn that thing apart. The idea that each person infected would infect 20 to 30 other people — that's just not realistic. They'd be quarantined immediately.

**M-M:** So why create the Dark Winter scenario?

**Clark:** It's just an ego thing on the part of the scientific types involved. It's all a game: This is how you get grant money, and the more impact (the exercise) has, the more likely you'll get funding the following year. But I think they've kind of run through their prime. Now, people are moving on to influenza pandemic ideas. There's now a national plan — sort of like all the bioterror plans we came up with — for influenza pandemic. So they're putting the same kind of energy and scare tactics into that now and finally starting to dump some money into it. It might be taking over from bioterrorism.

**M-M:** You mention that you came in contact with scientists who have been screaming for years that this is all overblown. Why can't they be heard over the "industry" voices?

**Clark:** It's very clear that the current administration is just cherry-picking, and even (former President Bill) Clinton got on board with it. It's the same thing with Iraq: You've got all this information out there, and you take what you want according to your political-social leanings.

**M-M:** But it's a thorny problem for a politician who says there's nothing to worry about. One bioterror attack, and your credibility is shot. Politically, how do you think we're dealing with that issue?

**Clark:** I think attention is starting to be diverted into preparing for something like an avian flu pandemic. I also paint a pretty grim picture in the book of the [1918 influenza pandemic](#). If the 1918 influenza virus were unleashed again, it wouldn't be nearly as grim as it was in 1918. Medicine is much more efficient now. But whereas in 1918 something like 3 percent of infected people died, with avian influenza virus, of the 300 people that have gotten infected, 60 percent have died. So it could be as bad as the 1918 influenza pandemic just because the virus is 25 to 30 times more deadly.

**M-M:** But when you say in the book that it's very hard to imagine anyone doing this, in the popular imagination, they jump to the [ricin found in the Las Vegas hotel room](#) earlier this year, and they say, "If one guy is that far along, why couldn't a terrorist group pull off some kind of bioterror attack?"

**Clark:** It's a question of quantity and purity — and efficiency of delivery. It's not just having it on hand; it has to be pure. The stuff that those guys in the Minnesota Patriots Council made was 4 to 5 percent pure. It could have caused some health problems, but that's when you get into the question of biocrime versus bioterrorism. Is ricin something that terrorists would use? Maybe. But it's not a contagious agent; only the people who come into contact with it would die. Whether terrorists would find that more effective than a bomb, I don't know. The threat is not zero from bioterrorism. But these dark scenarios where 10 million people die are just not going to happen.

**M-M:** And I also wanted to go back to the 2001 anthrax attacks. With all that we still don't know about what exactly happened, what can we take away from that episode?

**Clark:** Again, whether that's bioterrorism or biocrime, we don't know. If you multiplied (the mailings) by a factor of a thousand, that could really have an impact. One of the things that's come from it is developing an anthrax vaccine. We don't have one yet, but we have (the antibiotic) [Cipro](#) in these push packages. You could get half a million doses of Cipro to any spot in the United States in less than 24 hours. But if people had anthrax for two or three days, then Cipro's not going to help them. You could prevent other people from getting it. It's not contagious from person to person. If they blew powder into a building, you could quarantine everyone and shut it down with Cipro.

**M-M:** Is there a consensus as to what person or group the scientific community thinks was responsible for the 2001 anthrax attacks?

**Clark:** There's no way al-Qaeda could have gotten their hands on it. It's got to be an American. And if it was al-Qaeda, why wouldn't they say so? And why wouldn't they have done more? What's the point of terrorism if you don't take credit? You want to intimidate people, cow them. If it was al-Qaeda, they would have said so.

**M-M:** So is the danger of a rogue U.S. scientist one of the more frightening scenarios?

**Clark:** Yes, but it's like a [Timothy McVeigh](#) thing. You're going to have domestic terrorists. We call them terrorists, but they're basically criminals. People could do all kinds of things. Some rogue American Airlines pilot could decide to take his plane into another building — who knows?

**M-M:** I did want to ask about some of the countermeasures the United States has developed. For instance, these 12 push packages, which are stashed in secret, climate-controlled locations. All states have to have a dedicated, 12,000-square-foot facility to be ready for one of these push packages ...

**Clark:** I talked to people here in Los Angeles County who are involved in managing the county's response to a bioterrorism attack. They're not too impressed by push packages.

**M-M:** Oh, really. Why not?

**Clark:** The problem is they're not just for bioterror; they're loaded with antidotes for nuclear, chemical, all kinds of events. These are enormously complex packages. By the time you sorted through that damn thing and figured out where the stuff was, there's no time. I mean, these people have to organize cops and firefighters and paramedics and doctors and nurses — boom, boom, boom. We don't have time to be dealing with a 94-ton push package. I think the government is starting to worry a little about the cost of maintaining these things because there are so many medicines and drugs in there that have different shelf lives. They have to be replaced periodically, and that's expensive.

**M-M:** But that must be wonderful for the drug companies — to have to replenish the contents every six months.

**Clark:** Right, which is why I think a vendor-managed inventory is going to be much more effective. Drug companies can just build a slight backup in their warehouse, so they always have 1,000 or 10,000 doses of a particular vaccine on hand. You can imagine a conveyer belt that goes from the drug or vaccine manufacturer out into the medical community. And they've just put an additional loop into that conveyor belt, so it's not sitting in a warehouse rotting someplace. It's a bigger conveyer belt with an extra loop in it. Between the different manufacturers, nobody's got an exclusive on these drugs. Several companies are making "X" vaccine; several companies are making "that" drug. They've got contracts to maintain this extra supply; that's going to be the way to go.

**M-M:** And the [Department of Homeland Security](#) has also installed secret biosensors in cities around the country ...

**Clark:** Yeah, these biosensors — they're supposed to be secret, but I saw one the other day in the [Beverly Center](#) (in Los Angeles) under the escalator. If you look around, they're there.

**M-M:** Did it say "biosensor" on it?

**Clark:** No, but you could tell. It had a collecting device, and you could see a port coming in where the filter would trap stuff. I think you have to know what you're looking for, but still ...

**M-M:** And the government has also built labs in different cities, to test what these biosensors are trapping, right?

**Clark:** Yes, the CDC contracts with local labs and oversees labs in all the major cities. But they've had so many false alarms. They race out, double-check the data and find it's just some cross-reacting bug or something like that. They're trying now to get automated — basically robots — so the sensor itself could analyze the filter on the spot. That can take a couple of days otherwise. They're not collecting the filters every day, I'm sure. By that time, you've already got a problem.

**M-M:** So you mention that this book became political as you explored the subject. Did you go into the project having a particular political slant?

**Clark:** Only that as a scientist, I thought, "You've gotta be kidding me." Who's gonna have the combined expertise from so many areas — microbiology, bioengineering — so many things? I've spent all my life in a lab as a scientist. Things are just not that easy to do. They're bloody hard. If you're at a place like UCLA, you've got 500 other people around you, so you can usually solve a problem. But for a person working on their own, not in a university environment, I just don't see how they can do that.

**M-M:** But we've spent \$50 billion against bioterrorism.

**Clark:** Yeah, \$50 billion. And there has been some spillover. We're better prepared for a pandemic because what they're doing for bioterror would also prepare us somewhat for a pandemic attack. It's the tail wagging the dog. Before, bioterrorism was the dog and pandemics were the tail; now it's the other way around. Pandemics are now the dog, and you get a little bit of spillover to help in a bioterror attack.

**M-M:** So the mindset is changing?

**Clark:** I think so. Some of the more sober, sophisticated, knowledgeable scientists have been looking into this a bit more deeply, realizing that while they may not be entirely convinced that bioterrorism is not a threat, they're starting to get the notion that avian influenza — or some other natural outbreak — is almost a slam-dunk. We get two or three of those a century, historically, as far back as we have records. There are these outbreaks of natural human pathogens that wreak utter havoc. ... So those numbers start to sink in, and we've spent \$50 billion on something that's killed five people. Influenza could kill tens of thousands at the very least.

And I hope this book will get the general public to keep the pressure going on the government to pay more attention to things that present a much more serious threat to us, like infectious diseases or global warming ([Miller-McCune, 2008](#)).

**Title:** Biological Terror Attack Likely By 2013, Panel Says

**Date:** December 2, 2008

**Source:** [CNN](#)


**Abstract:** Terrorists are likely to use a weapon of mass destruction somewhere in the world in the next five years, a blue-ribbon panel assembled by Congress has concluded.



They are more likely to use a biological weapon than a nuclear one -- and the results could be devastating, the chairman of the commission told CNN.

"The consequences of a biological attack are almost beyond comprehension. It would be 9/11 times 10 or a hundred in terms of the number of people who would be killed," former Sen. Bob Graham said.

He cited the flu virus that killed millions of people in 1918 as an example.

"Today it is still in the laboratory, but if it should get out and into the hands of scientists who knew how to use it for a violent purpose, we could have multiple times the 40 million people who were killed 100 years ago," he said.  [Watch how officials worry about a biological terror attack »](#)

The U.S. government "needs to move more aggressively to limit" the spread of biological weapons, the commission said in its report.

Graham warned that such measures would be costly, but were necessary.

"The leadership of this country and the world will have to decide how much of a priority ... they place on avoiding the worst weapons in the world getting in the hands of the worst people in the world," he said.

"It is not going to be cheap. It is not going to be accomplished without some sacrifices. It won't be accomplished without putting this issue ahead of some other competing national and international goals. But I think our safety and security depend upon doing so," he added.

Graham said a biological attack was more likely than a nuclear one because it would be easier to carry out.

Biological weapons "are more available," he said. "Anthrax is a natural product of dead animals. Other serious pathogens are available in equally accessible forms."

"There are so many scientists who have the skills to convert a pathogen from benign, helpful purposes into an illicit, very harmful weapon," he added.

But the commission warned that there is also a threat of nuclear terrorism, both because more countries are developing [nuclear weapons](#) and because some existing nuclear powers are expanding their arsenals.

"Terrorist organizations are intent on acquiring nuclear weapons," said the report, which was published Tuesday on the Internet and will be officially released Wednesday.

CNN obtained a copy of the report Monday evening.

It cited testimony before the commission from former Sen. Sam Nunn, who said that the "risk of a nuclear weapon being used today is growing, not receding."

The report recommends a range of measures, including increased security and awareness at biological research labs and strengthening international treaties against the spread of biological and nuclear weapons.

"Many biological pathogens and nuclear materials around the world are poorly secured -- and thus vulnerable to theft by those who would put these materials to harmful use, or would sell them on the black market to potential terrorists," the report warned.



The commission expressed particular concern about the nuclear programs of Iran and North Korea, and about Pakistan, which it described as "the intersection of nuclear weapons and terrorism."

While observing that Pakistan is a U.S. ally, the report said, "the next terrorist attack against the United States is likely to originate from within the Federally Administered Tribal Areas" in Pakistan. The tribal areas lie in northwest Pakistan where the government exerts little control; the United States says it is a haven for militants from both Pakistan and neighboring Afghanistan.

Congress created the commission to investigate and report on WMD and [terrorism](#) in line with a recommendation from the 9/11 Commission, which compiled a report on the September 11, 2001, terrorist attacks on the United States. Commissioners heard testimony from more than 250 experts from around the world over the course of their six-month investigation ([CNN, 2008](#)).

**Title:** Swine Flu Attack Likely A Beta Test

**Date:** April 16, 2009

**Source:** [Prison Planet](#)

**Abstract:** The latest bioterrorism attack by the New World Order is likely a beta test. Yes, it is a bioterrorism attack. It was a hybrid strain created from human, swine, and bird flu from North America, Europe, and Asia. It was created in a laboratory. This doesn't happen in nature.

Baxter was caught shipping a weaponized avian bird flu mixed strain in their vaccines last month in Europe. Again, this is proof that this deadly virus was created in a laboratory because they did exactly that last month. Bayer was caught shipping HIV in their drugs in the 80s. Both of these events are published in mainstream newspapers. You can use Google like everyone else to find them.

I predicted this event last month in my [documented and linked article](#) when Baxter was caught. If Baxter was trying to do this, they weren't going to stop trying, especially when Baxter wasn't even prosecuted for the crime, and the television news was completely silent about it.

It seems someone wasn't caught this time before they were able to make delivery of the virus. Not that anyone would be prosecuted for bioterrorism. They weren't prosecuted the previous numerous times where they were caught.

This latest flu hasn't been widespread and not that deadly. It seems to be just a beta test and not the real release to drastically reduce the population of the world.

Yes, the ruling elite want to reduce the population of the world. They write about it in their books, in their think tank documents, in government documents, and at their conferences. You won't hear about it on television news because they're part of the mainstream media trust, along with AP and Reuters, which are all owned by the same people.

They add the industrial waste and active ingredient of rat poison, known as fluoride, in your water, causing your brain, liver, and bones to rot and decay. They add mercury, which is as toxic as lead or arsenic, to the vaccines as a preservative, causing autism and sudden infant death syndrome, among several other things. Yes, the government hates you and wants to kill you. Government loves war and death.

Before any scientist does anything very drastic they always do a beta test. They are studying several different things such as how far it spreads and how fast. They are studying if it mutates. They are studying if they'll get away with the crime.

Mexico seems like an ideal distribution point since they know it would spread to the United States. There are less safeguards in Mexico than the United States, but the United States is the primary target. Americans have a Second Amendment right, which makes Americans a big threat to the New World Order and the ruling elite's power.

It is your duty not to make the latest beta test a success by screaming about it. Scream about it to your elected representatives and to the media. Demand justice.

The sick part about this is that they are using vaccines to spread the virus. The cure for the bioterrorism attack is the method of delivery so take vaccines at your own risk. Take a rat or your local politician to the doctor with you to beta test the vaccine before you take it.

Just be aware they may switch the delivery mechanism to something like food, water, or aerial spraying to drastically reduce the population. I'm not an expert, but I believe injections are the most effective delivery mechanism for spreading such a biological weapon and is why they were caught doing just that.

The real test will be much more deadly and much more widespread. They'll bring in martial law when it happens and take the rest of our rights away if we happen to survive a large scale bioterror attack.

This is why you must awaken everybody that the government and big corporations are the terrorists, not Islamic brown people hiding in caves. Switch the word "Islamic" with the word "Jew", and you'll understand how Hitler came to power in a democratic society. I can't believe people haven't caught onto the race baiting by the national socialists running this nation and the world. You're bigots and don't even realize it. You're a bunch of Nazis and don't even realize it.

This is why you must demand justice for these crimes against humanity by the evil terrorist tyrants in power. This is a big deal. Your life and the lives of your friends, family, and children depend on fighting it.

You might want to question who is making a profit on this as well. I believe Obama even own shares of the company who makes the drug to treat this virus. [Illinois-based Baxter working on swine flu vaccine.](#)

This is not a hoax. Dead bodies are not a hoax. What is happening now is not a hoax. It is fact. What Baxter and Bayer did is fact. If you deny these facts, I can't help you. You're beyond help ([Prison Planet, 2009](#)).

**Title:** Journalist Files Charges Against WHO And UN For Bioterrorism And Intent To Commit Mass Murder

**Date:** June 24, 2009

**Source:** [Natural News](#)

**Abstract:** As the anticipated July release date for Baxter's A/H1N1 flu pandemic vaccine approaches, an Austrian investigative journalist is warning the world that the greatest crime in the history of humanity is underway. Jane Burgermeister has recently filed criminal charges with the FBI against the World Health Organization (WHO), the United Nations (UN), and several of the highest ranking government and corporate officials concerning bioterrorism and attempts to commit mass murder. She has also prepared an injunction against forced vaccination which is being filed in America. These actions follow her charges filed in April against Baxter AG and Avir Green Hills Biotechnology of Austria for producing contaminated bird flu vaccine, alleging this was a deliberate act to cause and profit from a pandemic.

### **Summary of Claims and Allegations Fled with FBI in Austria on June 10, 2009**

In her charges, Burgermeister presents evidence of acts of bioterrorism that is in violation of U.S. law by a group operating within the U.S. under the direction of international bankers who control the Federal Reserve, as well as WHO, UN and NATO. This bioterrorism is for the purpose of carrying out a mass

genocide against the U.S. population by use of a genetically engineered flu pandemic virus with the intent of causing death. This group has annexed high government offices in the U.S.

Specifically, evidence is presented that the defendants, Barack Obama, President of the U.S, David Nabarro, UN System Coordinator for Influenza, Margaret Chan, Director-General of WHO, Kathleen Sibelius, Secretary of Department of Health and Human Services, Janet Napolitano, Secretary of Department of Homeland Security, David de Rothschild, banker, David Rockefeller, banker, George Soros, banker, Werner Faymann, Chancellor of Austria, and Alois Stoger, Austrian Health Minister, among others, are part of this international corporate criminal syndicate which has developed, produced, stockpiled and employed biological weapons to eliminate the population of the U.S. and other countries for financial and political gain.

The charges contend that these defendants conspired with each other and others to devise, fund and participate in the final phase of the implementation of a covert international bioweapons program involving the pharmaceutical companies Baxter and Novartis. They did this by bioengineering and then releasing lethal biological agents, specifically the "bird flu" virus and the "swine flu virus" in order to have a pretext to implement a forced mass vaccination program which would be the means of administering a toxic biological agent to cause death and injury to the people of the U.S. This action is in direct violation of the Biological Weapons Anti-terrorism Act.

Burgermeister's charges include evidence that Baxter AG, Austrian subsidiary of Baxter International, deliberately sent out 72 kilos of live bird flu virus, supplied by the WHO in the winter of 2009 to 16 laboratories in four counties. She claims this evidence offers clear proof that the pharmaceutical companies and international government agencies themselves are actively engaged in producing, developing, manufacturing and distributing biological agents classified as the most deadly bioweapons on earth in order to trigger a pandemic and cause mass death.

In her April charges, she noted that Baxter's lab in Austria, one of the supposedly most secure biosecurity labs in the world, did not adhere to the most basic and essential steps to keep 72 kilos of a pathogen classified as a bioweapon secure and separate from all other substances under stringent biosecurity level regulations, but it allowed it to be mixed with the ordinary human flu virus and sent from its facilities in Orth in the Donau.

In February, when a staff member at BioTest in the Czech Republic tested the material meant for candidate vaccines on ferrets, the ferrets died. This incident was not followed up by any investigation from the WHO, EU, or Austrian health authorities. There was no investigation of the content of the virus material, and there is no data on the genetic sequence of the virus released.

In answer to parliamentary questions on May 20th, the Austrian Health Minister, Alois Stoger, revealed that the incident had been handled not as a biosecurity lapse, as it should have been, but as an offence against the veterinary code. A veterinary doctor was sent to the lab for a brief inspection.

Burgermeister's dossier reveals that the release of the virus was to be an essential step for triggering a pandemic that would allow the WHO to declare a Level 6 Pandemic. She lists the laws and decrees that would allow the UN and WHO to take over the United States in the event of pandemic. In addition, legislation requiring compliance with mandatory vaccinations would be put into force in the U.S. under conditions of pandemic declaration.

She charges that the entire "swine flu" pandemic business is premised on a massive lie that there is no natural virus out there that poses a threat to the population. She presents evidence leading to the belief that the bird flu and swine flu viruses have, in fact, been bioengineered in laboratories using funding supplied by the WHO and other government agencies, among others. This "swine flu" is a hybrid of part swine flu, part human flu and part bird flu, something that can only come from laboratories according to many experts.

WHO's claim that this "swine flu" is spreading and a pandemic must be declared ignores the fundamental

causes. The viruses that were released were created and released with the help of WHO, and WHO is overwhelmingly responsible for the pandemic in the first place. In addition, the symptoms of the supposed "swine flu" are indistinguishable from regular flu or from the common cold. The "swine flu" does not cause death anymore often than the regular flu causes death.

Burgermeister notes that the figures for deaths reported for the "swine flu" are inconsistent and there is no clarity as to how the number of "deaths" has been documented.

There is no pandemic potential unless mass vaccinations are carried out to weaponize the flu under the guise of protecting the population. There are reasonable grounds for believing that the mandatory vaccines will be purposely contaminated with diseases that are specifically designed to cause death.

Reference is made to a licensed Novartis bird flu vaccine that killed 21 homeless people in Poland in the summer of 2008 and had as its "primary outcome measure" an "adverse events rate", thereby meeting the U.S. government's own definition of a bioweapon (a biological agent designed to cause an adverse events rate, i.e death or injury) with a delivery system (injection).

She alleges that the same complex of international pharmaceutical companies and international government agencies that have developed and released pandemic material have positioned themselves to profit from triggering the pandemic with contracts to supply vaccines. Media controlled by the group that is engineering the "swine flu" agenda is spreading misinformation to lull the people of the U.S. into taking the dangerous vaccine.

The people of the U.S. will suffer substantial and irreparable harm and injury if they are forced to take this unproven vaccine without their consent in accordance with the Model State Emergency Health Powers Act, National Emergency Act, National Security Presidential Directive/NSPD 51, Homeland Security Presidential Directive/HSPD-20, and the International Partnership on Avian and Pandemic Influenza.

In the U.S. since 2008, Burgermeister charges that those named in her allegations have implemented new and/or accelerated the implementation of laws and regulations designed to strip the citizens of the U.S. of their lawful constitutional rights to refuse an injection. These people have created or allowed provisions to remain in place that make it a criminal act to refuse to take an injection against pandemic viruses. They have imposed other excessive and cruel penalties such as imprisonment and/or quarantine in FEMA camps while barring the citizens of the U.S. from claiming compensation from injury or death from the forced injections. This is in violation of the laws governing federal corruption and the abuse of office as well as of the Constitution and Bill of Rights. Through these actions, the named defendants have laid the groundwork for mass genocide.

Using the "swine flu" as a pretext, the defendants have preplanned the mass murder of the U.S. population by means of forced vaccination. They have installed an extensive network of FEMA concentration camps and identified mass grave sites, and they have been involved in devising and implementing a scheme to hand power over the U.S. to an international crime syndicate that uses the UN and WHO as a front for illegal racketeering influenced organized crime activities, in violation of the laws that govern treason.

She further charges that the complex of pharmaceutical companies consisting of Baxter, Novartis and Sanofi Aventis are part of a foreign-based dual purpose bioweapons program, financed by this international criminal syndicate and designed to implement mass murder to reduce the world's population by more than 5 billion people in the next ten years. Their plan is to spread terror to justify forcing people to give up their rights, and to force mass quarantine in FEMA camps. The houses, companies and farms and lands of those who are killed will be up for grabs by this syndicate.

By eliminating the population of North America, the international elite gain access to the region's natural resources such as water and undeveloped oil lands. And by eliminating the U.S. and its democratic constitution by subsuming it under a North American Union, the international crime group will have total control over North America.

## Highlights from the Complete Dossier

The complete dossier of the June 10th action is a 69 page document presenting evidence to substantiate all charges. This includes:

Factual background that delineates time lines and facts that establish probable cause, UN and WHO definitions and roles, and history and incidents from the April, 2009 "swine flu" outbreak.

Evidence the "swine flu" vaccines are defined as bioweapons as delineates in government agencies and regulations classifying and restricting vaccines, and the fear of foreign countries that "swine flu" vaccines will be used for biological warfare.

Scientific evidence the "swine flu" virus is an artificial (genetic) virus.

Scientific evidence the "swine flu" was bioengineered to resemble the Spanish flu virus of 1918 including quotes from *Swine Flu 2009 is Weaponized 1918 Spanish Flu* by A. True Ott, Ph.D., N.D., and a *Science Magazine* report from Dr. Jeffrey Taubenberger et.al.

The genome sequence of the "swine flu"

Evidence of the deliberate release of the "swine flu" in Mexico

Evidence as to the involvement of President Obama that delineates his trip to Mexico which coincided with the recent "swine flu" outbreak and the death of several officials involved in his trip. Contention is made that the President was never tested for "swine flu" because he had been previously vaccinated.

Evidence as to the role of Baxter and WHO in producing and releasing pandemic virus material in Austria includes a statement from a Baxter official stating the accidentally distributed H5N1 in the Czech Republic was received from a WHO reference center. This includes delineation of evidence and allegations from Burgermeister's charges filed in April in Austria that are currently under investigation.

Evidence Baxter is an element in a covert bioweapons network

Evidence Baxter has deliberately contaminated vaccine material.

Evidence Novartis is using vaccines as bioweapons

Evidence as to WHO's role in the bioweapons program

Evidence as to WHO's manipulation of disease data in order to justify declaring a Pandemic Level 6 in order to seize control of the USA.

Evidence as to the FDA's role in covering up the bioweapons program

Evidence as to Canada's National Microbiology Lab's role in the bioweapons program.

Evidence of the involvement of scientists working for the UK's NIBSC, and the CDC in engineering the "swine flu".

Evidence vaccinations caused the Spanish killer flu of 1918 including belief of Dr. Jerry Tennant that the widespread use of aspirin during the winter that followed the end of World War I could have been a key factor contributing to the earlier pandemic by suppressing the immune system and lowering body temperatures, allowing the flu virus to multiply. Tamiflu and Relenza also lower body temperatures, and therefore can also be expected to contribute to the spread of a pandemic.

Evidence as to manipulation of the legal framework to allow mass murder with impunity.

Constitutional issues: the legality vs. illegality of jeopardizing the life, health and public good by mass vaccinations.

The issue of immunity and compensation as evidence of intent to commit a crime.

Evidence as to the existence of an international corporate crime syndicate.

Evidence of the existence of the "Illuminati".

Evidence as to the depopulation agenda of the Illuminati/Bilderbergs and their involvement in the engineering and release of the artificial "swine flu" virus.

Evidence that weaponized flu was discussed at the annual Bilderberg meeting in Athens from May 14-17, 2009, as part of their agenda of genocide, including a list of attendees who, according to a statement once made by Pierre Trudeau, view themselves as genetically superior to the rest of humanity.

### **Media is Keeping Americans Clueless about the Rhreat They are Under**

Jane Burgermeister is a dual Irish/Austrian who has written for *Nature*, the British Medical Journal, and *American Prospect*. She is the European Correspondent of the *Renewable Energy World* website. She has written extensively about climate change, biotechnology, and the ecology.

In addition to the charges currently under investigation that she filed against Baxter AG and Avir Green Hills Biotechnology in April, she has filed charges against WHO and Baxter among others concerning a case of exploding "swine flu" vials meant for a research lab on a busy IC train in Switzerland.

In her view, control of the media by the ruling elite has allowed the world crime syndicate to further its agenda unabated while the rest of the people remain in the dark about what is really going on. Her charges are an attempt to get around this media control and bring the truth to light.

Her greatest concern is that "in spite of the fact Baxter has been caught red handed nearly triggering pandemic, they are also moving ahead, together with allied pharma companies, with supplying the vaccine for pandemics." Baxter is hurrying to get this vaccine to market some time in July ([Natural News, 2009](#)).

**Title:** Biological Threats: A Matter Of Balance

**Date:** January 16, 2010

**Source:** [Center For Arms Control And Non-Proliferation](#)

#### **Abstract:**

The bioterrorist threat has been greatly exaggerated.

New bioweapons assessments are needed that take into account the complex set of social and technical issues that shape bioweapons development and use by state and non-state actors, and that focus on more plausible threats than the worst-case scenarios that have largely driven discussion to date.

Continuing to emphasize and spend billions of dollars on measures to specifically counter bioterrorist threat scenarios distorts our national understanding of the important issues in public health, and diverts scarce scientific talent and resources away from more pressing public health and natural disease threats.

While it has been argued that spin-offs from biodefense programs contribute to countering natural diseases, the converse is more likely: direct targeting of effort and expenditure on natural disease threats

would provide much greater public health benefit, and spin-offs from these programs would significantly strengthen resistance to bioterrorism.

Bioterrorist threats need to be seen and addressed within a wider public health context--as just one of the many possible ways in which infectious agents may harm human, animal, and plant health.

### **How Serious is the Bioterrorist Threat?**

Beginning in the early 1990s, an increasing amount was written about the threat of bioterrorism. Prior to 2001 most examples of "bioterrorism" were in fact hoaxes or were only tenuously related to actual threats, with the single exception of the use of Salmonella to contaminate salad bars in Oregon in 1984. Much was made of the Japanese group Aum Shinrykio's unsuccessful attempts to use anthrax and botulinum toxin without drawing the simple and obvious lesson that achieving success in such attempts is difficult.

The 2001 anthrax letters were seen as validating large scale and catastrophic threat scenarios, despite the very real difficulties that isolated individuals or small groups would have had in making such material. By the time the source of those letters was identified in August 2008 as a government laboratory with capabilities vastly in excess of those of any terrorist organization, biodefense programs costing tens of billions of dollars were already established, producing a potent and vocal constituency for continued and increased funding.

Offensive, including terrorist, use of biological agents presents major technical problems. This is why the Soviet Union, United States, United Kingdom and others needed to spend vast sums for decades in order to research and develop biological weapons. Even then the results were considered an unreliable form of warfare, and there was little opposition to their elimination by international agreement (indeed the US unilaterally eliminated its biological weapons stockpiles).

Fictional bioterrorism exercises such as Atlantic Storm and Dark Winter routinely used unrealistic values for critical parameters and were unrealizable by putative perpetrators. They tended to gloss over the very real problems involved in acquiring, growing and disseminating smallpox virus on a sufficient scale to represent a major threat. They also posited unreasonable assumptions about issues such as the rate of disease spread, which skewed the outcomes towards inflated and unlikely results.

The effects of using biological materials, whether on a large scale or a smaller terrorist scale, are highly uncertain. Although the 2001 anthrax letters created panic and had a significant economic impact, the number of deaths and serious illnesses was very small.

Existing bioweapons assessments focus on a narrow set of assumptions about potential adversaries and their technical capabilities. New bioweapons threat assessments are needed that take into account the more complex set of social and technical issues that shape bioweapons capabilities of state and non-state actors and that critically examine existing assumptions.

### **How Effective Are Bioterrorism Counter Measures?**

Much time, effort and money has been spent since 2001 trying to identify possible threats, create detection capabilities in government facilities and public spaces, and enact measures to prevent dangerous agents from falling into the wrong hands. Yet, threat scenarios are speculative and rely on too many unjustified assumptions, thus providing poor policy guidance. Detection systems continue to suffer many defects of sensitivity and specificity that so far make them unreliable as triggers for immediate countermeasures. And the enormous expansion of high-containment laboratories has greatly increased the numbers of people with access to dangerous pathogens and toxins, ironically increasing the likelihood of an attack by a rogue insider.

In addition, agencies and programs have been set up at great expense, with the aim of having available stocks of vaccines against potential bioweapons agents. Many questions remain about these programs



with respect to vaccine efficacy, safety, shelf life and the ability to perform mass immunizations at short notice. Until these issues are resolved the effectiveness of vaccines as countermeasures remains in doubt.

Countermeasures effective after exposure to anthrax and the smallpox virus, the bioterrorist threat agents of greatest concern, have been developed and stockpiled— antibiotics for anthrax and a vaccine for smallpox. Efforts to accumulate stockpiles of more novel therapeutics, or ones targeted to even less likely bioterrorist threats, are not cost-effective unless they would also serve clear public health goals.

The actual dollar costs of responding to the perceived bioterrorism threat includes creating new agencies and programs, funding research & development into threat evaluation, detection, diagnosis, prophylaxis and treatments. These costs approach \$60 billion since FY 2001 and continue to rise. Of this, roughly \$15 billion has gone to state and local public health capacity building, hospital preparedness, and other efforts aimed at directly strengthening public health.

There are additional opportunity costs that are much harder to quantify: the diversion of technical, scientific and administrative talent away from more real and immediate infectious disease and other public health problems. For example the amount of research being conducted on anthrax (of which there are only a handful of cases per year in the US) has skyrocketed since 2001, due largely to the attraction of scientists away from work on other diseases of greater public health importance. Biomedical research is expensive and requires substantial levels of funding; accordingly, funding decisions made for political purposes can easily distort the direction of scientific effort into less useful although still scientifically interesting avenues.

These bioterrorism-specific programs are unnecessary and inefficient if the bioterrorist threat has been exaggerated or overestimated, and they divert scarce resources from much more pressing public health threats.

### **What Is The Impact On Public Health?**

To put this in perspective, since 2000 bioterrorism has killed 5 Americans. In the same time period, influenza-related deaths alone have likely exceeded 300,000 based on CDC estimates, and other natural infectious diseases have killed hundreds of thousands more. Annual US morbidity & mortality figures from AIDS (14,000 deaths), opportunistic infections such as MRSA (19,000 deaths/year) and C. difficile (350,000 infections and up to 20,000 deaths) speak to unmet and pressing public health need.

Consequently the threat of bioterrorism, which does exist but which is almost certainly minor, needs to be seen as only one element in the wider and larger public health war on infectious diseases.

While deaths and morbidity from these and other infectious diseases are unlikely to be entirely eliminated no matter how lavish the funding, modest increases in funding and effort (relative to that currently invested in bioterrorism prevention and mitigation) could greatly decrease their impact, and save orders of magnitude more lives than are likely to ever be lost in any plausible bioterrorist attack. There is a clear imbalance between funding for biodefense and funding for research on and prevention of natural infectious diseases.

Diverting scarce resources, money, and scientific, medical and organizational talent away from the general public health effort to address the narrower bioterrorism issue is likely to be self-defeating in the longer term because:

1. Highly specific threat predictions lead to specific countermeasures and mitigation strategies, many of which may be useless for everyday public health purposes, or even to counter a bioterrorist attack that differs from the threat assumed.
2. Development and production of bioterrorism countermeasures may present

uncertainties and risks compared with pharmaceuticals manufactured according to strict quality assurance standards, and are subject to constant scrutiny of their efficacy and safety through post-market research. Such is not the case with bioterrorism countermeasures, which would be used only rarely if at all.

3. In comparison with investments in routine public health activities, countermeasures targeted against specific bioterrorism threats are unlikely to ever be used and their manufacture, stockpiling and turnover thus represent a probable waste of scarce resources.

## **A Better Approach**

The public health problem of infectious diseases requires a more generic approach that addresses a variety of issues, including the following:

1. Information about morbidity and mortality in terms of disease incidence and causes is critical in deciding which problems are most important and where intervention would provide the greatest benefit. A risk-based and data-driven approach should guide the allocation of scarce public health resources.

2. The nation's epidemiological workforce must be adequate to investigate and address all public health issues: infectious disease outbreaks whether due to natural, deliberate, or accidental causes; chronic diseases; environmental health; consequences of nutritional and life-style choices; etc. Only by ensuring adequate staffing in all program areas will we build a sustainable public health infrastructure that can reliably provide adequate surge capacity in the event of a large-scale emergency.

3. Animal disease epidemiology capability needs to be enhanced. This would improve the ability rapidly to detect and diagnose not only animal, but also zoonotic infections. Such enhanced capability would provide both a defense against natural disease outbreaks as well as a capability for early recognition of a bioterrorist threat originating in the animal population.

4. Effective, ongoing training for epidemiologists, which has reached a plateau or has even been reduced since 2004, is essential.

5. Provision of the basic tools necessary to support routine public health surveillance and epidemiology - including skilled personnel, public health laboratories, and data collection, management and analytic systems - are also critical. In this respect, public health preparedness funding, increased out of concern about terrorism in general and bioterrorism in particular, has been important and needs to be maintained and enhanced.

6. Disaster preparedness needs to be improved—the ability to respond rapidly and effectively to an event that produces a large number of casualties needing hospitalization or sanitary burial is common to handling large natural outbreaks of infectious disease, a bioterrorism event, or a natural disaster such as earthquake or tsunami.

7. Research is a key component of any program to improve public health and by extension the ability to deal with deliberately created outbreaks. The most obvious areas of need are in new antibiotics and antivirals for emerging or established diseases that cause significant mortality or morbidity. The role of vaccines in dealing with the bioterrorism problem is more controversial since vaccines are highly diseasespecific (often even strain-specific), usually need to be given prior to exposure, tend to have a limited shelf life, and suffer from a problem of public acceptability. Research into immune system stimulation and enhancement which could have wide application may be a more fruitful investment.

8. Measures that enhance access by more people to preventive healthcare are likely to strengthen individual resistance to disease and improve early detection and effective treatment and containment of disease outbreaks.

Fundamentally, improving the capability to respond to natural disease outbreaks, which currently present the major problem, almost automatically improves the capability to deal with any bioterrorist attack ([Center For Arms Control And Non-Proliferation, 2010](#)).

**Title:** Germany Requests Assurances On Virus Export

**Date:** August 30, 2011

**Source:** [Wikileaks](#)

**Abstract:** We would like to bring the following issue to the attention of your government. A German firm has applied for the approval of the export of 184 genetic elements with nucleic acid sequences of viruses for the production of recombinant viruses. The viruses will be used in optical imaging to identify host factors required for viral replication. The recipient in the USA is, according to the enclosed end use certificate, the Department of the Army "US Army Medical Research Institute for Infectious Diseases (USAMRIID)" Fort Detrick, Maryland.

Specifications in English about the goods, the recipient and end use can be seen from the end use certificate. The goods are controlled by the Australia Group and are subject to compulsory export approval (List position C1C353A). This matter concerns the complete genome of viruses such as the Zaire Ebola virus, the Lake Victoria Marburg virus, the Machupo virus and the Lassa virus, which are absolutely among the most dangerous pathogens in the world. The delivery would place the recipient in the position of being able to create replicating recombinant infectious species of these viruses. Because of the particular criticality of these goods, the German federal government practices an exceptionally restrictive approval policy for such exports ([Wikileaks, 2011](#)).

**Read Full Text Below:**

"For Official Use Only"

Against the background of our partnership in the area of non-proliferation and our excellent cooperation in the matters of export controls, we would like to bring the following issue to the attention of your government.

A German firm has applied for the approval of the export of 184 genetic elements with nucleic acid sequences of viruses for the production of recombinant viruses. The viruses will be used in optical imaging to identify host factors required for viral replication. The recipient in the USA is, according to the enclosed end use certificate, the Department of the Army "US Army Medical Research Institute for Infectious Diseases (USAMRIID)" Fort Detrick, Maryland. Specifications in English about the goods, the recipient and end use can be seen from the end use certificate.

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Because of the particular criticality of these goods, the German federal government practices an exceptionally restrictive approval policy for such exports. An approval here can only be issued if an improper end use in association with the development or production of biologic weapons approaches can be foreclosed with a probability approaching certainty.

The enclosed end use certificate is on the letterhead of the U.S. Army. The required official seal is missing, however. A decision about the export has not yet been made. Given the foregoing, we would appreciate confirmation that the end use certificate really is from the Department of the Army and of the accuracy of the data contained therein.

We look forward to the continuation of our excellent cooperation in matters of non-proliferation and export controls.

End text of informal translation of German MFA non-paper.

¶4. (SBU) Action Request. Post requests guidance on responding to the GOG request in the non-paper.

**Title:** Should Scientists Create Deadly Viruses? Yes, Says Bioethicist

**Date:** December 27, 2011

**Source:** [MSNBC](#)

**Abstract:** One of the predictable consequences of science's rapidly growing knowledge of genetics is that the knowledge can be put to use to kill, harm or terrorize. Controlling dangerous knowledge is not easy and rarely foolproof—just look at the history of successful spying to get the secrets to make nuclear weapons or crack secret codes. The ability to make a new nasty class of biological weapons that could be used against us raises two important questions — should scientists try to make dangerous microbes and, if they do, who should they tell about their work?

Recently, scientists working for the U.S. government made a deadly flu virus, H5N1, [even more contagious by making it airborne](#). In its natural form, H5N1 kills more than half the people it infects, but almost never spreads from person to person. The new modified strain changes that. Last week, there was a kerfuffle when government advisers asked the details be kept secret and not published in scientific journals to keep the information from falling into the wrong hands.

The scientists who tweaked the H5N1 virus say their work was necessary because they had to see if it was possible for the virus to mutate – and if it was, so that countries could take more dramatic steps to eradicate it, [reported the New York Times](#).

But others say it should never have been created in the first place, it's too dangerous and could get out of the lab and into the population. So should scientists even be studying or making nasty microbial critters? The answer is yes. The only way to anticipate and respond to changes in nature that convert a relatively harmless strain of flu to a pandemic killer or to figure out ways to deal with horrors like flesh eating bacteria is to create and study them.

The second question becomes the key one—who should have access to this knowledge?

We need to do all we can to keep dangerous information out of the hands of both the bad and the irresponsible guys. This means not publishing the full formula for lethal microbes. It also means keeping an eye on where biological samples are shipped, who is invited to study at key laboratories and teaching ethical responsibility over and over again to budding scientists. It also means issuing government guidelines that journals, publishers, website managers and meeting organizers can follow to restrict what is made public that is obviously dangerous.

Some will sneer and say censorship has absolutely no place in science. But given the ways in which patents and trade secrets shape who has access to findings and data, that view is simply naïve. Others will say once the government starts dictating who can know what, the slope gets very slippery. But, the government should not make the rules — scientists, in consultation with other experts, should.

Some say no restrictions will work—information always gets out in the end. But we don't have to make the end easy to reach. The dangerous uses of genetic knowledge should be kept as restricted as we can make them ([MSNBC, 2011](#)).

**Title:** Sorry, But Bird Flu Bioterrorism Is Much Harder Than It Sounds

**Date:** January 24, 2012

**Source:** [Huffington Post](#)

**Abstract:** Information wants to be free, the aphorism goes, especially when it comes to science. But when it comes to explaining how a lethally airborne [avian influenza](#) pandemic transmits among humans, freed information evidently crosses over into terrorism. This is in spite of the fact that, when it comes to the evidence that science demands daily, the existential threat of faceless terrorists furtively scurrying around in search of soft targets pales into comparison to the daily apocalypses doled out by governments waging unaffordable wars and occupations.

If [bioterrorism](#) has a real face, then it's a familiar one.

No wonder Ron Fouchier is frustrated. The Rotterdam-based virologist and his team recently mutated a strain of deadly H5N1 bird flu for simpler transmission among mammals, an achievement whose alarming data nevertheless leads us inexorably closer to possible solutions for future pandemics. Which is nice, because we've had more than our share in the past. But last month, publication of Fouchier's research in *Science* and *Nature* was sidelined at the urging of the United States' National Science Advisory Board for Biosecurity ([NSABB](#)), and last week 39 avian flu researchers, including Fouchier's team, agreed to a [60-day moratorium](#) on research and testing altogether.



"NSABB has said that the risks outweigh the benefits, and now many people are saying: In that case, you shouldn't do this research at all," [Fouchier told Science](#). "But the infectious disease community doesn't agree with NSABB on this. What NSABB should explain better is what the risks are exactly. How much bioterrorism have we seen in the past? What are the chances that bioterrorists will recreate these viruses? And is it really true that publication of this research would give bioterrorists or rogue nations an advantage? That's what I would like to hear from the NSABB."

## Welcome to Terrordome

"Science always moves faster when information is freely available, there's no doubt about that," [Dr. Paul Keim, acting chairman of the NSABB](#), told me by phone last month after Fouchier agreed to the NSABB and U.S. government's historic request to redact portions of his methodology.

"But on the other hand, in this particular case, we felt that the information could be used to repeat the experiments in a very short period of time, and that might be done by groups of individuals that we wouldn't want to be doing that," he added. "So it's a balance. It's possible that freely released information would give us a slight advantage in the case of an outbreak. But it was the board's opinion that the advantage was outweighed by the potential for that information being used for harm."

Trying to safeguard America from harm has become an unhinged political and cultural obsession ever since 9/11, which gave subsequent birth to the first bioterror threat of the new millennium. The [2001 anthrax attacks](#) killed five and infected 17, but its arguments for unintended consequences -- in which "[bioterrorism warrior](#)" Keim's research team played a "crucial role," according to his employer Northern Arizona University -- are instructive. A decade later, they still remain unsolved, after spending precious time and taxpayer dollars pursuing and harassing scientists without any convictions.

Once targeted by America's bioterrorism authorities, [Steven Hatfill](#) has since committed \$1.5 million to building a floating genetic laboratory far from civilization as we know it. And he's got the funding: The Justice Department agreed to pay a \$4.6 million settlement for routinely violating his civil rights, money that he plans to use cruising his lab ark through the Amazon in search of undiscovered plants and animals that could help combat diseases increasingly immune to antibiotics. He has agreed to license whatever he finds to pharmaceutical companies, but on the condition that developing nations receive the resultant medicines at cost.

The other anthrax suspect America haunted in the name of defeating terrorism is [Bruce Ivins](#), who died of an apparent suicide in 2008, five years after receiving the Department of Defense's highest civilian decoration for his work on an anthrax vaccine. To date, no formal charges have been levied against him and no direct evidence linking him to the 2001 anthrax attacks has surfaced.

Given that sloppy track record, redactions and moratoriums stop looking like smart protocol and start looking more like authoritarian paranoia. It certainly doesn't help the United States' case that avian flu sucks as weaponized bioterror. It has zero targeting capability, and can't kill with extremist prejudice. That may make it more of an existential threat than current global pandemics like AIDS or climate change, but it doesn't make it a workable bioweapon. Unless, of course, the objective is to bring about a massive die-off that climate change will likely take care of by itself.

"I agree," Keim told *AlterNet*. "At this point, it would be a doomsday weapon. Unfortunately, we already have these types of weapons in the world already."

## Home Is Where the Hurt Is

Today, as before, the potential for apocalypse is found too close to home. The anthrax used in the 2001 attacks evidently originated from the United States Army Medical Research Institute of Infectious Diseases ([USAMRIID](#)), where Ivins worked and whose birth emerged from the closure of [United States](#)

[Army Biological Warfare Laboratories](#), started in 1943 at the peak of America's involvement in World War II.

In 2014, construction will be completed on USAMRIID's new facility, which the [Manhattan Construction Group](#) called "the largest, most complex biocontainment facility ever designed." Fingers crossed that it's not only designed to safely house anthrax and perhaps also vaccine-free nightmares like the Ebola virus, but immune to whoever actually controls the scientists tinkering with apocalypse and its avoidance. Because it is likely them and not terrorists -- like the alleged Al-Qaeda cell in Algeria that wiped itself out while trying to [weaponize the Black Death](#) -- who will unleash plagues upon us.

"I have no way of knowing whether a combined Ebola-smallpox agent has been created, but it is clear that the technology to produce such a weapon now exists," former Soviet biological warfare researcher Colonel Kanatzhan Alibekov, known since his defection to the U.S. as Dr. [Ken Alibek](#), wrote in his controversial book 1999 [Biohazard](#). "To argue that these weapons won't be developed simply because existing armaments will do a satisfactory job contradicts the history and the logic of weapons development, from the invention of the machine gun to the hydrogen bomb."

Like other death-bringing [viral hemorrhagic fevers](#), Ebola probably has fearsome weaponization potential, as do [antibiotic-resistant superbugs](#), SARS and of course the flu, which has been history's nastiest pandemic. Doubtless there are further viral horrors awaiting a new millennium with dramatically enhanced genetic and chemical engineering capabilities.

But AIDS is the pandemic at hand, even though it is avian flu that has made history by hamstringing the very scientific community that mutated it.

"There have been pandemics throughout history, and it is certain that there will continue to be pandemics in the future as microbes continue to emerge and re-emerge," the NIH's Anthony S. Fauci, director of the National Institute of Allergy and Infectious Diseases, told me last month. "There are microbes that could newly emerge and with which we have had no prior experience, as was the case in 1981 when the first cases of AIDS were recognized. In the 30 years since the medical community first became aware of it, AIDS has claimed at least 30 million lives and is among history's leading infectious disease killers."

Yet we are terrorized by bird flu, with a government that says we should be. And where we once felt safe as houses when it came to influenza pandemics, now we've suddenly flipped our minds and found in our midst just more terrorists with potential for transmission. Even if we're actually safe as houses, which we never have been and never will be. I bet you feel better already ([Huffington Post, 2012](#)).

**Title:** Scientists: 'Look, One-Third Of The Human Race Has To Die For Civilization To Be Sustainable, So How Do We Want To Do This?'

**Date:** January 26, 2012

**Source:** [The Onion](#)

**Abstract:** Saying there's no way around it at this point, a coalition of scientists announced Thursday that one-third of the world population must die to prevent wide-scale depletion of the planet's resources—and that humankind needs to figure out immediately how it wants to go about killing off more than 2 billion members of its species.

Representing multiple fields of study, including ecology, agriculture, biology, and economics, the researchers told reporters that facts are facts: Humanity has far exceeded its sustainable population size, so either one in three humans can choose how they want to die themselves, or there can be some sort of government-mandated liquidation program—but either way, people have to start dying.

And soon, the scientists confirmed.



"I'm just going to level with you—the earth's carrying capacity will no longer be able to keep up with population growth, and civilization will end unless large swaths of human beings are killed, so the question is: How do we want to do this?" Cambridge University ecologist Dr. Edwin Peters said. "Do we want to give everyone a number and implement a death lottery system? Incinerate the nation's children? Kill off an entire race of people? Give everyone a shotgun and let them sort it out themselves?"

"Completely up to you," he added, explaining he and his colleagues were "open to whatever."  
"Unfortunately, we are well past the point of controlling overpopulation through education, birth control, and the empowerment of women. In fact, we should probably kill 300 million women right off the bat."

Because the world's population may double by the end of the century, an outcome that would lead to a considerable decrease in the availability of food, land, and water, researchers said that, bottom line, it would be helpful if a lot of people chose to die willingly, the advantage being that these volunteers could decide for themselves whether they wished to die slowly, quickly, painfully, or peacefully.

Additionally, the scientists noted that in order to stop the destruction of global environmental systems in heavily populated regions, there's no avoiding the reality that half the world's progeny will have to be sterilized.

"The longer we wait, the higher the number of people who will have to die, so we might as well just get it over with," said Dr. Chelsea Klepper, head of agricultural studies at Purdue University, and the leading proponent of a worldwide death day in which 2.3 billion people would kill themselves en masse at the exact same time. "At this point, it's merely a question of coordination. If we can get the populations of New York City, Los Angeles, Beijing, India, Europe, and Latin America to voluntarily off themselves at 6 p.m. EST on June 1, we can kill the people that need to be killed and the planet can finally start renewing its resources."

Thus far, humanity has been presented with a great variety of death options, among them, poisoning the world's water supply with cadmium, picking one person per household to be killed in the privacy of his or her home, mass beheadings, and gathering 2.3 billion people all in one place and obliterating them with a single hydrogen bomb.

Sources confirmed that if a death solution is not in place by Mar. 31, the U.N., in the interest of preserving the human race, will mobilize its peacekeeping forces and gun down as many people as necessary.

"I don't care how it happens, but a ton of Africans have to go, because by 2025, there's no way that continent will be able to feed itself," said Dr. Henry Craig of the Population Research Institute. "And by my estimation, three babies have to die for every septuagenarian, because their longer life expectancy means babies have the potential to release far more greenhouse gases going forward."

While the majority of the world's populace reportedly understands this is the only option left to save civilization, not all members of the human race are eager to die.

"I personally would rather live, but taking the long view, I can see how ensuring the survival of humanity is best," said Norwich, CT resident and father of three Jason Atkins. "I guess if we were to do it over again, it would make sense to do a better job conserving the earth's finite resources."

"Hopefully, the people who remain on the planet will use the mass slaughter of their friends and loved ones as an incentive to be more responsible going forward," he added ([The Onion, 2012](#)).

**Title:** Lab-Engineered H5N1 Not Fatal, Lead Scientist Says

**Date:** January 26, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** According to the lead scientist of the lab-engineered airborne strain of avian flu in Wisconsin, the strain is not lethal and can be defeated with existing medicines.

Yoshihiro Kawaoka, a professor of virology at the University of Wisconsin, said that while the mutated virus was contagious among ferrets in the lab, it did not kill any of them. In a commentary published on Wednesday in the journal *Nature*, Kawaoka said that more research is needed urgently on transmissible bird-flu strains, [Bloomberg](#) reports.

“(There is an urgent need) to expand development, production and distribution (of bird-flu vaccines) and to stockpile antiviral compounds,” Kawaoka said, according to [Bloomberg](#). “(Censoring the findings) will make it harder for legitimate scientists to get this information while failing to provide a barrier to those who would do harm.”

Kawaoka was among the scientists who ceased their experiments for 60 days in response to the widespread media fear that the virus could escape from labs and infect humans. The research team in Wisconsin agreed to not publish certain details of their research after being requested to do so by a U.S. biosecurity panel.

The U.S. National Science Advisory Board for Biosecurity recommended that the studies done by Kawaoka's group and a Dutch team led by Ron Fouchier of the Erasmus Medical Center not be published in full. The panel determined the risks of publishing the complete research would outweigh the benefits ([Bio Prep Watch, 2012](#)).

**Title:** Bedrock Of Vaccination Theory Crumbles As Science Reveals Antibodies Not Necessary To Fight Viruses

**Date:** March 27, 2012

**Source:** [Natural News](#)

**Abstract:** While the medical, pharmaceutical, and vaccine industries are busy pushing new vaccines for practically every condition under the sun, a new study published in the journal *Immunity* completely deconstructs the entire vaccination theory. It turns out that the body's natural immune systems, comprised of both innate and adaptive components, work together to ward off disease without the need for antibody-producing vaccines.

The theory behind vaccines is that they mimic infection by spurring B cells, one of the two major types of white blood cells in the immune system, to produce antibodies as part of the adaptive immune system. It is widely believed that these vaccine-induced antibodies, which are part of the more specific adaptive immune system, teach the immune system how to directly respond to an infection before the body becomes exposed to it.

But the new research highlights the fact that innate immunity plays a significant role in fighting infections, and is perhaps more important than adaptive immunity at preventing or fighting infections. In tests, adaptive immune system antibodies were shown unable to fight infection by themselves, which in essence debunks the theory that vaccine-induced antibodies serve any legitimate function in preventing or fighting off infection.

"Our findings contradict the current view that antibodies are absolutely required to survive infection with viruses like VSV (vesicular stomatitis virus), and establish an unexpected function for B cells as custodians of macrophages in antiviral immunity," said Dr. Uldrich H. von Andrian from *Harvard Medical School*. "It will be important to further dissect the role of antibodies and interferons in immunity against similar viruses that attack the nervous system, such as rabies, West Nile virus, and Encephalitis."

As explained by Dr. Russell Blaylock in a recent interview with Mike Adams, the Health Ranger, vaccines not only do not work as advertised, but they actually damage the body's innate immunity. Rather than teach the body how to respond to infections, vaccines actually inhibit the immune system's ability to produce TH2-type cytokines, and suppress cellular immunity, which is how the body protects itself against deadly viruses and bacteria.

So once again, the myth that vaccinations serve any sort of legitimate medical purpose has been deconstructed by breakthrough science. Regardless of whether or not the mainstream medical community wants to admit it, pro-vaccine ideology is increasingly finding itself in the dustheap of outmoded pseudoscience ([Natural News, 2012](#)).

**Title:** Real Or Fake? Pentagon Proposal To Lobotomize 'Terrorists' Using Virus

**Date:** April 2, 2012

**Source:** [Prison Planet](#)

**YouTube:** [http://www.youtube.com/watch?feature=player\\_embedded&v=nADFJIAggnY](http://www.youtube.com/watch?feature=player_embedded&v=nADFJIAggnY)

**Abstract:** A video on You Tube appears to show a Pentagon briefing in which the idea of lobotomizing terrorists to remove their religious fanaticism using a manufactured virus containing a vaccine is seriously proposed, although debate has raged about whether the clip is authentic or not.

The footage shows a speaker giving a lecture to a handful of attendees and is accompanied by authentic-looking Department of Defense project ID numbers. According to the text on the clip, the lecture took place inside a Pentagon briefing room.

The speaker discusses how certain people are predisposed to be religious fundamentalists because they have an aggressive VMAT 2 (God) gene which causes them to act on their beliefs in fanatical ways.

After a member of the audience asks the speaker if the idea is to "by spreading this virus....eliminate individuals who are going on to a bomb fest, who are going into a market and blowing it apart," the speaker confirms, "by vaccinating them against this, we'll eliminate this behavior."

The question of how to implement the vaccine is answered by the speaker when he responds to the man in the audience, who raises doubts over the feasibility of performing CT scans on suspected terrorists rather than just "putting a bullet in their head".

"The virus would immunize against this VMAT 2 gene and that would....essentially turn a fanatic into a normal person, and we think that would have major effects in the Middle East," states the speaker.

The audience member then asks, "How do you suggest this can be dispersed, via an aerosol?" – to which the speaker responds, "The present plan and the tests we've done so far have used respiratory viruses such as flu and we believe that's a satisfactory way to get the exposure of the largest part of the population."

The speaker confirms that the name of the proposal is "Funvax – the vaccine for religious fundamentalism."

Debate over the video's authenticity has raged over the course of the past year since the video was uploaded to You Tube.

[Skeptics argue](#) that the image of the brain scan used in the lecture, which according to the time stamp on the video took place in June 2005, is actually taken from a 2010 Neurology.org article on a completely

different subject. The two images are also clearly the same brain, whereas the speaker in the clip claims they are from two different people.

The other point made by skeptics to illustrate that the clip is a hoax is the claim that the audio is not in time with the speakers on the video. This is a weaker argument – the audio would not be in perfect sync on a You Tube clip anyway, plus the back and forth exchanges between the two speakers allied with their hand gestures do appear to be authentic, in that the audience member is expressing genuine shock at the scope of the idea.

The only information about 'Funvax' comes from a single source, [a website](#) run by “supporters” of an individual named Joey Lambardi. There is no other confirmation or discussion of 'Funvax' from any official source or mainstream website.

Whatever the true providence of the video clip, the fact that brain eating vaccines which alter brain chemistry to perform a de facto lobotomy on the subject have been developed are now being promoted to the general public is a fact.

Back in 2010, Dr Robert Sapolsky, professor of neuroscience at Stanford University in California, [announced that he had created](#) a vaccine to impose a state of “focused calm” by altering brain chemistry.

The proposals ominously hark back to George Lucas' 1971 dystopian chiller *THX 1138*, in which the population is controlled and subjugated through the use of special drugs to suppress emotion.

Feeling stress, getting angry, expressing emotion and displaying passion are all innate, natural and vital aspects of human behavior. Reacting with stress to dangerous or uncomfortable situations is an essential and healthy response, and is one shared by just about every living thing on the planet.

However, scientists are now telling us that getting angry, upset and passionate is abnormal and needs to be “treated” through a fresh dose of pharmaceutical drugs and injections that will virtually lobotomize us into submissive compliance.

Likewise, the notion that populations should be unwillingly vaccinated to lobotomize them of their religious beliefs is also clearly an abomination against free will and represents the ultimate tool of a scientific dictatorship ([Prison Planet, 2012](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The 9/11 Anthrax attacks were allegedly committed by Army scientist Bruce Ivins shortly after 9/11. Although it is not yet clear if Ivins was truly responsible or just an unfortunate scapegoat, the strain of Anthrax was confirmed to be from the U.S. Army Medical Research Institute of Infectious Disease (USAMRIID) in Fort Detrick, Maryland. Speculation currently exists that Army [biological weapons researcher Steven J. Hatfill was the rouge Anthrax scientist](#) who coincidentally and suspiciously had authored a book (unfinished and unpublished) in 1998 which describes a paralyzing bio-terror attack against the White House and Congress in which dozens of people sicken or die. It is quite possible that [Hatfill's book "Emergence"](#) was a cleaver alibi which provided future political cover in the aftermath of the attacks.

The [9/11 Anthrax attacks](#) are a great case study of why the government and its minions should always be the first suspect in any terror case, especially one involving bio-terrorism. Aside from having the means, the motive and the opportunity to conduct a major bio-terror attack, they have an unlimited supply of willing, able and blackmailable rouge scientists to choose from. In order to organize, plan, drill and execute a major bio-terror false-flag operation, millions if not hundreds of millions of dollars are needed to blackmail scientists, steal or develop the virus or agent, weaponize it, deliver it, and execute the operation without getting arrested or properly investigated. The sheer logistics, security, communication and cover-up needed before and after the bio-terror attack is so daunting, there is only one suspect (government) even capable of carrying it out.

**Title:** Hatfill Novel Depicts Terror Attack

**Date:** 2012

**Source:** [Wikipedia](#)

**Abstract:** Steven Jay Hatfill (born October 24, 1953) is an American [physician](#), [virologist](#) and [bio-weapons](#) expert who underwent what was considered by many to be a [trial by media](#) with great toll on his personal and professional life. After eight months of pressure from the media and amateur detectives, the [US Department of Justice](#) identified the former government scientist as a "[person of interest](#)" in its investigation of the [2001 anthrax attacks](#). [FBI](#) searches of his apartment in July and August 2002 were well-attended by [journalists](#), many of whom had been pointing at Dr. Hatfill for months. Dr. Hatfill later sued the government for ruining his reputation, a case which the government settled for. He also filed lawsuits against several periodicals that had pointed to him as a figure warranting further investigation. Dr. Hatfill's lawsuit against [The New York Times](#) was dismissed on the grounds that he was a "public figure" and malice had not been proven. Dr. Hatfill's lawsuit against [Vanity Fair](#) and [Readers' Digest](#) was settled out of court, and the details were not disclosed. FBI and DOJ officials later blamed another government scientist, [Bruce Edwards Ivins](#), whom they concluded had acted alone.

### Biography

#### Youth and Education

Hatfill was born in [Saint Louis, Missouri](#), and graduated from Mattoon Senior High School, [Mattoon, Illinois](#) (1971), and [Southwestern College](#) in [Winfield, Kansas](#) (1975), where he studied [biology](#).

Hatfill was enlisted as a [private](#) in the [U.S. Army](#) from 1975 to 1977. (In 1999, he would tell a journalist during an interview that he had been a "captain in the [U.S. Special Forces](#)", but in a subsequent investigation the Army stated that he had never served with the Special Forces.<sup>[3]</sup>) Following his Army discharge, Hatfill qualified and worked as a [medical laboratory technician](#), but soon resolved to become a doctor.

Hatfill then settled in [Rhodesia](#) (now [Zimbabwe](#)) entering the [Godfrey Huggins Medical School \[4\]](#) in Salisbury (now [Harare](#)) in 1978. (His claimed military associations during this period included assistance as a medic with the [Selous Scouts](#) and membership in the [Rhodesian SAS](#), but according to one journalist the regimental association of the latter is "adamant Hatfill never belonged to the unit".) He graduated (after failing in 1983) with a [M ChB](#) degree in 1984 and then completed a one year [internship](#) (1984–85) at a small rural hospital in [South Africa's North West Province](#). The South African government recruited him to be medical officer on a 14 month (1986–88) tour of duty in Antarctica with the [South African National Antarctic Expedition](#) (SANAE). He then completed (1988) a [master's degree](#) in [microbiology](#) at the [University of Cape Town](#). He worked toward a second master's (1990; medical biochemistry and radiation biology) at the [University of Stellenbosch](#), while working again as a paid med tech in the University's clinical hematology lab. A 3-year [hematological pathology](#) residency (1991–93) at Stellenbosch followed, during which time Hatfill conducted research on the treatment of [leukemia](#) with [thalidomide](#). This research, toward an anticipated PhD degree, was conducted (1992–95) under the supervision of Professor Ralph Kirby at [Rhodes University](#).

Hatfill submitted his PhD thesis for examination to Rhodes in January 1995, but it was failed in November and no degree was ever granted. Hatfill later claimed a Ph.D. degree in "[molecular cell biology](#)" from Rhodes, as well as completion of a post-doctoral fellowship (1994–95) at the [University of Oxford](#) in [England](#) and three [master's degrees](#) (in [microbial genetics](#), [medical biochemistry](#), and [experimental pathology](#)). Some of these credentials have been questioned. During a later investigation, officials at Rhodes insisted that he had never been awarded a Ph.D. from their institution. (In 2007, Hatfill's lawyer Tom Connolly — in his lawsuit against former [U.S. Attorney General John Ashcroft](#) and the [FBI](#) — admitted that his client had "Puffed on his resume. Absolutely. Forged a diploma. Yes, that's true.")

Back in the U.S., another of Hatfill's post-doctoral appointments commenced at the [National Institute of Child Health and Human Development](#) (NICHD), one of the [National Institutes of Health](#) (NIH) in [Bethesda, Maryland](#), in 1995. He subsequently worked (1997–99) as a civilian researcher at the [United States Army Medical Research Institute of Infectious Diseases](#) (USAMRIID), the [U.S. Department of Defense's](#) medical research institute for [biological warfare](#) (BW) defense at [Fort Detrick](#), Frederick, [MD](#). There he studied, under a [National Research Council](#) fellowship, new drug treatments for the [Ebola virus](#) and became a specialist in [virology](#) and BW defense.

### **The Anthrax Attacks**

In January 1999 Hatfill transferred to a "consulting job" at [Science Applications International Corporation](#) (SAIC), which has a "sprawling campus" in nearby [McLean, Virginia](#). The corporation did work for a multitude of federal agencies. Many projects were classified.

By this time there had been a number of [hoax anthrax mailings](#) in the United States. Hatfill and his collaborator, SAIC vice president Joseph Soukup, now commissioned [William C. Patrick](#), retired head of the old US bioweapons program (who had also been a mentor of Hatfill) to write a report on the possibilities of terrorist anthrax mailing attacks. Barbara Hatch Rosenberg (director of the [Federation of American Scientists'](#) biochem weapons working group in 2002) said that the report was commissioned "under a [CIA](#) contract to SAIC". However, SAIC said Hatfill and Soukup commissioned it internally — there was no outside client.

The resulting report, dated February 1999, was subsequently seen by some as a "blueprint" for the [2001 anthrax attacks](#). Amongst other things, it suggested the maximum amount of anthrax powder - 2.5 grams - that could be put in an envelope without making a suspicious bulge. The quantity in the envelope sent to Senator Patrick Leahy in October 2001 was .871 grams. After the attacks, the report drew the attention of the media and others, and led to their investigation of Patrick and Hatfill.

### **Rosenberg Theory**

In October 2001, as soon as it became known that the [Ames strain](#) of anthrax had been used in the attacks, Dr. Barbara Hatch Rosenberg and others began suggesting that the attack might be the work of a "rogue CIA agent," and they provided the name of the "most likely" person to the FBI. On November 21, 2001, Dr. Rosenberg made similar statements to the Biological and Toxic Weapons convention in Geneva. In December 2001, she published "A Compilation of Evidence and Comments on the Source of the Mailed Anthrax" via the web site of The Federation of American Scientists (FAS) suggesting the attacks were "perpetrated with the unwitting assistance of a sophisticated government



program."

Rosenberg discussed the case with reporters from the New York Times. On January 4, 2002, Nicholas Kristof of the New York Times published a column titled "Profile of a Killer" stating "I think I know who sent out the anthrax last fall." For months, Dr. Rosenberg gave speeches and stated her beliefs to many reporters from around the world. She posted "Analysis of the Anthrax Attacks" to the FAS web site on January 17, 2002. On February 5, 2002 she published "Is the FBI Dragging Its Feet?" In response, the FBI stated, "There is no prime suspect in this case at this time." The Washington Post reported, "FBI officials over the last week have flatly discounted Dr. Rosenberg's claims."

On June 13, 2002, Dr. Rosenberg posted "The Anthrax Case: What the FBI Knows" to the FAS site. On June 18, 2002, Dr. Rosenberg presented her theories to senate staffers working for Senators Daschle and Leahy. One week later, on June 25, the FBI publicly searched Dr. Hatfill's apartment, turning him into a household name. "The FBI also pointed out that Hatfill had agreed to the search and is not considered a suspect." Both [The American Prospect](#) and [Salon.com](#) report that "Hatfill is not a suspect in the anthrax case, the FBI says." On August 3, 2002, Dr. Rosenberg told the media that the FBI asked her if "a team of government scientists could be trying to frame Steven J. Hatfill."

### Person of Interest

In August 2002, [Attorney General John Ashcroft](#) labeled Dr. Steven Hatfill a "[person of interest](#)" in a press conference, no charges were brought against him. Hatfill, a [virologist](#), vehemently denied he had anything to do with the anthrax (bacteria) mailings and sued the FBI, the Justice Department, John Ashcroft, [Alberto Gonzales](#), and others for violating his [constitutional](#) rights and for violating the [Privacy Act](#). On June 27, 2008, the Department of Justice announced it would settle Hatfill's case for \$5.8 million.

Hatfill later went to work at [Pennington Biomedical Research Center](#) in [Baton Rouge, LA](#). In September 2001 SAIC was commissioned by the Pentagon to create a replica of a mobile WMD "laboratory", alleged to have been used by Saddam. The Pentagon claimed the trailer was to be used as a training aide for teams seeking weapons of mass destruction in Iraq.

His lawyer, Victor M. Glasberg, stated: "Steve's life has been devastated by a drumbeat of innuendo, implication and speculation. We have a frightening public attack on an individual who, guilty or not, should not be exposed to this type of public opprobrium based on speculation."

In an embarrassing incident, FBI agents trailing Hatfill in a motor vehicle ran over his foot when he attempted to approach them in May 2003. Police responding to the incident did not cite the driver, but issued Hatfill a citation for "walking to create a hazard." He and his attorneys fought the ticket, but a hearing officer upheld the ticket and ordered Hatfill to pay the requisite \$5 fine.

While the media and others focused on Dr. Hatfill, the FBI had focused their attention on another suspect—[USAMRIID bacteriologist Bruce Ivins](#). Considerable questions have been raised, however, about the credibility of the case against Bruce Ivins as well.

### 60 Minutes Interview

Hatfill's lawyer, Tom Connolly, was featured in a [CBS News 60 Minutes](#) interview about the anthrax incidents on March 11, 2007. In the interview it was revealed that Hatfill forged a Ph.D. degree certificate. "It is true. It is true that he has puffed on his resume. Absolutely," Connolly acknowledged. "Forged a diploma. Yes, that's true." He went on to state, "Listen, if puffing on your resume made you the anthrax killer, then half this town should be suspect."

[The New York Times](#) stated in their paper that Hatfill had obtained an anti-anthrax medicine ([ciprofloxacin](#)) immediately prior to the anthrax mailings. Connolly explained, "Before the attacks he had surgery. So yes, he's on [Cipro](#). But the fuller truth is in fact he was on Cipro because a doctor gave it to him after sinus surgery". Hatfill had previously said the antibiotic was for a lingering sinus infection. The omission in the Times' article, of the reason why he had been taking Cipro, is one reason Hatfill sued the newspaper. The newspaper won a summary judgment ruling, in early 2007, squelching the libel suit that had been filed by Steven Hatfill against it and columnist Nicholas Kristof.



## Hatfill's Plans for the Future

Using money collected from the lawsuits against the government and against Vanity Fair and Readers' Digest, Hatfill has committed \$1.5 million to building a floating genetic laboratory, a futuristic-looking vessel replete with a helicopter, an operating room to treat rural indigenous peoples, and a Cordon Bleu-trained chef. Hatfill intends to assemble a scientific team and cruise the Amazon for undiscovered or little-known plants and animals. From these organisms, he hopes to develop new medications for leukemia, and for tuberculosis and other diseases that have been growing increasingly resistant to existing antibiotics. Any useful treatments, he says, will be licensed to pharmaceutical companies on the condition that developing nations receive them at cost.

## Lawsuits

### Hatfill v. John Ashcroft, Et Al.

On the 26th of August 2003, Hatfill filed a [lawsuit](#) against the [Attorney General of the United States John Ashcroft](#), the [United States Department of Justice](#), DOJ employees Timothy Beres and Daryl Darnell, the [Federal Bureau of Investigation](#), FBI Supervisory Special Agent Van Harp and an unknown number of FBI agents.

On March 30, 2007, US District Judge [Reggie Walton](#) issued an order warning Hatfill that he could lose his civil lawsuit over the leaks if he did not compel journalists to name their sources. He gave Hatfill until April 16 to decide whether to press the journalists to give up their sources.

On April 16, Hatfill gave notice that he would "proceed with discovery to attempt to obtain the identity of the alleged source or sources at the Department of Justice and the Federal Bureau of Investigation who allegedly provided information to news reporters concerning the criminal investigation of Dr. Hatfill."

On April 27, 2007, in the U.S. District Court for the District of Columbia, federal prosecutors[[clarification needed](#)] wrote that Steven Hatfill had overstepped court orders allowing him to compel testimony from reporters whom he had already questioned and had instead "served a new round of subpoenas" on organizations "that he failed to question during the discovery period."

During the first round of depositions, Hatfill subpoenaed six reporters: [Michael Isikoff](#) and Daniel Klaidman of [Newsweek](#), [Brian Ross](#) of [ABC](#), Allan Lengel of [The Washington Post](#), Jim Stewart of [CBS](#), and Toni Locy of [USA Today](#).

Hatfill now has subpoenaed eight news organizations, including three that he didn't name before: The [New York Times](#) ([Nicolas Kristof](#), David Johnson, [William Broad](#), Kate Zernike, [Judith Miller](#), Scott Shane, and Frank D. Roylance), [The Baltimore Sun](#) (Gretchen Parker and Curt Anderson), and the [Associated Press](#). Subpoenas for [Washington Post](#) writers Marilyn W. Thompson, David Snyder, Guy Gugliotta, Tom Jackman, Dan Eggen and Carol D. Loenning, and for Mark Miller of *Newsweek*, are now included.

The Justice Department responded to Hatfill's subpoenas, saying that they went too far. "The court should reject this attempt to expand discovery," prosecutors wrote. In a status conference on Friday 11 January 2008, U.S. District Judge Reggie B. Walton ordered the attorneys for the government and for Hatfill to seek mediation over the next two months. According to the Scheduling Order, the parties will be in mediation from January 14 until May 14, 2008. The prospects of a mediated settlement notwithstanding, Walton said he expected that a trial on the lawsuit could begin in December. Afterward, Hatfill's attorney Mark A. Grannis said: "The court has set a schedule for bringing this case to trial this year, and we're very pleased at the prospect that Dr. Hatfill will finally have his day in court."

On March 7, 2008, Toni Locy of USA Today was ordered to personally pay contempt of court fines of up to \$5,000 a day which begin the following Tuesday, until she identifies her sources.

On June 27, 2008 Hatfill was exonerated by the government and a settlement was announced in which the Justice Department has agreed to pay \$4.6 million (consisting of \$2.825 million in cash and an annuity paying \$150,000 a year for 20 years) to settle the lawsuit in which Hatfill claimed the Justice Department violated his privacy rights by speaking with reporters about the case.

### **Hatfill v. *The New York Times***

In July 2004, Hatfill filed a [lawsuit](#) against [The New York Times Company](#) and [Nicholas D. Kristof](#).

In a sealed motion on December 29, 2006, The New York Times argued that the classification restrictions imposed on the case were tantamount to an assertion of the [state secrets privilege](#). Times attorneys cited the case law on state secrets to support their argument that the case should be dismissed. The "state secrets" doctrine, they said, "precludes a case from proceeding to trial when national security precludes a party from obtaining evidence that is... necessary to support a valid defense. Dismissal is warranted in this case because the Times has been denied access to such evidence, specifically documents and testimony concerning the work done by plaintiff [Hatfill] on classified government projects relating to bioweapons, including anthrax."[\[citation needed\]](#)

A redacted copy of the December 29, 2006 New York Times Memorandum of Law in Support of Defendant's Motion for an Order Dismissing the Complaint Under the "State Secrets" Doctrine was obtained by Secrecy News.

Attorneys for Hatfill filed a sealed response on January 12, 2007 in opposition to the motion for dismissal on state secrets grounds. A redacted copy of their opposition has been made available by Secrecy News.

On January 12, 2007, a judge dismissed a [lawsuit](#) filed by Hatfill against The New York Times.

On January 30, 2007, Judge Hilton's order dismissing the Hatfill v. The New York Times was made public, along with a Memorandum Opinion explaining his ruling.

Kenneth A. Richieri, Vice President and General Counsel of The New York Times scored what he called a "very satisfying win" at the beginning of 2007 in the Eastern District of Virginia. The newspaper won a summary judgment ruling squelching a libel suit that had been filed by anthrax poisoning "person of interest" Steven Hatfill against it and columnist Nicholas Kristof.

The US Court of Appeals for the Fourth Circuit reversed the trial court, ruling that a jury should decide that issue. In March 2008, the Supreme Court refused to grant certiorari in the case, effectively leaving the appeals court decision in place.

The case was dismissed in a Summary Judgment on January 12, 2007. The appeals were heard on March 21, 2008, and the dismissal was upheld by the appeals court on July 14, 2008. The case was appealed to the U.S. Supreme Court and was rejected by the Supreme Court on Dec. 15, 2008. The basis for the dismissal was that Dr. Hatfill was a "public figure," and he had not proved malice on the part of The New York Times.

### **Hatfill v. Foster**

[Donald Foster](#), an expert in [forensic linguistics](#), advised the FBI during the investigation of the anthrax attacks. He later wrote an article for [Vanity Fair](#) about his investigation of Hatfill. In the October 2003 article Foster described how he had tried to match up Hatfill's travels with the postmarks on the anthrax letters, and analyzed old interviews and an unpublished novel by Hatfill about a bioterror attack on the United States. Foster wrote that "When I lined up Hatfill's known movements with the postmark locations of reported biothreats, those hoax anthrax attacks appeared to trail him like a vapor cloud,"

Hatfill subsequently sued Donald Foster, [Condé Nast Publications](#), [Vassar College](#), and [The Reader's Digest Association](#). The suit sought \$10 million in damages, claiming [defamation](#).[\[58\]](#) The Reader's Digest published a condensed version of the article in December 2003.

The lawyers delayed bringing the Hatfill v. Foster lawsuit to court because "the parties are close to finalizing the settlement".

On February 27, 2007, The [New York Sun](#) reported that he settled without a trial ([Wikipedia, 2012](#)).

**Title:** Hatfill Novel Depicts Terror Attack  
**Date:** August 14, 2002  
**Source:** [UCLA](#)

**Abstract:** An unfinished novel by a scientist being scrutinized in last fall's [anthrax-by-mail attacks](#) centers on a terror scheme to spread deadly bacteria in Washington, but the story written in 1998 differs in important ways from recent real-world events.

The 198-page novel, mostly finished, describes a paralyzing attack against the White House and Congress in which dozens of people sicken or die, including the fictional president and top congressional leaders. But the unpublished book, on file at the U.S. Copyright Office, does not involve anthrax or mailings.

The co-author, former Army biological weapons researcher Steven J. Hatfill, is one of about 30 scientists who have drawn the attention of law enforcement officials investigating in the attacks, although only Hatfill's name has become public.

Hatfill, 48, has denied any role and criticized the FBI and news media for engaging in what he described as personally damaging speculation and innuendo.

Hatfill's novel, "Emergence," has raised suspicions at the FBI. A U.S. law enforcement official on Tuesday characterized the work as an "interesting coincidence at this point." The FBI found a copy of the novel on Hatfill's seized computer.

It was registered for a copyright in 1998 by Roger Akers, a friend of Hatfill's who said Tuesday that he had proofread it for Hatfill and, with his permission, copyrighted it in both their names.

Hatfill's fictional villain is a Palestinian terrorist, Ismail Abu Asifa, paid by Iraq to launch a biological attack against Washington. The novel opens in Antarctica, where 10 members of a South African research team die from a strange sickness.

"Eight years later, a similar disease sweeps with explosive effect through the members of the U.S. congressional House and Senate," Hatfill wrote in the opening synopsis. "The nation's leadership is paralyzed and panic ensues as members of the executive office begin to show symptoms."

Asifa flies from England to Washington Dulles International Airport planning "to strike terror deep into the heart of the most powerful nation on Earth."

Once in Washington, Asifa buys supplies for \$387 to grow bubonic plague bacteria -- "not a high price to strike terror in the government of a country this large." The bacteria in the attacks is yersinia, not anthrax.

Hatfill's villain infects the White House using a sprayer hidden inside a wheelchair during a public tour. The president is sickened before he departs for a trip to Moscow, and within days the illness spreads to top congressional leaders.

In his plot, the White House becomes the "House of Death."

But Asifa also accidentally infects himself and ultimately stumbles into the path of a car, dying six days later in a hospital.

"For all its wealth and power, the United States ... was actually an incredibly easy target for biological terrorism," Hatfill wrote. But Hatfill noted that U.S. experts were sufficiently well trained to detect attacks that his villain "would probably have only enough time to perform one attack and observe its early effects."

"It was unlikely with his present resources, that he would be able to kill more than a few hundred people at most," Hatfill added.

Also Tuesday, the FBI in New Jersey showed merchants near a mailbox that tested positive for anthrax exposure the photograph of a man and asked if they had seen him in the area last fall. An FBI spokesman would not identify the man in the photo, but several published reports said it was Hatfill.

The idea for the novel was hatched several years ago at a dinner party where a group of journalists and former military men got to talking about bioterrorism, said Pat Clawson, a friend of Hatfill's who was there.

"We started kicking it around, that would be a cool novel to write -- let's have a bioterrorism attack on Washington and Congress," said Clawson, who is serving as Hatfill's spokesman.

The FBI has searched Hatfill's apartment in Frederick, Md., twice, as well as his car, a storage locker in Florida and the home of his girlfriend.

Law enforcement officials have described Hatfill as a "person of interest," not a criminal suspect.

While declaring his innocence publicly this week, Hatfill emphasized that his background is in the study of viral diseases such as Ebola, not bacterial diseases such as anthrax.

Hatfill previously worked at the U.S. Army Medical Research Institute at Fort Detrick, Md., once home to the U.S. biological warfare program and repository for the Ames strain of anthrax that was used in the attacks ([UCLA, 2002](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The 9/11 Anthrax attacks were allegedly committed by Army scientist Bruce Ivins shortly after 9/11. Although it is not yet clear if Ivins was truly responsible or just an unfortunate scapegoat, the strain of Anthrax was confirmed to be from the U.S. Army Medical Research Institute of Infectious Disease (USAMRIID) in Fort Detrick, Maryland. Speculation currently exists that Army [biological weapons researcher Steven J. Hatfill was the rouge Anthrax scientist](#) who coincidentally and suspiciously had authored a book (unfinished and unpublished) in 1998 which describes a paralyzing bio-terror attack against the White House and Congress in which dozens of people sicken or die. It is quite possible that [Hatfill's book "Emergence"](#) was a clever alibi which provided future political cover in the aftermath of the attacks.

The [9/11 Anthrax attacks](#) are a great case study of why the government and its minions should always be the first suspect in any terror case, especially one involving bio-terrorism. Aside from having the means, the motive and the opportunity to conduct a major bio-terror attack, they have an unlimited supply of willing, able and blackmailable rouge scientists to choose from. In order to organize, plan, drill and execute a major bio-terror false-flag operation, millions if not hundreds of millions of dollars are needed to blackmail scientists, steal or develop the virus or agent, weaponize it, deliver it, and execute the operation without getting arrested or properly investigated. The sheer logistics, security, communication and cover-up needed before and after the bio-terror attack is so daunting, there is only one suspect (government) even capable of carrying it out.

**Title:** Suicide Of Anthrax Scientist Raises Questions

**Date:** August 1, 2008

**Source:** [Science Mag](#)

**Abstract:** One of the greatest criminal mysteries of the decade has taken a dramatic new turn with the suicide last Tuesday of Bruce Ivins, an anthrax researcher at the U.S. Army Medical Research Institute of Infectious Disease (USAMRIID) in Fort Detrick, Maryland. According to news reports, federal prosecutors were preparing to file charges against Ivins, 62, for plotting the anthrax letter attacks which killed five people and sickened 17 others in October and November 2001.

Biodefense researchers were pondering today whether there might be a backlash to their field if the worst bioterror crime in U.S. history was indeed committed by a scientist who had spent a career developing countermeasures against anthrax. But the fact that Ivins won't face trial also raised the uncomfortable specter that the full truth about the case may never come out. "We may never know for sure whether he did it or not," says virologist Thomas Geisbert, a former USAMRIID researcher now at Boston University. Ivins's lawyer, Paul Kemp of Rockville, Maryland, issued a statement quoted by *The New York Times* declaring his client innocent and alleging that mounting pressure from the Federal Bureau of Investigation (FBI) had "led to his untimely death."

According to the *Los Angeles Times*, which broke the story this morning, Ivins committed suicide by taking an overdose of painkillers. Ivins had worked at USAMRIID for 18 years, focusing primarily on anthrax. Most of his published work was on anthrax vaccines. Ivins produced and used anthrax spores of the Ames strain, the type used in the letter attacks, to infect animals.

In a statement issued this afternoon, the FBI did not mention Ivins's name but said it would reveal more information about the case after victims' families had been informed. The bureau said that "substantial progress" has been made in the case, thanks in part to "new and sophisticated scientific tools"--but it didn't give specifics.

The FBI has been under immense pressure from politicians and the public to find the perpetrators of the 2001 attacks, and some are worried that Ivins's death may provide a premature opportunity to declare the case solved. In a statement today, Alan Pearson of the Center for Arms Control and Non-Proliferation in Washington, D.C., called on the bureau to continue its investigation. "The need for a thorough investigation and a full accounting to the American people remains." Ivins's inability to defend himself makes it even more important that scientists be able to pore over the complete scientific evidence, says R. John Collier, an anthrax researcher at Harvard University. "I would love to see what they have," Collier says.

Just this summer, the government agreed to pay \$4.6 million to Steven Hatfill, a biodefense researcher whose life was turned upside down in 2002 after then-Attorney General John Ashcroft called him a "person of interest" in the anthrax attacks. Geisbert wonders whether Ivins's death was the result of "another Hatfill situation, and was he just unable to handle the pressure."

The death--and presumed involvement in the anthrax letters--puts the biodefense research community in a tight spot, says Gerald Epstein, a biosecurity expert at the Center for Strategic and International Studies in Washington, D.C. "From the very beginning, there has been speculation that the attacks were carried out by a biodefense zealot who wanted to prove that bioterrorism was a serious problem," says Epstein. If true, that could give the public the impression that "biodefense research is a giant fraud," he says. "It would be unfortunate if the message people take away from this is that the only individuals we should be concerned about are deranged biodefense scientists."

Geisbert worries that Ivins's potential involvement will give new ammunition to local groups that have tried to stop the wave of new biosafety labs. In Boston, "we have had a lot of opposition--and this is not going to help," he says. Still, Geisbert points out, none of the anthrax victims lived in or near USAMRIID, and there's no reason to believe local residents are at greater risk when a biodefense researcher becomes a bioterrorist himself.

Jonathan Tucker, a specialist on biological weapons control, says the incident is bound to evoke new concerns about "insider threats" at government and university labs. Officials may be compelled to further scrutinize researchers who work with select agents, Tucker says, adding that some questions have already been raised about "the adequacy of the screening process" used by the FBI to determine if a scientist should be allowed to work with a dangerous pathogen ([Science Mag, 2008](#)).

**Title:** Anthrax Case Renews Questions On Bioterror

**Date:** August 3, 2008

**Source:** [New York Times](#)

**Abstract:** Until the [anthrax](#) attacks of 2001, [Bruce E. Ivins](#) was one of just a few dozen American bioterrorism researchers working with the most lethal biological pathogens, almost all at high-security military laboratories.

Today, there are hundreds of such researchers in scores of laboratories at universities and other institutions around the United States, preparing for the next bioattack.

But the revelation that [F.B.I.](#) investigators believe that the anthrax attacks were carried out by Dr. Ivins, an Army biodefense scientist who committed suicide last week after he learned that he was about to be indicted for murder, has already re-ignited a debate: Has the unprecedented boom in biodefense



research made the country less secure by multiplying the places and people with access to dangerous germs?

"We are putting America at more risk, not less risk," said Representative Bart Stupak, Democrat of Michigan and chairman of a House panel that has investigated recent safety lapses at biolabs.

F.B.I. investigators have long speculated that the motive for the attacks, if carried out by a biodefense insider like Dr. Ivins, might have been to draw public attention to a dire threat, attracting money and prestige to a once-obscure field.

If that was the motive, it succeeded. In the years since anthrax-laced letters were sent to members of Congress and news organizations in late 2001, killing five people, almost \$50 billion in federal money has been spent to build new laboratories, develop vaccines and stockpile drugs.

After the attacks, for example, an experimental vaccine Dr. Ivins had spent years working on moved from the laboratory to a proposed \$877 million federal contract, though the deal collapsed two years later. Federal documents suggest that Dr. Ivins, along with several colleagues, might have earned royalties had the contract gone forward, but the deal ultimately collapsed.

Dr. Ivins's lawyer, Paul F. Kemp, and some of the scientist's colleagues insist that he was innocent. Mr. Kemp said by e-mail on Saturday that news reports that his client had considered agreeing to a plea bargain were "entirely spurious." And a senior law enforcement official said that discussions between investigators and Mr. Kemp were "preliminary" and routine and did not represent any active discussion of a plea bargain.

But officials at the Justice Department and the Federal Bureau of Investigation on Saturday appeared confident that they had the right man. They said they were still weighing how and when to seek an end to the grand jury investigation.

"That's not a decision we're going to make lightly," said one Justice Department official who spoke on condition of anonymity because he was not authorized to discuss internal deliberations. "There won't be a rush to judgment."

As prosecutors consider how to proceed in the wake of Dr. Ivins's death, federal officials say they are convinced that the increase in biodefense spending has brought real gains.

"Across the spectrum of biothreats we have expanded our capacity significantly," said Craig Vanderwagen, an assistant secretary at the [Department of Health and Human Services](#) who oversees the biodefense effort. Systems to detect an attack, investigate it and respond with drugs, vaccines and cleanup are all hugely improved, Dr. Vanderwagen said. "We can get pills in the mouth," he said.

Supporters of the spending increase cite studies that project apocalyptic tolls from a large-scale biological attack. One 2003 study led by a Stanford scholar, for instance, found that just two pounds of anthrax spores dropped over an American city could kill more than 100,000 people, even if [antibiotic](#) distribution began quickly.

And there is ample evidence that Qaeda leaders have shown interest in using biological weapons. Yazid Sufaat, a Malaysian-born Qaeda biochemist who trained in the United States, spent several months in 2001 trying to cultivate anthrax in Kandahar, Afghanistan.

Yet nearly seven years have passed without another biological attack, which has reduced the sense of urgency about the bioterrorist threat, even among some specialists.



"I think it's an important risk, but frankly I'm more concerned about bombs and guns, which are easily available and can be very destructive," said Randall S. Murch, a former F.B.I. scientist who has studied ways to trace a bioterrorist attack to its source.

And Congressional investigators recently warned that the proliferation of biodefense research laboratories presents real threats, too.

More people in more places handling toxic agents create more opportunities for an accident or intentional misuse by an insider, Keith Rhodes, an investigator with the [Government Accountability Office](#), said at a Congressional hearing in October.

Nationwide, an estimated 14,000 people work at about 400 laboratories and have permission to work with so-called select agents, which could be used in a bioterror attack, although not all are authorized to handle the most toxic substances, like anthrax. With so many people involved, there is insufficient federal oversight of biodefense facilities to make sure the laboratories follow security rules and report accidents that might threaten lab workers or lead to a release that might endanger the public, Mr. Rhodes testified.

In effect, the government may be providing the tools that a would-be terrorist could use, said Richard H. Ebright, a [Rutgers University](#) biochemist and vocal critic of the federal increase in biodefense spending.

"One well-placed student, technician or senior scientist — no cost, with the salary being provided courtesy of the U.S. taxpayer — and no risk, no difficulty," Mr. Ebright said. "That is all it takes."

Heightening the concern has been a string of accidents at certain new or expanded biodefense laboratories, several of which were not properly reported to the authorities when they took place.

One of the first accidents was in Dr. Ivins's lab in late 2001, when he and his colleagues were aiding the federal investigation of the anthrax attacks and spores accidentally spilled outside the secure area. He failed to report the event to his superiors and instead tried to disinfect the contaminated areas, according to an Army report, which concluded, "Adherence to institute safety procedures by laboratory personnel is lax."

In early 2006, at [Texas A&M University](#), a worker was infected with Brucella bacteria, a pathogen common in livestock that can cause flulike symptoms like [fever](#), fatigue and [joint pain](#), although it is rarely fatal. Later, three researchers at the same lab were infected with [Q fever](#), another cattle-borne disease that can cause serious but generally not fatal illness in humans.

After the two incidents belatedly became public, federal officials temporarily shut down the laboratory, citing a series of safety shortcomings, like unapproved experiments and staff members given access to the dangerous agents even though they had not been approved to handle them.

Apart from the insider threat, some public health experts believe money used to study obscure pathogens that are not a major disease problem could be better directed to study known killers like [influenza](#) or [AIDS](#).

Partly in response to this criticism, government officials now often talk about how strengthening the systems necessary to respond to a terror attack would also prepare the country for a natural epidemic like avian [flu](#).

As experts debate threats, nervous neighbors of expanding biodefense facilities have repeatedly rallied to try to defeat them. At Fort Detrick in Maryland, some residents have opposed the construction of a "national biodefense campus" slated to include a new building to house the [United States Army](#) Medical Research Institute of Infectious Diseases, where Dr. Ivins worked for many years before his suicide.

Three other new laboratories on the campus will be operated by the Departments of Homeland Security, Health and Human Services, and Agriculture.

Proponents say clustering the laboratories on a military base will encourage safe scientific collaboration and save money through sharing of some facilities.

The buildup, and the related increase in research, has brought some important advances, federal officials argue, like promising new experimental vaccines or therapies to treat [smallpox](#) or Ebola virus.

The country now also has an expanded stockpile of vaccines and drugs to treat anyone exposed in a future attack, including enough antibiotics to treat more than 40 million Americans who might be exposed to anthrax and nearly five million bottles of a special potassium iodide liquid that helps protect infants from harm caused by nuclear fallout.

The deal for the \$877 million contract that included Dr. Ivins's vaccine collapsed in 2006 after the contractor, VaxGen of Brisbane, Calif., missed deadlines. VaxGen, in a licensing agreement with the Army to produce the vaccine, listed two patents held by Dr. Ivins and his colleagues. The possibility that Dr. Ivins could earn royalties from the patents was first reported by The Los Angeles Times.

Arthur Friedlander, one of Dr. Ivins's collaborators in the work that led to the anthrax vaccine patent in 2002, declined to comment when asked Saturday if he and others who had worked on the project stood to gain financially. He referred the question to an Army spokeswoman, who did not respond to a request for comment.

Dr. Ivins's lawyer, Mr. Kemp, said he could not comment on the notion that Dr. Ivins stood to earn royalties from vaccine patents because of attorney-client privilege.

VaxGen had agreed to pay royalties to the Army in exchange for the license to produce the new anthrax vaccine, according to federal financial disclosure it filed. And Army policy would allow the inventor to receive up to \$150,000 a year "of any royalties/payments resulting from commercial licensure."

It is unclear what the deal in this case might have been, or how the royalties might have been split among the five researchers whose names were on the patent.

Addressing the issue of bioterrorism spending, Michael Greenberger, director of the Center for Health and Homeland Security at the [University of Maryland](#), said he was convinced that the increase had left the nation better prepared for an attack, without creating significant new vulnerabilities.

"You can never say that the system is 100 percent secure," Mr. Greenberger said. "But the research ethic today is one of much greater discipline and focus on security than was true prior to the anthrax attacks."

Mr. Stupak, the congressman from Michigan, remains concerned.

"You have all these universities tripping over each other trying to be high-level biosecurity labs," he said. "What the nation gets is a very expensive bill, less security and a greater risk to the surrounding communities" ([New York Times, 2008](#)).

**Title:** Army Researcher's Alleged Anthrax Attack Raises Concerns Over Biodefense Labs

**Date:** August 4, 2008

**Source:** [Discovery](#)

**Abstract:** Last week's suicide by a government biodefense researcher who had been linked to the mailing of anthrax-laced letters in 2001 has raised thorny questions about whether the benefits of

biodefense research outweigh the risks. Researcher Bruce Ivins had reportedly been informed by the FBI that he was about to be indicted for murder in the incident that killed five people and sent 17 more to the hospital.

Some observers point out that biodefense research has vastly increased since the terrorist attacks of 2001, and raise the question: Has the unprecedented boom in biodefense research made the country less secure by multiplying the places and people with access to dangerous germs? ... Nationwide, an estimated 14,000 people work at about 400 laboratories and have permission to work with so-called select agents, which could be used in a bioterror attack, although not all are authorized to handle the most toxic substances, like anthrax.

Yet Ivins may have been motivated by the desire to spur a further increase of biodefense spending and research, former acquaintances said. One former senior official with Ivins' employer ... said he believed his former colleague wanted more attention — and resources — shifted to biological defense. "It had to have been a motive," said the former official, who suspects that Ivins was the culprit. "I don't think he ever intended to kill anybody. He just wanted to prove 'Look, this is possible.' He probably had no clue that it would aerosolize through those envelopes and kill those postal workers".

Ivins' biography is full of contradictions. He was a trusted researcher for the U.S. Army for 35 years and received a commendation from the Department of Defense, yet his therapist described him as a "revenge killer" who had been diagnosed by several psychiatrists as "a sociopathic, homicidal killer". The news of Ivins' apparent instability is likely to draw more attention to the possibility of "insider threats" at government and university labs. Officials may be compelled to further scrutinize researchers who work with select agents, [biological weapons expert Jonathan] Tucker says, adding that some questions have already been raised about "the adequacy of the screening process" used by the FBI to determine if a scientist should be allowed to work with a dangerous pathogen ([Discovery, 2008](#)).

# Bio & Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The strange case of Thomas C. Butler and the missing bubonic plague vials is yet another great case study of why the government should always be the first suspect in any terror case, especially one involving bio-terrorism. Aside from having the means, the motive and the opportunity to conduct a major bio-terror attack, they have an unlimited supply of willing, able and blackmailable rouge scientists to choose from. In order to organize, plan, drill and execute a major bio-terror false-flag operation, millions if not hundreds of millions of dollars are needed to blackmail scientists, steal or develop the virus or agent, weaponize it, deliver it, and execute the operation without getting arrested or properly investigated. The sheer logistics, security, communication and cover-up needed before and after the bio-terror attack is so daunting, there is only one suspect (government) even capable of carrying it out.

**Title:** Professor Arrested In Missing Vials Case

**Date:** January 16, 2003

**Source:** [UCLA](#)

**Abstract:** When 30 vials of a deadly bacteria that causes bubonic plague were reported missing from Texas Tech University, anxiety here was palpable. Homeland Security chief Tom Ridge contacted the mayor, a terrorism alert was triggered and dozens of investigators from the FBI and other agencies converged.

But officials said Wednesday the bacteria wasn't missing after all. They alleged a Texas Tech professor had destroyed the vials before reporting their disappearance.

Dr. Thomas C. Butler was arrested Wednesday on a complaint of giving false information to the FBI. According to U.S. Attorney Dick Baker, Butler said Tuesday that vials containing bacteria obtained from tissue samples from East Africa were missing when "truth in fact, as he well knew, he had destroyed them prior to that."

Butler was booked into the Lubbock County Jail. He was scheduled to make his initial court appearance Thursday.

"We have accounted for all those missing vials and we have determined that there is no danger to public safety whatsoever," Lubbock FBI Lupe Gonzalez said.

The samples, among the 180 the school was using for research on the treatment of plague, were reported missing to campus police Tuesday night. Butler was the only person with authorized access to the bacteria, which is classified as a select agent that has to be registered with the International Biohazards Committee and with the federal government.

University spokeswoman Cindy Rugeley said Butler, the project's principal investigator, made the report.

Butler is chief of the infectious diseases division of the department of internal medicine at Texas Tech's medical school. The university said he has been involved in plague research for more than 25 years and is internationally recognized in the field. He has been at Texas Tech since 1987.

Dr. Richard Homan, Texas Tech School of Medicine dean, said the bacteria form of plague being used for research "was not weaponized in any way."

Authorities declined to elaborate on what happened to the missing vials. When pressed about what happened, officials repeatedly responded that the samples "have been accounted for."

Baker said FBI agents interviewed Butler on Tuesday. He said the complaint noted the false statement resulted in a huge investigation involving about 60 state, local and federal agents.

The public did not learn of the report of missing vials until early Wednesday. But hospitals and medical personnel were notified Tuesday, part of the city's post-Sept. 11 emergency plan.

Samples were kept in a locked area of Butler's lab, which is not in a high-traffic area. Butler kept logs on batches of samples, and one batch was reported missing, according to the [Lubbock Avalanche-Journal](#).

The secure area does not have a surveillance camera but access is controlled, officials said.

"I don't know the precise number (of keys), but it's limited," said Texas Tech Chancellor David Smith. "Policy (for federal grants) was not violated. This is one where we're looking at the human element."

Plague — along with anthrax, smallpox and a few other deadly agents — is on a watch list distributed by the government, which wants to make sure doctors and hospitals recognize a biological attack quickly.

Health officials say 10 to 20 people in the United States contract plague each year, usually through infected fleas or rodents. The plague can be treated with antibiotics, but about one in seven U.S. cases is fatal.

Texas Tech said that officials thought it was "prudent" to get law enforcement involved because of current concerns about bioterrorism.

The report was taken seriously at the highest levels of national security.

Lubbock Mayor Marc McDougal said he received a telephone call Wednesday from Tom Ridge, head of the Department of Homeland Security, offering contact information and assistance from his Washington office.

The FBI sent agents to Lubbock, and the Centers for Disease Control and Prevention took part in the investigation. About 60 investigators from the FBI and other agencies converged on the medical school Tuesday night.

Smith said university policy was not violated, and no administrative action had been taken against faculty or staff as of Wednesday afternoon.

"We're in the process of an internal review," he said ([UCLA, 2003](#)).

**Title:** Tech Professor Flew With Live Plague Samples

**Date:** February 21, 2003

**Source:** [UCLA](#)

**Abstract:** Thomas Butler, the Texas Tech professor accused of lying to the FBI about missing plague specimens, carried live samples of plague aboard commercial airlines for research at Tech, *The Avalanche-Journal* has learned through documents and individuals close to the case.

Attorney Floyd Holder, who represents Butler, insisted that Butler's method of transporting specimens of the plague-causing organism *Yersinia pestis*, or YP, was completely safe. He said Butler secured the samples in a plastic container in his luggage. The plague samples, he said, were taken from infected Tanzanians.

"He described it to me that it would be impossible to break it (the container) with a sledge hammer," Holder said. "It was absolutely safe to transport it the way he did."

Vickie Sutton, a lawyer, scientist and director of Tech's Center for Biodefense, Law and Public Policy, disagreed.

"If that were the case, then why do we have regulations for safe transfer of select agents?" she asked.

Three forms of plague are caused by YP. The disease progresses rapidly and the bacteria can invade the blood stream, producing a severe illness called plague septicemia.

Symptoms of another form, bubonic plague, include fever, headache and general illness, followed by the development of painful, swollen lymph nodes.

The most dangerous type of plague is pneumonic, a relatively rare airborne variety. It can be spread through aerosol droplets released through coughs and sneezes or through fluid contact. Although not as common as the bubonic strain, it is more deadly. Left untreated, its mortality rate is nearly 100 percent.

"The very reason that we have controls for these select agents is because there's a public health risk," Sutton said. Simply breaking a tube of YP could lead to outbreaks of pneumonic plague, she said.

Federal agencies such as the Federal Aviation Administration, the Centers for Disease Control and Prevention and others require permits and other documents for the transportation of biological material such as YP.

Butler is accused of lying to federal agents Jan. 14, 2003, when he reported that 30 vials of plague had been stolen from his lab at Tech's Health Sciences Center. The report triggered a massive investigation by local, state and federal authorities.

More than 60 investigators worked through the night of Jan. 14 to track down the missing vials. Secretary of Homeland Security Tom Ridge called Mayor Marc McDougal to offer assistance, and President Bush was briefed on the matter.

Butler is free on a \$100,000 bond and strict conditions set by federal court. He must wear an electronic monitor, is forbidden from contacting potential witnesses from the Food and Drug Administration, the CDC office in Fort Collins, Colo., and the U.S. Army Medical Research Institute for Infectious Diseases in Fort Detrick, Md. He also may not contact potential witnesses in Tanzania or London. He is barred from carrying biological agents on any aircraft.

Butler is on paid administrative leave from the university and is forbidden from being on campus.

Holder said he believes federal authorities likely will bring additional charges against Butler based on their assertion that he failed to go through proper channels in importing live plague samples.

"There may be some laws out there somewhere that somebody thinks he broke, but I don't think he did," Holder said. "There may have been some problem with whether he dotted every 'i' and crossed every 't.' Certainly he had no criminal intent to smuggle anything in."

Assistant U.S. Attorney Dick Baker, prosecutor in the case, said, "I cannot comment on the potential charges or evidence in this ongoing investigation."

Butler penned a statement in which he admitted to telling authorities the YP samples were missing or stolen when in fact Butler knew he had destroyed them, the government alleges in court documents.

Holder questioned the credibility of that statement.

"You've got to figure out how that statement got constructed and who helped write that statement. It's not his language," Holder said. "We told everybody he did not pull a hoax, he did not tell people something was gone when he knew it wasn't gone — that's the FBI's position."

Miles Burden, FBI supervisor of the Lubbock office, declined to comment on the case.

In a response to a Texas Public Information Act request submitted by *The A-J*, attorneys for the Tech Health Sciences Center said they could not furnish documents detailing Butler's inventory of plague, how it was stored or how it was transported to the lab.

"There are no records, to which TTUHSC has access at this time, that are federal shipping permits allowing Dr. Butler to send and receive human-derived samples of YP. Such documents may have been maintained by Dr. Butler and may be otherwise inaccessible due to the pending criminal investigation," lawyers for the Health Sciences Center told *The A-J*.

Tech's Institutional Biohazards Committee must approve research involving "biologically or chemically hazardous material," according to university policy, which is based on federal guidelines governing biological research.

Although Butler had approval for research involving YP cultures, "There are no documents from the IBC specifically approving Dr. Butler's use of human-derived YP," HSC attorneys said.

Pat Campbell, general counsel for Tech, said he could not provide specific details of Butler's standing with the university's Institutional Review Board, which governs such research.

However, he said, "I think the university as a whole, the Health Sciences Center has questions about how aware was the university of what he was doing and how he was doing it."

Holder said Butler was conducting research on people in Tanzania without review board approval, but he questioned whether the board has authority in foreign countries.

Holder also contends that once the samples reached Tech, there was no longer an element of human participation in the studies.

Sutton said that's not the case.

"Any sample that's identifiable with a person at any time, that is traceable (to a person), that's still a human subject," Sutton said. "From the kind of work he's doing, if he's taking samples back, he has to track their symptoms. He has to know who's getting the antibiotics. That's a federal law."

Butler, Holder said, did not lie to or mislead university officials about his research.

"He told everybody he had it (live human plague samples), where he got it and how he got it in, including the CDC, who are the people who are in charge of all this stuff," Holder said.



Butler brought the samples from Tanzania to Tech in April 2001. The samples were preparatory work for a \$700,000 grant he was seeking from the FDA to study medical treatments for plague, Holder said.

Butler cultured the Tanzanian plague samples in his lab at Tech before delivering samples to Army medical research in Maryland, Holder said. Butler then took samples to the CDC in Fort Collins.

"Now if there's something wrong, why didn't the CDC say, 'Tom, how did you get this stuff into the country?' " Holder said. "They know how he got it in, and they approved of it and ratified it."

Holder said Butler has imported plague about 60 times over the past 30 years. He maintains the charges against Butler are an over-reaction on the part of authorities.

Baker disagrees.

"Any allegations of stolen biological pathogens will be responded to with a measured and appropriate response to ensure public health, safety and welfare, as was done in this case," he said.

Sutton said any potential biological weapons threat requires a rapid and comprehensive response.

"When there is a concern of stolen biological agent that is on one of the top three biological agents that can be weaponized, we should be concerned about it as a nation," Sutton said.

"The important thing in a biological threat is immediate response — more so than nuclear or radiological because the threat will increase exponentially hour by hour and can't be contained to one site. Like no other threat, biological threats have to be dealt with immediately with full force" ([UCLA, 2003](#)).

**Title:** The Thomas Butler Case: Some Unreported Information And Reasons For The Department Of Justice's Prosecution

**Date:** October 23, 2003

**Source:** [Sunshine Project](#)

**Abstract:** Thomas Butler, the scientist who lost plague samples and prompted a national bioterrorism scare, goes to trial on November 3rd. Butler faces 69 federal counts and a possible penalty totaling \$17 million in fines and more than 200 years in prison.

The Department of Justice (DOJ) doesn't publicly comment on the case; but news reports say that it is using Butler as an object lesson for scientists working with bioweapons agents. Purportedly, that lesson is "don't play loose with disease samples". Some scientists and scientific organizations are rallying to Butler's cause. They say that the charges are grossly disproportionate to mistakes committed. Some allege that the Butler prosecution will make the US vulnerable by scaring scientists away from biodefense research. The case has been characterized as one pitting scientific freedom and treatments for disease against an overzealous DOJ that simply does not understand the culture of life scientists.

But if life scientists are looking for a cause to symbolize their resentment of new oversight laws, the Butler case may not be one that wins them public sympathy. There is a 'crime' far more heinous than Butler's bumbling that underlies the prosecution: the gutting of openness in academic institutions by secretive biodefense research. A major reason behind DOJ's aggressive posture seems to have less to do with Dr. Butler personally than it does with the biodefense research program of his institution, Texas Tech University (TTU).

What has gone unreported in the Butler case is that Texas Tech's work with bioweapons is far from a little program at an ordinary state school in a flat and dusty corner of middle America. In fact, Butler worked in

the midst of a large and secretive biodefense program supported by the US Army, a program that even many life scientists may not be aware of.

The TTU - US Army program is one that is not primarily oriented toward treating disease, rather, it engages in other kinds of research on bioweapons agents and toxins. This includes types of work that have drawn international criticism of the US because they push the envelope of acceptability under the Biological Weapons Convention.

TTU's biodefense patron is the US Army Soldier Biological Chemical Command (SBCCOM). The conduit for this money into TTU is its Institute for Environmental and Human Health (TIEHH), which is located off-campus at the former Reese Air Force Base. While TIEHH's website emphasizes its research on environmental contaminants and studies to save reptiles; pollution and wildlife aren't the main course on TIEHH's dinner table.

Behind its somewhat misleading public image, TIEHH is an Army biodefense research center. And its faculty and funding are intricately tied up with infectious disease research at Butler's direct employer - the TTU Health Sciences Center. How much of TIEHH's work is Army biodefense? SBCCOM provides a whopping 75% of TIEHH's research contracts. With additional money from the Air Force, four out of five external research dollars coming into the inappropriately-named Institute for Environmental and Human Health are for Pentagon biodefense studies. Some of the SBCCOM grants are passed through TIEHH to the TTU Health Sciences Center, including Army-funded research on Dr. Butler's specialty - plague.

As of August 31st, 2003, TTU financial documents list 22 active biodefense contracts between TIEHH and the Department of Defense, totaling more than \$7.5 million in cash in TTU accounts. Twenty one of these contracts are with SBCCOM. Apart from some projects on protective clothing whose purpose is relatively clear, what exactly TTU is doing for the Pentagon is poorly publicly documented.

Some research, however, appears to be of the type that is earning the US biodefense program international mistrust. SBCCOM-funded projects at TIEHH include threat assessment programs to make toxin concoctions by mixing different bioweapons agents together, a program that does not appear to respond to any documented threat. Another project is on chem/bio decontamination of large objects, such as military equipment. The latter projects can be accomplished using simulants – not live agents - but it is unclear which approach TTU is using. It could involve large scale weaponization of disease agents and toxins. TIEHH has also been extensively remodeling its Reese Air Force Base site to create "state of the art" facilities for its research. A complete description of these facilities has not been made available to the public.

The Butler case has never been simply about an absent-minded professor at an average state university. The story broke as the FBI increasingly focused on the US biodefense program in its investigation of the anthrax letters of 2001. For the government, the lost plague raised more embarrassing questions about the security of Pentagon biodefense research. The case is also about the government enforcing the quid pro quo that it and life sciences institutions have developed: various federal agencies provide enormous money for a tightly-proscribed research agenda on bioweapons. Research institutions get this support if they kowtow to the government's priorities, including secrecy, and if they don't have embarrassing screw ups.

Up against DOJ and his employer, Butler will need all the help he can get – not because his plague error caused any demonstrated harm; but because the reasons for his prosecution include the government's need to protect sensitive research from the public eye. The case is not simply about reassurances that sloppy handling of disease will not be tolerated – the publicity surrounding the lost vials highlights the vulnerability of sensitive research to accidents. A leak at a sensitive biodefense project isn't just a potential health or terrorism threat. An accident could be an international political liability if it reveals the "wrong" research, and Butler was certainly close to projects that appear to fit that description. It is thus not

surprising that Justice wants him in jail and TTU wants him fired. In this sense, the prosecution of Butler serves to make clear the restrictive terms of the government's biodefense largesse.

Supporters of intellectual and scientific freedom who are aligning themselves to Butler's cause would be more likely to earn admiration by challenging the biodefense agenda that is compromising institutions like Texas Tech and that has led to Butler's aggressive indictment. But the defendant's defenders haven't done this. So far, their arguments relate more to the narrower interests of protecting their own.

There's no question that the Department of Justice is making an example of Thomas Butler, and probably unfairly so. But standing up for Dr. Butler isn't a very noble cause if it is done for the self-interested purpose of absolving biodefense scientists from serious prosecution, rather than protecting public science from the Pentagon's biodefense invasion.

If there can be a positive outcome of Butler's trial, it will be a thorough public exploration of TTU's research and of how biodefense is compromising the integrity of institutions like Texas Tech ([Sunshine Project, 2003](#)).

# Bio & Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The strange case of Konan Michel Yao and the smuggled Ebola virus is yet another great case study of why the government should always be the first suspect in any terror case, especially one involving bio-terrorism. Aside from having the means, the motive and the opportunity to conduct a major bio-terror attack, they have an unlimited supply of willing, able and blackmailable rouge scientists to choose from. In order to organize, plan, drill and execute a major bio-terror false-flag operation, millions if not hundreds of millions of dollars are needed to blackmail scientists, steal or develop the virus or agent, weaponize it, deliver it, and execute the operation without getting arrested or properly investigated. The sheer logistics, security, communication and cover-up needed before and after the bio-terror attack is so daunting, there is only one suspect (government) even capable of carrying it out.

**Title:** Winnipeg Researcher Charged With Smuggling Ebola Material Into U.S.

**Date:** May 13, 2009

**Source:** [CBC](#)

**Abstract:** A former researcher at the National Microbiology Lab in Winnipeg is facing charges in the United States after allegedly trying to smuggle genetic material from the Ebola virus across the Manitoba-North Dakota border.

U.S. authorities allege Konan Michel Yao had 22 vials of the substance in the trunk of his car when he tried to cross the border on May 5. He is charged with smuggling merchandise, which carries a maximum penalty of 20 years in prison and a fine of \$250,000 US.

U.S. customs officers allegedly found the vials wrapped in aluminum foil inside a glove and packaged in a plastic bag, along with electrical wires.

In his affidavit, the 42-year-old researcher said he was hired by the Public Health Agency of Canada to work as a PhD fellow at the Winnipeg facility. Yao told officers he was working on a vaccine for the Ebola virus and HIV.

On Jan. 21, his last day at the lab, he said he stole 22 vials, which he described as research vectors, according to the affidavit.

Yao told officers he was taking the vials to his new job with the National Institutes of Health at the Biodefense Research Laboratory in Bethesda, Md., because he didn't want to start from scratch in his research.

Dr. Frank Plummer, the scientific director of the Winnipeg lab, said the genetic material taken was not the full Ebola virus and does not pose a risk to the public.

Plummer said theft has never happened at the lab before. Researchers are reminded they cannot take any lab property without permission, and they sign documents asserting that they know the rules, he said.

The lab is now reviewing its biosecurity protocol.

### **No public health risk, Canadian health agency says**

Lynn Jordheim, the U.S. attorney prosecuting the case, said Yao was not carrying the active viruses. Still, Jordheim said, the allegations against Yao are serious.

"You take it seriously when something like this happens, but this is not the scenario you fear where somebody would be bringing a biological agent across," Jordheim said.

A spokesman with the U.S. Federal Bureau of Investigation's Minnesota office told CBC News on Wednesday that the agency was initially called in to investigate and monitor a terrorist threat, but the threat was assessed and ruled out.

The FBI said U.S. Immigration and Customs Enforcement will be handling the investigation.

The Public Health Agency of Canada said there was never a public health risk, and insisted Yao did not have access to the highest-level pathogens and only worked with non-infectious material.

A spokesperson for the agency confirmed that the accused was a researcher who hadn't worked at the National Microbiology Lab since January.

Yao was born in the Ivory Coast. He studied at Laval University in Quebec and was briefly affiliated with the plant sciences department at the University of Manitoba.

A former supervisor described him as "a normal researcher" ([CBC, 2009](#)).

**Title:** Former Manitoba Researcher Sentenced

**Date:** May 22, 2009

**Source:** [CJOB 68](#)

**Abstract:** A former researcher at the National Microbiology Laboratory in Winnipeg accused of trying to smuggle genetic material from the Ebola virus across the Manitoba-North Dakota border pleaded guilty to a lesser charge on Friday.

42 year old Konan Michel Yao pleaded guilty to a charge of "failure to present merchandise for inspection." He received a 17 day jail sentence and was fined 500 dollars.. Yao is in the custody of U.S. customs officials and it's not clear if He's returning to Canada.

Yao was caught at the border on May 5 on his way to a new job with the National Institutes of Health at the Biodefense Research Lab in Bethesda, Maryland. He had 22 vials in the trunk of his car that were allegedly taken from the lab.

Yao had initially been hired by the Public Health Agency of Canada to work as a PhD fellow at the Winnipeg facility..

The Agency said there was never a public health risk, saying Yao did not have access to the highest-level pathogens and only worked with non-infectious material ([CJOB 68, 2009](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#) or by D) the portable petri dish commonly known as the [Trojan condom](#).

Aside from the propaganda linking Africa to bio-terror (see below), the [Africa Anthrax attacks](#) occurred roughly one month after the [9/11 Anthrax Attacks](#) in America. The 2001 attacks set-up Africa as a future bio-terror scapegoat and exhibited the earmarks of a false-flag/state sponsored terror operation.

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** [Outbreak \(Film\)](#)

**Date:** [March 10, 1995](#)

**Source:** [Wikipedia](#)

**Abstract:** Outbreak is a 1995 American [disaster film](#) starring [Dustin Hoffman](#), [Rene Russo](#), [Morgan Freeman](#), and [Donald Sutherland](#). The film was directed by [Wolfgang Petersen](#). In addition, Outbreak features [Cuba Gooding, Jr.](#), [Kevin Spacey](#), and [Patrick Dempsey](#).

The film focuses on an outbreak of a fictional [Ebola](#)-like virus called Motaba in [Zaire](#) and later in a small town in the United States. Its primary settings are government disease control centers [USAMRIID](#) and the [CDC](#), and the fictional town of Cedar Creek, California. Outbreak shows how far the military and civilian agencies might go to contain the spread of a deadly contagion.

The film was released on March 10, 1995 and proved a solid [box office](#) success. The film was nominated for various awards but failed to garner any major award nominations. It also raised various "what-if" scenarios: media outlets began to question what the government would really do in a similar situation and if the CDC has plans in case an outbreak ever does occur. A real-life outbreak of the Ebola virus occurred in Zaire only a few months after the film was released ([Wikipedia, 2012](#)).

**Title:** Governments Brace for Bioterrorist Attacks

**Date:** November 9, 2001

**Source:** [High Beam](#)

**Abstract:** Following the confirmation of one anthrax case and several suspected others in Nairobi last week, the governments of the three East African states are pulling all stops to pre-empt bioterrorist attacks.

Kenya and Tanzania are still smarting from the 1998 bomb attacks on the American embassies in Nairobi and Dar es Salaam, which left over 250 people dead and about 5,000 others injured.

The action by the three countries follows the suicide hijack attacks in New York and Washington, in which over 6,000 people, including 25 Africans, are believed to have perished ([High Beam, 2001](#)).

**Title:** SUDAN: US Criticised Over Biological Weapons Alert

**Date:** December 11, 2001

**Source:** [IRIN](#) (Integrated Regional Information Networks)

**Abstract:** The London-based advocacy group European-Sudanese Public Affairs Council on Monday expressed deep concern at what it called "unsustainable and deeply irresponsible" allegations by the US government that Sudan is involved in developing a biological weapons programme.

The United States was particularly worried about existing or planned "offensive biological weapons programmes" or non-compliance with obligations under the Biological Weapons Convention in six named states, including Sudan, the US Under Secretary of State for Arms Control and International Security, John R Bolton, told an international arms control meeting in Geneva, Switzerland, on 19 November.

"We are concerned about the growing interest of Sudan [a non-party to the Biological Weapons Convention] in developing a biological weapons programme," he stated. See <http://www.state.gov/t>

ESPAC said in a statement on Monday that Bolton's claim was "unsubstantiated, deeply irresponsible and... very much in keeping with the previous Clinton Administration's failed attempts to isolate Sudan from the international community by making similarly unsubstantiated claims."

The Council, [www.espac.org](http://www.espac.org), describes itself as a privately-funded organisation which runs advocacy, education and media projects designed to work towards a better understanding of the complexities of the Sudanese situation, and to encourage peace and reconciliation in the country.

It also challenges what it considers "inaccurate and questionable coverage of Sudan and Sudanese affairs," and has openly criticised leading international media - including the BBC and respected American and British newspapers - for what it has variously described as inaccurate, irresponsible or prejudiced reporting.

Bolton's comment on behalf of the US Arms Control and Disarmament Agency was putting US political policy and expediency before science with regard to Sudan, just as it had in making "inaccurate and misleading claims" which led to the 1998 US attack on the al-Shifa medical factory in Khartoum in 1998 in connection with its alleged manufacture of chemical weapons, according to ESPAC.

Bolton's unsubstantiated claims were not just unreliable little more than propaganda dressed up as "intelligence", it said in Monday's statement.

"For its own credibility on this serious issue, the Bush administration cannot allow its reputation with regard to arms control and non-proliferation to be sullied for the sake of cheap propaganda attacks on Sudan," it added.



At the 19 November meeting, Bolton argued for a stronger international regime for biological weapons control, saying that Sudan, Iraq, North Korea, Iran, Syria and Libya were among those states which had not been dissuaded from an interest in biological weapons by the existing Biological Weapons Convention.

Prior to 11 September, Bolton said, he would have avoided the approach of naming states in public, but the world had changed since then and so must the "business-as-usual approach" to arms control given "the potential use of biological weapons by terrorist groups, and states that support them."

The US envoy said legislators needed to look beyond traditional arms control measures to deal with the complex and dangerous threats posed by biological weapons. He proposed stricter measures to assure compliance of prohibitions on the development, production, acquisition, stockpiling or retention of biological weapons, and their delivery systems.

Countering those threats would require a full range of measures: tightened export controls, an intensified non-proliferation dialogue, increased domestic preparedness and controls, enhanced biodefense and counter-bioterrorism capabilities, he said.

The measures proposed by the US on 19 November, would, if adopted, contribute significantly to control access to dangerous pathogens [disease-causing agents], deter their misuse, punish those who misuse them, and alert states to their risks, according to Bolton ([IRIN, 2001](#)).

**Title:** Planes to Be Sprayed Before Departure

**Date:** February 14, 2002

**Source:** [All Africa](#)

**Abstract:** Deadly insects such as mosquito will no longer fluke flights into or out of Uganda.

All planes passing through Uganda or other tropical countries are to be sprayed with insecticides, a health ministry official has said ([All Africa, 2002](#)).

**Title:** Death Sought for Animals In Monkeypox Case

**Date:** July 3, 2003

**Source:** [New York Times](#)

**Abstract:** Moving to prevent monkeypox from reaching wild animals in the United States, the Centers for Disease Control and Prevention recommended yesterday that all 850 animals from a contaminated shipment of exotic pets from Africa in April be destroyed, along with all prairie dogs that might have been exposed to them.

The agency warned pet owners not to release any sick or potentially exposed animals into the wild.

Other mammals in homes or pet shops that might have been exposed should be killed or should be quarantined for six weeks and watched for symptoms — fever or cough, cloudy or crusty eyes, swollen lymph nodes or rash, the agency said. Bodies should be burned, not buried or thrown out, and the premises disinfected, it added.

An outbreak of monkeypox tentatively traced to a Gambian giant pouched rat in the shipment has caused 81 confirmed or suspected cases in humans, mostly in the Midwest. Its spread seems to have stopped, and no cases of human-to-human transmission were found. But the disease spreads easily to rodents.

A spokesman for the agency acknowledged that the authorities did not know the whereabouts of many of the estimated 850 animals in an April 9 shipment from Ghana to Texas, nor do they know if any were released.

"That's one of the things we're really worried about," said David Daigle, a spokesman for the agency. "Tracking them all down is darn near impossible."

Nonetheless, a "very aggressive" effort is on now, said Dr. Martin Cetron, the agency's deputy director for quarantine. But many were sold at informal pet swaps, he said, "and then things end without a good paper trail."

Monkeypox — so called because it was first diagnosed in monkeys — is a less virulent cousin of smallpox, and vaccination against smallpox appears to protect against it. There were no deaths in the June outbreak, but in West Africa, up to 10 percent of cases are fatal.

At the beginning of the outbreak, the centers and the Food and Drug Administration banned importing of all African rodents and the sale or distribution of six species from the April shipment: tree squirrels, rope squirrels, dormice, Gambian giant pouched rats, brush-tailed porcupines and striped mice. They also banned the transport, sale or release of prairie dogs.

Yesterday's directive was ambiguous about what constituted contact with an infected animal, and it confused some pet shop owners. Details of the directive are at [cdc.gov/ncidod/monkeypox/quarantineremoval.htm](http://cdc.gov/ncidod/monkeypox/quarantineremoval.htm).

Eileen Whitmarsh, an owner of Rainbow Pets in Shorewood, Wis., who caught monkeypox from a prairie dog in her store, mistakenly thought the order meant she had to kill the 60 apparently healthy hamsters, rats and gerbils she now has quarantined.

"Our animals are checked by the Health Department daily, and they are having babies," Ms. Whitmarsh said. "Sick animals do not have babies."

David Crawford of Boulder, Colo., acting director of the Prairie Dog Coalition, which defends wild prairie dog habitats and opposes keeping the animals as pets, called the euthanasia suggestion "a classic case of blaming the victim."

"This problem was caused by human beings, and it's easy for us to take the 'kill them all' approach," he said. "But if this was a human population, we'd be aghast at an order to kill. This calls for quarantine and testing, not euthanasia."

Two weeks ago, at a meeting of the Advisory Committee on Immunization Practices at the centers, Dr. Gregory A. Poland, a committee member and the chief of vaccine research at the Mayo Clinic in Minnesota, asked why the agency had not already ordered all possibly exposed animals killed.

An official of the centers replied that people became attached to their pets.

"So what?" Dr. Poland said. "I know what we'd do if this was an outbreak of mad cow disease. We'd kill the whole herd" ([New York Times, 2003](#)).

**Title:** U.S. Disease Researchers Begin Ebola Vaccine Trial

**Date:** November 24, 2003

**Source:** [Scoop News](#)

**Abstract:** Trial begins as new disease outbreak occurs in Republic of the Congo

A trial of the first experimental vaccine to prevent infection from the deadly Ebola virus began November 18 at the National Institute for Allergies and Infectious Diseases (NIAID) in Bethesda, Maryland.

The vaccine contains no infectious material from the Ebola virus, but was synthesized using modified, inactivated genes from the pathogen. According to a NIAID press release, 27 volunteers will be participating in the one-year trial in which researchers will seek to ascertain the safety of the vaccine.

The vaccine trial begins as the World Health Organization reported the occurrence of 11 cases of Ebola appearing in the Republic of the Congo November 17. Previous outbreaks in Africa have killed up to 90 percent of those infected. Considered one of the most deadly diseases known to medical science, Ebola' symptoms are a sudden onset of fever, weakness, muscle pain, headache and sore throat. This is followed by vomiting, diarrhea, rash, limited kidney and liver functions, and both internal and external bleeding.

"An effective Ebola vaccine not only would provide a life-saving advance in countries where the disease occurs naturally, it also would provide a medical tool to discourage the use of Ebola virus as an agent of bioterrorism," said NIAID Director Anthony S. Fauci, M.D.

**Following is the text of the NIAID press release:**

(begin text)

National Institute of Allergy and Infectious Diseases  
National Institutes of Health

Nov. 18, 2003

**NIAID EBOLA VACCINE ENTERS HUMAN TRIAL**

The first human trial of a vaccine designed to prevent Ebola infection opened today. Scientists from the Vaccine Research Center (VRC) at the National Institute of Allergy and Infectious Diseases (NIAID), one of the National Institutes of Health (NIH), designed the vaccine, which was administered to a volunteer at the NIH Clinical Center in Bethesda. The vaccine does not contain any infectious material from the Ebola virus.

Just three years ago, VRC Director Gary Nabel, M.D., Ph.D., together with a team of scientists from the VRC and the Centers for Disease Control and Prevention, described an experimental Ebola vaccine that fully protected monkeys from lethal infection by the virus. One component of that vaccine will now be assessed for safety in human volunteers. The trial vaccine, a type called a DNA vaccine, is similar to other investigational vaccines that hold promise for controlling such diseases as AIDS, influenza, malaria and hepatitis.

"This trial is further evidence of the ability of the VRC to rapidly translate basic research into tangible products," notes NIAID Director Anthony S. Fauci, M.D. "Our accelerated effort to understand and combat Ebola infection is part of the NIAID commitment to its biodefense mission. An effective Ebola vaccine not only would provide a life-saving advance in countries where the disease occurs naturally, it also would provide a medical tool to discourage the use of Ebola virus as an agent of bioterrorism."

Outbreaks of Ebola in Africa kill up to 90 percent of those infected. No effective treatment exists for this highly infectious disease, which causes extensive internal bleeding and rapid death. According to experts, vaccination is the best strategy for preventing or containing this deadly infection.

A gap of two decades separated the first Ebola epidemic of 1976 and the next, which arose in 1995. In recent years, for reasons unknown, outbreaks of Ebola are occurring with increasing frequency.

On November 17, 2003, the World Health Organization reported 11 cases of Ebola hemorrhagic fever in the Republic of the Congo. Dr. Nabel notes, "The current Ebola outbreak in the Congo provides a stark reminder of the need to rapidly develop vaccines against such perilous infections. A few years ago, we did not imagine that our vaccine would enter human trials so quickly, but the re-emergence of such viruses makes it all the more important to respond quickly. Individuals who volunteer for these vaccine trials can help us understand if our new vaccines ultimately will be effective."

Twenty-seven volunteers between the ages of 18 and 44 will participate in the study. Six people will receive a placebo injection and 21 will receive the investigational vaccine, manufactured by Vical Inc., a San Diego biotechnology company working in collaboration with the VRC. Vical has also secured a nonexclusive license from NIH to proprietary gene sequences used in the DNA Ebola vaccine. In the new trial, volunteers will receive three injections over two months and will be followed for one year. Volunteers will not be exposed to Ebola virus. Individuals interested in enrolling in the trial may visit <http://www.clinicaltrials.gov> or call the VRC toll-free at 1-866-833-LIFE (5433).

The candidate vaccine is synthesized using modified, inactivated genes from Ebola virus. This gives the immune system information about viral structures so that it can mount a rapid defense should the real virus ever be encountered. There is no infectious material in the vaccine, and the virus was not present during any stage of the manufacturing process, notes Barney Graham, M.D., Ph.D., director of the clinical trials unit of the VRC. "It is impossible for the vaccine to cause infection," he adds, "because it employs new technology known to safely stimulate broad immune responses."

Besides assessing the vaccine's safety, researchers will also examine the volunteers' blood to look for signs of immune system reaction to the vaccine. Ultimately, the scientists envision this vaccine as the first in a two-stage vaccination strategy called prime-boost: after "priming" with the DNA vaccine, the immune system response is "boosted," or augmented, by a second inoculation with modified, non-disease-causing cold viruses that make selected Ebola proteins. The booster essentially sets the immune system on alert against future infection by Ebola virus.

In August, Dr. Nabel and his colleagues reported using the booster shot to quickly and completely protect monkeys against Ebola. A fast-acting vaccine would be of great use during an outbreak of Ebola. The full prime-boost strategy, which uses the DNA vaccine being tested in this study, elicits a stronger immune response and is important to pursue for individuals at high risk, such as health care workers. Dr. Nabel says that expanded human trials of Ebola vaccines using the prime-boost strategy could begin by 2005.

NIAID is a component of the National Institutes of Health (NIH), which is an agency of the Department of Health and Human Services. NIAID supports basic and applied research to prevent, diagnose and treat infectious and immune-mediated illnesses, including HIV/AIDS and other sexually transmitted diseases, illness from potential agents of bioterrorism, tuberculosis, malaria, autoimmune disorders, asthma and allergies ([Scoop News, 2003](#)).

**Title:** African Science Policy 'Must Address Bioterror Threat'

**Date:** October 13, 2005

**Source:** [SciDev](#)

**Abstract:** The threat posed by biological weapons must be considered in policies relating to the development of science in Africa, according to delegates at an international meeting in Kampala, Uganda this month.

The meeting, which ended on 1 October, focused on the policy implications of using science to eradicate diseases while simultaneously controlling access to disease-causing organisms to prevent 'bioterrorism'.

Delegates called for strict measures to be formulated to guard against the misuse of biology, and warned that failure to address concerns over biological weapons could undermine efforts to develop and instill confidence in science.

"Confidence in modern science is giving way to a period of fear, doubt and uncertainty," said Patrick Mazimhaka, deputy chair of the Ethiopia-based African Union Commission.

In a joint statement released at the meeting, delegates said: "Addressing all of these concerns in harmony is mandatory for human security in Africa and throughout the world."

Scientists, lawyers, government officials and law enforcers attended the meeting, which was organised by the Kampala-based International Law Institute (ILI) and the US-based International Consortium for Law and Strategic Security (ICLSS).

Swithin Munyantwali, ILI's executive director told SciDev.Net that the meeting was intended to kick-start greater cooperation on the threat of bio-weapons throughout East Africa.

The region has experienced a number of terrorist incidents in recent years, including the bombings of US embassies in Kenya and Tanzania in 1999 and a rocket attack on a hotel in Mombassa, Kenya in 2002.

Munyantwali said Africa is highly vulnerable to bioterrorism as it lacks the institutions, technology and expertise needed to detect potential threats.

"Bio-weapons are an optimal way of causing mass casualties, are safe for the perpetrator to develop and transport across borders, and pose incomparable potential for mass panic," he said. "No other weapon offers similar capabilities to spread itself."

Potential bio-weapons include the anthrax bacterium, which the US Department of Defense calls "the preferred biological warfare agent because it is highly lethal [and] contains 100 million lethal doses per gram (100,000 times deadlier than the deadliest chemical warfare agent)".

Uganda's Queen Elizabeth National Park recently recovered from an outbreak of anthrax among wildlife there (see [Uganda battles deadly anthrax outbreak](#)).

Justin Ecaat, a senior official at Uganda's National Environment Management Authority, says such outbreaks show that African countries should be alert and have systems in place to monitor and control the movement of biological agents ([SciDev, 2005](#)).

**Title:** Biological Terrorism A Lethal Possibility

**Date:** October 25, 2005

**Source:** [All Africa](#)

**Abstract:** The East African region has experienced a number of terrorist incidents in recent years, including the bombings of US embassies in Kenya and Tanzania in 1998 and the rocket attack on Paradise Hotel at Kikambala in 2002.

However, few people or organisations have paused to consider the possibility and implications of a bio-terrorism attack in the region ([All Africa, 2005](#)).

**Title:** Selebi Opens International Conference On Bioterrorism

**Date:** November 21, 2005

**Source:** [Bua News](#)

**Abstract:** As part of its programme against bioterrorism, Interpol opened its first bioterrorism workshop in Cape Town today, with national police Commissioner Jackie Selebi calling for multi-agency co-operation to combat this threat to global security.

"We as policemen cannot effectively face the problem of bioterrorism or the proliferation of biological weapons without building strong partnerships with scientists, educators and public health practitioners," Mr Selebi told more than 90 delegates from Africa and around the world.

Combating bioterrorism said Commissioner Selebi, who is also president of the international police organisation, "requires communities unaccustomed to working with one another to learn a common language, and a common way of thinking."

The workshop is the first of three regional workshops that Interpol is holding to improve capacity among its members to prevent, prepare for and deal with the possibility of a bioterrorist attack.

Another workshop is planned for the Asia region and will be held in Singapore next year. The third will be held in Chile for the Americas region, also next year.

Interpol's programme to combat bioterrorism was launched at its headquarters in Lyon, France, last year. In March this year it staged the largest-ever gathering of police and security officials when it hosted the Global Congress on preventing Bioterrorism.

This gathering was attended by more than 500 delegates from 155 countries. The current regional workshop being held at the International Convention Centre in Cape Town has drawn delegates from 41 African countries as well as security and health experts from around the world.

"No country can regard itself as immune [from a bioterrorist attack] and all countries need to be prepared," said Interpol chairperson John Abbott.

An announcement of a "train the trainer" project for the National Central Bureaus in Interpol's 184 member countries was made.

Commissioner Selebi said the emphasis at the Africa regional workshop was on "training, training, training".

"What we pick up here we are going to use," the commissioner told journalists.

He added that the African regional workshop aimed to strengthen regional co-operation and enable all agencies to "immediately identify and work closely with the right partners at the right time, to establish a common response against biological weapons, and to resolve the consequences of bio-attacks."

Ronald Noble, Interpol's secretary-general, said: "Defence measures against biological attack are neither well known nor easily implemented, so there is a natural tendency for law enforcement services to put them aside in favour of 'more urgent' problems that they are comfortable dealing with."

"Political support and funding for security programmes tends to be orientated towards the traditional areas of crime which affect citizens on a daily basis," Mr Noble said.

However, he said Interpol strongly believed that the risks of bioterrorism were "so momentous that the police and the public health communities must break down the barriers preventing close collaboration, locally, nationally and internationally" ([Bua News, 2005](#)).

**Title:** Experimental Vaccine Protects Nonhuman Primates When Given After Exposure To Marburg Virus

**Date:** April 27, 2006

**Source:** [Science Daily](#)

**Abstract:** A team of U.S. and Canadian scientists has demonstrated the effectiveness of a vaccine in preventing the development of hemorrhagic fever in an animal model after exposure to the deadly Marburg virus. Their findings, published in the April 27 online edition of the British medical journal The Lancet, could have implications for human use.

Marburg virus was first detected in 1967 and was the cause of a large outbreak in Angola in 2004-2005 that resulted in several hundred deaths with case fatality rates of about 90 percent. Like the Ebola virus, Marburg is a filovirus that causes internal bleeding at multiple sites with patients usually dying as a result of multiple organ failure. Both viruses are considered to be potential agents of bioterrorism. Currently, no effective vaccines or drugs against Marburg virus exist, and treatment of the disease is limited to supportive care.

Investigators from the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) and the National Microbiology Laboratory at the Public Health Agency of Canada (PHAC) created the vaccine against Marburg virus by replacing a gene from a harmless virus--known as vesicular stomatitis virus, or VSV--with a gene encoding a Marburg virus surface protein.

The team infected five rhesus monkeys with the Marburg virus and then injected them with the vaccine (known as recombinant VSV, or rVSV) 20 to 30 minutes later.

Another three monkeys infected with Marburg virus acted as controls and received a vaccine without the Marburg protein.

All of the monkeys treated with rVSV following exposure to the Marburg virus survived for at least 80 days, while the controls succumbed to the disease by day 12.

In a study published in June 2005, the research team reported that the rVSV vaccine could prevent Marburg hemorrhagic fever from developing when administered before infection. The new results suggest that the vaccine could also be an effective post-exposure treatment for the disease.

"These results are very encouraging, as this is the first demonstration of complete post-exposure protection of nonhuman primates against a filovirus," said Thomas W. Geisbert, one of the USAMRIID investigators.

Colonel George W. Korch, Jr., commander of the Institute, added, "This outstanding collaboration has been instrumental in producing novel breakthroughs, such as this, for discovery of medical approaches for difficult public health and biodefense problems."

PHAC's National Microbiology Laboratory is Canada's only Containment Level 4 laboratory, where pathogens such as Ebola and Marburg can be worked with safely. The Winnipeg-based laboratory has been at the forefront of research into SARS, West Nile virus, anthrax and other dangerous pathogens.

USAMRIID, located at Fort Detrick, Maryland, is the lead medical research laboratory for the U.S. Biological Defense Research Program, and plays a key role in national defense and in infectious disease research. The Institute's mission is to conduct basic and applied research on biological threats resulting in medical solutions (such as vaccines, drugs and diagnostics) to protect the warfighter. USAMRIID is a subordinate laboratory of the U.S. Army Medical Research and Materiel Command ([Science Daily, 2006](#)).



**Title:** Africa Must Commit To Biosecurity Measures

**Date:** August 16, 2007

**Source:** [SciDev](#)

**Abstract:** The threat of biotechnology misuse has implications for the development of science and technology in Africa, argue Chandre Gould and colleagues.

Recent African Union summits have identified science and technology as key future drivers for development, and increased investment is being welcomed by African leaders — particularly in areas such as biotechnology.

But the growth of the biotechnology industry internationally has raised some important concerns about biological safety issues (see [Agri-biotech in Africa: Safety first?](#)).

'Biosecurity' policies are therefore being actively pursued in some countries to mitigate the deliberate destructive use of biological agents, knowledge and techniques.

Today, this sense of biosecurity extends beyond conditions in research laboratories to cover the potential dual use — for good and bad — of applications arising from the new knowledge and techniques emerging from research.

### **International Supervision**

It is crucial to assess the security implications of scientific innovations, but this is not a straightforward matter.

One reason is that Western governments, most notably the United States, are deeply concerned with the bioterror threat. Although there have been only a handful of bioterrorism attacks in recent decades, the capability to inflict them is proliferating.

This focus on bioterrorism in international discussions has arguably come at the expense of tightening constraints on the development of state programmes. There is no guarantee that states, particularly those that are isolated and existentially threatened, may not see biological weapons as a valuable item in their arsenal.

The biological defence programme in the United States has shown that the risk of accidental escape of potential biological warfare agents goes up as the number of facilities working with them increases. Indeed, it could be argued that state biodefence programmes should be subject to a great deal more international supervision.

Biosecurity has gained importance in many countries in Europe, North America and elsewhere, and networks, funders and suppliers from these areas are fundamental to the growth of the African biotechnology industry. African research partners and recipients of funds will therefore have to demonstrate their commitment to biosecurity by implementing measures for the secure handling of biological agents.

### **Public Dialogue**

But policy responses adopted elsewhere are likely to be inappropriate for many situations in Africa, not least because of the difference in the quality of public infrastructure.

In this mix of concerns, one thing is clear: engagement by scientific communities is a prerequisite for a productive response. For Africans to engage effectively in biosecurity debates at a national and

international level, it is important to raise awareness about dual use research and biosecurity among African scientists, ethicists, social scientists, policy makers, the media and the public.

That way, Africa can develop its own biosecurity agenda and policies aligned with its own concerns. The cue should not come from Europe or the United States.

With this in mind, we ran seven biosecurity workshops in Kenya and Uganda in May–June 2007. The two countries are emerging biotech nations that are not yet properly engaged in international biosecurity policy deliberations.

The aim was to inform African stakeholders about the general biosecurity debate and the communication, supervision, review and funding of dual use research findings.

Many participants agreed that scientists should initiate a public dialogue about these issues and that such research should be supervised.

### **Stronger African Voice**

Although some African states, most notably South Africa, have been active contributors to the Biological and Toxins Weapons Convention (BTWC), a stronger and more coherent African position on regulatory issues is needed.

Not only would this provide an African voice on biosecurity issues, but it would strengthen the negotiating position of those states wishing to place sharing of development, knowledge and technology firmly on the agenda.

A critical mass of African stakeholders who can effectively represent the continent at the BTWC and other international forums must be developed, together with policy responses.

Whether or not African states are threatened by bioterrorism (or state biological weapons programmes) is immaterial: cutting out biotech misuse is in the interests of all Africans and is a responsibility of the African scientific community.

The development of biosecurity mechanisms that neither compromise research nor pose an unbearable financial burden on those responsible for their implementation is crucial.

This strategy would reduce the risk of misuse and mitigate the damage to African scientific development that could result if products, technology or knowledge were to be used for destructive purposes ([SciDev, 2007](#)).

**Title:** Uganda To Conduct Marburg Vaccine Trials

**Date:** October 8, 2009

**Source:** [All Africa](#)

**Abstract:** UGANDA could hold the key to the Ebola and Marburg vaccines as the country has been selected for a high profile second stage safety trial in humans. Dr. Hannah Kibuuka, the director clinical programmes at the Makerere University Walter Reed project, who is conducting the experiments, said the trial comes after a smaller one in the US ([All Africa, 2009](#)).

**Title:** Weak Laws Put Continent At Risk of Bioterrorism, Say Experts

**Date:** March 22, 2010

**Source:** [All Africa](#)

**Abstract:** As more African countries adopt biotechnology in a bid to increase agricultural production, weak biosafety laws threaten to erode the gains made in the sector.

Concerns are emerging that unscrupulous scientists could sabotage the initiative in what has come to be known as bioterrorism - by producing harmful weapons that destroy food, cause environmental degradation or even death.

"These weapons could deprive crops of water or nutrients resulting in poor yields and eventually down play efforts aimed at marketing the products globally," said John Opuda-Asibo, the first deputy vice chancellor of Kyambogo University in Uganda.

Biological weapons can infiltrate a country through various means including imports, food aid, medicines or planting materials.

Countries in sub-Saharan Africa face the biggest risk due to weak plant and animal epidemiological infrastructure besides the lack of biosafety laws.

"We need to combat the use of biotechnology as a weapon. That calls for bioterrorism preparedness," warned Prof Opuda-Asibo.

## **Climate Change**

According to the New Partnership for Africa's Development, Planning and Co-ordination Agency, 33 per cent of land in sub-saharan Africa is under moderate drought, 25 per cent under severe drought while only 4 per cent is under irrigation.

Climate change could exacerbate the problem.

"We are not getting any extra land yet we need to increase food production by up to 300 per cent by 2050. We can only do this through the use of biotechnology," said Diran Makinde, the director of Nepad Planning and Co-ordination Agency.

Currently the region records a 2.5 per cent annual increase in food production against a 3.4 per cent annual population increase.

He however, warned that African countries need to enact biosafety laws in order to prevent any eventualities.

Only 12 African countries have the national biosafety laws in place, a few have biosafety policies while 30 do not have anything at all.

The East African Community has a biosafety group.

Scientists are now calling on the African Union to come up with a law for the region.

"We should have a legal framework for government to intervene if bioterrorism occurs. It is important that we close the gaps in scientific discoveries," Prof Opuda-Asibo ([All Africa, 2010](#)).

**Title:** Animal Health - Beware of Animal Diseases In Bioterrorism

**Date:** July 1, 2010

**Source:** [All Africa](#)

**Abstract:** The suspected outbreak of anthrax in hippos in Western Uganda in the past weeks has yet again reminded us of some of the ignored facts about animal diseases. I overheard someone on the streets of Kampala inform a colleague ignorantly that anthrax was a disease of those who live with or stay near animals in the villages. This totally shocked me and I felt like going over to him and giving a lecture of a lifetime.

I, however, restrained myself and just thought about how they didn't know that the same disease could be brought right at their footsteps in their so-called city. They were possibly unaware of what we call bioterrorism.

It is possible for unscrupulous people to use known lethal animal disease agents as weapons of mass destruction. This is known as bioterrorism. Anthrax is indeed one of the microorganisms that can be used as biological weapons of mass destruction. The other significant animal diseases in that group include; Botulism, Plague, Tularaemia, Ebola and Marburg diseases. These diseases are of great public health importance because:

The host animals or carriers that are sources of infection often show little or no sign of disease at all.

The disease agents have mechanisms of propagation that allow infection to move from one individual to another.

Their effects result in high mortality rates and have the potential for a major impact on the public.

They can cause public panic and social disruption.

They require special action when they occur and also need public health preparedness in order to limit their progress.

Anthrax is clearly documented as one of the diseases whose agents have been used in the past for bioterrorism. This can be alternatively spread through spraying in the air, mailed packages and release in the ventilation systems of public buildings.

In the wake of the September 11th, attacks on the USA, some people were reported to have been exposed to anthrax in powder form that had been sent to them as mail in envelopes. This incident, a classic example of how an animal disease can find you in the comfort of your office, sparked off a major public health awareness campaign on bioterrorism that got many US citizens and others around the world to be alert about such diseases.

As for Ugandans, even though we are far from the USA, and that we probably have far less enemies, we should not ignore the likelihood of such events happening ([All Africa, 2011](#)).

**Title:** Swine Flu Vaccines Dumped in Africa

**Date:** September 15, 2010

**Source:** [Natural News](#)

**Abstract:** It was recently announced that as much as 43% of the U.S. swine flu vaccine supply would ultimately go unused and be destroyed. Apparently, the stance then taken by the major drug companies and the World Health Organization was to incinerate quantities of the vaccine and/or dump as much of the H1N1 vaccine supply as they possibly could in Africa.

According to *Associated Press*, in July 2010 about 40 million doses of the total supply produced by the US to cope with the swine flu outbreak had already expired and would be incinerated by public health authorities. This loss represents millions of US dollars. In the face of such losses, selling/dumping the excess to developing countries was apparently a tempting option. After all, the people of Africa don't need to know that the timing is off by a year and, in any case, they should be grateful to get "valuable" swine flu vaccines at a cheaper rate, even if they don't need them.

### **No Swine Flu Pandemic in Africa**

According to the *Swine Flu Watch*, at the height of the "pandemic" in 2009, very few cases of swine flu was recorded in sub-Saharan African countries. For example, Botswana reported 20 cases; Zimbabwe confirmed 40 cases, Mozambique 55 and Angola 35. Similarly, low figures were reported for swine flu in other African countries, with the exception of South Africa, where 12500 cases were reported over the same period.

### **Global Swine Flu "Pandemic" Winds Down - Except in Africa**

Sometime towards the end of 2009 and the beginning of 2010, the World Health Organization realized that there was going to be a problem with getting rid of the "soon to expire" H1N1 vaccines. After all, the "pandemic" was winding down. What to do with all those vaccines? At this point, it is interesting to note that *Wellness Blogs* links three of the scientists who advised the international health body on swine flu protocol with ties to the pharmaceutical companies that manufactured the vaccines.

And so it was that in March 2010 The World Health Organization announced that it would deliver millions of H1N1 vaccine doses to about a dozen countries in Africa in the weeks to come. This was despite their own website reporting very low occurrences of swine flu in Africa. In fact, the WHO regional office for Africa reported only 157 cases of Swine Flu by the end of July 2009, compared to the 87000 cases reported by their American office.

The World Health Organization (WHO) declared that the pandemic ended on 10 August 2010. However, just a few weeks earlier, various African governments started making H1N1 vaccinations available to their citizens. It would seem that while the rest of the world was announcing the end of the swine flu epidemic, Africa started gearing up for mass inoculations of her people. The Botswana government, for example, embarked on their mass vaccination campaign between 21st June 2010 and the end of August 2010 ([Natural News, 2010](#)).

**Title:** Bio Terror Threat From Germ Labs Worries U.S.

**Date:** November 8, 2010

**Source:** [All Africa](#)

**Abstract:** Concerned about the threat of biological terrorism, a powerful US senator will lead a team of high-level Pentagon officials on an inspection tour of Kenyan germ laboratories next week.

Richard Lugar, the top Republican on the Senate Foreign Relations Committee, will be accompanied by the director of the US Defence Department's Threat Reduction Agency as well as by the heads of units focused on biological defence and global strategy.

The labs to be inspected are designed for the study of infectious diseases. Work to develop treatments and to help prevent outbreaks also takes place at these facilities. But Pentagon officials warn that the Kenyan labs have not been sufficiently secured against terrorism threats.

"Deadly diseases like Ebola, Marburg and anthrax are prevalent in Africa," Senator Lugar said in a statement announcing a trip that will take him to Uganda and Burundi as well as to Kenya.

"Al-Qa'ida and other terrorist groups are active in Africa, and it is imperative that deadly pathogens stored in labs there are secure.

"These pathogens can be made into horrible weapons aimed at our troops, our friends and allies, and even the American public," the senator added. "This is a threat we cannot ignore."

Mr Lugar said he has been told by Pentagon chief Robert Gates that the inspection tour will help ensure that the governments of Kenya and Uganda work closely with the United States to secure the labs. The US delegation is scheduled to arrive in Kenya on November 16. A list of the sites the Americans will visit has not been released ([All Africa, 2010](#)).

**Title:** Kemri 'Shocked' By U.S. Bioterror Concerns

**Date:** December 13, 2010

**Source:** [All Africa](#)

**Abstract:** American claims that biosafety conditions at the Kenya Medical Research Institute were "lacking" have been strongly refuted by Dr Willy Tonui, a principal researcher and biosafety officer at the Institute.

Andrew Weber, the US assistant defence secretary for nuclear, chemical and biological programmes, told of seeing "orange bags with bio-hazardous waste sort of sitting around" at the Kenya Medical Research Institute (Kemri) in Nairobi.

The wastes had not been destroyed because Kemri's incinerator had "limited capacity," Mr Weber said. "While we were there," he continued, "a stray cat went into one of the bags, had lunch and hopped over the wall into one of the largest slums in Africa." Mr Weber's account drew gasps and nervous laughter from his listeners at the University of Pittsburgh's Centre for Biosecurity.

The official also raised concerns regarding waste management capabilities at Kemri, and is quoted to have said that "the wastes had not been destroyed because Kemri's incinerator had limited capacity." He added that "terror in that part of the world is not a hypothetical situation."

Dr Tonui describes these claims as unfounded, shocking, and not based on informed observation. "In Kemri, we have the best waste management practices in the country," says Dr Tonui.

"We have two functioning incinerators at this research centre. We regard security of bio-hazardous materials as a serious matter; there are two guards stationed at the incinerators at all times," he added.

Dr Tonui adds that infectious materials are sterilised before incineration, and that the most dangerous materials in laboratory waste are needles, which are sealed in a sturdy plastic container before being incinerated.

He acknowledges that there may be stray cats in Kemri, owing to its proximity to the Kibera slum. Nonetheless, the biohazard bags are sealed, and there is little chance of an animal getting into the bags. "Furthermore," he adds, "biological materials such as blood and tissue are not disposed of directly into the biohazard bags."

The allegation that bio-hazardous materials could be used by terrorists is described as "shocking" by Dr Tonui. "A bioterrorist is an intelligent person, with a working knowledge of infectious agents and their effective doses," he says. "Infectious agents do not find their way into our waste without being sterilised. To claim that there is a bioterrorism risk is grossly misleading."

## Bio-Safety

Dr Tonui says that Kemri is on the frontline in promoting biosafety practices and prudent waste management practices on the continent. "We have helped the National Environment Management Authority to develop the relevant standards. Many laboratories around the country bring their waste for disposal at Kemri. The major challenge we face toward this end is proper segregation of waste."

Mr Weber accompanied a senior US senator, Richard Lugar, on the visit earlier this month to laboratories in Uganda and Burundi as well as Kenya ([All Africa, 2010](#)).

**Title:** A Bug's Life: How Safe Are Health Laboratories In Developing Countries?

**Date:** January 6, 2011

**Source:** [The Economist](#)

**Abstract:** Africa is home to the world's nastiest diseases, such as the Ebola and Marburg viruses, and to laboratories that study them. Could that be a tempting target for terrorists? Late last year Senator Richard Lugar and a team of Pentagon arms-control experts visited Burundi, Uganda and Kenya. What they found prompted alarm, and calls for big spending on lab security.

For example, a Kenyan research lab housing anthrax, Ebola and Marburg backs onto a slum and has low, easily scaled cement walls. African technicians have to use large samples of the dangerous viruses for their research because their equipment is antiquated. Better safety could be part of the long-standing initiative Mr Lugar and his fellow senator Sam Nunn developed in 1991 to secure and destroy former Soviet nuclear, chemical and biological stockpiles.

Scott Dowell of the Centres for Disease Control and Prevention in Atlanta agrees that Ugandan and Kenyan labs need more money for security. But so too do many research facilities in other poor countries. Richard Lennane of the Biological Weapons Convention adds that boosting security is not just about fences and guards. Where do workers come from? Who asks questions if a lone colleague starts regularly working late?

Sceptics say Mr Lugar is scaremongering abroad for political gain at home. He may be right, as he complained in Kenya, that pathogens are easier to package than nuclear materials. But "weaponising" them is still difficult. Many organisms mooted as terror agents are tricky to handle and hard to make into weapons. It is unlikely that Somalia's al-Shabab, the most threatening terrorist group in east Africa, or organised criminals, have the technical ability to do that.

A better reason to spend more on laboratory security may be to stop not wrongdoers but accidents. A British foot-and-mouth outbreak in 2007 probably stemmed from laboratory sloppiness. Moreover, the things that enhance a laboratory's security will also improve its ability to diagnose and handle outbreaks of natural diseases. Asian scientists played a big role in monitoring outbreaks of SARS and bird flu. Strengthening their African counterparts adds a vital link in the chain.

A planned new outfit, the Global Biological Resource Centre Network, would calm Mr Lugar's fears and benefit Africa too. But the rich world also needs to avoid complacency. Those anthrax attacks in America in 2001 were 100% home-grown ([The Economist, 2011](#)).

**Title:** 'Bio Terror' Threat Man Arrested In South Africa After Threatening To Attack Britain And U.S.

**Date:** February 13, 2011

**Source:** [Daily Telegraph](#)

**Abstract:** A businessman was arrested in South Africa on terrorism charges yesterday after allegedly threatening to attack Britain and America with biological weapons.



The arrest came after a six-month investigation by British, US and South African security services. The 64-year-old man, who is a South African citizen, is said to have repeatedly sent threatening emails to a Whitehall department in an attempt to extort £2.5 million.

He is then understood to have sent similar threats to institutions in the US, at which point the FBI was called in.

Yesterday morning several containers were left in a storage facility near the suspect's home in South Africa's North-West Province.

They are thought to have held money and, when the man went to collect it, he was arrested by South African special forces.

The South African authorities said they had taken the threat seriously, though they had found no evidence that the man was capable of launching a biological attack. The suspect, who has not been named, is due to appear in a Johannesburg court.

Last night his home was among the sites searched. A Scotland Yard spokesman said: 'Our counter-terrorism officers co-operated with the South African police in terms of fact-finding for the investigation' ([Daily Mail, 2011](#)).

**Title:** Pentagon Looks To Africa For Next Bio Threat

**Date:** February 23, 2011

**Source:** [Wired](#)

**Abstract:** No, it's not a deleted scene from *Outbreak*. The Pentagon agency charged with protecting the United States from weapons of mass destruction is looking to the insecure storage of pathogens at clinics in Africa as the next flashing red light for a potential biological outbreak.

Kenneth Myers, the director of the Defense Threat Reduction Agency, joined his old boss, Sen. Richard Lugar, on a trip to Burundi, Kenya and Uganda last fall to check out the security of disease samples at local clinics. What they found disturbed them: strains of deadly viruses like foot-and-mouth disease and anthrax, available at numerous clinics in areas in or near conflict zones, potentially ripe for the terrorist taking.

"It's important to remember that these countries have no intention of being threats to the United States," Myers tells Danger Room. Indeed, the clinics have a very good reason for housing the pathogen samples: Their doctors need to be able to match patients with known diseases in the event of an outbreak. But Myers and Lugar left their trip worried about how many clinics possess the pathogens, as 20 years' worth of lessons from checking the spread of loose nukes raised fears of inadvertent bio-proliferation.

So the Defense Threat Reduction Agency is looking to expand a program that's grown out of [Lugar's eponymous anti-nuclear proliferation effort](#) into Africa to see if the U.S. can help partner with these countries to minimize the threat. The first goal of the Chemical Biological Engagement Program is to build those relationships, Myers told a group of reporters Wednesday morning, so they can "consolidate the number of facilities with dangerous pathogens."

That's not all. Myers wants to collaborate with government officials, all the way down to the clinic level, to make sure the pathogens in residual facilities are stored safely, and offer help on "disease surveillance [and] epidemiological training."

It's an early effort — "about to be able to get started," Myers put it — that's part of the \$1.5 billion worth of "layered" defenses against chemical and biological threats that the Pentagon is asking Congress to fund

in the next fiscal year. Myers conceded that developing defenses against those threats is “very, very difficult.” [Expensive efforts to create vaccines for consequence management have stalled](#). But that’s why he believes in “interdicting” WMD threats at their source to stop proliferation, having better surveillance of known and suspected sites, and responding capably if an attack should occur.

Despite years of fears, it’s an open question whether terrorists are actually planning chemical or biological attacks. Last month, the [public threat assessment from U.S. intelligence officials warned of “smaller-scale” terrorism](#), involving homemade bombs like [SUVs rigged to detonate](#) or [explosives packed in printer cartridges](#). Those cheap, low-yield terror attempts have been on display for the last several years. U.S. intelligence generally sees chemical, biological or even nuclear attacks as being mostly aspirational for terror groups — something they’d like to pull off, sure, but aren’t so realistic.

Myers declined Danger Room’s efforts to press him on whether the terrorist chem-bio threat was in fact receding. From his perspective, the ounce of prevention afforded by trying to lock down facilities where pathogens reside is more than worth the effort. “Is it not in the U.S. national security interest to create more barriers between the threat and [U.S. citizens]? The answer obviously is yes,” Myers says ([Wired, 2011](#)).

**Title:** Kenya Put On High Alert Over Bio-Terrorism Attack

**Date:** December 22, 2011

**Source:** [Hiiraan News](#)

**Abstract:** The Kenya Medical Research Institute (KEMRI) has put the country on high alert over the possibility of a bio-terrorism attack.

With the ongoing fight against Al Shabaab, the research institute admitted that bio-terrorism posed the biggest threat to the country.

According to KEMRI director Dr Solomon Mpoke, if not well handled the attack could be used as a weapon of mass destruction.

To this effect, Mpoke said that they had heightened security to make sure that the deadly pathogens in their facility did not land in the wrong hands.

"We have secured our fence and heightened security and in conjunction with our collaborators designed alert systems incase of a mysterious disease outbreak,"

The director at the same time said that they were working on the reduction of TB treatment period from the current six to four months.

Despite facing various challenges the institute according to the director had managed to protect 55 percent of the minors from contracting Malaria.

On his part, KEMRI chairman Dr Edwin Muingia expressed his concern that the body was losing its best scientists to other countries due to low wages.

This he attributed to the funding as out of the Sh9B annual budget, the government contributed a partial 1B with donors chipping in.

"The government is supposed to allocated two percent of its budget to research but that is not the case and this is costing the country dearly,"

And with the coming in of the devolved government, Muingia said that plans were underway to make sure the institute was represented in every County.

Dr Elizabeth Bukusi the deputy director in charge of research and training said that they had made significant strides in the fight against HIV Aids.

Bukusi said that a study conducted on discordant couples indicated that early treatment for HIV Aids reduced chances of spreading the disease to partners by 96 percent.

"We are currently working on the male to male transmission of HIV Aids mainly in the Coast and it's a serious problem due to phobia and stigma attached to the issue" ([Hiiraan News, 2011](#)).

# Bio & Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#) or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** Law Enforcement's Role In Defending Against Bio-Terrorism Threats To America's Livestock Industry

**Date:** 2002

**Source:** [Homeland Security](#)

### Abstract:

#### **What Is the Threat?**

There is general agreement among agriculture experts that the greatest biological threat to our country's agriculture economy is *foot-and-mouth disease* (FMD). This highly contagious, viral disease attacks cloven-hoofed animals (cattle, swine, and sheep), as well as wildlife such as deer and elk. The FMD virus has a remarkable capacity for remaining viable in carcasses, in animal byproducts, in water, in straw and bedding, and in pastures. Early indications of FMD are excessive salivation and lameness. Infected animals usually refuse to eat or drink, and their movement is severely restricted, resulting in a dramatic weight loss. Milk production in dairy cattle will also decrease or stop.

An outbreak of FMD, either by intentional introduction of a virus or by accident, would bring our nation's economy to a virtual standstill.

Dr. Jerry Jaax, a research veterinarian at Kansas State University and an expert in the field of biological warfare, has presented compelling testimony to Congress concerning the potential disaster that FMD poses to our livestock industry. "In terms of an economic impact, it would be devastating. Any outbreak of FMD could mean the destruction of thousands of animals, immediately impact our capacity to export agriculture products, and create severe financial losses in only a matter of days and weeks," Jaax stated. He cited the 2001 FMD outbreak in the United Kingdom as an example of the possible fallout for any agriculture economy. "The outbreak in the UK took almost nine months to eradicate, and their economy will suffer for years to come."

## **Where's the Beef** (Source: U.S. Department of Agriculture Cattle Report, 19 July 2002)

1. Texas: 15.0 Million head of cattle
2. Nebraska: 7.0 Million head of cattle
3. Kansas: 6.6 Million head of cattle
4. Oklahoma: 5.6 Million head of cattle
5. California: 5.2 Million head of cattle
6. South Dakota: 5.0 Million head of cattle
7. Missouri: 4.7 Million head of cattle
8. Iowa: 4.0 Million head of cattle
9. Wisconsin: 3.6 Million head of cattle
10. Colorado: 3.1 Million head of cattle
11. United States Total: 105.2 million head of cattle

George Teagarden, Kansas Livestock Commissioner, outlined the emergency response procedures that are in place to deal with an outbreak of FMD in the state of Kansas. He explained that all movement of livestock would *immediately* be halted and that a six-mile quarantine zone would be established surrounding the point where FMD was detected. At the center of the quarantine zone, a "kill zone" would be established where all cloven-hoofed animals would be destroyed. Teagarden emphasized the extent of a quarantine around the area—no animal movement from the affected area, and no movement of equipment or vehicles from the affected area. Only persons who have been fully decontaminated would be allowed to leave this area. Teagarden further explained that a full quarantine is necessary because the FMD virus can be carried or transmitted in several ways—on a person's clothes, shoes, or boots and on tires of equipment, trucks, and other vehicles. "It is critical that all movement of livestock be halted in order to prevent further spreading of this highly infectious virus," he stated. Teagarden explained that the movement of livestock from other states into Kansas would also be stopped, requiring coordination between law enforcement agencies in the surrounding states.

Jaax and Teagarden both cited the sweeping impact of the FMD outbreak in the United Kingdom. In England, FMD was originally detected at a hog farm in February 2001, and it quickly spread. Throughout the UK, virtually all exports of products related to sheep, swine, and cattle were stopped following the outbreak, and they will not resume for some time.

### **What Is Foot-and-Mouth Disease?**

FMD is a serious animal health problem in several countries of the world. This viral disease is caused by livestock inhaling or otherwise coming in contact with the virus. It is usually contracted via the respiratory system and is rapidly contagious from animal to animal. It causes severe blisters, called *vesicles*, in the mouths and hooves of the infected animals, and FMD severely cripples animals, thus limiting their mobility and curtailing their capacity and desire to consume food. Although extremely painful to animals, FMD is *not* infectious to humans.

Teagarden has been conducting a series of educational meetings throughout the state in an effort to alert livestock producers and feedlot operators about the serious threat of FMD. Dr. Kevin Varner, USDA veterinarian, and Dr. George Kennedy, Kansas State veterinarian, join Teagarden in presenting helpful information. Kennedy was one of the U.S. veterinarians sent to England to help contain the FMD outbreak there.

### **These presentations focus on:**

1. The need for each livestock producer and feedlot operator to develop a bio-security plan as a preventive measure against FMD
2. The importance of early detection and understanding warning signs of FMD in cattle, hogs, and sheep

3. Understanding the emergency plans to be implemented by the U.S. Department of Agriculture (USDA), the Kansas Animal Health Department, and Kansas law enforcement in the event of an outbreak of FMD

**As a means to prevent his type of threat to our economic infrastructure, these countermeasures are recommended:**

1. **Intelligence.** Develop an information-sharing system concerning suspects and suspicious activity.
2. **Surveillance.** As the first line of defense, local livestock producers and veterinarians need to develop a bio-security plan. Everyone must be aware of the risks and symptoms associated with infectious diseases.
3. **Rapid diagnostic capabilities.** On-site diagnosis must be conducted, with confirmatory tests conducted at the USDA Laboratory in Plum Island, New York.
4. **Rapid incident response.** Local, state, and federal agencies will quickly respond, in accordance with K.S.A. 47-611, to contain and eradicate any outbreak of a foreign animal disease. The Kansas Livestock Commissioner will coordinate this response.
5. **Training.** All members of the livestock industry must be provided with a continuing form of training and timely updates concerning possible biological threats.

#### **What Is Law Enforcement's Role in Helping Prevent Harm to America's Agriculture?**

If an outbreak of FMD were deemed an act of terrorism, the FBI would assume overall responsibility for the law enforcement response and for conducting the criminal investigation. Presidential Decision Directive 39, signed on 21 June 1995, designates the FBI as the lead federal agency for managing the operational response to an attack from a terrorist or use of a weapon of mass destruction against the United States.

**As part of a *coordinated* response to a biological attack on agriculture, law enforcement officers would play any number of roles, including:**

1. Providing security and implementing a quarantine for the infected area
2. Assisting in the conduct of a criminal investigation
3. Providing assistance requested by federal agencies, such as the USDA
4. Providing assistance requested by state regulatory agencies
5. Conflict resolution

#### **What Is the Legislative Authority?**

During the 2001 legislative session in Kansas, House Bill No. 2468 was passed and signed into law, establishing clear and specific responsibilities for agencies responding to a declared state of emergency caused by animal diseases. This bill, amending K.S.A. 47-611, defined criminal conduct relative to animal health issues and made it a *criminal act* (level 4, nonperson felony) to expose any animal in this state to FMD. It states further that "the governor will utilize *all available resources* of the state government to cope with the disaster." The Kansas Livestock Commissioner would be empowered by the governor to directly manage emergency operations during an outbreak of FMD or other form of foreign animal disease in the state.

A more critical role for Kansas law enforcement would occur *before* an act of bio-terrorism, by gathering intelligence that would hopefully prevent an outbreak of some *intentionally introduced* foreign animal disease. Kansas' livestock industry is made up of five primary groups:

1. Livestock producers
2. Feedlot operators
3. Livestock marketers
4. Veterinarians
5. County extension agents

Agriculture-based states are vulnerable to a foreign animal disease in a number of diverse locations. Within the state of Kansas there are 462 feedlots, 104 meat-processing plants, 94 domestic elk or deer facilities, and 55 livestock markets.

Preventing an attack or outbreak of a foreign animal disease should be the primary focus of the agriculture industry working in concert with local law enforcement.

In recent town meetings throughout the state, USDA officials and the Kansas Livestock Commissioner have asked members of the livestock industry to report any suspicious activities in the proximity of a livestock operation to law enforcement authorities. This type of information and pro-active intelligence would be essential to help prevent an outbreak of an *intentionally introduced* foreign animal disease, rather than having to respond to a disaster *after* the fact.

Within federal regulations (28 CFR part 23), the KBI is expanding its existing intelligence database, called KsLEIN (the Kansas Law Enforcement Intelligence Network) to help identify any potential threat to Kansas agriculture. The purpose of this database will be to track suspicious activity and individuals reported to Kansas law enforcement and to the KBI. This computerized network will also serve as the repository for complaints and information from citizens concerning suspicious activity. KsLEIN is being modified to add an intelligence component related to bio-terrorism threats to Kansas agriculture. Currently, there are 345 law enforcement agencies participating in KsLEIN.

Biological threats to agriculture represent a new challenge for Kansas law enforcement, and it is important that we understand possible threats, vulnerabilities, available resources, and likely scenarios. To help with this understanding, several training sessions have been initiated. The Ford County Sheriff's Office hosted a regional seminar in Dodge City involving law enforcement officers, livestock producers, and feedlot operators in the west region. Officers were able to learn firsthand about the potential threats and the impact of a bio-terrorism attack on livestock. In turn, there was a mutual understanding by livestock producers of the capabilities and resource limitations of law enforcement agencies in the west region.

In October 2002, a joint training exercise was held in Dodge City involving representatives from local, county, state, and federal law enforcement agencies, as well as emergency management personnel, the Kansas National Guard, USDA, representatives from the livestock industry, and the Kansas Animal Health Department. The training scenario focused on an intentionally introduced outbreak of FMD in western Kansas.

"This exercise was a good opportunity to test our emergency response plan, to define agency responsibilities, to identify limitations, and to make changes for the future," Ford County Undersheriff James Lane said. One of the major problems identified in this training exercise was how to effectively deal with the movement of livestock not affected by the outbreak. For example, approximately 500 truckloads of cattle move through western Kansas *every day*. "Stopping the movement of livestock requires contingency plans to handle unloading, feeding, and caring for these cattle," Lane said. "This is an enormous logistical task, requiring advance planning, cooperation, and coordination."

Preventing and responding to threats to agriculture, particularly FMD, represent a major law enforcement challenge. "The key for law enforcement is understanding the complexity of the agriculture industry, and developing new partnerships to help prevent any bio-terrorism attack. Responding after the fact will be costly and difficult," Undersheriff Lane stated ([Homeland Security, 2002](#))



**Title:** Bioterrorism Experts Head To Atlanta

**Date:** March 25, 2002

**Source:** [UCLA](#)

**Abstract:** Hundreds of health officials descended on Atlanta this week for an annual conference on emerging infectious diseases and were warned that terrorists might try to spread deadly germs through the food supply.

Terrorists could try to make the biological attack even more dangerous by taking down critical communications systems, according to experts from the Centers for Disease Control and Prevention.

"The national system was overwhelmed" by the anthrax scare last fall, said Dr. James Hughes, chief of infectious diseases at the Atlanta-based CDC. "Clearly we learned that we were not adequately prepared. This was a small attack."

The conference agenda, usually filled with sessions on obscure diseases and small outbreaks, is dominated this year by information on anthrax and smallpox -- considered among the most dangerous terrorist agents.

The anthrax-by-mail attacks killed five people last fall and sickened 13 others. The CDC said earlier this month that a Texas laboratory worker handling anthrax specimens became infected with the bacteria and is recovering.

Hughes said health experts must consider the possibility of genetically altered germs, the release of more than one agent at a time, or transmission through animals and the food supply.

To guard against deadlier attacks, the CDC is distributing \$918 million to state and local health departments later this year and next year. The CDC is encouraging them to give priority to upgrading labs and training health workers on how to recognize diseases like anthrax and smallpox.

During and after the anthrax mailings, the CDC was criticized for not communicating clearly to the public about what was myth and what was a real danger. Hughes said some of the millions of dollars to be doled out to prepare for bioterrorism must address communication.

"Clearly, that was something that did not work well during the anthrax attacks," he said. "Our lives have changed. We will be prepared."

The conference also included a refresher course on smallpox, a highly contagious and deadly disease not seen in humans in a generation.

The CDC and a Moscow laboratory hold stocks of the virus, and experts worry that samples could fall into the wrong hands and be converted into a terrorist weapon.

Dr. Stanley Foster of Emory University, who was part of the team that eradicated smallpox, said the United States could react swiftly to a smallpox release, but other countries are extremely vulnerable, with no vaccine or weak public health systems.

Three Johns Hopkins University researchers suggested shutting down all air travel in and out of cities after even one case of smallpox is reported to avoid rapid spread of the disease.

"We could easily have 100 million cases and 20 million deaths," Foster said. "Are we going to be able to prevent it?" ([UCLA, 2002](#)).

**Title:** Farms Vulnerable To Terrorism, Study Says  
**Date:** September 14, 2002  
**Source:** [UCLA](#)

**Abstract:** Little is being done to address the real threat of a terrorist attack focused on the United States agriculture industry, said members of a government-sponsored commission that met Friday to examine the state of America's preparedness for terrorist action.

"I think the panel has to come out strongly that there needs to be more attention paid to these (agricultural threat) issues, and that these recommendations are just a little bit of what is needed to be done," said Ellen M. Gordon, administrator of the emergency management division of the Iowa Department of Public Defense.

She spoke at the quarterly meeting of an advisory panel that assesses U.S. domestic response capabilities to terrorism that involves weapons of mass destruction.

"Literally, this is an issue on which nothing is being done," said Gordon, who is also president of the National Emergency Management Association.

The commission, also known as the "Gilmore Commission," has been run by the RAND Corp. for 4 years under government contract, through the think tank's federally funded National Defense Research Institute.

The commission's recommendations have taken on new importance in light of the Sept. 11 attacks and the deadly anthrax mailings that followed them last fall.

As a think tank that supplies research and support for the initiative, and briefings on key issues, RAND wields much influence over the commission's recommendations. At Friday's meeting, RAND personnel briefed the commission on response capabilities for a bioterror attack with smallpox, and on an ongoing survey on the responsiveness to terrorism threats of emergency service personnel at the state and local levels.

In addition, a panel subcommittee headed by Dr. M. Patricia Quinlisk, medical director and state epidemiologist for the Iowa Department of Public Health, made several recommendations for dealing with the threat of agricultural terrorism, an area of particular interest to commission members.

The panel debated possible recommendations for protecting agricultural industries and products from terrorist strikes, including livestock, crops and fruit awaiting harvest, and processed food heading to grocery stores.

Dr. Quinlisk said a major problem is that while agricultural products are at risk for attack, nothing is being done to study the threat.

"The perception is that agriculture is at some risk, but there is no good idea as to what kind of threat there may be," she said.

One recommendation given to the commission was for an increase in funding for programs to study the threat, evaluate the risks and establish proper responses. Another was that more resources be committed to education and training for veterinarians about animal-borne diseases that are not common in the United States and that could be used to create an infectious agent or to contaminate food supplies.

The commission will also consider creating a system to track outbreaks of animal diseases that is based upon the health threat model used to track outbreaks of human infectious diseases.

Members of the panel noted that there are several federal agencies that have oversight of this area, especially of processed foods. The Food and Drug Administration, Customs Service and Department of Agriculture have jurisdiction over various aspects of the food chain. None, however, have shown the willingness or ability to take up this issue, they said.

Mike Wermuth, RAND's project director for the Gilmore Commission, indicated that the Central Intelligence Agency, for example, has made it clear that it has no interest in addressing the threat of agricultural terrorism.

"As far as we can tell there isn't any interest from the intelligence community," said Wermuth.

Several of the committee members agreed that the effort to protect agriculture, as well as who should be responsible for that, should be better defined in federal statutes.

In addition to agricultural terrorism, said commission chairman Jim Gilmore, the current panel of the commission is also focused on the impact of new anti-terror policies on civil liberties.

"We are focusing intently on civil liberty issues to make sure these recommendations will have the appropriate impact on the American people," Gilmore told United Press International.

This was evident during Friday's deliberations over a controversial recommendation for creating a counter-terrorism information service that would be separate from the Department of Homeland Defense, which is still being formed.

The proposed counter-terrorism information service would be designed to gather intelligence related to possible attacks from within the United States, and would be given a mandate to collect raw intelligence data from law enforcement and other sources. The agency would not, however, have the power to enforce laws.

During the debate over the proposal, Gilmore said he opposes the idea because it needed to "mature" before it can be considered. He added that that a key dilemma with the proposal is the problem of how to handle intelligence on U.S. citizens vs. that on non-citizens.

The proposal for this new agency, and the recommendations on agricultural terrorism, will be further scrutinized and revised before they are voted on later this year and become official commission recommendations.

The Gilmore Commission's fourth annual report is scheduled to be delivered to Congress and the White House on Dec. 15. It will make recommendations on various issues including the National Strategy for Homeland Security; the relationship of the new Department of Homeland Security to other U.S. government, state and local agencies and to the private sector; and the military's role in homeland security ([UCLA, 2002](#)).

**Title:** Bioterror Targets May Be On Farms

**Date:** September 20, 2002

**Source:** [UCLA](#)

**Abstract:** The United States is highly vulnerable to terrorist attacks on its livestock and food crops and needs a national plan to identify threats, direct research, gather intelligence and respond to outbreaks, a committee of experts said yesterday.

A report by the National Academy of Sciences said that while agricultural bioterrorism was "highly unlikely to result in famine or malnutrition," it could have "major direct and indirect costs to the agricultural economy."

The report also cautioned that there could be "adverse health effects" caused by agents -- such as anthrax -- that can move from animals to humans, as well as "loss of public confidence in the food system ... and widespread public concern and confusion."

The report, titled "Countering Agricultural Bioterrorism," was prepared over the past three years by the academy's National Research Council at the behest of the U.S. Department of Agriculture. Parts of the original report dealing with specific case studies were put in a classified annex withheld from the published study.

"We thought about it all along -- whether we were giving anybody a recipe for how to mount an attack," said David R. Franz, a bioterrorism expert and NAS panelist who is vice president of the Southern Research Institute. "You always have to weigh your vulnerability against the need to educate people about what they're up against and to overcome their natural reticence."

Reticence, however, is no longer a problem, said Iowa State University veterinarian Harley W. Moon, chairman of the 12-member NAS panel.

"September 11 fixed that," Moon said. "People became so urgent that they went ahead on their own." But while "there's increased general awareness and agency interaction," he added, "we need a national response, as well."

In one sign of increased intensity over agricultural bioterrorism, the Agricultural Department's Animal and Plant Health Inspection Service early this week was able to enlist the help of veterinarians, hog farmers, state officials and veterinary labs across the country to watch for evidence of swine disease from genetically altered bacteria cultures stolen from a Michigan State University lab a week ago.

The genetically altered bacterium, *Actinobacillus pleuropneumoniae*, can cause pneumonia, encephalitis and death in pigs but is not dangerous to humans and is hard to spread. "If you were going to pick a pathogen, this would not be high on the list," said Ron DeHaven, deputy administrator at APHIS.

Nevertheless, because of "the potential of it to be a bioterrorist event," DeHaven held a conference call to enlist help from stakeholders at all levels of the pig farming industry.

"If this had happened 13 or 14 months ago, we probably wouldn't have thought twice about it, but we have to assume the worst and be prepared," he said.

According to the NAS panel, preparation requires a national coordinating center. Panelist R. James Cook, a Washington State University plant pathologist, said the participants wanted to make the Centers for Disease Control and Prevention their model. The CDC is a research center and early warning system for outbreaks of human disease.

"We don't know what will happen or whether there will even be bricks and mortar," Cook said. "We just need to be able to do what the CDC does -- get the information we need in real time."

The panel noted that the Agriculture Department already has a well-developed infrastructure to deal with plant pathogens and animal diseases that come into the country accidentally. These have included San Francisco's Mediterranean fruit flies, in the early 1980s, to Florida's citrus canker in the 1990s and today's mosquito-borne West Nile virus.

But the panel cautioned that deliberate infestation demanded a far more extensive menu of precautions, including stringent border monitoring, better overseas intelligence and research to develop resistant plant strains and assemble genetic libraries of likely "threat agents."

Agriculture Secretary Ann M. Veneman noted in a statement that the department has several initiatives similar to those outlined in the report, including identifying a priority list of threat agents, allocating increased funds for bioterrorism research and strengthening its laboratories.

"Because of these aggressive efforts, our nation's food and agriculture infrastructure is stronger today than a year ago," she said. "However, threats remain, and we must work in a responsible and aggressive manner to continue strengthening these programs."

The NAS panel's Moon praised USDA for increasing funding to establish a network of diagnostic labs -- five for livestock and five for plants -- that could be called on to make quick assessments of dangerous pathogens even as they are discovered ([UCLA, 2002](#)).

**Title:** US Farms Called Vulnerable To terrorism

**Date:** November 22, 2002

**Source:** [UCLA](#)

**Abstract:** They scarcely seem like the classic tools of terrorists: mooing cows, oinking pigs, and clucking chickens. But specialists in public health and agriculture warn that the nation's livestock and crops remain particularly vulnerable to terrorists, threatening the US agricultural system with viral and bacterial infections that could cripple the economy.

Computer models show that an infection such as foot and mouth disease, which decimated Britain's beef industry in 2001, could sweep through 44 states within two weeks of its introduction at a handful of farms in a single state, resulting in 48 million livestock being put to premature deaths.

Although many of the infections, including foot and mouth, pose no direct threat to human health, the economic consequences would be ruinous, specialists said at the Harvard-sponsored *BioSecurity 2002* conference, and would seed considerable doubt about the safety of the nation's food supply.

Foot and mouth virus ravaged agriculture as well as tourism in England, forcing quarantine measures against 10,000 farms and the destruction of 6 million cows, sheep, and pigs.

"It is a perfect weapon for doing the kinds of things terrorists do," said Dr. Thomas J. McGinn III, assistant state veterinarian in North Carolina. "As a target, you can imagine why they would hit something like this and as a weapon, they could spread it wherever they want."

Federal authorities consider the threat so significant that defense against agricultural bioterrorism has a special place in the newly created Department of Homeland Security. Also, last summer, in an exercise conducted at the behest of Defense Secretary Donald Rumsfeld, 40 veterinarians, emergency planners, and military authorities convened for a boardroom drill to assess the potential impact of bioterrorism targeted at farms and food processing sites.

The exercise, dubbed Silent Prairie, assumed that the destruction could begin with something as common as a cotton swab dabbed with viral particles.

The dean of the Harvard School of Public Health is so troubled by those threats that he called for the creation of an agency akin to the US Centers for Disease Control to monitor the welfare of the nation's crops and plants. Barry R. Bloom, the Harvard dean who served on a panel evaluating the threat of bioterrorism, told hundreds of public health, military, and private security authorities at the conference that

the United States is woefully lacking in its ability to swiftly identify contaminants being introduced into livestock and plants.

"There's relatively little surveillance," Bloom said. "It's an enormous task, and we're not prepared."

That remains the case even though the potential for terrorists to cause illness and fear by infecting the food supply became dramatically evident 18 years ago, when members of a fringe religious cult spiked salad bars at 10 Oregon restaurants with salmonella. The result: 750 people became ill.

The damage that could be wrought by a more widespread attack, initiated at multiple sites, is profound, Bloom and other specialists said. Agriculture generates \$1 trillion in economic impact annually, accounting for 13 percent of the gross domestic product.

Farming is an exceptionally porous industry from a security standpoint, with 24,000 livestock ferried out of just one state, North Carolina, every day, destined for markets across the world. If terrorists chose a virus such as foot and mouth disease, it would spread with stunning efficiency. Studies have shown that the virus can be carried by the wind up to 40 miles; once introduced to a herd, it is 100 percent infectious.

"If someone's determined enough to get something in, they will get it in," said Dr. Cindy S. Lovern, assistant director of emergency preparedness and response for the American Veterinary Medical Association. "Foot and mouth disease can be brought in on a Q-Tip or the bottom of your boot. That's why it's so critical to find it fast and to treat it quickly."

Foot and mouth is often not fatal to animals, but in the short term produces hideous blistering, and in the long term, impairs their use as productive livestock. The disease rarely produces severe illness in humans, although people can transmit it to animals. Specialists at the *BioSecurity* conference conjured scenarios in which other viruses and bacteria (including plague, anthrax, and tularemia) could be introduced into animal populations, with the ultimate goal of spreading illness to humans. That probably would prove not to be a particularly efficient mode of transmission but would spawn considerable fear. Early detection of a biological attack is paramount, specialists said.

But the arrival of West Nile virus, blamed for sickening 3,700 people this year and killing more than 200, demonstrates how unprepared the nation is for animal disease outbreaks. Until Dr. Tracey McNamara began testing dead crows near the Bronx Zoo, the emergence of West Nile had gone undetected. "We still haven't done what needs to be done," McNamara said. "Everybody pays lip service that animals can serve as sentinels of disease outbreak and bioterrorism, but it seems to be a hard concept to fund" ([UCLA, 2002](#)).

**Title:** WHO Issues Alert On Food Terrorism

**Date:** January 31, 2003

**Source:** [BBC](#)

**Abstract:** The World Health Organization (WHO) has warned that terrorist groups could try to contaminate food supplies and has urged countries to strengthen their surveillance.

In a special report, the leading UN health agency, said an attack using chemical or biological agents in food could lead to people dying or contracting serious illnesses like cancer.

The agency said it had not received any specific warnings of such an attack.

But it added that it viewed deliberate food contamination as "a real and current threat".

## **'Potential is There'**

The 45-page booklet entitled *Terrorist Threats to Food* ([click](#) for PDF file from WHO) warns of the potential insertion of pesticides, viruses and parasites in food as "a way of deliberately harming civilian populations".

It cites examples of intentional food attacks of the past, including a salmonella outbreak in the US state of Oregon.

In that incident, more than 750 people became ill, after members of a cult contaminated restaurant salad bars.

The WHO director of food safety, Jurgen Schlundt, said the booklet was not designed to alarm but rather to try to alert governments to boost their surveillance and emergency response measures.

"There has already been some examples of deliberate contamination of the food chain. It's only very few, but there has been some examples. And we do know that the potential is there," he said.

"The way to try to deal with it is to strengthen some of the systems that we already have in place, but they need in some cases strengthening of certain areas."

Mr Schlundt added that natural outbreaks show the potential dangers of food-borne disease.

He said about 1.5 million people already die each year due to diarrhoea-related illnesses caught from eating contaminated food.

The WHO says if terrorists deliberately add harmful agents, many more people could be left suffering from acute long-term effects, including paralysis, foetal abnormalities and increased rates of chronic illnesses like cancer ([BBC, 2003](#)).

**Title:** U.S. Agriculture Could Be Vulnerable To Terrorists

**Date:** February 21, 2003

**Source:** [UCLA](#)

**Abstract:** Could terrorists be lurking in fields and behind barns, ready to poison the plants and animals that provide the source of the nation's food?

It's not an impossible scenario, says Michael Harrington, executive director of the Western Association of Agricultural Experiment Station Directors.

"Nobody thought anybody would crash a plane into the World Trade Center, either," Harrington said. "If someone were intent on attacking the agricultural and food system it could be done."

Agri-terrorism could damage the economy, kill people or make them sick, and cause the kind of upheaval the nation went through when anthrax was found circulating through the mail, he said.

"You don't have to be a rocket scientist," said Harrington, who gave the keynote address recently at the 2003 International Chile Conference in Las Cruces. "You don't have to have access to nuclear materials."

Harrington said there have been at least five acts of agri-terrorism in the United States and 17 worldwide.



In one attack, he said, a radical group claimed responsibility for releasing Mediterranean fruit flies in California. The quarter-inch Medfly attacks more than 250 varieties of fruits, nuts and vegetables.

In 1997, a Medfly infestation threatened Florida's nearly \$7 billion agricultural industry.

Agriculture accounts for about \$1 trillion in economic activity each year in the United States, he said. As an example, he said, destruction of New Mexico's chili industry could cause a local economic impact of at least \$250 million.

Arturo Jurado, a Las Cruces pepper farmer who is chairman of the New Mexico Chile Commission, said the long-term impact would be at least 10 times greater.

"We have to be prepared for it," he said. "The best thing is information ... knowing neighbors, know what they're doing and when they're doing it."

Other vulnerable areas include processing and transportation of food, Harrington said.

"The United States has had and continues to have the safest food supply in the world, so people are a little nervous talking about this, including myself," he said.

Concern over terrorist acts has caused the U.S. Agriculture Department to invest \$328 million in agri-security, he said.

Researchers are developing animal vaccines and looking at breeding animals and plants with resistance to some toxic agents. Agricultural extension service agents are developing emergency plans and educating themselves about potential risks.

Harrington said the USDA and state agricultural schools are forming another emergency response network.

Some see endless possibilities for farm- and food-related terrorist acts.

"I think one of the biggest places to start is the international foods coming in," said Wes Eaton, who works at New Mexico State University in Las Cruces and attended the conference. "We need to guarantee that it's not laced with something" ([UCLA, 2003](#)).

**Title:** Federal Agencies Begin Bioterrorism Test

**Date:** March 25, 2003

**Source:** [UCLA](#)

**Abstract:** A crop-duster sprayed a harmless substance above a field of cattle and oil pumps Monday in a test to see if weather radar could detect a bioterrorist attack.

It was the first spray of a three-week Army test over central Oklahoma. The plane will make 261 runs, dropping grain alcohol, clay dust and a mix of water and polyethylene glycol -- a common ingredient in lotions and mascara.

The harmless materials were chosen to produce a mist resembling the airborne particles that might be produced by a bioterrorism attack.

The test, taking place in Oklahoma because of the state's advanced weather radar system, will help Army and Environmental Protection Agency scientists determine how well radar can detect such materials.

The new system would keep track of small planes and tiny puffs of particles that typical radars ignore. It will take weeks to analyze the data and determine how successful the test was, Army officials said.

The goal is to develop computer technology for a nationwide bioterrorism detection system, said Robert Lyons, with the Army's nuclear, biological and chemical detection program. The government hopes to install high-tech software in about 150 radar stations across the country.

The EPA has conducted similar tests in Maryland, Utah and Florida since early 2001, before the Sept. 11 terrorist attacks.

The government planned to start the test Feb. 24. But after residents of Goldsby complained, officials re-evaluated the program and deleted two of the originally planned test materials -- powdered egg whites and a sterilized natural pesticide. Those materials were sprayed over the ocean near Key West, Fla., last April with no ill effects ([UCLA, 2003](#)).

**Title:** Bioterrorism And The Food Supply

**Date:** October 1, 2004

**Source:** [Directions Magazine](#)

**Abstract:** The goal of terrorists is to strike fear in the hearts of their targets. This can take many forms. They may wish to cause death, shock, economic disruption, loss of faith in authorities, psychological trauma, dread, or just uncertainty. Perhaps the act that would most readily accomplish this would be an attack on the United States' food supply. Protecting the food supply has been a priority for public health officials for decades. Traditionally, industry and regulators have depended on spot-checks of manufacturing conditions and random sampling of final products to ensure safe food. This system is seen as more reactive than preventive because it finds problems after they have occurred rather than as the food is being prepared.

So what is at stake? Here are some interesting statistics about the food supply-chain in the United States. These are just from just the Mid-Atlantic region.

### **Mid-Atlantic Food Supply**

- Number of farms = over 100,000
- Number of post-farm businesses = nearly 150,000
- Private Sector Food Business = over 12% of private sector businesses involve food
- Collective Sales = over \$300 billion
- Employment = nearly 12% of the workforce

The introduction by terrorists of noxious or lethal materials into foods or beverages could result in undetected, rapid and widespread distribution within the food supply-chain that relies on distributed food production, processing and transportation firms. There are really three types of terrorist threats to the food supply.

1. The use of food or water as a delivery mechanism for pathogens, chemicals, and/or other harmful substances for the purpose of causing human illness or death.
2. The introduction of anti-crop or anti-livestock agents into agricultural systems.
3. The physical disruption of the flow of food/water as a result of the destruction of transportation or other vital infrastructure.

So how vulnerable is our food supply? That is a question that has been asked by scientists and government officials. The answer lies in an analysis of the "food" supply-chain. The supply chain begins with a vast number of producers (farms) and the numerous transportation, processing and distribution

facilities that are all part of bringing the food to the point of consumption. It is estimated that 98 percent of all U.S. farms are family farms. This small, highly distributed food production network creates security, monitoring and tracking challenges. Very large factory farms make up only 3 percent of the total farms but contribute more than 40 percent of the output. In addition to being vulnerable to terrorist attacks, this system makes it exceedingly difficult to trace back and identify the source of the contaminated food.

Figure 1 examines the likelihood of a bioterrorism attack against the U.S. food supply and the impact of such an attack. Four recent GAO reports found gaps in federal controls for protecting agriculture and the food supply. Local, state and federal officials must do even more to protect our food supply from tampering. A new comprehensive approach is needed if we are to safeguard our food supply.

1. Document the "food" supply-chain
2. Analyze risks and vulnerabilities
3. Identify critical control points
4. Establish monitoring procedures
5. Develop response plan
6. Develop reporting and tracking system
7. Develop system reliability checks

The Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (the Bioterrorism Act) directs the Secretary of Health and Human Services to take steps to protect the public from a threatened or actual terrorist attack on the U.S. food supply.

Exempt from these regulations are the transportation vehicles that hold food only in the usual course of business. As you could imagine the ability to attack our food supply while in transit from the production site is a critical area and possibly the area that has the least amount of protection currently. It is important to recognize that this is only one of many exceptions granted under the act.

Protecting U.S. agriculture and ensuring safe and wholesome meat and poultry is one of the primary challenges facing USDA. The office of the Inspector General of the United States Department of Agriculture's chief missions is to ensure the safety of the food supply, both by auditing food safety programs to detect deficiencies and recommend improvements and by investigating criminal activity involving the intentional contamination of food products. They also monitor the processing and sale of adulterated meat, poultry, and egg products; and the substitution, adulteration or other misrepresentation of food products regulated or inspected by USDA.

### **Technology**

The Department of Homeland Security in June 2004 announced the first Designations and Certifications under the Support Anti-terrorism by Fostering Effective Technologies (SAFETY) Act. The SAFETY Act provides liability limitations for makers and sellers of qualified anti-terrorism technologies, including those that may be used to protect the nation's food supply. DHS is also developing a new National Biodefense Analysis and Countermeasures Center (NBACC) to support the law enforcement and intelligence communities in their biodefense responsibilities.

The Center will apply the newest advances in science to the challenges both of biological threat characterization and of bioforensics, strengthening the nation's ability to determine the source of a biological agent used in an attack and strengthening deterrence. In June 2004, DHS announced its new Regional Technology Integration (RTI) initiative. RTI provides a mechanism for working directly with urban areas on infrastructure protection (including protection of the food supply) to develop and deliver new technologies as part of a regional security response. The program focuses on regional collaboration, private sector solutions, measurable objectives and continuous evaluation, and communicating best practices and lessons learned to other communities, states, Congress, the Administration, and other federal agencies.

The support is there. Now all that is needed is a workable platform that can provide an economically feasible solution to safeguarding our food supply. A critical component of this platform will, without question, be a GIS system that supports tracking and traceability. Incorporated into the platform will also be RFID capabilities to trace the product throughout the food supply-chain. These hybrid tags will also serve to detect tampering and integrated with new biosensors will alert food processors to possible contaminants. But this platform will not be cheap. The question is can the platform be developed and implemented in time to protect the population from a bioterrorist attack against our food supply? Only time will answer that question.

## **Conclusion**

The food supply is by far the most vulnerable to a bioterrorism attack. This year we learned from news reports that terrorists have developed materials to manufacture salmonella and botulinum, and they may have intended to poison the food supply. Even more alarming was a *Washington Post* article on biological weapons developed by the South African government under the apartheid regime, including a biological agent created by splicing a common strain of E.coli with a toxin-producing gene from *Clostridium perfringens*. These are only a handful of examples of food bioterrorism that demonstrate the health and economic damage that could be inflicted through an attack on the food supply.

We need to continue to strengthen our food supply surveillance systems and improve communication and coordination among local, state and federal agencies to heighten the ability to recognize and quickly respond to food-borne outbreaks. This will not be cheap or able to be accomplished in a short period of time ([Directions Magazine, 2004](#)).

**Title:** Agroterrorism: Threats And Preparedness

**Date:** February 4, 2005

**Source:** [U.S. Congress](#)

**Abstract:** The potential of terrorist attacks against agricultural targets (agroterrorism) is increasingly recognized as a national security threat, especially after the events of September 11, 2001. Agroterrorism is a subset of bioterrorism, and is defined as the deliberate introduction of an animal or plant disease with the goal of generating fear, causing economic losses, and/or undermining stability. Attacks against agriculture are not new, and have been conducted or considered by both nation-states and substate organizations throughout history.

The results of an agroterrorist attack may include major economic crises in the agricultural and food industries, loss of confidence in government, and possibly human casualties. Humans could be at risk in terms of food safety or public health, especially if the chosen disease is transmissible to humans (zoonotic). Public opinion may be particularly sensitive to a deliberate outbreak of disease affecting the food supply. Public confidence in government could be eroded if authorities appear unable to prevent such an attack or to protect the population's food supply.

Agriculture has several characteristics that pose unique problems for managing the threat. Agricultural production is geographically disbursed in unsecured environments. Livestock are frequently concentrated in confined locations, and then transported and commingled with other herds. Pest and disease outbreaks can quickly halt economically important exports. Many veterinarians lack experience with foreign animal diseases that are resilient and endemic in foreign countries.

Agriculture and food production generally have received less attention in counter-terrorism and homeland security efforts. But more recently, agriculture has garnered more attention in the expanding field of terrorism studies. Laboratory and response systems are being upgraded to address the reality of agroterrorism. Congress has held hearings on agroterrorism and enacted laws and appropriations with agroterrorism-related provisions.

The executive branch has responded by implementing the new laws, issuing several presidential directives, and creating liaison and coordination offices. The Government Accountability Office (GAO) has studied several issues related to agroterrorism.

Appropriations and user fees for USDA homeland security activities have about doubled from a \$156 million “pre-September 11” baseline in FY2002 to \$325 million in FY2004. Two supplemental appropriations acts added nearly \$110 million in both FY2002 and FY2003. For FY2005, the department requested \$651 million in appropriations and user fees, but only certain agroterrorism-related items were specifically mentioned in committee reports. The President’s budget proposal for FY2006 will summarize the enacted FY2005 homeland security funding for USDA.

In addition to appropriations activity, bills addressing agroterrorism preparedness and coordination among agencies are likely to be introduced in the 109th Congress. A GAO report on coordination between USDA and DHS is expected by March 1, 2005. This report will be updated as events warrant ([U.S. Congress, 2005](#)).

**Title:** Analyzing A bioterror Attack On The Food Supply: The Case Of Botulinum Toxin In Milk

**Date:** April 20, 2005

**Source:** [PubMed](#)

**Abstract:** We developed a mathematical model of a cows-to-consumers supply chain associated with a single milk-processing facility that is the victim of a deliberate release of botulinum toxin. Because centralized storage and processing lead to substantial dilution of the toxin, a minimum amount of toxin is required for the release to do damage. Irreducible uncertainties regarding the dose–response curve prevent us from quantifying the minimum effective release. However, if terrorists can obtain enough toxin, and this may well be possible, then rapid distribution and consumption result in several hundred thousand poisoned individuals if detection from early symptomatics is not timely. Timely and specific in-process testing has the potential to eliminate the threat of this scenario at a cost of <1 cent per gallon and should be pursued aggressively. Investigation of improving the toxin inactivation rate of heat pasteurization without sacrificing taste or nutrition is warranted.

Among bioterror attacks not involving genetic engineering, the three scenarios that arguably pose the greatest threats to humans are a smallpox attack, an airborne anthrax attack, and a release of botulinum toxin in cold drinks (1). The methods of dissemination in these three scenarios are, respectively, the person-to-person spread of a contagious disease, the outdoor dispersal of a highly durable and lethal agent, and the large-scale storage and production and rapid widespread distribution and consumption of beverages containing the most poisonous substance known. The first two scenarios have been the subject of recent systems modeling studies (2–5), and here we present a detailed systems analysis of the third scenario. For concreteness, we consider a release in the milk supply, which, in addition to its symbolic value as a target, is characterized by the rapid distribution of 20 billion gallons per year in the U.S.; indeed, two natural Salmonella outbreaks in the dairy industry each infected 200,000 people (6). Nonetheless, our methods are applicable to similar food products, such as fruit and vegetable juices, canned foods (e.g., processed tomato products), and perhaps grainbased and other foods possessing the bow-tie-shaped supply chain ([PubMed, 2005](#)).

**Title:** Targets For Terrorism: Food And Agriculture

**Date:** January, 2006

**Source:** [CFR](#)

**Abstract:** Is America’s food supply safe from terrorist attacks?

No. The United States spends more than \$1 billion every year to keep America’s food supply safe, but even without terrorism, food-borne diseases cause about 5,000 deaths and 325,000 hospitalizations each year, according to the Centers for Disease Control and Prevention (CDC). Former Secretary of Health and Human Services Tommy Thompson told a congressional terrorism panel in November 2001 that he

was “particularly concerned” about food-related terrorism, which could involve either attempts to introduce poisons into the food supply or attacks that would ruin domestically cultivated crops or livestock. **Have there been past terrorist attacks in the United States involving food?**

Yes. In 1984, members of an Oregon religious commune—followers of an Indian-born guru named Bhagwan Shree Rajneesh—tried to influence a local election by poisoning salad bars with salmonella bacteria to sicken voters. Although no one died, 751 people became ill. There have been a couple of other attempts to deliberately contaminate food with biological agents since World War II, but these have been criminal acts, not terrorism.

There have been no documented terrorist attacks on U.S. agriculture. But the number and variety of food-borne illnesses and crop and livestock diseases make it hard to distinguish terrorist attacks from natural events. It took a year for U.S. officials to conclude that the Oregon attack was deliberate.

### **How might terrorists attack the food supply?**

The Oregon attack took place at local restaurants, near the end of the food-distribution chain, but an attack could occur at any point between farm and table. Imported food could be tainted with biological or chemical agents before entering the United States, or toxins could be introduced at a domestic food-processing plant. Crops or livestock raised on American soil could also be targeted. Experts also worry that terrorists might try to spread false rumors about unsafe foods via the mass media or the Internet.

### **How much damage could an attack on the U.S. food supply cause?**

Some attacks could cause illnesses and deaths, depending upon how quickly the contamination was detected. But even attacks that don't directly affect human health could cause panic, undermine the economy, and even erode confidence in the U.S. government, experts say. Agriculture exports amount to about \$140 billion a year, and many American jobs have at least an indirect connection to food and agriculture. A 1970s plot by Palestinian terrorists to inject mercury into Jaffa oranges reduced Israel's exports of citrus fruit to Europe by 40 percent, and a 1989 incident in which a shipment of Chilean grapes to the United States tested positive for cyanide led to international trade suspensions that cost Chile \$200 million. The U.S. Department of Agriculture estimates that an attack on livestock—a successful attempt to infect American cattle with a contagious disease such as foot-and-mouth, for example—could cause between \$10 billion and \$30 billion in damage to the U.S. economy.

### **What kinds of terrorists might mount a food-related attack?**

We don't know. Concerns about such attacks have grown since September 11. Some forms of attack wouldn't require a large or highly skilled organization and could come from foreign groups like Osama bin Laden's al-Qaeda network, domestic terrorists, eco-terrorists, a cult-like group such as Oregon's Rajneeshees, or an unaffiliated individual—anyone who wanted to undermine the economy and spread panic. Elsewhere, groups that have threatened agroterrorist attacks include Tamil militants in Sri Lanka and British activists opposed to chemical and biological warfare.

### **Who is in charge of food safety?**

The two main agencies are the Food and Drug Administration (FDA), which is part of the Department of Health and Human Services, and the Food Safety and Inspection Service (FSIS), a part of the Department of Agriculture. The FSIS handles meat, poultry, and egg inspections, and the FDA inspects everything else. State and local agencies, other federal bodies, and foreign inspection services are also sometimes involved in food safety.

Many experts have long favored consolidating food-safety programs in a single agency, and calls for a consolidation have been repeated since September 11. But food manufacturers and some members of Congress have grown accustomed to the current system and oppose its overhaul ([CFR, 2006](#)).

**Title:** Responding To The Threat Of Agricultural Bioterrorism

**Date:** November 9, 2006

**Source:** [Directions Magazine](#)

**Abstract:** In October 2004, Kevin Coleman discussed the [susceptibility of the U.S. food supply chain to bioterrorist attack](#). Given events surrounding the recent E. coli outbreak in spinach grown in the U.S., now is an ideal time to revisit the subject of food safety by expanding upon the place of agriculture in the United States and some of the ways in which geospatial technology, and its practitioners, can address this area of homeland security.

The vital roles played by agriculture (and those employed in that sector of our economy) are largely underappreciated by many people. These roles include the provision of food, maintenance of healthy ecosystem function, and enhancement of aesthetic qualities. However, the "selling point" most often used to convey the importance of agriculture, and to capture the attention of decision makers, is simple economics. Various reports published by the U.S. Department of Agriculture's (USDA) Economic Research Service (ERS) show that agriculture is a multi-billion dollar industry, with the total value of agricultural products exceeding \$117 billion dollars, and that of agriculture and related industries topping \$563 billion.

While many of the plant and animal products grown or raised in the U.S. are used domestically, a significant portion is also exported to other nations. In 2004, total U.S. agricultural exports were estimated at \$61.4 billion - with agriculture being one of the few trade sectors in which the U.S. often exports a higher value commodity than we import. While these national figures are certainly impressive, the economics of agriculture is perhaps even more important at the state and county scales. Consider, for instance, that farm income accounts for over 30% of the total income in many rural U.S. counties.

So, the "grand challenge" for domestic food safety and security programs is then twofold: To ensure access to a safe, reliable and inexpensive food supply and, at the same time, to maintain the profitability of plant and animal production systems. However, our collective ability to meet this challenge is under constant threat.

We face, for example, the nearly impossible task of stopping invasive pests and introduced pathogens from entering the country. Unfortunately, the number of such introductions will not only continue, but likely increase, if for no other reason than sheer logistics. In fiscal year (FY) 2005, the U.S. imported nearly 27 million metric tons of agricultural products (excluding wine and malt beverages). Of this amount, significantly less than 5% was subjected to thorough inspection. Despite this low inspection rate, the Department of Homeland Security's Customs and Border Protection agency seized a daily average of over 1,100 prohibited agricultural products at ports of entry in FY 2005, including 147 agricultural pests.

The financial impact of disease and pest management is significant, costing the agricultural industry in the neighborhood of \$3 billion per year. The projected economic impact of one disease alone, Asian soybean rust (first introduced into the U.S. in 2004), is upwards of \$2 billion. This, and future introductions may result in restrictions on domestic and foreign trade, disruptions in food production, changes in consumer perceptions and confidence, and employment declines within all aspects of agriculture and food markets.

Given the monetary importance of the agricultural sector, it is not an overstatement to say that the economic well-being of the nation, and that of many rural communities, is susceptible to significant disruption. Several additional factors further expose U.S. agriculture to the harm posed by natural and intentional introductions of pests and pathogens. These "multiplying" factors include a genetic simplification of planted landscapes and food animal lines that makes crops and livestock more susceptible to disease, the difficulty of monitoring plant and animal conditions (i.e., situational awareness) over large geographic areas, and the concentrations of crops and livestock production at local and



regional scales.

One framework which can be used to plan for and execute our response to agricultural biosecurity events is the emergency response cycle outlined by hazards researchers. Here the term "hazard" is considered broadly, and can be applied equally to natural events, technological failures and biological agents. The cycle of emergency response begins with "preparedness" - how people and places plan to deal with a hazard event. Eventually, a disaster happens (such as a tornado) and it tests how well we have prepared for that hazard. We respond to the emergency by rescuing people and addressing other immediate threats to life, limb and property. Following response is the recovery stage, which includes "cleaning up" after the disaster and other efforts geared toward getting back to "normal" conditions. Next, and often concurrent with the later recovery activities, is the mitigation phase. Here, the disaster and our reaction to it are assessed, and ways to improve preparedness, response and recovery are identified. Finally we transition back to the preparedness stage, await the next hazard and begin the whole process again.

This same emergency response cycle can be used to guide our actions in the event of a biological hazard and, I believe, contribute to an operational definition of food safety and agricultural biosecurity:

*"The ability to develop, maintain, and execute a rapid and effective emergency response to disease outbreaks and invasive species in order to ensure a safe, constant, and profitable supply of food, feed, and fiber."* (Author's unpublished quote)

Geospatial technologies have played, and will continue to play, a key role in the development, maintenance and execution of emergency response cycles related to food security and agricultural biosecurity events. One example that illustrates this role is a spatial model for locating large-scale livestock carcass disposal sites.

Consider for a moment a scenario where Foot and Mouth Disease (FMD) is detected in beef cattle within a commercial feedlot. After confirming the diagnosis, the relevant state department of agriculture working in conjunction with the USDA will implement some form of an animal carcass disposal plan. That plan will involve destroying cattle from the affected feedlot, as well as those from neighboring operations within an established quarantine zone, to prevent the spread of the disease. For some states, such as Kansas, the preferred disposal mechanism is burial. The next logical question to ask, then, is where to bury as many as several hundred thousand head of cattle found within the quarantine zone?

To help solve this problem, we can view and simultaneously analyze a series of thematic data layers in a GIS-based landscape suitability model to prepare our emergency response. Geographical datasets including environmental and cultural information related to soils, geology, water resources, transportation networks, threatened and endangered species, and population can be combined into automated digital workflows using functionality built into commercial GIS software packages. The model created for the State of Kansas currently uses twelve data layers that represent "exclusion criteria" developed by the Kansas Department of Health and Environment (KDHE). These data are then subjected to various geoprocessing procedures to produce maps that identify the cumulative geographic area falling within the spatial extent of one or more of the predefined exclusion criteria - in other words, the least preferred sites for carcass burial.

Running this model yields results such as that shown here for Finney County, Kansas. Green areas on the map represent locations that do not violate any exclusion criteria and, therefore, would be preferred burial sites. Based upon the KDHE exclusion criteria, nearly 40% of the county would be unsuitable for animal burial. It is important to note that licensed animal feeding operations are required by the state to develop a plan for onsite livestock burial. However, a visual comparison between actual feedyard locations (not shown on map for security reasons) and preferred mass burial locations indicates a potential flaw in this strategy - and that onsite burial may not actually be in the long term interests of regional populations.

Given the automated nature of this method, emergency managers now have a sound procedure, based upon good science, for rapidly identifying suitable burial sites before and during an event. The ability to

"pre-emptively" target preferred sites for burial is especially helpful when negotiations are required to obtain burial rights on private lands.

After the September 11, 2001 terrorist attacks, several post-event analyses have highlighted the importance of both GIS and geographic data in providing rapid and effective emergency response. Summarized from Galloway (2003), some of those key findings include:

1. Having geographic datasets for critical infrastructure already developed and on-hand prior to an emergency
2. Having the human and information technology infrastructure in place to facilitate sharing geographic information
3. The importance of graphical forms of communication, such as maps, in conveying information to both decision makers and the public
4. Having made a "pre-response" investment in developing relevant decision support tools

We must take these hard lessons learned in the aftermath of intentional attacks on urban centers and apply them equally, and urgently, to the area of agricultural biosecurity. As noted by Senator Pat Roberts (R-Kansas) in 2001, our nation's crops and livestock are at very high risk. It is time for the U.S. to make an appropriate investment in food safety and security ([Directions Magazine, 2006](#)).

**Title:** Al-Qaida's Food Bioterror Threat Looms Over UK

**Date:** June 6, 2011

**Source:** [Times of India](#)

**Abstract:** Britain is facing an emerging food "bioterrorism" threat from extremist groups like the al-Qaida, a media report said on Sunday.

The British government's security advisers have warned manufacturers and retailers that terror groups might try to poison food, drinks supply in the country to cause widespread casualties, 'The Sunday Telegraph' reported.

The warning from Centre for the Protection of National Infrastructure (CPNI), which operates as part of the security service, came in the wake of deadly E.coli outbreak in Germany which has highlighted the vulnerability of the food chain and how quickly bacteria can spread, the report said.

The highly virulent strain has already claimed some 18 lives and left more than 1,800 seriously ill in Germany.

The CPNI has, in fact, asked food and drinks producers, suppliers and supermarkets to tighten security at plants and depots.

A CPNI said, "UK suffers from a low level of malicious contamination of food by the bad, the mad and the sad. Now it has to consider possibility of food supplies being disrupted by politically motivated groups" ([Times of India, 2011](#)).

**Title:** Illinois Partnership Aims To Stop The Threat Of Agro-Terrorism

**Date:** February 3, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** An Illinois partnership between agriculture organizations and law enforcement agencies hopes to protect Illinois food systems, farms and consumers from the threats of agro-terrorism.

The Illinois Agro-Security Working Group looks to raise awareness of these issues among those in the food production and agriculture industries. The group, which is a service of the Illinois Farm Bureau, was created to educate farmers on how best to report, recognize and prevent terrorist and criminal activities related to Illinois agriculture, [Drovers](#) reports.

"Illinois farms are more vulnerable to terrorist activity than most people realize," Dave Patton, the field operations manager with the IFB, said, according to [FarmweekNow.com](http://FarmweekNow.com). "There have been some cases in other states where a person noticing suspicious behavior has helped capture a would-be terrorist, so we know agro-terrorism is a real threat."

A brochure has been given to agriculture producers in the state that provides information and resources in the battle against agro-terrorism, including how to report suspicious activities and the signs of illnesses.

"The brochure doesn't necessarily provide farmers with a comprehensive list of things to watch for, but it certainly gives them a good starting point," Jim Kaitschuk, the executive director of the Illinois Pork Producers Association, said, according to [FarmweekNow.com](http://FarmweekNow.com). "Ultimately, our producers know their animals and their operations better than anyone else and they need to be the instigators when it comes to reporting any potential threat."

Other organizations involved in the group aside from the FBI and the IFB include the Illinois Pork Producers, Illinois Beef Association and the Midwest Dairy Association ([Bio Prep Watch, 2012](#)).

**Title:** Expert Warns Of Bioattack On U.S. Cattle Industry

**Date:** February 21, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** According to a terrorism expert, a low-tech biological attack on the cattle industry of the United States using virulent foot and mouth disease may be a simple way for terrorists to damage the economy.

According to an article in the FBI's Law Enforcement Bulletin, Dean Olsen, a former commander of the Douglas County Sheriff's Department in Omaha, Neb., said that agroterrorism has become more attractive to terrorists dealing with dwindling resources and leadership. Such an attack would lead to major economic stress, but would be relatively simple and cheap to implement, [Government Security News](#) reports.

"Every level of the food chain, including farms, feedlots, chemical storage facilities, meatpacking plants, and distribution operations, remains vulnerable to agroterrorism," Olsen said, according to [Government Security News](#).

Olsen, who participated in the regional Joint Terrorism Task Force before his retirement in 2008, recommended that law enforcement agencies put plans into place to prevent such attacks before they happen. He said that experts agree that foot and mouth disease, which can affect cloven hoofed animals like deer, pigs, sheep and cattle, is the most ominous threat to the food chain in the U.S.

Olsen said that an outbreak could be spread to 25 states in five days when animals are moved from one farm to another. He warned that law enforcement officers investigating livestock thefts should look at them from an agroterror perspective and that such incidents should be reported to their state intelligence fusion centers or threat-integration centers ([Bio Prep Watch, 2012](#)).

**Title:** Department Of Homeland Security Revises Kansas Biosafety Lab Assessment

**Date:** March 6, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** The U.S. Department of Homeland Security has revised an assessment of the proposed high-level animal biosafety lab in Kansas, dramatically lowering the assessed likelihood that Foot and Mouth Disease would escape.

In a 923 page risk assessment released on Friday, the DHS estimated that the risk that FMD would escape from the National Bio and Agro-Defense Facility during the facility's 50 year lifespan was less than 0.11 percent. When excluding catastrophic events such as tornadoes and earthquakes, the risk drops below 0.008 percent, [Nature](#) reports.

The previous risk assessment in 2010 estimated the risk of such an event was 70 percent. The National Academies concluded that the 2010 assessment had multiple major shortcomings. The academies will evaluate the new risk assessment later this spring.

“(The new risk assessment) reaffirms that we can build a safe and secure facility to meet this important mission,” Tara O’Toole, the DHS under secretary for science and technology, said, according to [Nature](#).

Bill Dorsett, a member of the group No NBAF in Kansas, questioned the validity of the new assessment.

“There’s no way that an analysis can get it down that precisely,” Dorsett said, according to [Nature](#). “Because a big portion of the risk has to do with people and people’s behavior. That starts with congressional funding for the lab — and continued congressional funding for its maintenance. We’re trying to predict what Congress will do ten years down the line.”

Congress provided the lab with \$50 million in funding in 2012 on the condition of the new risk assessment and its appraisal by the National Academies. President Obama’s 2013 budget proposal did not request any money for the construction of the lab. The proposal also impels the National Academies to evaluate whether present disease threats justify the potential \$1 billion costs of the facility ([Bio Prep Watch, 2012](#)).

**Title:** Congress Should Take Agroterror Threat Seriously, Expert Says

**Date:** March 12, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** According to an editorial by Tom Quaife of the Dairy Herd Network, the threat of agroterrorism should be taken much more seriously by members of Congress and the Obama administration.

Quaife has attended four agroterrorism conferences sponsored by the Federal Bureau of Investigation since 2005. Upon seeing the seriousness of the issue and simulations of how quickly infectious animal diseases could spread within the United States, he said that it has been difficult watching the uncertainty behind the proposed animal disease testing facility in Manhattan, Kan., [Dairy Herd Network](#) reports.

“It’s been hard to watch the political haggling that is taking place over the proposed National Bio- and Agro-Defense Facility in Manhattan, Kan.,” Quaife said, according to [Dairy Herd Network](#). “The Obama administration wants to reassess the cost and scope of the project and Congress has been slow to approve funding.”

According to Quaife, if an international attack were to occur on the world’s food supply, it could cost billions of dollars and undermine the public’s confidence. While Quaife was comforted that the proposed state-of-the-art facility would be built to address agroterrorism threats, he is concerned that the facility wouldn’t be operational until 2018.

“The need is there and a plan is in place to address it,” Quaife said, according to [Dairy Herd Network](#). “It is time that the Obama administration and Congress start paying attention to the threat and back it up with a solid commitment to the NBAF” ([Bio Prep Watch, 2012](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#) or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** Smallpox Martyrs

**Date:** December 15, 2002

**Source:** [UCLA](#)

**Abstract:** The next terrorist attack on America could once again be brought via commercial airliner. The simplest way to deliver the deadliest bio-weapon of all, smallpox, is also the most low-tech and efficient. All you need is a suicide volunteer, and we now know they are legion. Infect him in Baghdad or Karachi or the Gaza Strip; have him sit out the virus's two-week incubation period until he begins to cough and get woozy. Then buy him a plane ticket from New York to Los Angeles, or from Chicago to Atlanta. All he has to do is watch the in-flight entertainment and emit the occasional cough. A sneeze works, too.

Such a person is now referred to by public-health officials with a disconcerting name: the smallpox martyr. Even before boarding his plane, the "human missile" crisscrosses the airport, stands in line at check-in, at the Starbucks stand, in the bathroom, at security. Whenever he coughs, some people close to him will breathe the virus in, and it will lodge in their lips and noses, and they will carry it inside them onto their own planes, passing it to the passengers directly around them. In the airport alone, experts estimate, a smallpox martyr can infect between 3 to 20 other people. And in a confined space with internally circulating air, that number could be even greater.

Americans wouldn't hear anything for another two weeks as the virus incubates. Then in different corners of America, wherever those planes landed, hundreds if not thousands will come down with the "flu." Their backs will ache. Their fevers will spike. Their skin will darken until it looks charred, and then things will really get bad. There is no treatment. By this point, a vaccine is useless.

Such an outbreak would be very hard for authorities to track. (Consider how difficult it was for the Centers for Disease Control to track 18 cases of anthrax.) Even after authorities have become aware of an outbreak, a third of those who contract smallpox will die, but not before infecting others, a third of whom

will also die. And so on. (Smallpox killed 500 million people in the 20th century alone before it was declared eradicated in 1980.) One smallpox martyr could, in theory, bring the United States to a standstill.

The government is soon expected to announce plans to vaccinate some members of the military as well as the 500,000 health-care workers expected to respond to a smallpox outbreak. The vaccination itself does not come without complications; out of every one million recipients, as many as 50 could have serious medical complications, even fatal ones. But this is a cost Americans must bear, say experts who are busily developing strategies to battle a smallpox epidemic. The strongest plan involves "the vaccination ring," in which all those who could possibly have come into contact with a victim are vaccinated. The idea is to corral the virus and prevent it from spreading to new social networks. Some experts think this may work, but others are doubtful. Indeed, if an outbreak occurs, the only sure way to fight it is to go inside and shut your door ([UCLA, 2002](#)).

**Title:** San Francisco Airport Serves As Lab To Quietly Test Bioterror Sensors

**Date:** March 25, 2003

**Source:** [Oakland Tribune](#)

**Abstract:** As more than 65,000 people a day heft luggage into San Francisco International Airport to be scanned for guns and bombs, hidden machines occasionally sniff the air they breathe for lethal gases and germs.

Inside SFO, defense scientists are quietly testing a variety of chemical and bio-warfare sensors in a race to guard airports nationwide against terrorist attacks.

Today, chemical or biological detectors are at work in New York, Washington and other U.S. cities. But SFO is the nation's only major international airport testing detectors for chemical and biological agents, sensors that are equally or more accurate than the military detectors rolling and flying into Iraq with U.S. forces.

SFO is, in fact, a laboratory, serving as the nation's model for protecting airports and perhaps other large indoor, public places viewed as attractive terrorist targets.

Over months of experimenting, scientists, airport managers and security staff are getting a preview of complications in the domestic war on terror, where they face decisions largely hidden from the flying public.

The SFO experiments suggest that sensor technology, while promising for crisis management, may never be a full answer to bioterrorism. Even the best of today's biosensors, relying on DNA fingerprinting, pose built-in delays of up to four hours in confirming the existence of some key bioterror agents. Guarding airports probably will require multiple biosensors, some slow and accurate, others fast and open to false alarms.

In the event of an attack, that means airport managers still will face a difficult calculus, tinged with uncertainty as they weigh the risk of greater loss of life against frightening or alienating the public through airport evacuations. To compensate, their actions will have to be fast, intelligent and made with a grasp for the consequences.

The SFO experiments put those consequences before airport managers with more clarity than ever before. Scientists already have found new ways to minimize casualties in attacks on any airport. They plan to offer that advice to Oakland International, San Jose International and other airports, even as the SFO work continues.

Using smoke releases and computer simulations, for example, the need for rethinking airport evacuations became obvious. If terrorists strike an airport for maximum effect -- releasing gas or germs in a crowded main terminal -- then evacuating passengers would expose healthy passengers and spread the cloud.

"We discovered evacuation (through main terminals) would actually kill more people," said Duane Lindner, deputy director of Chem/Bio Programs at Sandia National Laboratories/California at a recent biodefense conference.

Sandia executives decline to identify the airports where detectors are installed under PROACT, the federal research project on detectors and other ways to protect airports, now housed in the Department of Homeland Security.

Officials at San Francisco International also decline to talk about the experiments. "I can't talk about that for security reasons right now," said Michael McCarron, SFO director of community affairs.

Officials involved in the experiments insisted on keeping details of the detectors secret -- their number, location, appearance and capabilities -- so that terrorists could not identify, disable or defeat them. But all were designed for anonymity, to be unobtrusive boxes breathing on a wall or floor.

Despite the secrecy, sufficient details have emerged in public statements and interviews with government officials and scientists to show SFO has a leading role in exploring national anti-terror defenses.

It could be a year or more before the SFO experiments lead scientists to a standard chem-bio sniffer system that federal security officials will recommend for every U.S. airport and possibly airports abroad. But in a matter of months, officials expect much of what is learned at SFO will change how U.S. airport managers plan to respond to terror attacks.

Scientists began studying subways and airports in the late 1990s as anti-terror experts realized both were chillingly efficient at magnifying the effects of terror attacks. In airports, the greatest fear is the release of smallpox or other contagious agents, unwittingly carried by airline passengers across the nation and across the globe in hours.

The latest evidence came last week when a germ leaped two oceans in a few days, stowing away in the lungs of a Singapore doctor en route to New York then Frankfurt. The bug triggers a mysterious pneumonia classified as Severe

Acute Respiratory Syndrome (SARS) and has spread to at least 16 countries, with 10 suspected cases of infected individuals in California, half of them in Santa Clara, Alameda and Sonoma counties -- most having flown from Asia.

Scientists are mapping the air flows of subways and airports, designing sensor networks and advising airports on responding to alarms from a variety of detectors. But the fastest and most relevant are the most open to mistaking common bacteria for biowarfare agents.

For now, no biodetector is capable of foolproof, "real-time" identification of the likeliest bioterror agents. The most accurate commercial biodetectors, originally devised by Lawrence Livermore Lab, issue a false alarm just once every 10,000 tests. But the turnaround time for results is two to four hours.

That may be enough time for authorities to intercept airliners full of infected passengers before they reach their next destination and start administering antibiotics or vaccines. It is what anti-terror scientists call a "detect to treat" technology.



Yet even as Livermore scientists roll out a new, robotic smoke-alarm for germs, performing both antigen tests and DNA-fingerprinting tests in less than half an hour -- a staggering feat -- it probably still won't be fast enough to alert airport officials to evacuate a terminal.

"Today, there is no silver bullet," said Pat Fitch, director of Livermore lab's Chemical and Biological National Security Program ([Oakland Tribune, 2003](#)).

**Title:** Airport Shows Off "Human Carwash"

**Date:** March 26, 2003

**Source:** [LA Times](#)

**Abstract:** Worries about anthrax were confined to cattle ranches in the Midwest when Michael DiGirolamo first suggested that the city purchase a decontamination unit for Los Angeles International Airport.

Five years later, LAX is one of three airports in the country, including Ontario and Dallas/Fort Worth international airports, that have such units available to help clean people after a chemical or biological attack, an aviation fuel spill or a natural disaster.

DiGirolamo requested the decontamination systems, which cost \$243,000 each, in 1998 after a 1995 nerve gas attack on rush-hour commuters in a Tokyo subway.

"I went to the Los Angeles Fire Department and asked them if we could decontaminate an entire airplane," said DiGirolamo, deputy executive director of airport operations and public safety for the city agency that operates LAX. "And they said we could, but it would take forever."

Only recently has the city decided to publicize the units to reassure travelers that the airport -- cited as the state's No. 1 terrorist target in a recent government report -- is ready to handle the fallout from a biological or chemical attack.

Mayor James K. Hahn got a firsthand look at how the units operate Tuesday at a crowded demonstration outside the airport's Imperial Terminal.

"After spending time touring the LAX decontamination units, I remain convinced that LAX is one of the world's safest airports," Hahn said. "As a result of the current global climate and the high state of alert, I'm requesting [the city agency that operates the airport] purchase two additional units as a precautionary measure."

The request is the latest in a series of efforts by city and federal officials to increase security at the world's fifth-busiest airport. Hahn has announced numerous measures, including more cameras and tighter perimeter security, since the Sept. 11, 2001, terrorist attacks and last year's deadly July 4 shooting at the Tom Bradley International Terminal.

At Tuesday's demonstration, firefighters showed off the decontamination units' ability to clean chemicals from victims in a matter of minutes. The system features a firetruck with enclosed showers that can be attached to a large, heavy plastic tent that covers additional nozzles. The showers spray users with warm water, to which bleach or soap can be added. Each unit can clean 250 people per hour.

After 20 firefighters spent an hour assembling the tent unit and tapped into a nearby hydrant, Chief of Airfield Operations Raymond Jack gamely volunteered to strip down to his black and red swimsuit and walk through what some dubbed the human carwash. Jack's clothes were placed in a trash bag, and he was given a plastic wristband with an identification tag.

A firefighter wearing a hooded plastic suit, rubber boots and gloves and an oxygen tank greeted Jack at the tent's entrance and hosed him down with a retractable nozzle. Jack proceeded along the right side of the red, green and white tent set aside for men. The left side was designated for women and those who could not walk on their own.

Next, Jack stepped into a hazy red light in the middle of the tent, where two similarly attired firefighters hosed him down again and used a broom to scrub his skin. Contaminated water ran under the showers where Jack stood and was siphoned out of the tent into a 600-gallon bladder. When Jack emerged from the tent he was given a baby blue paper suit and yellow booties.

"I didn't know if I should bring shampoo and my rubber ducky," Jack said after he changed back into his track suit. "It's no different than being in a big locker room shower."

The firefighters who operate the units work with the city's three hazardous-materials teams, relying on a variety of sensors and monitors to detect minute concentrations of nuclear, biological or chemical contaminants.

The units can also be used outside the airport, and were sent to Sunday's Academy Awards ceremony and to the 2000 Democratic National Convention in Los Angeles ([LA Times, 2003](#)).

**Title:** A Germ Has A Ticket To Ride, And Airlines Can't Stop It

**Date:** April 28, 2003

**Source:** [UCLA](#)

**Abstract:** The terror attacks of Sept. 11, 2001, alerted us to the fact that commercial airliners can be weapons. The recent spread of SARS reminds us that airliners can deliver far more than passengers, packages and duty-free knickknacks. They are a fast and efficient way to share germs.

"Within the known incubation period of any known agent, you can get from the rain forest to [Boston's] Logan Airport in eight hours," said Dr. David Ozonoff, chairman of the Department of Environmental Health at Boston University's School of Public Health.

Humans have always moved and migrated with their illnesses. Air travel has accelerated the process. In one month, air travelers take about 130 million flights. But the speed at which a given germ can move through the air transport system depends on a number of factors — from how catchy the bug is to whether it's more likely to infect people on airplanes than in other public spaces.

Ozonoff says the "hub-and-spoke" airline "is made to order for these kinds of [disease] spreads." The system brings lots of passengers together in large hub airports before shuttling them off to smaller "spoke" sites. For an easy-to-transmit illness like smallpox, this would be a recipe for a very rapid distribution.

Scholars at Johns Hopkins University in Baltimore, Md., created a computer model of the spread of smallpox via contagious airline passengers in the United States. In the case of smallpox, government officials would have only a few days to shut down the air travel system in order to staunch the spread of the disease, according to Hugh Ellis, a professor of environmental engineering at Johns Hopkins and one of the authors of the computer model. Ellis said it is not known whether a healthy individual is more likely to get sick during a plane ride than in another public setting.

Martha Waters, a research industrial hygienist with the National Institute for Occupational Safety and Health in Cincinnati, said airline passengers are in close quarters — just as bus and subway riders are. But in airliners, she said, the air around them is moving much faster. Waters, who is part of a team that has been studying the airliner environment, said cabin air is a combination of fresh air and filtered,

recycled air. She noted that the mix of fresh and recycled air — and the kinds of filters used — varies with the airplane model and with the airline itself.

Of course, a given passenger's chances of getting an in-flight infection depend on a host of factors, including susceptibility and the way in which the particular illness is spread. Waters notes that sicknesses that spread via droplets — like colds and, apparently, SARS — certainly can be spread by a sneezing passenger to a seatmate. But that doesn't mean that airplanes become flying hot zones.

"Would I take that any further and say that people shouldn't get on airplanes?" Waters said. "Absolutely not."

Health authorities around the globe already have intervened in the air travel system, notes Ozonoff, by alerting passengers traveling from SARS hot spots and encouraging citizens to put off nonessential travel to those areas. Some measures — like the brief quarantine of a jetliner from Tokyo at the airport in San Jose, on April 1 — may be too extreme. Ozonoff said that even the hint of smallpox elsewhere in the world would cause the severing of air links to that area. But SARS is neither as deadly nor as contagious as smallpox ([UCLA, 2003](#)).

**Title:** An Action Plan To Reopen A Contaminated Airport

**Date:** December, 2006

**Source:** [Lawrence Livermore National Laboratory](#) (PDF)

**Abstract:** How would authorities respond if San Francisco International Airport (SFO) were to be contaminated with anthrax, and how long would it take to restore the airport to full usability? An intentional bioterrorist attack at the airport could endanger the health of hundreds of people. Long-term closure of this critical transportation hub during decontamination would have disastrous effects on the regional and national economy.

Recall the events of late 2001 when letters containing anthrax spores contaminated office buildings and postal facilities in Florida, New York City, Washington, DC, and other locations. Although some buildings were back in full operation in less than a month, others took many months to reopen, and one Department of State facility was closed for three years. With that experience in mind, the Department of Homeland Security (DHS) funded a project to minimize the time a major transportation facility would be closed following a biological attack.

Lawrence Livermore and Sandia national laboratories led the project, in partnership with SFO, to develop response and restoration protocols for such events. The group's work culminated in January 2006 when 120 officials from local, state, and federal agencies participated in a two-day demonstration at SFO's old international terminal to test the new procedures. Returning the international terminal and a boarding area at SFO to full operation from a large-scale terrorist incident may have taken up to two years based on other bioremediation activities and the decontamination and restoration methods that were available in 2001. Using the protocols developed by the Livermore–Sandia team reduces that time by at least 50 percent. In fact, the team estimates that the time required would actually be less than six months, depending on the level of planning in place prior to an attack.

A new DHS assignment for Livermore is to develop protocols for responding to and cleaning up a large outdoor area contaminated by a bioagent. Researchers already know that sunlight will naturally degrade many biological pathogens. Also, when some bioagent particles hit soil, they stay there, so re-aerosolization is less of a problem. Still, planning for such an attack is new territory. Says Raber, "At this point, no one has experience with wide-area urban decontamination." **The Laboratory is also developing a site-specific biological restoration plan for Grand Central Station in New York City**, where Livermore's Autonomous Pathogen Detection System has been tested. (See *S&TR*, October 2004, pp. 4–5.) A major subway station offers yet another set of challenges because it is part of a web of tunnels, staircases, and large semi-contained areas. "We look forward to continuing our involvement with

major transportation facilities," says Carlsen. "They are a key to our nation's economic vitality and the well-being of our citizens" ([Lawrence Livermore National Laboratory, 2006](#)).

**Title:** Feds Stage Airport Test Of Plan To Slow Pandemic

**Date:** November 12, 2008

**Source:** [CIDRAP](#)

**Abstract:** Officials from several agencies recently converged on Miami's international airport to take part in a full-scale exercise of the federal government's risk-based strategy to slow the spread of a future pandemic influenza virus across US borders.

Christine Pearson, a spokeswoman for the US Department of Health and Human Services (HHS), attended the first day of the 2-day drill on Nov 5 and told CIDRAP News that, unlike previous tabletop discussions to test the risk-based border strategy (RBBS), the exercise at Miami included a real plane and actors who played the role of passengers in an airport setting.

"It provided a level of realism that we hadn't had in past exercises, which had mostly been facilitated discussions," she said.

The RBBS is a short-term strategy that the federal government will use in the initial states of a pandemic to delay the spread of the virus enough to afford officials a little extra time to educate the public on how to protect themselves from the disease, produce and distribute vaccine, and position medication and supplies, Pearson said. The strategy involves screening international air passengers to gauge if they are sick or have potentially been exposed to others who are sick with the pandemic virus.

The system would begin when it's clear that a pandemic influenza virus is spreading globally and would end as soon as the virus begins causing illnesses in the United States.

Many public health experts have supported keeping borders open in a pandemic setting, because they don't believe closure would block the spread of the virus and because keeping borders open would preserve the flow of crucial supplies and soften a pandemic's impact on national economies.

Pearson said last week's drill was a joint exercise that involved the HHS, the Centers for Disease Control and Prevention (CDC), the Department of Homeland Security (DHS), Customs and Border Protection, the Department of Transportation (DOT), along with numerous state, local, and airline-industry partners.

The scenario involved a novel and lethal human influenza strain that emerged in Southeast Asia and spread quickly and efficiently among humans, she said. The playbook had the World Health Organization (WHO) identifying a human-to-human H5N1 variant that spread to areas of Thailand, Laos, Vietnam, and Cambodia. The WHO declared a severe (phase 6) pandemic, prompting the United States to raise its response stage to 3 and the secretaries of DHS, HHS, and DOT to enact nationwide RBBS activities.

She said Marty Cetron, director of the CDC's Division of Global Migration and Quarantine, was pleased with how the exercise went and said it exceeded his expectations, particularly how well the partners worked together.

It's likely that the RBBS in its current form will change, based on what officials learned during the exercise, Pearson said, adding "But by testing this now, we will help ensure that the plan we have in place will do what it's designed to do and will ultimately help us to protect the public's health during the next pandemic."

Federal officials routinely conduct drills at quarantine stations, Pearson said, and though additional activities are planned, no plans are in the works to do another large-scale exercise. Officials are likely to

conduct more tabletop discussions that could include smaller drills to address certain parts of the RBBS plan ([CIDRAP, 2008](#)).

**Title:** Tularemia Outbreak At A Metropolitan Airport, Texas.

**Date:** September 7, 2009

**Source:** [Pub Med](#)

**Abstract:** A jackrabbit die-off near a metropolitan airport was observed by an airport contractor. Further investigation determined that this die-off was probably due to epizootic tularemia. Because of proximity to areas of heavy human traffic and fears of transmission of tularemia to humans, the local health district and department of emergency management organized a multiagency response involving local animal control, environmental health, public health, law enforcement, and airport personnel, in addition to state and federal agencies. The tularemia epizootic subsequently ended, and no cases of human tularemia occurred. In our after-action analysis, we identified several lessons learned: the importance of animal illness surveillance, which can serve as a warning for potential human illness and epidemic; the usefulness of pre-event planning, training, and exercises in facilitating a coordinated response; the usefulness of an effective communication system with the healthcare community; the importance of responders being familiar with Centers for Disease Control and Prevention (CDC) Category A bioterrorism agents when considering a rapid response; and the fact that attempts at environmental control may result in perturbations in animal populations with unintended consequences ([Pub Med, 2009](#)).

**Title:** TSA Report Says Airline Industry Vulnerable To Attack

**Date:** November 30, 2009

**Source:** [Bio Prep Watch](#)

**Abstract:** A recently released report by the Homeland Security Department's inspector general has raised questions about the safety of air cargo, leaving cargo vulnerable to a bioterror attack.

"Air cargo is vulnerable," the report, which cites repeated problems with the Transportation Security Administration's program aimed at stopping terrorists from sneaking weapons into cargo packages, says.

The report says that investigators managed to slip into warehouses where cargo is stored that were supposedly secure. The cargo was then loaded onto airplanes and the investigators walked away unchallenged.

Some workers at the facility who handled the cargo were also found to have not received required background checks or training.

The report raises concerns about the TSA's congressionally mandated effort to tighten security for the 12 million pounds of cargo carried each day in passenger planes. The report states that the TSA does not currently have enough personnel to handle new rules for screening cargo.

Airline cargo, unlike luggage, is not screened by the TSA, which oversees airlines, freight handlers and manufacturers who pack and transport cargo and ensure its security.

TSA spokeswoman Kristin Lee said that the agency has its inspectors focusing on airlines and companies that have been deemed higher risk because of past problems.

The news of unsecured cargo raises questions as to the potential for a bio attack through the air, with a commission on bioterrorism noting that a two kilogram release of anthrax spores into the air could cause more deaths of Americans than died in all of World War II ([Bio Prep Watch, 2011](#)).

**Title:** Study Reveals Ease Of Bioattack On Airline Industry

**Date:** January 11, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** In a study on potential airline bioterrorism, RGF, in association with Kansas State University, has revealed that the release of a bioagent within a plane or airport terminal easily, potentially creating a pandemic.

The study says that terrorist would be able to use a small, hand-activated aspirator, which could easily be purchased at a drugstore or be made from an over the counter nasal spray bottle, to release a virus on an plane, in a terminal or in any commercial building.

The terrorist, the study contends, would simply have to place the virus with the aspirator and release it in the intended area, leaving no one the wiser until they had traveled and spread the virus, leading to a worldwide pandemic.

The solution, RGF says, is to kill the virus before it can reach another person. The study says that advanced oxidation technology could potentially kill an airborne virus. China, during the recent SARS scare, used such technology on its city buses and subways to kill the airborne virus.

RGF's own oxidation technology has shown that a kill rate of 88 percent for viruses in the air can be achieved at three feet, eliminating a host of viruses and stopping a potential bioterror threat and subsequent worldwide pandemic ([Bio Prep Watch, 2010](#)).

**Title:** Miami Airport Closed For Hours Amid Bioterrorism Fears

**Date:** September 8, 2010

**Source:** [NTI](#)

**Abstract:** Authorities closed much of Miami International Airport and nearby hotels for hours last week when a man attempting to carry a suspicious container through customs was linked to a 2003 investigation over his handling of plague samples, the Associated press reported (see [GSN](#), May 5, 2006).

Former Texas Tech University professor Thomas Butler, 70, caught the attention of a Transportation Security Administration officer at 9 p.m. Thursday at a customs checkpoint. The inspector checked a database and found that Butler had been charged previously with plague-related crimes.

The airport was evacuated and Butler was taken into custody for a short period. He provided full cooperation and faces no charges in the incident, according to a law enforcement source. An analysis of the container determined it contained no dangerous material, a high-level police official said.

Butler in January 2003 reported vials of plague bacteria stolen from his laboratory. Federal agents were called in to search, but stopped looking when Butler submitted a written statement in which he acknowledged making a "misjudgment" by not telling his supervisor the vials were "accidentally destroyed."

Butler was convicted of fraudulently sending plague samples to Tanzania in an inaccurately marked package, although charges he had smuggled and illegally transferred the samples were dropped. He also received a two-year prison sentence for fraud and theft relating to contracts with pharmaceutical firms ([NTI, 2010](#)).

**Title:** UDT Calls For Upgrade In Air Cargo Systems Detection

**Date:** November 3, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Universal Detection Technology has analyzed the recent government alert connected to bioterror weapons like advanced synthetic DNA makers in such locations as the air cargo systems on an airplane.

Commercial genetic sequencing has been around for years, but if sensitive genetic materials get into the wrong hands, it may be possible to recreate bacterial pathogens like smallpox. The technology may also allow terrorists to enhance these pathogens, increase their potency and devise new "designer" biological weapons.

"It is well known that Al-Qaeda has been trying to develop biological weapon capability for some time and the packages sent last week would have gone undetected had they contained a biological weapon such as anthrax," Jacques Tizabi, CEO of Universal Detection Technology, said. "The air cargo transport system should take advantage of the most advanced bioweapon detection technologies."

The vast volume of packages in the air cargo system and the lack of standardized regulations on government inspections may lead to dangerous vulnerabilities. The air cargo moves on both passenger and freight planes. The screening process for this cargo is much more stringent on passenger planes than it is on freight planes. The cargo rules also tend to vary from country to country, which can create vulnerability when freight is brought to the United States.

Twenty million pounds of cargo are transported by passenger planes every single day, according to the International Air Cargo Association, which makes up 16 percent of the total freight carried into or out of the United States ([Bio Prep Watch, 2011](#)).

**Title:** Bioterror Fears Raised Over Cargo Flights

**Date:** December 27, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Security and bioterrorism prevention experts have pointed to the potential vulnerability of cargo flights that pass over the United States each week as potential sources of bioterrorism.

These flights, called overflights, do not receive federal standards of screening or use the terrorist watch list, the Washington Post reports.

"(A terrorist could) explode a plane with a dirty bomb or a biological weapon or an actual nuclear weapon on board, and that material will spread wherever it crashes," Richard Bloom, a longtime U.S. intelligence operative and current teacher of counterterrorism courses at Embry-Riddle Aeronautical University in Arizona, said, according to the Washington Post.

While the Transportation Security Administration said that other countries have their own screening processes for cargo, it does not use the same methods as the TSA's Secure Flight program that might weed out potential terrorists, according to the Washington Post. This vulnerability has security experts divided.

"We have tens of millions of packages flying almost every night," Yossi Sheffi, director of the Center for Transportation and Logistics at the Massachusetts Institute of Technology, said, according to the Washington Post. "We can't stop the huge flow of packages from all over the world. There has to be a balance between acceptable risk and the economy."



The recent October plot to detonate bombs placed in printer cartridges designed to detonate in flight evaded X-ray detection even though authorities knew they were in the packages.

"Congress would make a mistake by passing a requirement for 100 percent screening of cargo," Rafi Ron, former security chief at Tel Aviv's airport, now a security consultant based in McLean, said, the Washington Post reports. "What's the use of legislating 100 percent screening even if the bomb which triggered this legislation would not have been detected by it?" ([Bio Prep Watch, 2010](#)).

**Title:** Powder Grounds Alaska Airlines Flight

**Date:** May 19, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** The flight crew of an Alaska Airlines flight departing Seattle, Washington, and headed to Santa Ana, California, this week notified authorities of an unknown white powder in the back lavatory that turned out to be toilet paper.

After the 1,000-mile flight landed, law enforcement officers, fire department crews and hazardous materials experts circled the plane after it touched down at John Wayne Airport on April 22 at 4 p.m., KTVU reports.

The 151 passengers and six crew members deplaned as authorities climbed aboard. Members of the county's sheriff department along with members of the Orange County Fire Authority tested the suspicious substance.

Upon further investigation, Capt. Greg McKeown, the fire department's spokesperson, told KTVU that the white dust was determined to be a "cellulose paper material" or, in simpler terms, what appeared to be toilet paper.

After the powder was determined to be nonhazardous, the aircraft went back into service.

According to the Centers for Disease Control and Prevention, anthrax is caused by *Bacillus anthracis*, a spore-forming bacterium. Anthrax was used as a weapon in 2001 as it was deliberately spread through the postal system, causing 22 cases of anthrax infection.

Anthrax is classified as a category A bioterrorism agent that may pose the greatest possible threat for a bad effect on public health, needs a great deal of planning to protect the public's health and may spread across a large area or require public awareness ([Bio Prep Watch, 2011](#)).

**Title:** Air Force Testing New Decontamination Process

**Date:** July 14, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** A retired, ground-instructional C-130 at the Little Rock Air Force Base in Little Rock, Ark., has become part of a series of tests to determine how heat and humidity affect the decontamination process for an aircraft.

"We are using a simulant (*Bacillus thuringiensis*) that has similar properties and reacts in the same way the actual agents would; however, here are no live agents," 2nd Lt. James Reilly, the 19th Medical Group Bioenvironmental Engineering Flight commander, said. "The simulant is in no way shape or form harmful to individuals or the environment."

The tests use *Bacillus thuringiensis*, a commercially-available insecticide, to simulate a biological agent.

Officials at the base have determined that the testing procedures are safe for the flightline and for the community of the base.

"By heating the interior of the aircraft from 150 to 170 degrees Fahrenheit in conjunction with a relative humidity at 80 to 90 percent over a period of one to five days, we will gain valuable data on how to destroy biological agents without harming the aircraft," Tim Provens, an Air Force Research Laboratory project engineer at Wright Patterson AFB, Ohio, said.

Staff members are testing to see if the "green" technology of heat and humidity can neutralize the environmentally safe and simulated biological warfare agent. The Air Force currently decontaminates aircraft with hot soapy water, which isn't practical for an aircraft's interior and has limited effects on anything that absorbs into the paint on the skin of an aircraft. Decontamination solutions that are typically used for buildings would be highly corrosive to thin aircraft panels and sensitive electronic equipment.

Effectiveness of the system will be determined by small detection papers coated with the environmentally-approved simulated agent and placed throughout the fuselage before being analyzed on site. The technology has previously been demonstrated in Orlando, Fla., on a commercial aircraft ([Bio Prep Watch, 2011](#)).

**Title:** Small Airports On Alert For Bioterror Threat

**Date:** September 7, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** The U.S. Department of Homeland Security has alerted small airports and flight instructors to be on alert, warning that terrorists may try to use small aircraft loaded with chemical or biological weapons in an attack on the United States.

The director of the Gaylord Regional Airport in Northern Michigan, a typical small airport, recently said that his facility has expanded on the set Federal Aviation Administration standards to make things safer, according to UpNorthLive.com.

"We do have countermeasures that people have been briefed on and practice that would be what our response would be to somebody with clandestine intent to prevent that aircraft from leaving here," Matt Barresi, the airport's director, said, UpNorthLive.com reports. "We're put in a position to kind of think the unthinkable and what countermeasures we can put in place."

At nearby Traverse Lakes Aviation, anyone interested in flying must first undergo a background check. Before anyone goes up in a plane, they must have their identification verified.

"We get their driver's license, social security number, pilot's license, medical certificate, all that gets copied along with a contract they have to fill out and then they go for a check ride with an instructor before they can even get in an airplane," Michael Head of Traverse Lakes Aviation said, UpNorthLive.com reports.

Jeff Weiber, a pilot with North Country Aviation, a charter service, said his services have also been regulated. Passengers who book flights must also be checked.

"We have to do a TSA background check, a no-fly list, we have to check every one, I have to see a valid picture, a government ID, before I allow them on the aircraft," Weiber said, according to UpNorthLive.com ([Bio Prep Watch, 2011](#)).

**Title:** Drone Technology Could Be Used To Spray Bioweapons

**Date:** October 12, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Experts have warned that as remote-controlled drone technology produces smaller and cheaper units, terrorists could seek to use them to potentially spray biological weapons.

The U.S. military is currently the undisputed leader in drone warfare, but many world powers are quickly acquiring and adapting the technology, which presents a challenge to American security experts, according to TheAustralian.com.au.

"I think of where the airplane was at the start of World War I: at first it was unarmed and limited to a handful of countries," P. W. Singer, the author of the book *Wired for War*, said, TheAustralian.com.au reports. "Then it was armed and everywhere. That is the path we're on."

The recent arrest of Rezwan Ferdaus, a 26-year-old man accused of plotting to fly an explosives-laden remote controlled airplane into the U.S. Capitol, shows that a scenario where an unmanned vehicle could be used to attack a city is not farfetched.

To date, only the United States, Israel and Britain are thought to have used drones for air-to-ground strikes, but more than 50 countries have bought or developed their own unmanned aerial vehicles, according to the New York Post.

The same qualities that make U.A.V.'s appealing to the Obama administration for counterterrorism make them appealing to the terrorists themselves. They can be used for surveillance or strikes, are cheap and no danger is posed to their operator, who could be located on the other side of the world ([Bio Prep Watch, 2011](#)).

**Title:** Organization Of American States Conducts Bioterror Simulation

**Date:** October 31, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** The Organization of American States recently conducted a bioterrorist attack simulation in Santiago, Chile.

The drill, funded by the Canadian government, took place at Santiago's Arturo Benitez international airport, according to SantiagoTimes.cl. The airport was chosen because of the large amount of air traffic that flows through it, making the city highly susceptible to airborne contagions.

Six international agencies from Uruguay, Brazil, Argentina and Paraguay took part in the exercise, along with 23 law enforcement agencies from Chile.

"This is being done to help us prepare formal plans or to improve emergency management and crisis for such an attack, and to promote inter-agency coordination," Chile's Undersecretary of the Interior Rodrigo Ubilla said, SantiagoTimes.cl reports.

Throughout the drill, which lasted several days, a series of suspicious packages containing what appeared to be *Yersinia Pestis*, or the bubonic plague, were left throughout the airport. Similar packages were also left at a high-rise hotel in Santiago. The training consisted of at least one false alarm when a plane carrying a sick passenger heads for the airport.

Two days after the first “attack,” the virus appeared to have spread throughout Chile and its neighboring states. In the simulation’s final stage, the participating agencies had to coordinate an international effort to contain it.

The mock attack in Santiago is the first of three major exercises planned by the OAS. The next will take place in March.

The participating states are expected to meet to discuss overall strategies for containing an attack and planning for the additional exercises immediately after the current one ends.

“The meeting will have to do with the creation of a comprehensive public policy that addresses complex issues of our time,” Ubilla said, according to [SantiagoTimes.cl](#). “The issues will require specific protocols and clear definitions in terms of chains of command” ([Bio Prep Watch, 2011](#)).

**Title:** Optimal Response Against Bioterror Attack On Airport Terminal

**Date:** December 30, 2011

**Source:** [Science Direct](#)

**Abstract:** We consider a potential bioterror attack on an airport. After the attack is identified, the government is faced with the problem of how to allocate limited emergency resources (human resources, vaccines, etc.) efficiently. The government is assumed to make a one-time resource allocation decision. The optimal allocation problem is discussed and it is shown how available information on the number of infected passengers can be incorporated into the model. Estimation for parameters of the cost function (number of deaths after the epidemic is over) is provided based on known epidemic models. The models proposed in the paper are demonstrated with a case study using real airport data ([Science Direct, 2012](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#), or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** Evidence Suggests Al Qaeda Pursuit Of Biological, Chemical Weapons

**Date:** November 14, 2001

**Source:** [CNN](#)

**Abstract:** Coalition intelligence agencies say they have discovered evidence of transactions involving sophisticated laboratory equipment, along with a new bioterrorism manual distributed to cells of the al Qaeda terrorist network.

The extent of al Qaeda's operational knowledge was once contained in the 10-volume Encyclopedia of Afghan Resistance, which has been the template for actual and planned terrorism attacks against a variety of targets worldwide. (View pages from the manuals)

But now Western intelligence agencies are analyzing a new volume distributed on an unknown number of CD-ROMs. It contains precise, deadly formulas for chemical and biological weapons that can be made from ingredients readily available to the public, CNN has learned.

In a chapter called Science of Explosives, for example, chemical formulas are followed by step-by-step instructions in the manufacture of deadly biological weapons. Another chapter is called "The Poisonous Letter."

Biological warfare sections give exact formulas for the production of deadly toxins botulinum and ricin, although there's no evidence of instructions on how to make or distribute anthrax.

### **Camp, Lab Purchases Scrutinized**

Also drawing scrutiny is a camp outside Jalalabad, Afghanistan, that coalition intelligence sources tell CNN was bin Laden's main chemical and biological training facility.

Called abu-Khabab after the Egyptian chemical-biological weapons expert who directed it, the camp is one of seven that spies have been monitoring that once formed the heart of al Qaeda's terrorist training.

After September 11, large trucks were seen coming and going from the complex and were presumed to be moving equipment to new, unknown locations, CNN has learned. The camps are now believed to be mostly abandoned.

CNN has been told al Qaeda does have new equipment to work with: at least six new laboratories that could be used to make chemical and biological weapons, according to a coalition intelligence agency.

That agency said that three labs were purchased earlier this year by the Wafa Humanitarian Organization, whose U.S. assets were frozen after the government included it among several groups it identified as supporters of terrorism.

The laboratory equipment was shipped from the United Arab Emirates to Afghanistan, according to the coalition intelligence agency.

A second al Qaeda acquisition of sophisticated scientific equipment took place in 1999, according to the same sources. In that transaction, three labs were purchased from the Ukraine and sent to Afghanistan, the sources said.

"I am quite surprised at the nature and scale and scope of that intensified activity that has gone silently without any efforts from intelligence agencies to stop the information transfer or the acquisition of these type of agents," said Magnus Ranstorp, director of the world-renowned counterterrorism center located at Scotland's University of St. Andrews.

### **Comments Revisited**

Osama Bin Laden, according to other secret U.S.intelligence documents obtained by CNN, ordered his top lieutenants in 1997 to launch a comprehensive effort to obtain chemical, biological and nuclear weapons. U.S. and regional intelligence agencies believe al Qaeda has achieved some of those goals.

Still other evidence comes from a 1999 boast by a terrorism suspect alleged to be a member of Egyptian Islamic Jihad, a radical group with links to Bin Laden's al Qaeda network. Jihad was responsible for the 1981 assassination of Egyptian President Anwar Sadat.

On April 19, 1999, in a chaotic Egyptian courtroom, Ahmed Salamah Mabrouk spoke before his sentencing hearing to Egyptian reporter Mohammed Salah, considered to be his country's top al Qaeda expert.

Through a caged-in section of the courtroom where defendants are kept, Mabrouk -- who was charged in a terrorism conspiracy -- admitted al Qaeda's success in obtaining chemical and biological weapons.

"He told me that Osama bin Laden and Ayman Al-Zawahiri have access to chemical and biological weapons," Salah said.

Although Mabrouk didn't specify what those weapons were, he said they came from countries in Eastern Europe, Salah said.

"He also said that these chemical and biological weapons are already in the possession of some of the members of the organization, but (bin Laden lieutenant Ayman Al-Zawahiri) and bin Laden issued strict orders that they'll never be used except in extreme emergency situations," he said ([CNN, 2001](#)).

**Title:** U.S. Says It Found Qaeda Lab Being Built to Produce Anthrax

**Date:** March 23, 2002

**Source:** [New York Times](#)

**Abstract:** The United States has discovered a laboratory under construction near Kandahar, Afghanistan, where American officials believe Al Qaeda planned to develop biological agents, officials said today.

According to a confidential assessment by the United States Central Command, the laboratory was intended to produce anthrax. The assessment was presented to senior American officials in recent days and is based on documents and equipment found at the site.

No biological agents were found in the laboratory, which was still under construction when it was abandoned. American intelligence officials still believe that Al Qaeda would need assistance from foreign experts or foreign governments to mount an effective program to make weapons of mass destruction.

"There was a lab under construction in the vicinity of Kandahar," an American official said. "It is another example that they had an appetite for developing biological agents."

Throughout the conflict in Afghanistan, American officials have repeatedly asserted that Al Qaeda was trying to acquire weapons of mass destruction. For months, American officials have been scouring former terrorist camps and other sites to determine the status of Al Qaeda's efforts.

There is ample evidence that the Qaeda organization wanted weapons of mass destruction, including biological agents. Osama bin Laden is said to have considered the acquisition of such weapons a religious obligation.

"Documents recovered from Al Qaeda facilities in Afghanistan show that bin Laden was pursuing a sophisticated biological weapons research program," said George J. Tenet, the director of central intelligence. "We also believe that bin Laden was seeking to acquire or develop a nuclear device. Al Qaeda may be pursuing a radioactive dispersal device, which some call a 'dirty bomb.' "

But there is still no indication that Al Qaeda ever succeeded in producing biological agents.

In general, Al Qaeda's goal of having an arsenal of unconventional weapons seems to have far outstripped its limited technological capabilities.

According to American officials, more than 60 sites have been investigated and more than 370 samples have been taken. In only five cases were there any apparent indications of possible biological agents and these were only tiny amounts.

Still, American experts are continuing to search Afghanistan for evidence about Al Qaeda's weapons program and to sift through evidence gathered from the sites that have already been discovered.

The latest assessment came this week in a report by the Central Command, which is directing the war in Afghanistan. It noted that in addition to documents found at the site, some unused equipment was also uncovered.

American officials did not describe the evidence in detail but said that it included medical equipment and supplies that would be useful for legitimate research but could also be used to produce biological agents.

Officials also said there was no evidence of pathogens at the Kandahar location. But the evidence, which included documents, indicated that Al Qaeda was interested in producing anthrax. If Al Qaeda had



succeeded in producing biological agents in the lab and wanted to put them in missile warheads or bombs, the work would have to have been done at a different site, an American official said.

Officials declined to say whether the information was also based on human intelligence: that is, a former Al Qaeda operative, spy or resident who may have been familiar with the program. But this seemed to be a strong possibility.

An American official said the discovery of the laboratory generally reinforced the prevailing intelligence estimate about Al Qaeda's limited capabilities. Still, the discovery of the laboratory provides additional information about the extent of Al Qaeda's efforts, including the sort of agents it was interested in producing.

Earlier today, there were press reports from London that a biological weapons laboratory had been found in the mountains in the Shah-i-Kot region of Afghanistan near Gardez during the recent United States military operation there.

The reports suggested that this was the reason London had decided to dispatch 1,700 combat troops to Afghanistan.

American officials said, however, that no biological weapons laboratory had been found in that part of Afghanistan. The Central Command said an abandoned factory for making conventional explosives had been found in the area on March 13.

British officials also said that London's decision to send troops was not directly related to Al Qaeda efforts to develop weapons of mass destruction. Rather, they said, the British decided to send the troops so that the Central Command would have more forces to conduct mop up operations in the rugged terrain of Afghanistan.

The British decision, the largest British deployment since the 1991 gulf war, was announced on Monday.

The reference to the laboratory south of Gardez may be a garbled account of the new assessment by the Central Command about the laboratory near Kandahar. It is possible that the assessment was disclosed in London to strengthen the case to the British public for sending British combat troops to Afghanistan ([New York Times, 2002](#)).

**Title:** Al Qaeda Near Biological, Chemical Arms Production

**Date:** March 23, 2003

**Source:** [UCLA](#)

**Abstract:** Al Qaeda leaders, long known to covet biological and chemical weapons, have reached at least the threshold of production and may already have manufactured some of them, according to a newly obtained cache of documentary evidence and interrogations recently conducted by the U.S. government.

Three people with access to written reports said the emerging picture depicts the al Qaeda biochemical weapons program as considerably more advanced than U.S. analysts knew. The picture continues to sharpen daily, one official said, because translation and analysis of the documents continues, and because the operative captured with them began divulging meaningful information about production plans only this week. Authorized government spokesmen declined to discuss the subject, saying it is classified.

Leaders at the top of al Qaeda's hierarchy, the evidence shows, completed plans and obtained the materials required to manufacture two biological toxins -- botulinum and salmonella -- and the chemical poison cyanide. They are also close to a feasible production plan for anthrax, a far more lethal weapon, which kills 90 percent of untreated victims if spread by inhalation and as many as 75 percent of those

treated when the first symptoms become evident. Among the documents seized was a direction to purchase *bacillus anthracis*, the bacterium that causes anthrax disease.

Most of the new information comes from handwritten documents and computer hard drives seized during the March 1 capture of Khalid Sheik Mohammed, regarded by some government analysts as al Qaeda's most important operational planner. Known inside al Qaeda as "the Brain," Mohammed has acknowledged being the principal author of the Sept. 11, 2001, plot. Significantly, one official noted, Mohammed was arrested at a Rawalpindi, Pakistan, home owned by Abdul Quddoos Khan, a bacteriologist with access to production materials and facilities who has since disappeared.

Because of Mohammed's central role in operations, one senior official said, his apparent connection to biochemical weapons is a "very scary" sign that al Qaeda's efforts reach well beyond the hypothetical. At first analysts were unsure of Mohammed's direct involvement because the documents were not written in his hand and were seized in a house that does not belong to him. But digitally scanned images of the same documents have been extracted from one of Mohammed's computer hard drives. Confronted with that evidence, a second U.S. expert said, Mohammed has begun to talk about the production program in the past two or three days.

What the documents and debriefings show, the first official said, is that "he was involved in anthrax production, and [knew] quite a bit about it."

Government experts are also filling out their picture of Ayman Zawahiri, al Qaeda's second-ranking leader, as the central figure in overseeing and funding the biological and chemical weapons effort. Investigators have known since the late 1990s that in early experiments, al Qaeda killed animals with homemade contact poisons at its Derunta camp in Afghanistan. The project there fell under the command of Midhat Mursi, an Egyptian who uses the alias of Abu Kebab and is among the most-wanted al Qaeda operatives still at large. But Mursi is not thought to have sophisticated knowledge of biology.

What is new in the recent documents is al Qaeda recruited competent scientists, including a Pakistani microbiologist whom the officials interviewed this week declined to name. The documents describe specific timelines for producing biochemical weapons and include a bar graph depicting the parallel processes that must take place between Days 1 and 31 of manufacture. Included are inventories of equipment and indications of readiness to grow seed stocks of pathogen in nutrient baths and then dry the resulting liquid slurry into a form suitable for aerosol dispersal.

U.S. officials said the evidence neither establishes nor rules out that al Qaeda completed manufacture. The documents are undated and unsigned and cryptic about essential details. They do not mention the whereabouts of actual or planned production. Because of al Qaeda's limited sophistication, the documents do not support a theory that al Qaeda had a role in the anthrax letters [mailed in late 2001](#) to Senate and news media offices that killed five people.

Mohammed has told interrogators nothing -- "nothing yet," one official emphasized -- about the intended use of the weapons.

Analysts suspect an ambition to poison the food supplies of U.S. troops in Afghanistan, which are cooked in large batches and accessible to locally hired civilians. Botulism or salmonella poisoning would kill relatively few healthy young men or women but would disable many of them for a time and render them vulnerable to other forms of attack. If used in the United States, a more difficult kind of attack for al Qaeda, the Tylenol poisoning scare of 1982 suggests it could lead to widespread fear and economic consequences.

Two officials said this month's discoveries have changed their minds about the significance of an abandoned laboratory found a year ago in Kandahar, Afghanistan's largest southern city, after U.S.-led troops drove al Qaeda and Taliban forces from the area. At the time, Air Force Gen. Richard B. Myers,

chairman of the Joint Chiefs of Staff, said there were traces of anthrax in or near what he called an unfinished laboratory facility, but in "such minute amounts they could be naturally occurring." He said U.S. troops had found "some equipment" that could be used to manufacture anthrax, but "not all the equipment you would need."

Some government analysts believe the Afghan laboratory may have been fully equipped and even operating before U.S. ground forces arrived. One knowledgeable official said it is likely that al Qaeda managed to spirit the equipment away. "It has been moved elsewhere, in another country, and we haven't been able to find it," the official said.

A second official, in the Defense Department, said "there is obviously a connection" between the documents and the evacuated lab. Al Qaeda need not have smuggled equipment out to rebuild the facility, he said, because "if you've got funding, this is equipment you can buy over the counter."

Among the consolations in the captured documents is that al Qaeda's manufacturing plans show no knowledge of advanced techniques used in the most efficient biological weapons. There is no reference, for example, to the special processing needed to produce very fine anthrax spores that resist clumping and linger in the air as free-floating particles.

Another reassuring sign, officials said, is that the strain of anthrax involved in al Qaeda's planning is not among the most virulent. The Los Alamos National Laboratory has catalogued some 1,200 varieties, some of which are better suited to be used as weapons. Officials interviewed for this article, speaking on condition of anonymity, declined to name the strain that al Qaeda sought.

Some officials said the greatest danger remains that the organization will obtain advanced biological weapons or nerve agents from a state sponsor.

Though the al Qaeda plans describe valid manufacturing techniques, a defense official said, they do not indicate how long it would take to produce finished weapons.

"If I have all this equipment and everything works, this would be a production timeline," the official said. "But you don't know when it's going to go online and what is the skill level of those involved. The fact that they're obviously recruiting sympathetic scientists is a big warning flag" ([UCLA, 2003](#)).

**Title:** Linking Anthrax And Al-Qaeda?

**Date:** May 28, 2002

**Source:** [Economist](#)

**Abstract:** ON MARCH 23rd, the *New York Times* revealed that one of the September 11th hijackers could well have had anthrax. Last June, Ahmed al-Haznawi visited a doctor in Florida, Christos Tsonas, about an ugly dark lesion on his leg. Dr Tsonas, who prescribed an antibiotic, later told the FBI that, on reflection, the lesion "was consistent with cutaneous anthrax".

This is not the first link between the hijackers and bioterrorism. Last October, a pharmacist in Florida said Mohammed Atta had come looking for treatment for suspicious-looking burns on his hands. But this time there may be more in it. A team from the Johns Hopkins Centre for Civilian Biodefence Strategies, which reviewed al-Haznawi's case, said Dr Tsonas's diagnosis was "the most probable and coherent interpretation of the data available." "Such a conclusion," the team argued, "raises the possibility that the hijackers were handling anthrax and were the perpetrators of the anthrax letter attacks." Does it?

Yes to the first part. American forces recently discovered a half-finished laboratory near Kandahar, which they believe was intended to produce anthrax (though no biological agents were, in fact, found there).

Captured documents also show al-Qaeda is trying to produce biological weapons. But what about the second part: that its operatives were responsible for the anthrax letters?

The letter to Tom Daschle, the leader of the Senate, contained “weaponised” anthrax. Even if al-Qaeda terrorists had been able to produce the organism itself, they would still have needed expert help to turn it into a weapon. The process of weaponisation is technologically advanced. It requires spores to be concentrated into a powder with individual grains smaller than three microns, and then mixed with chemical agents that keep the spores dry and airborne.

Any number of government laboratories around the world may be working on weaponising anthrax, but the Daschle attack seems to have originated at home. The strain used was American, the Ames strain. Either the attackers had access to an Ames strain that had already been weaponised—in which case they can only have got it from a handful of western military laboratories. Or they had access to the information necessary to weaponise anthrax, in which case the most likely explanation for the use of the Ames strain was that it was close to hand. Either way, the virulent anthrax in Mr Daschle's letter seems to have come from a domestic source.

The implication is disturbing. There could be two terrorist anthrax-breeding operations—the half-built affair discovered in Afghanistan, and the one that produced the letter to Mr Daschle, which is presumably run by a disgruntled scientist in an American laboratory. More disturbing is the possibility that the two may be linked. For, if it was an anthrax infection, how did the American-based al-Haznawi get infected in the first place? ([Economist, 2002](#)).

**Title:** Bio-Terror Strike 'Is Inevitable'

**Date:** November 21, 2005

**Source:** [BBC](#)

**Abstract:** The world must face the inevitability of a bio-terror attack by al-Qaeda, the head of Interpol has warned.

Police and health authorities around the world were underprepared for such an attack, Ron Noble told a bio-terror conference in Cape Town, South Africa.

An attack could see smallpox, anthrax, botulism or Ebola-style viruses released into Western cities.

The Cape Town event is the first of three sessions to train medics and police how to deal with attacks.

Further sessions will be held in Chile and Singapore during 2006.

### **Patient but deadly**

Addressing delegates from 41 African nations, Mr Noble said al-Qaeda's track record of deadly, unexpected terror attacks put the threat into focus.

Evidence collected from sympathetic websites also pointed to an avowed intention to stage bio-terror attacks if operatives gained the capability, he added.

"Al-Qaeda has openly claimed the right to kill four million people using biological and chemical weapons," he said.

"Al-Qaeda is willing, able and patient enough to plan and prepare to execute terrorists acts that [once] would have been considered unrealistic or fantasy."

Interpol says several pathogens and viruses most likely to be used in any bio-terror attack, Mr Noble told delegates.

### **'Suicide Bio-Weapon'**

Tactics could vary - as well as a traditional detonation, attackers could turn themselves into a "suicide bio-weapon", Mr Noble said, travelling around while highly infectious.

Postal services could also be used to spread disease as shown by anthrax attacks in the US in 2001.

"The potential consequences of such an attack could be so far-reaching that a lack of action in preventing bio-terrorism poses an unacceptable risk to the safety of societies around the world," he said.

The Cape Town meeting follows a conference in Lyons, France, in March, in which Interpol urged governments to back a drive against bio-terror ([BBC, 2005](#)).

**Title:** Al Qaeda: [Chemical] Weapons Expert Among Dead 'Heroes'

**Date:** August 3, 2008

**Source:** [CNN](#)

**Abstract:** Al Qaeda ended days of speculation Sunday by confirming that one of its chemical weapons experts was killed last week along with three other "heroes," according to a statement posted on a radical Islamist Web site.

The statement, dated July 30, provided no details on how or when the al Qaeda operatives were killed. It was signed by al Qaeda's top leader in Afghanistan, Mustafa Abu al-Yazid.

A senior Pakistani official said last week it was a "near certainty" that weapons expert Midhat Mursi al-Sayid Umar died in a U.S. airstrike Monday in Pakistan's tribal region.

Pakistani Prime Minister Yousuf Raza Gilani said that if reports of the strike were true, the U.S. violated Pakistani sovereignty.

Umar, who is also known as Sheikh Abu Khabab al-Masri, was on the [U.S. State Department](#)'s list of 37 wanted terrorists, and the U.S. had offered \$5 million for information leading to his death or arrest.

"Although Abu Khabab is gone, he left behind him a generation who will seek revenge and punishment with God's help," the [al Qaeda](#) statement said. "And while the 'expert' is gone, he left behind experts who were taught and trained under his hands throughout the years."

Umar was killed along with Abu Mohammed Ibrahim Bin Abi al-Faraj al-Masri, Abd al-Wahab al-Masri, and Abu Islam al-Masri, the statement said.

Umar, a 55-year-old Egyptian, ran a chemical-and-explosives training camp for terrorists in Derunta, Afghanistan, before the fall of the Taliban, U.S. officials said.

"Since 1999, he has distributed training manuals that contain instructions for making chemical and biological weapons," according to the U.S. Rewards for Justice program. "Some of these training manuals were recovered by U.S. forces in Afghanistan."

Rewards for Justice said Umar was believed to be in [Pakistan](#), continuing to train al Qaeda terrorists and other extremists.

He was reportedly near the site of a U.S. airstrike more than two years ago in the Pakistani mountain village of Damadola. The strike targeted a dinner gathering believed to include terrorists. Initial reports that Umar died in the January 2006 strike later proved erroneous ([CNN, 2008](#)).

**Title:** Al Qaeda Bungles Arms Experiment

**Date:** January 19, 2009

**Source:** [Washington Post](#)

**Abstract:** [An al Qaeda](#) affiliate in Algeria closed a base earlier this month after an experiment with unconventional weapons went awry, a senior [U.S.](#) intelligence official said Monday.

The official, who spoke on the condition he not be named because of the sensitive nature of the issue, said he could not confirm press reports that the accident killed at least 40 al Qaeda operatives, but he said the mishap led the militant group to shut down a base in the mountains of Tizi Ouzou province in eastern Algeria.

He said authorities in the first week of January intercepted an urgent communication between the leadership of al Qaeda in the Land of the Maghreb (AQIM) and al Qaeda's leadership in the tribal region of Pakistan on the border with Afghanistan. The communication suggested that an area sealed to prevent leakage of a biological or chemical substance had been breached, according to the official.

"We don't know if this is biological or chemical," the official said.

The story was first reported by the British tabloid the Sun, which said the al Qaeda operatives died after being infected with a strain of bubonic plague, the disease that killed a third of Europe's population in the 14th century. But the intelligence official dismissed that claim.

AQIM, according to U.S. intelligence estimates, maintains about a dozen bases in Algeria, where the group has waged a terrorist campaign against government forces and civilians. In 2006, the group claimed responsibility for an attack on foreign contractors. In 2007, the group said it bombed U.N. headquarters in Algiers, an attack that killed 41 people.

Al Qaeda is believed by U.S. and Western experts to have been pursuing biological weapons since at least the late 1990s. A 2005 report on unconventional weapons drafted by a commission led by former Sen. Charles Robb, Virginia Democrat, and federal appeals court Judge Laurence Silberman concluded that al Qaeda's biological weapons program "was extensive, well organized and operated two years before the Sept. 11" terror attacks in the U.S.

Another report from the Commission on the Prevention of Weapons of Mass Destruction Proliferation, released in December, warned that "terrorists are more likely to be able to obtain and use a biological weapon than a nuclear weapon."

British authorities in January 2003 arrested seven men they accused of producing a poison from castor beans known as ricin. British officials said one of the suspects had visited an al Qaeda training camp. In the investigation into the case, British authorities found an undated al Qaeda manual on assassinations with a recipe for making the poison.

The late leader of al Qaeda in Iraq, Abu Musab Zarqawi, was suspected of developing ricin in northern Iraq. Then-Secretary of State Colin L. Powell referred to the poison in his presentation to the U.N. Security Council in February 2003 that sought to lay the groundwork for the U.S. invasion of Iraq.

Roger Cressey, a former senior counterterrorism official at the National Security Council under Presidents Bill Clinton and George W. Bush, told The Washington Times that al Qaeda has had an interest in acquiring a poisons capability since the late 1990s.

"This is something that al Qaeda still aspires to do, and the infrastructure to develop it does not have to be that sophisticated," he said.

Mr. Cressey added that he also is concerned about al Qaeda in the Land of the Maghreb, which refers to the North African countries of Algeria, Morocco and Tunisia.

"Al Qaeda in the Maghreb is probably the most operationally capable affiliate in the organization right now," he said ([Washington Post, 2009](#)).

**Title:** Al-Qaeda Cell Killed By Black Death 'Was Developing Biological Weapons'

**Date:** January 20, 2009

**Source:** [Telegraph](#)

**Abstract:** An al-Qaeda cell killed by the Black Death may have been developing biological weapons when it was infected, it has been reported.

The group of 40 terrorists were reported to have been killed by the plague at a training camp in Algeria earlier this month.

It was initially believed that they could have caught the disease through fleas on rats attracted by poor living conditions in their forest hideout.

But there are now claims the cell was developing the disease as a weapon to use against western cities.

Experts said that the group was developing chemical and biological weapons.

Dr Igor Khrupinov, a biological weapons expert at Georgia University, told The Sun: "Al-Qaeda is known to experiment with biological weapons. And this group has direct communication with other cells around the world.

"Contagious diseases, like ebola and anthrax, occur in northern Africa. It makes sense that people are trying to use them against Western governments."

Dr Khrupinov, who was once a weapons adviser to the Soviet president Mikhail Gorbachev, added: "Instead of using bombs, people with infectious diseases could be walking through cities."

It was reported last year that up to 100 potential terrorists had attempted to become postgraduate students in Britain in an attempt to use laboratories.

Ian Kearns, from the Institute for Public Policy Research, told the newspaper: "The biological weapons threat is not going away. We're not ready for it" ([Telegraph, 2009](#)).

**Title:** Al-Qaeda And The Plague

**Date:** January 23, 2009

**Source:** [Human Events](#)

**Abstract:** The report that some forty al-Qaeda terrorists died after the bubonic plague swept through their Algerian training camp has been treated with some glee in the media. But that schadenfreude may be misplaced. One question being investigated is whether the North African fanatics fell victim to the



naturally-occurring pathogen or the possibility the group mistakenly released the killer bug while brewing it for terror attacks. This incident provides the Obama administration the impetus to assess whether our nation is prepared for a bioterrorist attack.

The Algerian terrorist franchise, al-Qaeda in the land of the Islamic Maghreb (AQIM), is the largest al-Qaeda group outside the Middle East. AQIM has a deadly terrorism record and a declared intention to attack American targets which makes the potential bioterrorism threat credible but not a surprise for American experts.

Last year, Dr. Jeffrey Runge, chief medical officer at the US Department of Homeland Security, told Congress that the risk of a large-scale biological attack on the nation is significant and the US knows its terrorist enemies have sought biological weapons. Runge said al-Qaeda is the most significant threat.

Al-Qaeda leader Osama bin Laden has long shown an active interest in biological weapons. In the late 1990s, bin Laden set-up 19 chemical and biological weapons laboratories in Afghanistan stocking them with deadly pathogens: anthrax, plague, and botulinum toxins. He hired Ukrainian and Russian experts to train his people and, according to then-CIA director George Tenet, bin Laden trained his operatives "...to conduct attacks with toxic chemicals or biological toxins."

The group's biological weapons expert, Midhat Mursi al-Sayid Umar, who was reportedly killed by a US missile in 2008, published a 5,000-page encyclopedia of jihad devoted to chemical biological warfare (CBW). Al-Sayid's manual, which is available in print and on the Internet, provides instructions on how to manufacture rudimentary biological weapons.

The availability of al-Sayid's CBW cookbook makes it possible for independent jihadist cells like the AQIM to attempt to manufacture rudimentary biological weapons. That's why it shouldn't be a surprise when there are attempts to manufacture agents by franchise groups such as the 2003 incident in London where six Algerians were charged with plotting to produce the poison ricin and the 2005 French government claim that al-Qaeda cells in the Pankisi Gorge region of Georgia are producing anthrax bacteria, ricin, and botulinum toxin.

Any bioterror attack on America will likely come from suicidal jihadists armed with small containers of toxins made in remote sites like AQIM's training camps rather than pathogen-filled bombs launched from rockets, because weaponizing biological agents is very difficult. It requires the manufacturer to isolate the virulent strain, convert it into a weaponized form and then integrate it with a weapon system that can evenly distribute the agent in lethal doses to the intended targets.

A bioterrorist attack would go something like the following. A lone suicidal bioterrorist could cause significant suffering by spreading killer agents in a public place -- dumping a vile of anthrax spores in a ventilation system or subway -- or even more sinister, contaminate himself with the bubonic plague and then cough and sneeze the deadly plague in a closed area like an airplane or office building.

It could be 36 hours after a terrorist spreads anthrax or up to a week after someone is exposed to bubonic plague before victims become ill with classical symptoms. That's why health care providers must be alert to identify the threat and notify public officials. Quick action will save many lives, but the cost could be high.

The US Centers for Disease Control and Prevention estimates that an intentional release of anthrax by a bioterrorist in a major city could result in an economic impact of up to \$26 billion per 100,000 persons exposed.

The AQIM incident came to light when Algerian security forces found the bubonic plague-riddled body of a known terrorist by a roadside. Reportedly, AQIM chiefs fear the highly contagious plague has spread to other terror cells because some of the nearly 1,000 Algerian insurgents abandoned the contaminated camp for others in Morocco, Tunisia and Nigeria.

The Sun, a British newspaper, broke the AQIM story on January 19th. The paper reported that the epidemic began in AQIM's camp 90 miles east of the capital Algiers. The group turned the camp's shelters into mass graves and fled, reported the Sun.

The plague, also known as "black death," is believed to have killed an estimated 75-200 million people in the 14th century. Today, the World Health Organization reports several thousand cases a year, mainly in southern Asia, Africa and Central America.

The killer bug is caused by a bacterial agent, yersinia pestis, which infects rodents, producing blood poisoning. Fleas that feed on the dying rodents carry the toxic bacteria to humans. This may explain how AQIM terrorists contracted the pathogen if not from a terror weapon mishap.

Left untreated by antibiotics, the plague's symptoms begin with a headache, then chills and fever which lead to exhaustion. The condition may include nausea, vomiting, back pain, soreness in the arms and legs. Swellings, called buboes, which give the bubonic plague its name, appear around the lymph nodes - the neck, arms and inner thighs. They are hard knobs that turn black, split open to ooze pus and blood. The survival rate among the untreated is small.

Both offensive and defensive programs must be in place to reduce the likelihood of a successful bioterrorist attack launched by groups like AQIM or homegrown radicals.

The best offensive effort is to shutdown bioterrorists at the source. That's why the possibility that AQIM is working on deadly pathogens matters. Our special operation forces working with allies and friendly governments must eliminate threats before they mature.

But trying to stop threats at the source is insufficient. Our borders must be guarded with special biological agent sensors which are still under development. That places the burden on our border guards who must recognize clinical symptoms and deny access or quarantine suspect visitors.

Fortunately, we have in place the beginning of an effective bioterrorist response program. In 1997, Congress passed the Defense Against Weapons of Mass Destruction Act which established the Chemical and Biological Incident Response Force (CBIFR) unit based in Camp Lejeune, NC. The CBIFR is the nation's self-contained and self-sufficient unit for responding to CBW attacks. Its back-up force includes the National Guard's 52 weapons of mass destruction civil support teams, but these 22-man units only advise first responders and that's the nation's CBW Achilles heel.

Most city fire departments have the responsibility to provide first response to CBW attacks but too often that capability is underfunded. Small cities and towns may have no response capability at all. Besides, few US hospitals can handle a mass casualty scenario and most hospitals have very limited capability to decontaminate patients.

The fact is that America isn't prepared for most catastrophic disasters. Paul McHale, assistant secretary of defense for homeland defense and America's security affairs, claims that the nation is only prepared to respond to a pandemic flu and a major hurricane.

Our preparedness for a bioterrorist attack was tested by the September 2001 anthrax contaminated letter incident. A handful of anthrax contaminated letters resulted in approximately 32,000 persons with potential exposures taking antibiotic prophylaxis to prevent anthrax infections and the attack killed five people.

That incident was quickly exposed because it involved congressional officials who are provided special protection. Likely, had the anthrax letters gone to ordinary offices, the attack would not have been exposed as early and many more people would have died.

The Algerian bubonic plague incident should be a wake-up for the Obama administration to reassess its bioterrorism preparedness. Enemies such as al Qaeda and its franchises are almost certainly producing

deadly biological weapons and will use them for mass murder. America must be aggressive in defeating the bioterrorist before he attacks and should that fail our network of first responders must be prepared for a potentially catastrophic attack ([Human Events, 2009](#)).

**Title:** New Report Sheds Light On Al Qaeda's Biological Attack Capabilities

**Date:** January 26, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Years of work by Al Qaeda terrorists to acquire weapons of mass destruction and concoct the deadliest methods of using them have been assessed by a retired Central Intelligence Agency officer in a newly released research paper.

Rolf Mowatt-Larssen's study, titled "Al Qaeda Weapons of Mass Destruction Threat: Hype or Reality?", provides a detailed chronology of the terrorist group's efforts from 1988 to 2003 to acquire biological, chemical and nuclear weapons.

Mowatt-Larssen, a senior fellow at the Belfer Center for Science and International Affairs at the Kennedy School of Government, served as Director of Intelligence and Counterintelligence at the U.S. Department of Energy. Prior to that, he served for 23 years as a CIA intelligence officer in both domestic and international posts.

According to Mowatt-Larssen's study, Al Qaeda would not hesitate to launch attacks that could result in the deaths of tens or even hundreds of thousands of Americans if such an attack were possible for them.

Mowatt-Larssen's report, however, in noting that no such attack has happened, questions if that is a result of counter-terrorism efforts or a tactical decision by Al Qaeda.

"There are many plausible explanations for why the world has not experienced an al Qaeda attack using chemical, biological, radiological or nuclear weapons, but it would be foolish to discount the possibility that such an event will occur in the future," Mowatt-Larssen says. "To date, al Qaeda's WMD programs may have been disrupted. This is in fact one likely explanation, given a sustained and ferocious counterterrorist response to 9/11 that largely destroyed al Qaeda as the organization that existed before the fateful attack on the US. If so, terrorists must continue to be disrupted and denied a safe haven to reestablish the ability to launch a major strike on the US homeland, or elsewhere in the world ([Bio Prep Watch, 2010](#)).

**Title:** Al-Qaeda Sees Mexico Border As Prime Spot For Transporting Anthrax

**Date:** May 19, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Congress has been warned by FBI Director Robert Mueller this week that al-Qaeda has ongoing efforts to acquire weapons of mass attack for the purpose of attacking the United States.

"Al-Qaida remains committed to its goal of conducting attacks inside the United States," Mueller told a House appropriations subcommittee, Newsmax.com reports. "Further, al Qaeda's continued efforts to access chemical, biological, radiological, or nuclear material pose a serious threat to the United States."

Mueller added that Al-Qaeda, to accomplish its goals of conducting new attacks, "seeks to infiltrate overseas operatives who have no known nexus to terrorism into the United States using both legal and illegal methods of entry."

Sheikh Abdullah al-Nasifi, a known al-Qaeda recruiter in Kuwait, told al Jazeera television in February that the ideal infiltration point for terrorists seeking to attack America is Mexico's border.

"Four pounds of anthrax – in a suitcase this big – carried by a fighter through tunnels from Mexico into the U.S., are guaranteed to kill 330,000 Americans within a single hour if it is properly spread in population centers there," al-Nasifi told al Jazeera.

"There is no need for airplanes, conspiracies, timings and so on. One person, with the courage to carry four pounds of anthrax, will go to the White House lawn, and will spread this 'confetti' all over them, and then will do these cries of joy. It will turn into a real 'celebration,' al-Nasifi said. "9/11 will be small change in comparison. Am I right?"

Mueller reminded lawmakers that a 2008 National Intelligence Estimate estimated that a terrorist WMD attack remains a top priority of terrorists and noted that a December Commission on the Prevention of WMD Proliferation and Terrorism report warned that "the risks are growing faster than our multilayered defenses" to prevent such an attack," and that "it was more likely than not that terrorists would attack a major city somewhere in the world with a weapon of mass destruction by 2013" ([Bio Prep Watch, 2010](#)).

**Title:** Russian Expert Says Terror Networks Searching For Bioweapons

**Date:** October 6, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** The head of Russia's Security Council recently announced that the country's security agencies believe international terror networks are doubling their efforts to gain access to biological and chemical weapons of mass destruction.

Nikolai Patrushev voiced his concerns during a recent security conference at the Black Sea Resort, in Sochi, Russia, MonstersAndCritics.com reports.

"We have such indications," Patrushev said, MonstersAndCritics.com reports. "Worldwide, terrorists have also tried to buy radioactive material for a dirty bomb."

Following the Security Council meeting, Patrushev told the press that intelligence reports indicate that energy production would be one area targeted by terrorists. He specifically named the Suez Canal in Egypt and the Strait of Gibraltar as potential targets.

Patrushev also said that he believes al-Qaeda is involved in the bloody conflict unfolding in Russia's Caucasus region, MonstersAndCritics.com reports. The region, which has seen two Chechen wars, could be of great interest to terrorists.

"Al-Qaida's main goal is to establish an Islamic caliphate spanning Central Asia, North and Central Africa and the North Caucasus," Patrushev said, MonstersAndCritics.com reports ([Bio Prep Watch, 2010](#)).

**Title:** WikiLeaks: Al-Qaeda 'Is Planning A Dirty Bomb'

**Date:** February 2, 2011

**Source:** [The Telegraph](#)

**Abstract:** A leading atomic regulator has privately warned that the world stands on the brink of a "nuclear 9/11".

[The WikiLeaks cables in full](#)

Security briefings suggest that jihadi groups are also close to producing "workable and efficient" biological and chemical weapons that could kill thousands if unleashed in attacks on the West.

Thousands of classified American cables obtained by the WikiLeaks website and passed to The Daily Telegraph detail the international struggle to stop the spread of weapons-grade nuclear, chemical and biological material around the globe.

At a [Nato meeting in January 2009](#), security chiefs briefed member states that al-Qaeda was plotting a programme of "dirty radioactive IEDs", makeshift nuclear roadside bombs that could be used against British troops in Afghanistan.

As well as causing a large explosion, a "dirty bomb" attack would contaminate the area for many years.

The briefings also state that [al-Qaeda](#) documents found in Afghanistan in 2007 revealed that "[greater advances](#)" had been made in bio-terrorism than was previously realised.

An Indian national security adviser told American security personnel in June 2008 that terrorists had made a "[manifest attempt to get fissile material](#)" and "have the technical competence to manufacture an explosive device beyond a mere dirty bomb".

Alerts about the smuggling of nuclear material, sent to Washington from foreign US embassies, document how criminal and terrorist gangs were trafficking large amounts of highly radioactive material across Europe, Africa and the Middle East.

The alerts explain how customs guards at remote border crossings used radiation alarms to identify and seize cargoes of uranium and plutonium.

Freight trains were found to be carrying weapons-grade nuclear material across the Kazakhstan-Russia border, highly enriched uranium was transported across Uganda by bus, and a "[small-time hustler](#)" in Lisbon offered to sell radioactive plates stolen from Chernobyl.

In one incident in September 2009, [two employees at the Rossing Uranium Mine in Namibia smuggled almost half a ton of uranium concentrate powder – yellowcake – out of the compound](#) in plastic bags.

"[Acute safety and security concerns](#)" were even raised in 2008 about the uranium and plutonium laboratory of the International Atomic Energy Agency (IAEA), the nuclear safety watchdog.

Tomihiko Taniguchi, the deputy director-general of the IAEA, has privately warned America that the world faces the threat of a "[nuclear 9/11](#)" if stores of uranium and plutonium were not secured against terrorists

But diplomats visiting the IAEA's Austrian headquarters in April 2008 said that there was "[no way to provide perimeter security](#)" to its own laboratory because it has windows that leave it vulnerable to break-ins.

Senior British defence officials have raised "deep concerns" that a rogue scientist in the Pakistani nuclear programme "could gradually smuggle enough material out to make a weapon," according to a document detailing official talks in London in February 2009.

Agricultural [stores of deadly biological pathogens in Pakistan are also vulnerable to "extremists"](#) who could use supplies of anthrax, foot and mouth disease and avian flu to develop lethal biological weapons.

Anthrax and other biological agents, including smallpox and avian flu, could be sprayed from a shop-bought aerosol can in a crowded area, leaked security briefings warn.

The security of the world's only two declared smallpox stores in Atlanta, USA, and Novosibirsk, Russia, has repeatedly been called into doubt by "a growing chorus of voices" at meetings of the World Health Assembly documented in the leaked cables.

The alarming disclosures come after President Barack Obama last year declared nuclear terrorism "the single biggest threat" to international security with the potential to cause "extraordinary loss of life" ([The Telegraph, 2011](#)).

**Title:** Lugar Calls For Vigilance Against Bioterror Following Bin Laden's Death

**Date:** May 4, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Sen. Richard Lugar called for the United States to remain vigilant for an Al-Qaeda sponsored or inspired nuclear, chemical or biological counterattack in the wake of the strike that led to the death of the terrorist group's leader Osama bin Laden.

"There is a risk that some bin Laden-inspired group may try to lash out in dramatic fashion," Lugar wrote in an article published by the Washington Times on May 2.

Lugar, hopeful that there will be upheavals in Al-Qaeda that the U.S. can exploit as a result of its leader's demise, urged vigilance in keeping nuclear, chemical and biological weapons materials away from terrorists.

"Our top military leaders have said that the biggest threat to U.S. security, both short-term and long-term, would be the possibility of a terrorist organization obtaining a nuclear weapon," Lugar wrote in the Washington Post.

Lugar recommended continuing with the Nunn-Lugar program, which conducts an effort to destroy weapons of mass destruction in Russia and the former Soviet Union states. He said that the Nunn-Lugar program recently helped to facilitate the destruction of a Soviet-era chemical weapons stockpile in Albania and led to the dismantling of Libya's chemical weapons program in 2004.

According to Lugar, American efforts in Africa to control and contain biological weapons and dangerous pathogens need to be stepped up.

"Africa has a unique combination of naturally occurring dangerous diseases, poorly secured laboratories and research centers where those pathogens are collected for public health study, and simmering Islamist terrorist activity that thrives in the region's many poorly governed spaces," Lugar wrote in the Washington Post.

The next step, Lugar said, is using the Nunn-Lugar program to address key security problems in African laboratories ([Bio Prep Watch, 2011](#)).

**Title:** Al-Qaida's Food Bioterror Threat Looms Over UK

**Date:** June 6, 2011

**Source:** [Times of India](#)

**Abstract:** Britain is facing an emerging food "bioterrorism" threat from extremist groups like the al-Qaida, a media report said on Sunday.

The British government's security advisers have warned manufacturers and retailers that terror groups might try to poison food, drinks supply in the country to cause widespread casualties, 'The Sunday Telegraph' reported.

The warning from Centre for the Protection of National Infrastructure (CPNI), which operates as part of the security service, came in the wake of deadly E.coli outbreak in Germany which has highlighted the vulnerability of the food chain and how quickly bacteria can spread, the report said.

The highly virulent strain has already claimed some 18 lives and left more than 1,800 seriously ill in Germany.

The CPNI has, in fact, asked food and drinks producers, suppliers and supermarkets to tighten security at plants and depots.

A CPNI said, "UK suffers from a low level of malicious contamination of food by the bad, the mad and the sad. Now it has to consider possibility of food supplies being disrupted by politically motivated groups" ([Times of India, 2011](#)).

**Title:** Bio-Terrorism The New Age Weapon Of Al Qaeda, Taliban?

**Date:** June 7, 2011

**Source:** [One India](#)

**Abstract:** As if terrorism has not been terrorizing us enough, there's a new sort of terrorism looming in the horizon. According to media reports from UK, food bioterrorism is the latest threat after scientists and others failed to understand the sudden spread of the deadly E. Coli bacteria.

With al-Qaeda and Taliban involvement feared in the outbreak, doctors fear that killer germs may have been deliberately planted into fresh produce. With Germany as the centre of the outbreak, reports from the newspaper *Daily Star* says that Britain could also be impacted by the deadly bacteria.

German scientists and health officials are zeroing in on the toxic batch of bean sprouts that may have been the root of the deadly outbreak. The chief doctor for hygiene at Germany's Vivantes Hospital in Berlin, Klaus-Dieter Zastrow was quoted as saying, "It is quite possible there's a crazy person out there who thinks: 'I'll kill a few people or make 10,000 ill.' It is a mistake not to investigate in that direction."

E Coli has already claimed 18 lives and led close to 1,800 seriously ill in Germany. The Centre for the Protection of National Infrastructure (CPNI) in London has asked the producers of food and drinks along with suppliers and supermarkets to tighten security at plants and depots.

In a statement by the CPNI, "UK suffers from a low level of malicious contamination of food by the bad, the mad and the sad. Now it has to consider possibility of food supplies being disrupted by politically motivated groups" ([One India, 2011](#)).

**Title:** Experts Warn That Al-Qaeda Remains A Bioterror Threat

**Date:** July 29, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Multiple former U.S. counterterrorist officials announced on Thursday that a biological or chemical attack by al-Qaeda and its offshoots is still a threat, despite the killing of terror leader Osama bin Laden.

Michael Leiter, the recently retired director of the National Counterterrorism Center, recently spoke to an audience at the Aspen Security Forum, the Associated Press reports.

"We still have pockets of al-Qaida around the world who see this as a key way to fight us," especially the offshoot in Yemen," Leiter said, according to the AP. "The potential threat from al-Qaida in the Arabian Peninsula is very real. The most likely...are simple forms of chemical or biological weapons (rather than a nuclear attack). Is it going to kill many people? No. Is it going to scare people? Yes."



Leiter said that while Bin Laden was focused on a big attack, his affiliates and other offshoots like the Pakistani Taliban realize that they can affect U.S. strategy with smaller scale attacks.

Former CIA Deputy Director John McLaughlin predicted that new leader Ayman al-Zawahiri will launch small scale campaigns similar to the attempted Times Square car bombing a year ago.

"Zawahiri will probably favor smaller targets," McLaughlin told the audience, according to the AP. "Bin Laden did not."

Leiter said that one challenge for the future is to keep the staff members of intelligence and military leaders from getting bored and leaving, because while the U.S. is drawing down its military forces in Afghanistan and Iraq, the anti-terror war continues on.

"Smaller scale terrorist attacks are with us for at least the foreseeable future," Leiter said, according to the AP ([Bio Prep Watch, 2011](#)).

**Title:** Yemen-Based Al-Qaeda May Be Trying To Acquire Ricin

**Date:** August 15, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** According to unnamed intelligence officials and reports, a Yemen-based al-Qaeda affiliate has been trying to acquire castor beans, which can be used to produce poisonous ricin.

The apparent intent of the organization was to pack the poison around small explosives that could use the explosions to disperse the ricin, Reuters reports. The white powdery ricin is so deadly that a speck alone can kill if inhaled or taken into the bloodstream.

The apparent targets for the plot were enclosed spaces, like an airport or shopping mall. President Barack Obama and top aides were briefed about the threat last year and while they have received updates since then, there was no indication that an attack was imminent.

There are limits on ricin's utility as a weapon because it loses its potency in sunny, dry conditions like those in Yemen, and the poison is not easily absorbed through the skin like some other nerve agents.

According to a New York Times report, a secret government task force was working with Saudi officials and the remnants of Yemen's intelligence agencies to counter the threat. With the virtual collapse of Yemen's government, al Qaeda has been able to widen its control in the country and strengthen its operational ties with al Shabab, the Islamic militancy in Somalia ([Bio Prep Watch, 2011](#)).

**Title:** Rep. Rogers Raises Concerns Of Al-Qaeda Acquiring Libyan Chemical Weapons

**Date:** September 8, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Representative Mike Rogers, a Michigan Republican and chairman of the House Intelligence Committee, has approached the White House with concerns that al-Qaeda will acquire Libyan weapons that were once controlled by dictator Muammar Qaddafi.

Rogers said that the time frame to secure loose weapons "is rapidly closing" and he has urged the White House to quickly dedicate additional resources and work with NATO allies and the Libyan National Transitional Council on the problem, Bloomberg reports.

"We need to be doing more to secure these weapons systems now," Rogers, a former Army officer and FBI special agent, said, according to Bloomberg. "(The U.S. has) special capabilities. There is nobody better who can get their hands on this stuff, account for it and render it safe."

Rogers said that the U.S. could have been more aggressive in safeguarding the munitions in Iraq and that Libya's "systems are even more lethal."

According to a White House fact sheet, Libya's chemical stockpiles of 11.3 metric tons of mustard agent and 845 metric tons of chemical precursors are stored in non-weapon form inside steel containers and secure bunkers in a remote part of Libya.

Rogers said that Qaddafi might not have disclosed all his chemical and biological weapons.

"We just don't know," Rogers said, according to Bloomberg. "There had been sarin gas and other things."

The U.S. has provided \$3 million to two international humanitarian organizations – the Swiss Foundation for Mine Action in Geneva and the Manchester, U.K.-based MAG International – specializing in removing weapons and munitions. To date, the teams have cleared more than 450,000 square meters of land and destroyed 5.8 tons of munitions.

Qaddafi's vast military and industrial complex has been kept under constant surveillance by NATO aircraft since the rebellion began in February, according to U.S. officials ([Bio Prep Watch, 2011](#)).

**Title:** Al Qaeda Lab Lingers In Anthrax Story

**Date:** October 2, 2011

**Source:** [USA Today](#)

**Abstract:** Fears that al Qaeda had some role in the anthrax letter attacks that killed five and terrorized the U.S. 10 years ago surfaced early in the investigation.

"THIS IS NEXT. TAKE PENACILIN NOW. DEATH TO AMERICA. DEATH TO ISRAEL. ALLAH IS GREAT," read the anthrax-laden letter sent to [NBC](#) newsman Tom Brokaw on Sept 18, 2001, at the start of the attacks. [At least five letters](#) were sent in the attacks that autumn, all containing similar words.

Those messages likely contributed to one of the more curious endeavors of the nine-year ["Amerithrax" investigation](#) into the anthrax murders, the retrieval of a suspected terrorist lab, right down to the pipes of the kitchen sink.

The National Research Council in February delivered [an evaluation of the science](#) used by investigators to tie the anthrax used in the attacks, a mutant-laced variant of the "Ames" anthrax strain, to the infamous RMR-1029 flask at the [United States](#) Army Medical Research Institute (USAMRIID) at [Fort Detrick](#), Md. The flask was controlled by a researcher named [Bruce Ivins](#), who committed suicide in 2008, days before investigators say they had intended to indict him for the crime. Based in part on the link to the RMR-1029 flask, the [FBI](#), in its [investigative summary of the case](#), concluded, "Ivins, alone, mailed the anthrax letters." The conclusion, though, is still disputed by some observers. Even the NRC said it was "not possible to reach a definitive conclusion about the origins of the anthrax," in its evaluation.

In May of 2004, U.S. investigators weren't so sure either. They had information about [al Qaeda plans](#) to develop an anthrax program, the NRC report said. So FBI investigators and "partners from the intelligence community" then visited a suspected bioterror lab abandoned by al Qaeda and collected swabs there. Three samples tested positive for Ames strain anthrax in tests, conducted at the USAMRIID lab. They had been taken from "an unopened medicine dropper package, a sink, and a sink drain hose," according to a partly-declassified FBI report.

Subsequent tests at microbiologist Paul Keim's lab at [Northern Arizona University](#) found signs of the Ames strain of anthrax on two of the three samples, according to the same report. "As a result of these findings, a third collection mission was conducted in November 2004 and this time large portions of the site were returned intact to the United States, including the entire sink, drain, and associated plumbing,"

said the NRC report. The retrieved lab was "extensively sampled" for both living anthrax and anthrax DNA.

So, what did they find? According to the NRC report, "all the tests were negative" for anthrax. Further tests of samples conducted in 2007 also showed no signs of anthrax. (The first ones likely had produced false positive results, a hazard of tests primed to turn up any traces of a pathogen.)

"While it is undoubtedly true that al Qaeda was seeking to establish an offensive [bioweapons program in 2001](#), Task Force agents were unable to find any link between al Qaeda and the letter attacks in the United States, or even that, at the time of the attacks, any al Qaeda operatives had access to the type and quality of anthrax pathogen used in the 2001 attacks," says the FBI's investigative summary of the case.

[The NRC panel](#), headed by [Lehigh University](#) president Alice Gast, however, "consider these data to be inconclusive regarding the possible presence of *B. anthracis* Ames at this undisclosed overseas site," according to their report. Echoing findings elsewhere in the report the panel complained that investigators needed to take additional steps to validate the anthrax tests used in the investigation and to understand the naturally-occurring level of anthrax in places such as Afghanistan. The differences exposed the chasm between the level of certainty required by scientists, who want very strong statistical reassurance, and those of crime investigators, who seek a weight of evidence necessary to convince a jury of murder and no more.

So, those who still voice doubts about the investigation, such as [Rep. Rush Holt](#), D. - N.J., can point to [the al Qaeda threat](#) as a still unsettled alternative to the anthrax attacks. Scientists would like to see more basic research done on anthrax in case of another attack.

"If anthrax pops up again, we still don't know enough about what type of strains are in the environment," says former FBI investigator Bruce Budowle of the University of [North Texas Health Science Center at Fort Worth](#). In microbial forensics investigations, scientists are looking for assurances that results could be incorrect only 1 in 100 times, he says. But to reach that would be "almost a physical impossibility," he adds, given that microbe characteristics can shift markedly over small distances.

Another point made in the NRC report is that more research could be done on the evolution of anthrax, to verify how the mutations that marked anthrax in the RMR-1029 flask developed. "I have a model of how they evolved and it explains what happened very well," Keim says now. "But it is critical we understand the evolution of how these morphs (mutants) arise," he says.

"If terrorists released *Bacillus anthracis* over a large city, hundreds of thousands of people could be at risk of the deadly disease anthrax," reads the summary of an [Institute of Medicine](#) report [released only Friday](#). Even after a decade, "many public health authorities and policy experts fear that the nation's current systems and plans are insufficient to respond to the most challenging scenarios, such as a very large-scale anthrax attack" ([USA Today, 2011](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#), or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** Russian Lab Storing Germs Faces Cut-Off Of Electricity

**Date:** April 7, 2002

**Source:** [New York Times](#)

**Abstract:** A large repository of anthrax, plague and other deadly bacteria stored in a high-security laboratory complex 100 miles south of here is facing a threat never imagined in the Soviet era -- the meter man.

An official from the Moscow region's Mosenergo electric utility arrived recently and threatened to turn off the electricity for lack of payment at the 90-building campus, which served as the secret biological weapons program of the Soviet era.

A headline in the newspaper Izvestia warned, "Deadly Viruses From a Moscow Regional Depository Threaten Moscow."

Actually, there are no viruses at the State Scientific Center of Applied Microbiology in Obolensk, just every kind of deadly bacteria that was studied for use in the secret biological weapons program of the Soviet Union. (A large virus repository is in Siberia.)

Russian and Western officials say that while it is unlikely that any public health threat would result from a power cutoff, there is enough uncertainty that none were willing to say that categorically.

"We have quite reliable systems of protection in case of emergency," Gen. Nikolai N. Urakov said by telephone. He is the longtime director of the center, which has been working with Western scientists to convert the complex into a biomedical manufacturing site.

"But we are scared by this threat of a sudden shutdown of electricity," he added, "because it is a kind of psychological pressure on us." In the event of a shutdown, he said, scientists must destroy all bacteriological experiments under way.

About 3,000 strains of bacteria are stored at the center, many of them in cryogenic casks cooled with liquid nitrogen and isolated from the environment by layered enclosures and oversize air-handling systems, and all dependent on electricity.

The greatest danger from a shutdown of electric power would be the defrosting of live germs now preserved in a frozen state.

"The main threat is to the organisms themselves rather than that they might escape," said Raymond Zilinskas, a biological warfare expert at the Monterey Institute of International Studies. "Under the worst case, these things would be defrosted from minus 70 degrees, and it would be a real mess to clean it up afterward because you wouldn't know for sure whether everything was dead" ([New York Times, 2002](#)).

**Title:** Report Finds Easy Lab Access To Deadly Pathogens

**Date:** May 7, 2002

**Source:** [Reuters](#)

**Abstract:** Unauthorized scientists, students and foreigners are routinely granted access to federal laboratories where potentially deadly biological agents, like anthrax and salmonella, are stored, according to a government report released on Tuesday.

The Sept. 11 attacks on the United States and the subsequent anthrax scare have prompted several government and private assessments, many of them critical, on the security of government laboratories that handle contagious viruses and bacteria.

An investigation by the US Department of Agriculture's inspector general found many of the USDA's 124 laboratories were vulnerable to theft and unable to keep track of biological agents.

Almost half of the labs need security improvements such as alarm systems, security fences and surveillance cameras, the USDA inspector general's report said.

Scientists and researchers, including non-US citizens, who were "not associated with USDA work" had regular access to the most sensitive areas in the laboratories, it said.

"Unauthorized personnel with knowledge of a laboratory's inventory could remove a biological agent and place it in a terrorist's hands long before the theft was discovered," the report said.

Some USDA labs could not accurately determine what viruses and bacteria were being stored.

At one major laboratory, which the USDA would not identify, a vial containing 3 billion doses of Vesicular stomatitis virus was listed as being on hand, but could not be found. The infectious disease affects both livestock and humans.

USDA officials, including Agriculture Secretary Ann Veneman, have noted the need to improve security at USDA laboratories.

In response, the USDA has devised a 10-year plan to modernize all its laboratories. So far, Congress has appropriated \$113 million of the \$450 million needed for the renovations. USDA officials said they expect the plan to be completed by 2006. The USDA needs to implement the modernization plan more quickly, the report said ([Reuters, 2002](#)).

**Title:** New Boss Tackling Germ Lab Problems

**Date:** May 21, 2002

**Source:** [UCLA](#)

**Abstract:** Maj. Gen. Lester Martinez-Lopez took over the Army's germ warfare defense laboratory as it was recovering from reports of lax security, misplaced pathogens and other unprofessional conduct.

Soon after his arrival, his job became even more complicated with the latest bad news -- anthrax spores had been discovered in the lab.

Martinez, tapped in March to head the U.S. Army Medical Research Institute of Infectious Diseases, faces the twin challenges of helping fight the war on bioterrorism and trying to clean up operations at the lab at the forefront of the battle.

Last month, an anthrax spill in the Fort Detrick laboratory, known as USAMRIID, led to the discovery of anthrax spores outside containment areas designed to prevent such releases.

Martinez said a new program aimed at clarifying Army rules for handling, shipping and storing biological agents should strengthen public trust in the institute, which plays a central role in the investigation of last fall's anthrax mailings.

"We have good systems, but we're going to make them even safer," the Puerto Rican-born physician said in an interview with The Associated Press. "The safety and surety of USAMRIID is of overarching concern."

Scientists at the 32-year-old laboratory develop vaccines and antidotes for diseases soldiers could encounter in the field, either naturally or as targets of biological weapons.

FBI agents tapped the lab's expertise after the anthrax mailings that killed five people and sickened 13 others last year. The FBI is a constant presence at Fort Detrick, guarding samples of anthrax sent there by other research labs for genetic analysis.

FBI agents have also questioned Detrick scientists, investigating the possibility that the tainted letters were sent by someone with expertise learned at USAMRIID or with access to the lab.

Locally, Fort Detrick is under pressure from Frederick Mayor Jennifer Dougherty to be more forthcoming about its operations, including the cleanup of an old dump that contains toxic chemicals and -- the Army recently learned -- infectious pathogens.

Martinez, 46, is used to high-pressure assignments. He was part of the multinational force sent to the Middle East after Israel invaded Lebanon in 1982. He was chief medical officer for the U.S. mission to Haiti in 1995, after U.S. troops intervened to restore Jean-Bertrand Aristide to power.

He was sent to Central America in 1998 to oversee medical relief for victims of Hurricane Mitch, which killed at least 8,500 people.

Martinez "is a soldier and physician uniquely qualified" for his new assignment, said Lt. Gen. James B. Peake, commander of the U.S. Army Medical Command.

Although his job is protecting and training soldiers, Martinez said the work being done at Fort Detrick can enhance public health. To that end, he said the Defense Department is reaching out to other public agencies and private institutions to collaborate on bioterrorism defenses.

"The issue is, how do we capitalize not only on our work but on the work that everybody is doing around the world and use it in such a way that we can focus that new technology on systems that can really make a difference -- to the soldier on point and, in the long run, for the good of everybody," he said ([UCLA, 2002](#)).



**Title:** After 9/11, Universities Are Destroying Biological Agents

**Date:** December 17, 2002

**Source:** [New York Times](#)

**Abstract:** As federal officials search for more powerful tools to investigate biological terrorism, universities across the country are destroying collections of laboratory agents crucial for understanding how biological weapons work and tracing their sources.

New federal laws require only that such biological materials be registered, but many universities are pressing researchers to clean out their freezers and destroy materials they are not currently working on.

While there is no official count of how many biological specimens have been destroyed, concern that laboratories have gone overboard prompted the White House to ask institutions, through the American Society of Microbiologists, to reconsider their haste in doing away with specimens that could prove "difficult or impossible to replace," said Rachel Levinson, of the White House Office on Science and Technology Policy.

"Obviously, these materials are valuable as research tools, and in terms of developing countermeasures should these agents be used as weapons, or if there's an unintentional natural outbreak," Dr. Levinson said. "They're valuable research tools, and we would not like to see them destroyed."

Under laws enacted since last year's [anthrax mailings](#), which killed five people, research institutions, clinical and diagnostic laboratories must inventory and register the presence of 61 select agents that could be used to make biological weapons, including ebola, herpes B, smallpox and a variety of toxins. The materials must be kept under lock and key, with access to them restricted to people cleared by government background checks. Scientists must also demonstrate a "bona fide research purpose" for working with a given material.

The problem appears to lie in conflicting messages from Washington and in overly zealous compliance with the new laws on select agents, said Ronald Atlas, president of the American Society of Microbiologists. The prosecution of Tomas Foral, a University of Connecticut scientist arrested after he pocketed an anthrax specimen in cleaning out a laboratory freezer, caused many researchers to think twice, Dr. Atlas recalled.

"Many say Tomas Foral at Connecticut was a clear message from the Justice Department to the scientific community: If you can't justify having it, clear it out," Dr. Atlas said. "When you have these criminal penalties hanging over your head, you ask, 'Why should I be the one to bear that legal risk?'"

The most spectacular example of the wholesale destruction of specimens came last year, when Iowa State University at Ames destroyed its entire collection of anthrax specimens. The university acted after an Ames strain was tied to the fatal anthrax letters, and with the criminal investigation in full swing.

John McCarroll, a spokesman for Iowa State, said copies of the anthrax strains that were destroyed existed elsewhere, but other scientists disagree. They maintain that recent advances in genetic engineering have shown that families of strains that appeared the same were, on closer inspection, quite different. Mr. McCarroll said that more recently, Iowa State had asked researchers to destroy select agents that they were not "currently working on."

Few universities have gone so far as to order the elimination of specimens outright. Rather, in conducting inventories of biological agents, most have urged researchers to consider seriously, and justify, their need for sensitive materials. Some describe the procedure as good "housekeeping," saying as a matter of principle, dangerous materials not immediately needed should be discarded.



At the University of Pennsylvania, the new laws on select agents has prompted not just housekeeping, but also soul searching, said Matthew Finucane, director of environmental health and radiation safety.

"If they don't have a mission for the material, people are disposing of it," Mr. Finucane said.

At Duke University, the discovery of a select agent was grounds for an "internal audit," said Wayne Thomann, the university's director of occupational and environmental health. If they were "historical stocks" and researchers could not come up with a current need for the agents, Mr. Thomann said, "we went through a process of controlled destruction."

"I can't give any exact numbers," he said, "but it was a fair number that decided there wasn't a real research benefit in maintaining this stuff."

Harvard University did not suggest researchers destroy agents, but R. John Collier, a biochemist who works on anthrax there, said he had taken it upon himself last year to destroy the only strain he had on hand "to avoid attracting terrorists and more of the press than I wanted."

But policies that make sense in other contexts, like discarding old samples, are madness when it comes to scientific research, said Steven Block, a physics and biology professor at Stanford University.

Dr. Block said past strains of anthrax were essential for understanding how quickly an organism altered itself in nature.

"So much you can learn by knowing the evolutionary biology of bacteria," he said, "but you can't research that evolutionary biology if you can't look at the past versions of it. It's the connectedness of all this that's so important."

Dr. W. Ian Lipkin, director of the Center for Immunopathogenesis and Infectious Diseases at Columbia University, said, "What you're discarding is access to materials and intellectual property you may need downstream."

Dr. Lipkin is investigating what causes diseases like autism and cancer, and relies on comparing genetic sequences in as many specimens as possible. "This will definitely interfere with our work," he said.

He noted that in the 1990's accusations arose that American scientists had introduced the AIDS virus, H.I.V., to Africa through earlier research infecting monkeys with polio. The scientific community was only able to disprove the theory conclusively by turning over the 40-year-old cells for independent scrutiny.

Dr. Levinson, at the White House, said that if institutions really felt intimidated by the new rules, they should transfer the materials to a laboratory willing to accept them.

Others have said the administration should have created such a repository to accept materials that laboratories felt compelled to discard. And many fear that it may take time to repair the harm that is being done.

"I would hope that we could recover from any deleterious effect in the long run," said Barbara Johnson, president of the American Society of Biological Safety. "But if you had a unique sample that no one had replicates of, that sample's gone" ([New York Times, 2002](#)).

**Title:** Power Fails For 3 Hours At Plum Island Infectious Disease Lab

**Date:** December 20, 2002

**Source:** [New York Times](#)

**Abstract:** A three-hour power failure at the Plum Island Animal Disease Center last weekend renewed concerns about the safety of the high-security government laboratory while it is being run partly by replacement workers during a five-months strike.

The loss of power and failure of all three backup generators raised fears for the first time that the containment of infectious pathogens could have been seriously compromised at the laboratory. The center, which is run by the United States Agriculture Department, studies highly infectious animal diseases like foot and mouth disease and African swine fever.

Senator Hillary Rodham Clinton called yesterday for the laboratory to cease all operations until an independent safety review could be conducted.

Scientists familiar with the center said that since the diseases studied on the island do not, for the most part, affect humans, the risk to workers at the center and to residents of the nearby North Fork of Long Island was minimal. Several experts in infectious diseases said, however, that a power failure at such a facility for so long was extraordinarily unusual.

Ken Alibek, a former top Soviet germ warfare official now at George Mason University, said that although he knew of power failures at similar facilities, he did not know of a case in which the power and all the backup generators failed for this long.

"If there was any risk of a pathogen in the air, they need to quarantine all healthy animals," he said. "If they are sure there was no pathogen in the air, they may not need to quarantine but they need to take steps to be sure there was no contagion."

Sandy Hayes, a spokeswoman for the Agriculture Department, said that the day after the power failed, safety inspectors recreated what had happened. "They said they were sure there was no bio-containment breach," she said. She said that all animals were being monitored and that none had shown any signs of problems.

Ms. Hayes said that Plum Island called the Long Island Power Authority on Sunday about 1:30 p.m. reporting that the voltage it was receiving was too low. Bert Cunningham, a spokesman for the authority, said the Plum Island workers told the authority that they would turn the power off and use backup generators until the problem was resolved.

Ms. Hayes said that when the generators failed to start automatically, managers at Plum Island tried to start them manually. "They would only stay on for a few minutes and then fail," she said, leaving the center without power for roughly three hours. She said the problem appeared to be mechanical and not the result of any tampering. Striking workers said the replacement workers were unfamiliar with the equipment. This week, two new backup generators were installed, Ms. Hayes said.

At the time of the power failure, three workers were in the biological containment areas and they were told they could not leave until the power was restored. Ms. Hayes said the workers were not at any risk to their own health.

The Plum Island center employs about 200 people, many of whom are federal government workers, including the scientists and researchers. The 76 union members who went on strike Aug. 13 are members of the International Union of Operating Engineers and are employed by L B & B Associates, a government subcontractor.

Ed Brandon, the chief operating officer of L B & B, said he had no comment on the incident. The strikers include operators of the power plant and the wastewater treatment plant. Since the strike began, union members, workers on the island and government officials have expressed concern about whether the center can operate safely.

The F.B.I. was called to the island in August to investigate reports of sabotage after water pressure fell too low. As a result of that investigation, Mark J. DePonte, a striking worker, pleaded guilty to tampering with government property. In October, a 600-gallon container of liquid nitrogen fell from the rear of a ferry at the center. In November, it was discovered that a replacement worker had an arrest record.

The latest incident was made public when a replacement worker notified members of Senator Clinton's staff of the power failure. In an interview, the worker, who insisted on anonymity, said, "The reason I am coming forward is because what I have seen at the center is really out of hand and something needs to be done about it." Requests by The New York Times to visit the island have been rejected.

The power failure is the first time the possibility of a leak of the pathogens studied on the island has been raised.

Workers currently on the island, who insisted on anonymity, strikers familiar with the operation, government officials and outside scientists said the power failure could have compromised the safety of the center in several ways.

People leaving the labs have to go through an elaborate cleaning process: stripping, passing back through the air lock, scrubbing their nails, spitting and blowing their noses to clear their respiratory systems, showering and shampooing their hair. All the rooms are separated by doors that are sealed with what look like bicycle inner tubes filled with air. The pressure in the seals is maintained by an air compressor, and if the power fails, those seals begin to deflate after 15 minutes. Government officials confirmed that this happened.

Ms. Hayes said workers at the center sealed the doors with duct tape.

In addition, the air pressure in the entire building is kept lower than the pressure outside; if there is a leak, air would enter, not escape. Under normal operation, air in the building is filtered before being vented. With the power out, the filtering would have stopped, but experts thought that the overall pressure of the facility would probably have stayed low enough to have limited the risk of a leak ([New York Times, 2002](#)).

**Title:** Labs Unprepared For Chemical Attacks

**Date:** February 7, 2003

**Source:** [UCLA](#)

**Abstract:** The nation's public health laboratories are woefully unprepared to handle chemical weapons agents such as sarin or mustard gas that could be used in a terrorist attack, according to a 50-state survey released yesterday.

On a scale of 1 to 10, 37 state labs rated their chemical response capability at or below a 4, while nine others gave themselves scores of 5 or 6, according to the Association of Public Health Laboratories, which conducted the survey last month. Only eight labs have chemical response plans. There are no national protocols for testing or shipping suspicious chemicals.

"We have almost nothing in place if an event occurred tomorrow," said Scott Becker, executive director of the association.

Since the anthrax attacks of 2001, public health labs have raced to upgrade their bioterrorism units, purchasing equipment, hiring specialists and tightening security. But few have the expertise or technology needed to identify some of the 150 most hazardous chemical agents.

"The big fear in the lab community is the unknown sample somebody cooked up that may contain multiple agents," said Jim Pearson, director of Virginia's division of consolidated laboratory services. "You could have a powder that somebody says is anthrax, and here it's some chemical agent that blisters. It affects your staff and puts you out of business."

Lab directors and terrorism experts across the country say they dread scenarios such as the release of a mysterious gas in a subway or basketball arena. Soon people would begin coughing, fainting or reporting other symptoms.

"In our state, within the first 30 minutes, the mayor of Salt Lake City or the governor of Utah would be asking: What is it?" said Charles Brokopp, the Utah state lab director.

But even after elaborate preparations for last year's Olympics, Brokopp said he still would have to send chemical samples to a federal lab and wait 18 to 24 hours for results. "Timing is very important, because that information can be vital to the physicians and emergency departments involved in treating these individuals," he said.

However, Randall Larsen, a retired Air Force colonel and director of the ANSER Institute for Homeland Security, said release of the deadliest chemical agents would not require lab confirmation because people would die rapidly.

He cautioned against spending precious homeland security dollars on preparing state labs for situations they may never encounter.

The government has focused on biological threats in large measure because deadly germs such as anthrax are obtainable by terrorists and small quantities are easily concealed.

Armed with millions in federal aid, state labs have rapidly improved their capability to detect biological agents, said Steve Hinrichs, director of the Nebraska Public Health Lab. But asking a microbiologist to conduct chemical analysis is akin to hiring a car mechanic to fix an airplane, he said.

"One of our concerns is a terrorist would be smart enough to do a dual attack," he said. "They'd use a chemical agent on top of a biological agent."

Five states, including Virginia, have received money from the Centers for Disease Control and Prevention to test clinical samples such as blood and urine for dangerous chemicals in the event of an attack. This year, CDC hopes to add 10 more labs to that effort, said Dayton Miller, associate director of the lab division at CDC's National Center for Environmental Health.

"We're all very much aware of the need to expand chemical lab capacity," he said. "We're working very hard to do our part to make that happen." But the CDC program focuses only on human specimens, while state labs encounter much more.

A portion of the Minneapolis-St. Paul airport was closed for several hours recently until the state lab officials could determine that a strange coating of grease on an abandoned suitcase was curry butter and not something hazardous, said lab director Norman Crouch.

"That gives you an idea of what state laboratories are expected to do," he said. "When something happens, we are called in" ([UCLA, 2003](#)).

**Title:** Loose Monkey Teaches Biodefense Lab A Lesson On The Hazards Of Secrecy

**Date:** February 26, 2003

**Source:** [Sunshine Project](#)

**Abstract:** Biodefense accidents can spread of some of the world's most infectious and lethal diseases. As part of the \$6 billion-plus expansion of the US biodefense program, more than three dozen new and upgraded "hot zones" have been proposed across the country. Arms control experts and health and safety watchdog groups are deeply concerned that secrecy at these labs will undermine US compliance with the Biological Weapons Convention, result in accident cover-ups, and obscure risks to surrounding communities. Because of these concerns, in early February, a group of non-profit watchdogs began sending a series of open letters to proposed biodefense labs asking them to commit, in writing, to policies that prohibit all classified research and which ensure transparency of their operations.

A contender to receive federal biodefense funding is the University of California at Davis (UCD), which wishes to build a biosafety level 4 laboratory (BSL4), the most secure type of facility, capable of handling dangerous agents such as Ebola virus. In recent weeks, UCD's proposal has come under intense fire from community activists. UCD only consulted its neighbors in the final days before submitting its BSL4 proposal, when it sought a letter of support from the Davis City Council. Some BSL4 labs, including that proposed by UCD, deliberately infect animals with disease.

Davis citizens were understandably angered when the story broke on Monday that a monkey had escaped from UCD's primate breeding facility, which rears animals for biodefense experiments. University officials had been hiding the story for ten days. It took a whistleblower's leak to the local newspaper before UCD decided to advise the community of the security breach. UCD says the rhesus monkey - which remains at large - is disease-free; but citizens are asking the obvious questions: Why did UCD keep the escape secret? According to Joshua English, a community activist in Davis, *"When we found out that UCD officials suppressed information regarding the escaped monkey, the first thing that I think came to everyone's mind was 'how open will they be when that escaped monkey is infected with ebola?'"*

**Not Monkey Business:** The rogue two kilogram primate has done far more than thwart her captors. The lost monkey would have been an embarrassment under any circumstances; but UCD's suppression of the news provoked anger that may have delivered a deathblow to UCD's BSL4 ambition, tipping the balance on the Davis City Council against the University. Davis Mayor Susie Boyd says she personally supports UCD; but because of community opposition, has joined opponents on the City Council and disinvited UCD's project from the city. Boyd wrote UCD that she and the City Council *"have concluded the facility will remain an unwelcome project by our residents."* Adding to UCD's woes was a vote, last Friday, in which UCD workers allied in the Professional and Technical Employees Union decided against the BSL4 proposal. The Union represents laboratory workers and animal handlers.

**Secrets Elsewhere:** UCD's lack of transparency has put its application for federal biodefense dollars in deep jeopardy. While other laboratories have avoided UCD's catastrophic meltdown, some are committing the same errors that have led to UCD's woes. The New York State Department of Health's Wadsworth Center and Rensselaer Polytechnic Institute, for example, believe that even the fact that they are seeking a new biodefense lab should remain a secret.

At the University of Texas Medical Branch (UTMB) in Galveston, officials are quietly retreating from a pledge made in 2001 that their BSL4 facility will not conduct classified work and will be *"wide open and above board"*. That standard, which UTMB used in public meetings and on its website, has been downgraded to apply only to its *"current plans"*. Future work, outside researchers granted access to its labs, and new laboratory spaces are under no such transparency commitment.

There is also biosafety accident history that has not been presented to the public. One of UTMB's lead researchers formerly directed a Yale University lab where faulty equipment and inadequate safety measures resulted in a researcher being infected with Brazilian Hemorrhagic Fever (sabia virus). The

infected scientist did not report the accident, in which a liquid containing a high concentration of sabia was aerosolized. The severity of the accident and the infection were not detected by lab management for several days, during which the virus was released outside the containment zone. Sabia is usually spread by rodents and is not believed to be human-to-human transmissible, however, some closely-related arenaviruses (a UTMB specialty) can be spread from person to person. The infected scientist was successfully treated after showing symptoms. The lab director left Yale shortly after the incident.

*"UTMB is propping up a transparency façade through carefully crafted statements that don't mean what they sound like. A careful look at UTMB's words betrays a sad slide toward secrecy," says Edward Hammond, Director of the Sunshine Project, a biological weapons watchdog in Austin, TX, "Most of all, I am concerned about how the behavior of UCD and UTMB will impact biological weapons control. The international system to prevent these weapons relies on transparency, on the ability of an informed public to judge the nature and intent of biodefense experiments. This security seems to be an afterthought for these institutions. They are instead preoccupied with public image and scientific rivalries, threatening control of biological weapons with their petty arrogance."*

The US Department of Energy's proposals to construct and operate biowarfare agent facilities inside its nuclear weapons labs poses an additional, very serious threat to US compliance with the Biological Weapons Convention (BWC). Inside the DOE bio-facilities classified research on bio-agents would be conducted inside classified nuclear weapons development centers - the antithesis of the openness on which the watchdogs insist.

**The "No Secrets" Pledge** Non-profit biodefense watchdogs are calling on biodefense labs to make a "no secrets" pledge that includes specific transparency elements. So far, they have contacted three proposed BSL4 biodefense laboratories - UCD, UTMB, and (today) Rocky Mountain Labs in Hamilton, MT. Elements of the pledge, to be made in writing, include a commitment to not conduct classified research (or permit it in their facilities) and to operate completely transparent biosafety committees, the groups that review proposed projects. So far, none have responded. In the coming weeks, the watchdogs will contact more of the three dozen institutions across the US who are seeking new or substantially upgraded hot zone facilities. These include Boston University and the University of Illinois at Chicago, which both are seeking BSL4 facilities. Copies of the letters sent to labs are available at: <http://www.sunshine-project.org/biodefense/openletters.html> (Sunshine Project, 2003).

**Title:** Terrorism And The Biology Lab

**Date:** July 2, 2003

**Source:** [New York Times](#)

**Abstract:** Were those two suspicious tractor-trailers found in Iraq really mobile weapons laboratories? The difficulty we are having answering that question shows just how tricky defending America against bioterrorism is going to be.

In truth, it is possible to imagine a malicious use for virtually any biological research or production site. The difference between a lab for producing lifesaving vaccines and one capable of making deadly toxins is largely one of intent.

As molecular biology continues to advance, this problem will become only more acute. Within a few years it may be possible for an inexperienced graduate student with a few thousand dollars worth of equipment to download the gene structure of smallpox, insert sequences known to increase infectiousness or lethality, and produce enough material to threaten millions of people. Yet, perversely, all of the information and equipment needed to create such a "supervirus" would have been developed in the struggle to cure disease.

The United States is poorly prepared to deal with this intersection of biology and security. One reason is that most of the scientists in positions to help make national security rules are physicists and engineers,



not biologists. Their instincts lead them to solutions that may make sense for nuclear physics but not necessarily for biology. For example, in trying to prevent terrorists and rogue states from developing atomic weapons, it is logical to focus on the details of weapon design and monitor shipments of a short list of specific materials like enriched uranium and plutonium. But putting this sort of emphasis on materials and labs will not suffice on the bioterrorism front, where everyday equipment could be used to create horrors.

In addition, there are few American biologists with experience in security policy, and most biologists remain willfully oblivious about the extent of the biological terrorism threat. Historically, biologists have had an instinctive antipathy toward national security policy, and their role in Washington has been largely limited to raising money for research and fending off restrictions on research involving issues like stem cells and cloning.

Physicists have had a vastly different experience. Since World War II and the Manhattan Project, they have worked in an environment where they often move among universities, national weapons laboratories and Washington policy offices during their careers. Most have grown accustomed to dealing with the burdens of security clearances, protecting sensitive information and even having research results kept secret.

Moreover, physicists have dominated science policy. Since the 1950's, physical scientists and engineers have had a nearly unbroken hold on the directorship of the White House office of science and technology. Physicists know how to exert influence on the Defense Department and the intelligence agencies, and have come to dominate bodies like the Defense Science Board.

Biologists, whether they like it or not, are now beyond the age of innocence. Unless they get involved at high levels of policy-making, there's a grave risk that another bioweapons scare like the [anthrax mailings of 2001](#) will drive Washington to create that inevitable product of bureaucratic panic: a lose-lose solution. In this case, it would most likely be a set of regulations that would strangle biology research while doing little to thwart real security threats.

A comprehensive national bioterrorism strategy will of course take years to develop. But some essential first steps can be taken now. For starters, biologists and their professional organizations should make sure that all researchers spend time seriously considering security risks that could be created by their work. Biologists should work with federal agencies to provide more basic biology training for officials who manage security issues. Universities should set up programs to understand the dangers at the intersection of biology and security, and begin training a new generation of experts in the field. Universities and commercial labs must also work with federal agencies to agree on procedures for dealing with potentially dangerous research in the United States — work that could be a basis for an international effort.

Unless biologists start moving in the right direction on security, they will have only themselves to blame if Washington starts moving in the wrong one ([New York Times, 2003](#)).

**Title:** Bethesda Residents Fear New NIH Lab Would Be Terror Target

**Date:** July 2, 2003

**Source:** [UCLA](#)

**Abstract:** A plan by the National Institutes of Health to build a \$186 million bio-defense laboratory near a busy Bethesda intersection is provoking concern among some neighbors who worry that terrorists could attack the facility and release deadly microorganisms in the area.

Scientists want to use the labs near the corner of Rockville Pike and West Cedar Lane to study pathogens that cause anthrax, severe acute respiratory syndrome (SARS), West Nile encephalitis, drug-resistant tuberculosis and other potentially lethal diseases that can be contracted through inhalation.



Local officials are powerless to block the project because NIH is an arm of the federal government and not subject to local zoning controls. Under an agreement with NIH, however, local planners are entitled to review the proposal and recommend changes before construction begins in November. Last night, the Maryland-National Capital Park and Planning Commission held an informal public forum, and some neighbors said they fear the project poses a needless risk because terrorists might be tempted to assault the building with a truck bomb, small arms fire or rocket-propelled grenades. They also wondered about the effect of infected animals getting loose.

"The site is just too inviting," said Tom Robertson, of the Parkwood Residents Association, adding that anthrax contamination could result from an attack. "Terrorists might try to put NIH out of business."

Commission planners are raising questions about whether the facility is necessary when similar labs exist around the region -- including high-security labs that NIH is building at Fort Detrick in Frederick County.

"We are looking at the wisdom of locating it in this highly populated area near a Metro station inside the [Capital] Beltway," Marilyn Clemens, a commission planner reviewing the project, said in an interview. "We question this location when the exact same kind of research is going on in Frederick."

Jack Costello, who represents the nearby Bethesda Parkview Citizens Association, said NIH leaders are overconfident about safety.

"They don't seem to understand that the world has changed," he said in an interview. "What might have been an acceptable condition before 9/11 becomes now rather tenuous when it's not the employees of NIH who represent the major threat -- but the people outside. Why would you even consider putting such a threat in a highly populated area right on a major artery when there are other options?"

NIH leaders say they have the funding in hand and that the facilities are essential to expanding the government's capacity to protect the public against bio-terrorism.

NIH plans to construct Building 33, a 160,000-square-foot structure, in the northeast corner of the sprawling campus, about 400 feet from Rockville Pike. The building would house 25 lead scientists and 240 workers in labs rated at bio-safety level 3 (BSL-3) -- a category requiring trained workers wearing personal protective gear to use special physical containment devices to handle pathogens.

BSL-3 labs are equipped with double-door access, negative pressure ventilation systems to keep organisms inside, and special seals on walls, windows and doors.

The project will include an adjacent, six-story parking garage for 1,250 cars to replace the surface parking lost to Building 33.

Some neighbors are concerned that NIH's open door to thousands of foreign scientists is an invitation to trouble. The campus receives thousands of international scientists and visitors every year.

Other BSL-3 and BSL-4 labs have existed on the NIH campus for years without problems, said Tom Kindt, director of the intramural research division at the National Institute of Allergy and Infectious Diseases. BSL-4 labs are those that handle pathogens for which there are no known treatments, such as Ebola, and they have the highest level of precautions.

Security has been tightened considerably since the Sept. 11, 2001, terrorist attacks and, if necessary, he said, Building 33 will use entry systems that rely on a retina scan or a thumbprint. The campus soon will be ringed with a wrought-iron fence, he said.

Kindt, who did not attend the meeting last night, suggested that neighbors are motivated in part by concern that property values will be affected by their proximity to a bio-defense facility.

"They worry that the perception will be that others will say they don't want to buy there," he said, adding that bio-terrorism concerns and emerging infections mean that the campus probably will always be studying the pathogens that are least understood and pose the greatest risks.

"I'd like to say this isn't a trend, but my instinct tells me that emerging diseases are a fact of life," Kindt said. "We're going to have to learn to deal with them. The best defense is good diagnostics, drugs and vaccines" ([UCLA, 2003](#)).

**Title:** High-Containment Biosafety Laboratory Safety Breaches A Growing Concern

**Date:** October 4, 2007

**Source:** [Suburban Emergency Management Project](#)

**Abstract:** U.S. Government Accountability Office (GAO) chief technologist Keith Rhodes (Center for Technology and Engineering, Applied Research and Methods, GAO), in his written testimony before the U.S. House of Representatives Subcommittee on Oversight and Investigations, Committee on Energy and Commerce (chair, Democrat John D. Dingell, Michigan, longest-serving member of the House, since 1955), noted that high-containment biosafety laboratories, specifically biosafety levels 3 and 4 (BSL-3 and BSL-4), have been "proliferating" since the September 11, 2001 terrorist attacks. (1)

BSL-3 and especially BSL-4 often contain the most hazardous biological agents, i.e., "any microorganism (including, but not limited to, bacteria, viruses, fungi, rickettsiae, or protozoa) or infectious substance or any naturally occurring, bioengineered, or synthesized component of any such microorganism or infection substance, capable of causing death, disease, or other biological malfunction in a human, an animal, a plant, or another living organism; deterioration of food, water, equipment, supplies, or material of any kind; or deleterious alteration of the environment." (2) Examples of biological agents handled in BSL-4 laboratories are the small pox virus (*Variola major*) and the plague virus (*Yersinia pestis*). Most hospital laboratories are BSL-2 laboratories.

The rationale for the House Committee tasking the GAO with the biosafety laboratory investigation was its "increasing concerns...raised about the safety, as well as operations" of high-containment laboratories. House committee members requested answers to three questions (3):

1. To what extent, and in what areas, has there been an expansion in the number of high-containment labs in the U.S?
2. Which federal agency is responsible for tracking the expansion of high-containment labs and determining the associated aggregate risks?
3. What lessons can be learned from recent incidents at high-containment laboratories?

Rhodes identified two U.S. examples of biosafety laboratory safety/operations issues at the Texas A&M University (TAMU) and Centers for Disease Control and Prevention (CDC) biosafety laboratories.

#### **Example One: TAMU, College Station, Texas, BSL-3 Laboratory Safety Issues**

TAMU, Texas' first public institution of higher learning (opened Oct. 4, 1876) and one of a select few academic institutions in the nation to hold triple federal designation as a Land-Grant, Sea-Grant and Space-Grant university, initially received funding from the Department of Homeland Security in 2004 during the ramp up of *agro-security* programs beyond the Plum Island Animal Disease Center at Orient Point, New York. (4) TAMU's has several BSL-3 laboratories whose staff work extensively on animal diseases, including those caused by "select agents" *Brucella melitensis*, *Brucella abortus*, *Brucella suis*, and *Coxiella burnetii*. (5)

Select agents are a category of hazardous biological agents regulated by the Select Agent Program, whose origins date to the 1990s. (6) The CDC writes: “The CDC regulates the possession, use, and transfer of select agents and toxins that have the potential to pose a severe threat to public health and safety. The CDC Select Agent Program oversees these activities and registers all laboratories and other entities in the United States of America that possess, use, or transfer a select agent or toxin.” (7) A list of regulated select agents is available elsewhere (7)

Because TAMU worked with select agents, it needed to comply with guidelines published by the Select Agent Program. TAMU belatedly reported a case of human brucellosis that resulted from an accidental exposure when a BSL-3-authorized lab worker, accustomed only to *Mycobacterium tuberculosis* safety procedures, helped with the operating of the aerosolization chamber in a lab dealing with *Brucella* (i.e., she was not trained or authorized to be in that lab). (8) The afflicted laboratory worker was correctly diagnosed with brucellosis on April 16, 2006 via the Texas State Public Health Lab. (10) The incident was brought to light through public records requests by Edward Hammond of the Sunshine Project, a watchdog group in Austin Texas. (9) The CDC issued an order to TAMU on April 20, 2007 to “cease and desist all work with select agents and toxins,” as described elsewhere. (10) “In an August 2007 investigation, CDC inspectors found a dozen serious violations, including unapproved experiments, lost samples, improper safety training, and lab workers without select-agent authorization, as described elsewhere. (11)

### **Example Two: CDC Clifton Road, Atlanta, BSL-4 Safety Issues**

On June 15, 2007, lightning struck in and around the CDC’s new \$214 million infectious disease building on Clifton Road, Atlanta, including the suite of six BSL-4 laboratories, causing a power surge that knocked out power. Remote backup generators never came on. The outage shut down negative air pressure systems, which keep select agents from escaping the containment areas. (12,13) The BSL-4 labs were uninhabited at the time of the lightning strike/power outage even though construction of the building, which had begun in 2001, had been completed in September 2005. (13) Thus, the public and CDC workers were not placed at any risk as a result of the power outage.

Apparently, construction officials warned CDC since 2001 that its backup power system would not keep crucial lab systems from failing in an outage, according to internal documents obtained by *The Atlanta Journal-Constitution*. (14) CDC determined that the cause of the failure of its power system servicing the BSL-4 laboratory suite was that “some time earlier, a critical grounding cable buried in the ground outside the building had been cut by construction workers digging at an adjacent site. The cutting of the grounding cable, which had gone unnoticed by CDC facility managers, compromised the electrical system of the facility that housed the BSL-4 lab.” (15) The irony of the situation is that it happened to CDC just as CDC was censuring TAMU for its BSL-3 safety violations.

### **U.S. Expansion of BSL-3 & BSL-4 Laboratories Since 2001**

GAO Keith Rhodes and his colleagues determined that the number of known BSL-4 laboratories in the U.S. has grown from 2 (before 1990) to 3 (1990-2000) to 10 (2001-present), which sum up to **15** known BSL-4 laboratories in U.S., as of 2007. (16) Multiple sectors own and operate these BSL-4 laboratories, i.e., federal government (9 labs), academic (4), state (1), and private (1). The two BSL-4 laboratories that existed in the U.S. in 1990 were the federal labs at the U.S. Army’s Research Institute for Infectious Diseases (USAMRIID) in Fort Detrick, Maryland, and at the CDC in Atlanta, Georgia. Between 1990 and 2000, three new BSL-4 laboratories were constructed at Georgia State University in Atlanta (first university BSL-4 lab), the National Institutes of Health campus in Bethesda, Maryland, and a privately-funded lab in San Antonio, Texas.

Many more BSL-3 laboratories than BSL-4 laboratories are believed to exist, according to the research performed by Rhodes, et al. The only definitive data available on BSL-3 laboratories, such as the one at TAMU, exists in a federal database (more below) of laboratories handling select agents. This set of labs must register with the **CDC-USDA Select Agent Program**, as noted above. The number of BSL-3

laboratories currently registered with the Select Agent Program is 1356. Of the 1356, 1042 are registered with CDC and 314 are registered with USDA (United States Department of Agriculture). (17) Two thirds of the registered BSL-3 laboratories are outside of the federal sector.

According to a survey conducted by the Association of Public Health Laboratories (APHL) in August 2004, since 2001 state public health labs have used public health preparedness funding to build, expand, and enhance BSL-3 labs. In 1998, for example, APHL found that 12 of 38 responding states reported having a state public health laboratory at the BSL-3 level. Today, at least 46 states have at least one state public health BSL-3 lab. (17,18)

### **Federal Agency Responsibility for Tracking BSL-3/BSL-4 Expansion/Risks**

“No single federal agency has the mission to track and determine the risk associated with the expansion of BSL-3 and BSL-4 laboratories in the United States, and no single federal agency knows how many such laboratories there are in the United States. Consequently, no one is responsible for determining the aggregate risks associated with the expansion of these high-containment labs,” notes GAO’s Rhodes. (19)

### **Lessons Learned about Study of Expansion of BSL-3/BSL-4 Laboratories in the U.S.**

Rhodes’ group from GAO learned six lessons from their investigation of the expansion of high-containment laboratories in the U.S., as described elsewhere. (20) Four of the lessons are that barriers to reporting errors exist, clearer definition of what constitutes an “exposure” to a biologic agent is needed, laboratory workers need more safety training, and physical infrastructure of high-containment labs needs maintenance after being built.

**Conclusion** The U.S. Congress awarded funding to organizations in many sectors to build high-containment laboratories following the terrorist attack on September 11, 2001 and the anthrax bioterrorism in October 2001. The goal was laudable: to expand the nation’s preparedness and response capabilities in the face of outbreaks of infectious disease. Insufficient thought, however, appears to have been invested in emplacing mechanisms for measuring and improving the ongoing quality and safety of the new high-containment laboratories ([Suburban Emergency Management Project, 2007](#)).

**Title:** Bio Lab In Galveston Raises Concerns

**Date:** October 28, 2008

**Source:** [New York Times](#)

**Abstract:** Much of the [University of Texas](#) medical school on this island suffered flood damage during [Hurricane Ike](#), except for one gleaming new building, a national biological defense laboratory that will soon house some of the most deadly diseases in the world.

How a laboratory where scientists plan to study viruses like Ebola and Marburg ended up on a barrier island where [hurricanes](#) regularly wreak havoc puzzles some environmentalists and community leaders.

“It’s crazy, in my mind,” said Jim Blackburn, an environmental lawyer in Houston. “I just find an amazing willingness among the people on the Texas coast to accept risks that a lot of people in the country would not accept.”

Officials at the laboratory and at the [National Institutes of Health](#), which along with the university is helping to pay for the \$174 million building, say it can withstand any storm the Atlantic hurls at it.

Built atop concrete pylons driven 120 feet into the ground, the seven-floor laboratory was designed to stand up to 140-mile-an-hour winds. Its backup generators and high-security laboratories are 30 feet above sea level.

"The entire island can wash away and this is still going to be here," Dr. James W. LeDuc, the deputy director of the laboratory, said. "With Hurricane Ike, we had no damage. The only evidence the hurricane occurred was water that was blown under one of the doors and a puddle in the lobby."

The project enjoyed the strong support of three influential Texas Republicans: President Bush, a former Texas governor; Senator [Kay Bailey Hutchison](#); and the former House majority leader, [Tom DeLay](#), whose district includes part of Galveston County. Officials at the National Institutes of Health, however, say the decision to put the lab here was based purely on the merits. It is to open Nov. 11.

Dr. LeDuc acknowledged that hurricanes would disrupt research. Each time a hurricane approaches the island, scientists will have to stop their experiments and exterminate many of the viruses and bacteria they are studying.

And Hurricane Ike did not provide the worst-case test the laboratory will someday face, some critics say. Ike's 100-m.p.h. winds were on the low side for a hurricane, yet it still flooded most of the island's buildings. The university's teaching hospital, on the same campus as the lab, has been shut down for more than a month.

"The University of Texas should consider locating its biohazards lab away from Galveston Island and out of harm's way," Ken Kramer, director of the Lone Star Chapter of the [Sierra Club](#), said. "As destructive as it was, Hurricane Ike was only a Category 2 storm. A more powerful storm would pose an even greater threat of a biohazards release."

The laboratory is one of two the Bush administration pushed after the Sept. 11, 2001, terrorist attacks. The second is being built at [Boston University Medical Center](#), where it met stiff community resistance.

Not so in Texas, where there was hardly a whimper of protest. For starters, the University of Texas Medical Branch is one of the largest employers on the island of 57,000 people.

In addition, the leaders of the medical school skillfully sold community leaders and politicians on the high-tech safety measures at the lab and on the economic boon to Galveston, an impoverished town in need of the 300 jobs the laboratory would bring.

University leaders met twice a month with community leaders for several years to dispel fears of pathogens escaping. Then they created a permanent advisory committee of residents that included some of their critics.

The campaign to win over residents was effective. In 2004, the university built a small laboratory and won federal approval to study extremely lethal pathogens there. The smaller laboratory — named for Dr. Robert E. Shope, a virus expert — helped persuade federal officials it was feasible to erect the national laboratory next to it.

Nonetheless, some community members remain skeptical about the safety measures.

"It is not a geographically good location, and the safety measures are only as good as the people who work there," said Jackie Cole, a former City Council member who now serves on a citizen's advisory board for the laboratory.

Other environmentalists who might have fought the project were bogged down in a battle against a liquid natural gas plant that was to be built in Texas City, a refinery town across a narrow channel from the island.

"It kind of went under the radar," said Bob Stokes, who heads the Galveston Bay Foundation, a group dedicated to cleaning up water pollution.

Dr. LeDuc and other scientists at the laboratory say it is almost impossible for diseases to escape. The air pressure in the laboratories is kept lower than in surrounding hallways. Even if the double doors into the laboratories are opened accidentally, air rushes in, carrying pathogens up and away through vents to special filters, which are periodically sterilized with formaldehyde and then incinerated.

All the laboratory tables have hoods that suck contaminated air through the vents to the filters, as do the rooms themselves. Liquid waste, feces and urine go to tanks on the first floor, where it is heated to a temperature at which nothing can survive before being put into the sewage system.

Other waste — carcasses of laboratory animals and disposable lab equipment — is sterilized in autoclaves, giant steam-pressure cookers, before being incinerated off site, Dr. LeDuc said.

When hurricanes threaten the island, researchers will shut down their experiments at least 24 hours before landfall, decontaminate the labs and then move the stocks of deadly pathogens into freezers on upper floors, where they are kept at 70 below zero, Dr. Joan Nichols, an associate director of research, said.

Even if the emergency power system were to fail, the freezers can keep the samples of killer diseases dormant for about four days, she said.

The precautions are necessary. The laboratory will do research into some of the nastiest diseases on the planet, among them Ebola, anthrax, tularemia, West Nile virus, drug-resistant tuberculosis, bubonic plague, avian influenza and typhus.

In the top-level secure laboratories, where deadly filoviruses like Ebola are studied, the scientists work in pressurized spacesuits inside rooms with airtight steel doors. Before leaving the secured area, they take a chemical shower for eight minutes in their suits, then a conventional shower, Dr. LeDuc said.

The university's bid for the laboratory benefited from friends in Washington. Mr. DeLay, who resigned from Congress in 2006, pushed hard to bring the project to his district, as did Mrs. Hutchison, who sits on the Appropriations Committee.

On a visit to Galveston with Mr. Delay in 2005, Mr. Bush said: "This hospital is going to be the Texas center for bioshield research, to help us make sure that our country is well prepared as we engage in the war on terror. No better place, by the way, to do substantial research than right here at the University of Texas."

Galveston's medical school has long had a top-notch faculty in infectious diseases; the school's proposal beat out bids from the University of California, Davis, the [University of Illinois](#) at Chicago and the Wadsworth Center in Albany, among others.

Dr. Rona Hirschberg, a senior program officer at the National Institute of Allergies and Infectious Diseases, an agency of the National Institutes of Health, said politics played no role in the decision to build the lab here. The threat of hurricanes was outweighed, she said, by the presence of some of the best virologists in the country, she said.

"You could put it out in the middle of nowhere and it would be a safe, secure facility," Dr. Hirschberg, a molecular biologist, said. "But the research wouldn't get done" ([New York Times, 2008](#)).

**Title:** Army Suspends Germ Research At Maryland Lab

**Date:** February 9, 2009

**Source:** [New York Times](#)

**Abstract:** Army officials have suspended most research involving dangerous germs at the biodefense laboratory at Fort Detrick, Md., which the [F.B.I.](#) has linked to the anthrax attacks of 2001, after discovering that some pathogens stored there were not listed in a laboratory database.

The suspension, which began Friday and could last three months, is intended to allow a complete inventory of hazardous bacteria, viruses and toxins stored in refrigerators, freezers and cabinets in the facility, the Army Medical Research Institute of Infectious Diseases.

The inventory was ordered by the institute's commander, Col. John P. Skvorak, after officials found that the database of specimens was incomplete. In a memorandum to employees last week, Colonel Skvorak said there was a high probability that some germs and toxins in storage were not in the database.

Rules for keeping track of pathogens were tightened after the 2001 anthrax letters, which killed five people. But pressure to improve recordkeeping and security at the Army institute intensified six months ago after the suicide of [Bruce E. Ivins](#), a veteran anthrax researcher, and the Federal Bureau of Investigation's announcement that prosecutors had been preparing to charge Dr. Ivins with making the deadly anthrax powder in his laboratory there.

A spokesman for the institute, Caree Vander Linden, said an earlier review had located all the germ samples listed in the database. But she said some "historical samples" in institute freezers were not in the database, and the new inventory was intended to identify them so they could be recorded and preserved, or destroyed if they no longer had scientific value.

One scientist, who spoke on the condition of anonymity because he was not authorized to comment, said samples from completed projects were not always destroyed, and departing scientists sometimes left behind vials whose contents were unknown to colleagues. He said the Army's recordkeeping and security were imperfect but better than procedures at most universities, where research on biological pathogens has expanded rapidly since 2001.

The suspension will interrupt dozens of research projects at the institute, whose task is to develop vaccines, drugs and other measures to protect American troops from germ attacks and disease outbreaks. Ms. Vander Linden said some critical experiments involving animals — often used to test vaccines and drugs — would not be halted.

News of the suspension, first reported Monday by the Science magazine blog ScienceInsider, comes as the Justice Department has been interviewing scientists at the Army institute to prepare the government's legal defense against a lawsuit filed by the family of Robert Stevens, the Florida tabloid photography editor who was the first to die in the 2001 letter attacks.

That lawsuit, filed in 2003 and delayed by the government's unsuccessful efforts to have it dismissed, accuses officials of failing to assure that anthrax bacteria at Fort Detrick and other government laboratories were securely stored. Dr. Ivins was not suspected in the attacks at that time, but the F.B.I.'s conclusion last year added new weight to the lawsuit's claims.

The F.B.I. has released evidence of Dr. Ivins's mental problems and of a genetic link between the mailed anthrax and a supply of the bacteria in his laboratory. But many of Dr. Ivins's former colleagues at the Army institute have said they are not convinced that he mailed the letters.



The F.B.I. has asked the [National Academy of Sciences](#) to convene a panel of experts to review its scientific work on the case, and the bureau and academy are completing a contract for the review, said an academy spokesman, William Kearney.

The anthrax case has underscored the threat of biological attack by biodefense insiders like Dr. Ivins, who have access to pathogens and the expertise to work with them.

The number of such researchers has grown rapidly since 2001, when the anthrax letters set off a spending boom on biodefense that led to a rapid addition of laboratories working on potential bioweapons, notably anthrax.

Before 2001, only a few dozen such facilities worked with anthrax. Today, the [Centers for Disease Control and Prevention](#) has registered 219 laboratories to do so, said an agency spokesman, Von Roebuck. He said 10,474 people had been cleared to work with dangerous pathogens and toxins nationwide after background checks by the Justice Department ([New York Times, 2009](#)).

**Title:** Bio Terror Threat From Germ Labs Worries U.S.

**Date:** November 8, 2010

**Source:** [All Africa](#)

**Abstract:** Concerned about the threat of biological terrorism, a powerful US senator will lead a team of high-level Pentagon officials on an inspection tour of Kenyan germ laboratories next week.

Richard Lugar, the top Republican on the Senate Foreign Relations Committee, will be accompanied by the director of the US Defence Department's Threat Reduction Agency as well as by the heads of units focused on biological defence and global strategy.

The labs to be inspected are designed for the study of infectious diseases. Work to develop treatments and to help prevent outbreaks also takes place at these facilities. But Pentagon officials warn that the Kenyan labs have not been sufficiently secured against terrorism threats.

"Deadly diseases like Ebola, Marburg and anthrax are prevalent in Africa," Senator Lugar said in a statement announcing a trip that will take him to Uganda and Burundi as well as to Kenya.

"Al-Qa'ida and other terrorist groups are active in Africa, and it is imperative that deadly pathogens stored in labs there are secure.

"These pathogens can be made into horrible weapons aimed at our troops, our friends and allies, and even the American public," the senator added. "This is a threat we cannot ignore."

Mr Lugar said he has been told by Pentagon chief Robert Gates that the inspection tour will help ensure that the governments of Kenya and Uganda work closely with the United States to secure the labs. The US delegation is scheduled to arrive in Kenya on November 16. A list of the sites the Americans will visit has not been released ([All Africa, 2010](#)).

**Title:** Can Biosecurity Go Global?

**Date:** April 27, 2011

**Source:** [Miller-McCune](#)

**Abstract:** Outside the U.S., biological labs follow few if any security regulations. A Sandia National Laboratory team works to help those labs prevent deadly microbe releases, accidental and deliberate.

A tall, modest academic with graying temples, [Ren Salerno](#) was happily toiling away in obscurity at a small biological threat research program at [Sandia National Laboratory](#) in Albuquerque, N.M., “studying issues nobody really cared about,” he recalls. Then the attacks on Sept. 11 burst his academic bubble. As one of the few experts on the security of biological agents, Salerno was called to Washington, where, as soon as he arrived, he met with Deputy Secretary of Agriculture [James Moseley](#), a man with a lot to worry about.

Some of the greatest bioterror threats are zoonotic pathogens — microbes that can be transmitted from other animals to humans and vice versa, including the plague, anthrax, Ebola and more. According to a 2001 study from researchers at the University of Edinburgh, 61 percent of the more than 1,400 pathogens that infect humans are zoonotic, and [U.S. Department of Agriculture](#) animal health laboratories are littered with them. The USDA, in fact, has more biocontainment labs in the U.S. than either the [Centers for Disease Control](#) or the [National Institutes of Health](#).

For days, Washington officials peppered Salerno with questions about national biosecurity infrastructure and the possibility of bio-terrorist attacks, especially with microbes stolen from U.S. facilities. Within a month, Salerno and his team at Sandia had contracts with the USDA to assess and design security solutions for biocontainment labs around the country. Contracts with CDC and the [Department of the Army](#) soon followed.

But the stakes were about to rise again. Only weeks after 9/11, letters containing a suspicious white powder were mailed to media companies and two U.S. senators. People started dying. Bioterrorism was no longer a possibility. It was happening.

Before 2001, life scientists were familiar with [biosafety](#) — that is, working safely — but biosecurity, or keeping laboratory agents from being misused, was not really part of the scientific conversation outside of the military. “The prospect of somebody choosing to misuse biological agents was quite new and fairly controversial,” Salerno says. “The idea of threats and bad guys doing bad things is anathema to most scientists.”

Following 9/11 and the ensuing anthrax attacks, the Congress worked with what is lightning speed for the government, passing the [Patriot Act](#) at the end of 2001, restricting who was allowed to work with biological agents, and the [Bioterrorism Act](#) in 2002, improving the government’s ability to prepare for and respond to bioterrorism events. The latter law included a registration program for facilities and people who handle toxins and biological agents — in the U.S.

But even now, anywhere around the world, someone can build a laboratory to work with the most dangerous pathogens and be subject to no construction standards, no operating standards and no safety or security standards, Salerno says. It’s a situation that several international organizations are trying to address, and Salerno has helped put together trial biosecurity training programs around the world. But so far, the trials have not been expanded or institutionalized.

“It’s just the beginning, I hope,” Salerno says. “We’re trying to change the paradigm.”

After the 2001 anthrax mailings and implementation of the federal legislation they spawned, working with bacterial agents in the U.S. became a “major investment in training and infrastructure,” says [Paul Keim](#), a biologist at Northern Arizona University and senior scientist of the lab that identified the anthrax strains used in the 2001 attacks. “A response to the security fears was to raise the biosafety levels, because we didn’t really know how to raise security, because we had no standards,” Keim says.

Researchers studying anthrax, for example, at biosafety level 2 — which required basic safety precautions like goggles and specialized cabinets with air filters — were suddenly required to fulfill the restrictions of a biosafety level 3 lab. This meant that expensive respiratory equipment, waste decontamination procedures and closed airflow systems were required, suddenly, in hundreds of labs

scattered across the country. “It changed so fast; it’s been very difficult to keep up with the regulations,” he says.

In addition, labs rushed to get security systems. Laboratory managers hired security companies out of the Yellow Pages; they installed locks on doors and windows, put cameras and lights in parking lots and sat security guards at front desks. Many scientists considered the efforts ridiculous and a huge waste of money. If someone broke in, how would the would-be thief know how to identify and transport a pathogen?

“The likelihood of a terrorist commando team attacking a facility with helicopters and grappling guns is extremely low,” Salerno says, laughing. The probability of a scientist going rogue is significantly higher, but scientists were even less happy to discuss that idea. So when Salerno and his team arrived at lab doorsteps to talk about internal security, they met resistance.

“This just wasn’t a topic that life scientists thought about,” recalls Jennifer Gaudioso, a staff member at the [International Biological Threat Reduction](#) program at Sandia. “You wouldn’t necessarily think about opening a door for someone with an armful of books beforehand, and now you have to stop and think, ‘Should this person be allowed in here?’”

After an initial evaluation to assess the biological materials in the labs and their basic vulnerabilities, Salerno and the Sandia team — usually three to five members — got down to less glamorous work. With help from human resources personnel, they set up systems to monitor and limit access to the lab, implemented tracking systems to follow the movement of pathogens from room to room and trained lab staffers to look for behavioral changes in colleagues. Overall, Salerno’s team visited dozens of labs around the country. The effort lasted until 2003.

Then, with the largest national labs secure, Salerno and the U.S. government turned to look beyond the country’s borders.

Over the last 20 years, as laboratory tools and technologies have become cheaper, biocontainment labs, once rare, have become numerous. Scientists in countries around the world study pathogens of varying levels of danger — and with varying degrees of security.

For most intents and purposes, international standards or accreditations for bioscience facilities don’t exist. There is a [World Health Organization manual](#) on laboratory biosafety that includes tips like, “Children should not be authorized or allowed to enter laboratory working areas,” and, “Labels must not be licked.”

“Today,” Salerno says, “that 100-page document is just woefully inadequate.”

International biosecurity standards are important not only for the prevention of deliberate biological attacks but for the reduction of biological accidents. In 2004, nine cases of severe acute respiratory syndrome, or [SARS](#), were linked to procedural lapses at China’s [National Institute of Virology](#). One infected individual died. In 2006, a lab worker at Texas A&M University became sick with [brucellosis](#), an infectious disease carried by cattle and dogs, after cleaning a chamber containing [Brucella](#) bacteria. All select-agent research at the school was suspended. In August 2007, some 60 cattle in Surrey, England, were infected with foot-and-mouth disease after the virus leaked from broken pipes running from a nearby infectious disease laboratory. The list goes on.

“An outbreak anywhere, deliberate or natural, is a threat everywhere,” says [Andrew Weber](#), the assistant secretary of defense for nuclear, chemical and biological defense programs. “It’s not something we can just deal with within our own borders.”

Beginning in 2006, professionals in the biological community, especially biocontainment laboratory managers in North America and Europe, began discussing the need for international standards. In February 2008, the [European Committee for Standardization](#) published the first international biorisk management standards, developed by 76 participants from 24 countries. This standard, though still voluntary, includes both bio-security information — guidelines that restrict access to agents and toxins, for instance — and practical biosafety measures, such as details of the process of inventorying and disposing of hazardous materials.

“It represented an evolution in thought,” says Salerno, who participated in the formation of the guidelines. “The previously distinct fields of biosafety and biosecurity came together.”

Shortly after the [International Biorisk Standards](#) were published, Salerno was contacted by [Nicoletta Previsani](#), head of biosafety and laboratory biosecurity at the World Health Organization in Geneva, about creating a hands-on risk management course to be taught to people involved in biological labs around the world. “Biosafety is not anymore an issue that only concerns the worker at the bench,” Previsani says. “Instead of just teaching biosafety, we thought we needed a different approach that addresses the management of big risks.”

Biologists are not typically mathematicians or modelers, nor are they taught to assess risk while getting a doctorate in microbiology or virology. “It becomes more of a management problem than simply a technical problem,” Salerno says.

Previsani corralled Salerno and Stefan Wagener, director for biosafety at the Canadian Science Centre for Human and Animal Health in Winnipeg, Canada, to serve as experts for the course and invited [Pamela Lupton-Bowers](#), a professional adult educator, to integrate teaching techniques. The four professionals locked themselves in a room for five days, and in January 2010, the WHO premiered the first-ever international biosecurity training program. The two-week course trains laboratory leaders in assessing and mitigating the risk of deadly agents in the laboratory. Perhaps more important, the course trains those leaders to train others.

Workshops were held in Jordan, Ecuador, Sweden, the Maldives, Kenya and Thailand, and participants have already begun teaching biosecurity workshops in their own countries: After attending the WHO course, Rafiq Saleh, head of the public health laboratory at the Ministry of Health in Amman, Jordan, went on to teach two biosecurity courses of his own, training more than 30 lab technicians in Jordan. “We really feel that it’s been useful to our country,” he says.

Still, Salerno says, the program is limited by numbers. Overall, it has trained just 60 participants, not all of whom have gone on to train others. “If [the course] is a one-time extravaganza, it won’t mean very much because we’ve touched so very few people,” Salerno says. “On the other hand, if the powers that be can recognize it as a precedent-setting, paradigm-shifting event, and can leverage it and build from it explicitly, then I think hopefully five or 10 years from now, we’ll look back on it and say, ‘Wow, that was really formative.’”

“But the jury’s still out on that” ([Miller-McCune, 2011](#)).

**Title:** How Secure Are Labs Handling World's Deadliest Pathogens?

**Date:** February 15, 2012

**Source:** [Reuters](#)

**Abstract:** To reach his office in Galveston National Laboratory, where scientists study deadly pathogens such as the Ebola and Marburg viruses, director James Le Duc swipes his key card at the building's single entrance, which is guarded 24/7 by Texas state police.

As he walks the hallways, more than 100 closed-circuit cameras watch him. Seven more locked doors stand between him and his destination. Entering a research lab requires another card swipe and, for labs housing especially dangerous microbes, a fingerprint scan.

To keep deadly viruses from escaping, each lab uses negative air flow and dedicated exhaust systems. Workers wear full-body air-supplied suits. To test its security, Galveston ran an exercise with the Federal Bureau of Investigation simulating a would-be intruder and another, with the University of Texas, war-gaming a campus shooter. The facility passed both tests.

Galveston's strict security underlines a little-known fact about hundreds of labs working with bacteria and viruses that could make the 1918-19 Spanish flu epidemic - when as many as 40 million people died - seem like a summer cold. Many of the precautions it takes are not required by law.

"A lock on the door is the only specified requirement," said Rutgers University virologist Richard Ebright. "There is no explicit requirement for guards, bio-identity checks, or video monitoring like 7-Elevens have. The rules require very strict paperwork but no real physical security."

Labs whose experiments on dangerous pathogens are funded by the U.S. government must follow specific rules to keep the microbes from escaping, but those rules are not enforceable for researchers working with private funds. Outside the country, security and safety requirements vary widely, experts say.

"It's all subject to interpretation," said a scientist close to the U.S. National Science Advisory Board for Biosecurity, which monitors research that might pose a bioterrorism threat.

If a lab receiving U.S. government funding violates the guidelines, the Centers for Disease Control and Prevention can cut off the flow of money, "but it can't shut you down," the scientist said. "I don't have a lot of confidence in our biosafety right now."

### **Immediate Concern Over Bird Flu Research**

Questions about biosafety - keeping dangerous microbes from escaping labs - and biosecurity - keeping out bad actors intent on releasing or stealing the pathogens - are front and center for global health officials due to a growing controversy over experiments with the bird flu virus.

Scientists and government officials will meet on Thursday and Friday at the World Health Organization in Geneva to hash out the safest way to deal with the studies and address fears that lab-engineered viruses could either escape or be used as a bioterror weapon.

Last year, labs at the University of Wisconsin, Madison, and Erasmus MC in Rotterdam independently created mutant forms of avian influenza, known as H5N1, that can be transmitted directly among mammals. The natural strain can be caught only through close contact with infected birds.

One immediate question is what level of safety should be required for that research. So far, it has been conducted at biosafety-level 3 labs. Under U.S. guidelines, BSL-3 applies to agents that cause "serious or lethal disease" but do not ordinarily spread between people and for which treatments or preventives exist. BSL-4 applies to agents with no preventives or treatment.

The Wisconsin and Erasmus scientists received approval to conduct their experiments under BSL-3 conditions because, they argued, antiviral drugs can treat avian flu. Erasmus was subject to U.S. guidelines because its experiments were funded by the National Institutes of Health.

"The viruses generated here are sensitive to influenza antivirals" so they fit the BSL-3 criteria, said Rebecca Moritz of the University of Wisconsin's Office of Biological Safety. There are "multiple physical barriers and the facilities are monitored at all times."

All lab workers there wear disposable jumpsuits and powered respirators in addition to scrubs, shoes, shoe covers, and double gloves, she said. Each time scientists leave the lab, they must remove their protective equipment and shower before putting on their street clothes. Erasmus does the same.

The labs said they have emergency and security plans for a wide variety of threats. Neither would provide specifics on those security measures on the grounds the details could aid any would-be attackers.

Such precautions are not foolproof, however. According to a 2009 report by the Government Accountability Office, there were 400 accidents at BSL-3 labs in the United States in the previous decade.

Some scientists therefore argue that the experiments creating contagious H5N1 mutants should be done only at BSL-4 facilities.

"An escape would still produce the worst pandemic in history," said Michael Osterholm of the University of Minnesota and a member of the NSABB, at a symposium at the New York Academy of Sciences this month.

"The risk of this agent, if in fact it can be readily transmitted between humans, is catastrophic," he told Reuters. "Until we know how this virus actually acts in humans, I think you have no choice but to move this (research) to BSL-4."

## **Space Suits**

BSL-4 labs, like the one in Galveston, have all the BSL-3 precautions and are also in isolated facilities with dedicated exhaust, vacuum, and other systems to prevent escape. In addition, workers must wear what are essentially space suits.

But the BSL guidelines relate to biosafety, not security.

The debate over H5N1 experiments has also raised the question of how secure BSL-3 and BSL-4 labs are. It has assumed a greater urgency as the number of known U.S. BSL-3 labs has surged from 415 in 2004 to 1,495 in 2010.

Hundreds or thousands of BSL-3 laboratories may be unknown, however, because "no federal agency is required to track the number of biocontainment labs," found a 2011 report by the National Research Council, an arm of the U.S. National Academy of Sciences.

Globally, BSL-3 labs have recently been built or are under construction in Bangladesh, India, Indonesia, China, [Brazil](#), and Mexico, among others, the NRC found. Yet "many countries have few or no regulations," the NRC concluded.

BSL-4 labs are also proliferating. A 2011 workshop in Istanbul organized by the NRC was told that there are 24 BSL-4 facilities, including in [Germany](#), Gabon, Sweden, Russia, South Africa and Canada. The United States has six, including Le Duc's, which is part of the University of Texas Medical Branch.

"We are now in a proliferation race for BSL-3 and 4 labs," said Laurie Garrett, the senior fellow for global health at the Council on Foreign Relations in New York. "Having such a facility is a mark of national sophistication. But the spread of these labs allows the unfettered proliferation of the world's most dangerous microbes."

Indeed, deadly microbes have escaped high-security labs. Between 1978 and 1999, just over 1,200 people acquired infections from BSL-4 labs around the world; 22 were fatal. Since then, lab workers have been killed by Ebola and SARS, or severe acquired respiratory syndrome. Thieves tried to steal animal pathogens from an Indonesian lab in 2007, the NRC workshop was told.

### **Guidelines, Not Law**

U.S. research on dangerous human pathogens must follow safety guidelines set by the CDC. They may or may not be followed at labs elsewhere in the world, concluded the NRC workshop.

In part, that is because BSL-3 and BSL-4 designations "have very wide interpretations," said Ren Salerno, senior manager for cooperative threat reduction programs at Sandia National Laboratories, part of the U.S. Department of Energy.

Although U.S. government-funded research must adhere to biosafety guidelines, they "do not have the force of law," said Ebright. "If you're a private lab, privately funded, there is no requirement that you comply." The CDC declined to make a spokesperson available to discuss biosafety and biosecurity.

Many labs in developing countries say they adhere to guidelines as tough as those applied to U.S. facilities. If they receive U.S. funding, lab personnel must pass an FBI security risk assessment, for instance.

In [Thailand](#), police check the background of all staff members and require fingerprints to access freezers containing microbes.

A BSL-4 lab in [Australia](#) employs a security staff of 10. It is housed in a fenced, isolated building and has infrared cameras to detect intruders. Gabon's BSL-4 lab is surrounded by electric fences and has a guard on duty at all times. Only three people know the code to the freezer holding Ebola.

U.S. biosecurity requirements are laid out in the 2001 Patriot Act, which says that facilities storing "select agents" - microbes and toxins that could be used as bioweapons - must develop and implement a plan to keep them secure. Such labs must also provide the government the names of everyone with access to the pathogens; none can be on a terrorism watch list.

Experts dismiss Hollywood's nightmare scenarios such as bombing a BSL-4 lab or crashing a 737 jumbo jet into one.

"The one nice thing about pathogens is that they'll self-destruct under intense heat," said Salerno.

What Salerno does give credence to is either an accidental escape or a plot to steal a pathogen by lab employees acting on their own or under duress.

"As more of this kind of research occurs, and it will, especially internationally, the risks of both accidental release or potential theft and misuse will increase as well," Salerno said. "The science is way ahead of governments' ability to regulate the science" ([Reuters, 2012](#)).

**Title:** Lack Of Security At Labs Handling World's Deadliest Pathogens Could Lead To Epic Pandemic

**Date:** February 20, 2012

**Source:** [Natural News](#)

**Abstract:** The mainstream media appears to be priming the public consciousness once again for the inevitable release of a highly-deadly pathogen in the very near future. A recent *Reuters* report explains that many of the world's biosafety level-3 (BSL-3) and biosafety level-4 (BSL-4) laboratories, which house



some of the deadliest pathogens in existence, may not be as safe and secure as people think they are because federal regulations technically require nothing more than a single locked door at such facilities as a security measure.

According to the report, some labs voluntarily employ rigorous safety and security measures, including the Galveston National Laboratory in Texas, which is a highly-protected complex with at least eight levels of secured entry, closed-circuit video monitoring, and negative air flow and dedicated exhaust systems to prevent the accidental release of deadly pathogens. But many other such labs do not have this same tight level of a security, as federal law does not regulate the safety protocols used by private research labs.

"Galveston's strict security underlines a little-known fact about hundreds of labs working with bacteria and viruses that could make the 1918-19 Spanish flu epidemic -- when as many as 40 million people died -- seem like a summer cold," says the report. "Many of the precautions it takes are not required by law."

### **Will the militarized H5N1 avian flu strain be 'accidentally' released from an unsecured BSL facility?**

The report conveniently comes just a few months after it was first announced that scientists in Europe had deliberately created a weaponized H5N1 avian bird flu strain capable of spreading between humans ([http://www.naturalnews.com/034228\\_bioterrorism\\_flu\\_strain.html](http://www.naturalnews.com/034228_bioterrorism_flu_strain.html)). And since that announcement, there has been a lot of chatter about whether or not the results of this creation should be published in scientific journals, and what the likelihood is that this vicious strain will someday get released into the wild where it could kill off populations around the world at pandemic levels.

The stage is being set, in other words, for the "accidental" release of one of these pathogens at some point in the future, upon which there will be a host of scapegoats to blame. And since all this private research being conducted on deadly viral and bacterial strains at private BSL-3 and BSL-4 labs around the world is apparently not much of a security concern to the federal government, it appears that it is only a matter of time before something catastrophic occurs.

There are also few specifics on the types of research that must be conducted in BSL-4 labs versus BSL-3 labs, which means that the deadly new H5N1 mutant strain can technically be conducted at either, even though BSL-3 labs are intended for less-serious bacterial and viral strains. This is highly concerning because, according to a 2009 Government Accountability Office (GAO) report, there were 400 accidents at BSL-3 labs just in the U.S. alone that year ([Natural News, 2012](#)).

**Title:** More Than 200 Mishaps Reported At Fort Detrick In 2010, 2011

**Date:** March 14, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** The more than 200 mishaps reported at the U.S. Army Medical Research Institute of Infectious Diseases at Fort Detrick in 2010 and 2011 will be used to determine safer practices at the labs in the future.

The number of incidents was up from 2009, when 64 mishaps were reported, and from 2008, when 42 cases were filed. The increased number of reports was partly the result of an institutional change to more effectively assess the effectiveness of the lab's personal protective equipment. More reports gives the facility more data with which to track trends, the [Frederick News Post](#) reports.

In one 2010 incident, an employee was infected with Western equine encephalitis, which can cause flu-like symptoms, brain swelling, coma and death. The employee was infected when opening vials under a hood using a special filter and ventilation system. The employee realized the error, applied a fixative, decontaminated the lab and notified the appropriate personnel.

“The division held a safety stand-down day to reinforce handling and processing of viruses between laboratories,” a safety officer said in the report, according to the [Frederick News Post](#). “Individual who was involved has been removed from the laboratory pending review and assessment of abilities.”

The labs have been under major scrutiny since Bruce Ivins, an Army researcher who worked in USAMRIID labs, committed suicide in 2008 after he was accused of being responsible for sending the deadly 2001 anthrax letters.

The researchers report everything from being rear-ended on the way to work to tears in protective wear. Reports relating to the lab specifically lead to changes in procedure and equipment.

“The important thing is that people are making reports because that’s how we make sure that change occurs,” W. Emmett Barkley, the president of Proven Practices LLC, said, according to the [Frederick News Post](#). “I think the culture is that if you do something wrong, if something happens, if a piece of equipment breaks, it’s important to report that. It’s part of the process for developing safe science” ([Bio Prep Watch, 2012](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#), or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** Anthrax Powder From Attacks Could Have Been Made Simply

**Date:** November 3, 2002

**Source:** [UCLA](#)

**Abstract:** The anthrax powder in the [poisoned letters](#) that killed five people last year could have been prepared using tabletop equipment costing a few thousand dollars, according to two scientists with knowledge of the FBI's yearlong investigation.

While experts consulted by the FBI believed early in the investigation that the anthrax might contain silica or other sophisticated additives to make it float more easily in the air, the consensus now is that no additives are present and that the anthrax was probably made using a relatively simple process, the scientists say.

"There's really nothing all that special about it," said one of the scientists, who spoke on the condition that they not be identified. "There are many ways to do it."

The conclusion that manufacturing the powder would not require spray-dryers costing tens of thousands of dollars or other elaborate machinery points away from the possibility that the anthrax was made by a state bioweapons program such as Iraq's. It suggests that the powder could have been prepared by a single person with the right knowledge in a relatively simple clandestine lab.

The FBI appears to have focused on that theory for months, questioning dozens of scientists with ties to the U.S. biodefense program. But with no arrest in sight, some conservative critics have suggested that the bureau should reconsider the possibility that the powder might have been made in Iraq or by a foreign scientist working for al-Qaida.

Such criticism grew louder late last summer after a former Army bioterrorism expert, Dr. [Steven J. Hatfill](#), accused the FBI and media of destroying his career and reputation by targeting him in the investigation. He has adamantly denied any connection to the attacks.

The powder in the letters addressed to Senate Majority Leader Tom Daschle and Sen. Patrick J. Leahy was made of virtually pure anthrax spores, the tough, dormant form of the *Bacillus anthracis* bacteria, scientists say. The powder contained about 1 trillion spores per gram, close to the theoretical limit of purity.

But one of the scientists who described the powder to *The Sun* said that such purity can be achieved using relatively simple methods, such as repeatedly spinning the anthrax mixture in a centrifuge and washing out non-spore materials.

While anthrax produced by Army weapons makers in the old U.S. offensive biological warfare program had a lower purity, that was because of techniques they used for efficient, large-scale production, the scientist said. The bioweapons makers of the 1950s and '60s could have made trillion-spore-per-gram anthrax easily on a smaller, laboratory scale, the scientist said.

In order to get a better idea of what equipment and methods were used by the mail attacker, the FBI has asked scientists to try to "replicate" the mailed anthrax using different production techniques, FBI Director Robert S. Mueller told reporters Friday.

The work will be performed at the Army's Dugway Proving Ground in Utah, where scientists have made tiny quantities of dangerous anthrax powder for many years to test detection equipment and decontamination procedures for U.S. troops.

One official said scientists conducting the current anthrax-making experiments at Dugway for the FBI are working with the Ames strain of anthrax used in the mail attacks. At least half a dozen different powders are to be made, the official said.

Matthew S. Meselson, a Harvard University biologist who has examined electron microscope photographs of the mailed anthrax for the FBI, said the powder appeared to be pure spores, but did contain some clumps, probably because of exposure to humidity. State biowarfare programs have used additives to reduce clumping and make the spores more deadly.

Meselson said the confusion over the possibility of a silica additive may have risen because X-ray studies of the powder detected the element silicon, one component of silica. But he said silicon is naturally present in anthrax, noting a 1980 *Journal of Bacteriology* paper that found an "unexpectedly high concentration of silicon" in anthrax spores.

Mueller said Friday that the FBI still believes in its profile of the anthrax attacker as a loner with some scientific training and access to Ames anthrax, a strain identified by the Army's biodefense lab at Fort Detrick in 1981 but distributed since then to at least two dozen other labs.

But he denied that the FBI has been limited by any single theory. "We have never ruled out any scenario, and to the extent that there are leads that come up, whether it be to individuals or methods of manufacturing or what have you, we pursue them," Mueller said.

"Am I satisfied? No, because we don't have the person or persons responsible identified and charges being brought against them," Mueller said.

"Are we making progress? Yes. And we continue to make progress," he said.

Because notes in some of the letters revealed that the powder was anthrax and urged the recipient to take penicillin - a warning that reduced the likely death toll - some analysts have suggested foreign terrorists are not the most likely perpetrators.

Instead, the analysts say, the attacker might be an American trying to alert the nation to the threat of bioterrorism ([UCLA, 2002](#)).

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**Title:** Mail-Order Molecules Brew A Terrorism Debate

**Date:** July 17, 2002

**Source:** [UCLA](#)

**Abstract:** The orders arrive by fax and e-mail 24 hours a day from pharmaceutical companies, government agencies and academic scientists. And every day at Integrated DNA Technologies, an army of machines responds by producing hundreds of batches of microscopic merchandise: custom-designed snippets of genetic material.

Until recently the Coralville, Iowa, company prospered in quiet anonymity, spewing out for scientists round the world various made-to-order pieces of DNA, the molecular code upon which so much biotechnology research depends today.

But last week's announcement that scientists in New York had used the company's mail-order molecules to make polioviruses from scratch has prompted questions about whether the DNA synthesis industry deserves closer scrutiny, and whether strategies for preventing the proliferation of biological weapons need to be rethought.

For decades the United States and other nations have sought to limit the risk of biological warfare and bioterrorism by placing controls on the cultivation and shipment of dangerous microbes. The new work threatens to undermine that approach by proving for the first time that potentially deadly viruses can be built from the ground up.

If infectious agents can be made from off-the-shelf smidgens of DNA that are individually benign, then government regulators, law enforcement agencies and even DNA synthesis companies may have no way of knowing when someone is building a biological bullet.

"The customer gets to design the sequence they want manufactured and there is a limited ability for us to know what people are going to do with it," said Roman Terrill, vice president of legal and regulatory affairs at Integrated DNA Technologies.

Indeed, Terrill said, with perhaps \$10,000 and a few months time, motivated scientists could manufacture the genetic components of a deadly virus. "You could buy your own used DNA synthesizer," he said, "and make whatever you want in the comfort and privacy of your own garage."

Integrated DNA is one of about a half-dozen major U.S. manufacturers of small DNA strands, which are known in the trade as oligonucleotides or "oligos." The bigger companies, including Qiagen Operon of Alameda, Calif., Invitrogen of Carlsbad, Calif., and Sigma-Genosys of Woodlands, Tex., make thousands of customized oligos each day.

Each oligo typically consists of about 25 or 30 units of DNA, representing a tiny fraction of an organism's entire genome (a full viral genetic code can be tens of thousands of units long or more). Scientists generally use the oligos as molecular tools to help them find genes in various organisms or to trigger biological chain reactions that allow them to mass produce DNA strands in test tubes.

Because they are so small, most individual oligos lack any "fingerprint" that might identify them as part of something dangerous. But it was just such oligos that Eckard Wimmer and two colleagues at the State University of New York in Stony Brook painstakingly stitched together into a full length, 7,741-unit poliovirus genome, which spontaneously began making infectious polioviruses.

The feat arguably fell short of creating life from scratch because most scientists maintain that viruses are not truly alive. But the implications were clear.

"If you can go from a viral DNA sequence on paper to an infectious agent using things you can order out of catalogues, obviously that has big implications for bioterrorism," said Mildred Cho of the Center for Biomedical Ethics at Stanford. Two years ago Cho chaired an expert panel on the implications of creating novel life forms.

In fact, it was the Department of Defense that funded the three-year research effort as part of a program to devise protections against "unconventional pathogens." In a statement, the department said Friday it did not believe that the techniques could be used to build viruses with greater bioterror potential, such as smallpox. But others disagreed.

"With a little more advancement in technology you could probably make something more complex than polio," said Jim Cornette, a retired Air Force colonel with a doctorate in biochemistry who served in the Defense Intelligence Agency and was involved in biodefense planning during Operation Desert Storm. "Smallpox is probably just two or three years down the road, maybe less," said Cornette, who now lives in Florida. "Then what about the things that are 'none of the above?' Something dangerous but totally new?"

Several scientists said in interviews they would be reluctant to see new layers of oversight slapped on oligo makers, which have become to the biotechnology industry what silicon chip makers are to the computer industry. But many suggested the time was ripe for a public discussion about how best to prevent nefarious use of the science.

Today most biodefense efforts focus on disease-causing organisms themselves, rather than the genetic instructions for making them. Federal regulations restrict shipments of dangerous microbes and toxins listed by the government as "select agents," but those rules do not apply to shipments of their DNA components, at least within the United States.



DNA exports are more strictly regulated, with the Commerce Department requiring licenses for overseas shipments of DNA deemed a threat to national security. But those rules are open to interpretation and are easily flouted, scientists inside and outside the government said.

When Terrill of Integrated DNA wanted to learn more about the export rules last year, he went to the Commerce Department's Bureau of Exchange Administration (renamed in April the Bureau of Industry and Security), which oversees and enforces export rules for "dual-use" technologies, including microbial DNA strands. He learned that the bureau restricts exports of genetic sequences "associated with pathogenicity," which means the ability to cause disease.

"The problem is the bureau has not released those sequences, so ... we would have to decide for ourselves whether a sequence is associated with pathogenicity," Terrill said. "But how pathogenic? And what does 'associated' mean? The phrase is difficult to get a grasp on. It's not really a scientific term. It's a lawyer's term."

Moreover, Terrill learned, the 370-person agency has only one microbiologist on staff to deal with the hundreds of biological export applications the agency receives annually.

That employee was away and not available to be interviewed this week. But another Commerce Department official, speaking on condition of anonymity, confirmed that it is "the responsibility of the exporter" to determine if a genetic sequence falls under the bureau's rules.

The official said the bureau engages in "outreach activities" to educate academic and commercial scientists about the export restrictions. But the official also acknowledged that many scientists -- especially university-based researchers -- have a tradition of sharing DNA freely through the mail, making enforcement difficult.

In any case, scientists said, rules that focus on "pathogenic" DNA sequences are meaningless in an era when manufacturers can make pieces of DNA that are individually benign yet can pose a serious threat if properly assembled.

"I don't know how you could overcome that problem," the Commerce Department official said. "You could get one part [of the sequence] from one company and another part from another company and completely circumvent the law."

Some experts have begun to consider whether manufacturers themselves should be brought under some kind of oversight. "We propose that ... those companies that produce the oligos should be asked to routinely check the sequences against those of known pathogens," said Wimmer, the scientist who led the polio project.

Several computer programs, most notably one known as BLAST, can quickly scan the genetic sequence of a large piece of DNA and report whether it is similar to other known sequences, such as ones encoding parts of a virus or toxin. But company officials said they were not enthusiastic about taking on the cost or legal responsibility of fingering potential perpetrators.

In any case, said Garry Merry, corporate vice president of genomic services at Qiagen Operon, a scientist could evade BLAST's eyes simply by ordering DNA components small enough to be completely generic, then assembling them later. "You could do it," Merry said, "and we couldn't tell."

As an alternative, some are calling for extra layers of institutional review for researchers who, like Wimmer, propose combining genetic components to make viruses or other dangerous entities.

"I would argue there needs to be more oversight in terms of getting approval," said Arthur Caplan, a University of Pennsylvania ethicist who sat on Mildred Cho's expert panel. "Are we going to be seeing this kind of thing done in a science fair soon? I'm in favor of tighter controls."

Craig Venter, president of the Center for the Advancement of Genomics in Rockville who last week called the polio work "irresponsible science," said the nation might need a special advisory committee to publicly review all such studies in advance, just as a National Institutes of Health panel reviews proposed gene therapy experiments as a way of watching for trouble and reassuring the public. Without such openness, Venter said, "this kind of work can set science back in the public eye."

But while institutional or government review may bring more oversight to legitimate research, others said, it's unlikely to deter those who wish to keep their work secret. And with the biotech revolution now 30 years old -- and trade in aftermarket equipment burgeoning -- deterrence may be difficult.

"You can buy an old synthesizer and some raw ingredients and no one would have any idea what you're doing or what you're making," said Terrill of Integrated DNA. With an old machine, he said, "it might take you a week longer. They're big and clunky. But a week isn't that long" ([UCLA, 2002](#)).

**Title:** Recipes For Death  
**Date:** September 17, 2002  
**Source:** [New York Times](#)

**Abstract:** On my desk is a set of self-help books that I've been buying at gun shows and on the Internet. If you want to kill a few thousand people, these are the books to consult.

And if we want to reduce the risk of terrorist attacks using bio- or chemical weapons, we have a target closer to home than Iraq: these books and the presses that publish them. If these presses were in Baghdad, the Pentagon would be itching to blow them up.

Right now I'm leafing through "Assorted Nasties," which has detailed instructions on how to make sarin, VX gas and even mustard gas.

Then there's "Silent Death," with 30 pages about manufacturing nerve gases like sarin, tabun and soman. The book also contains a helpful description of the best ways to disseminate gases so as "to lay waste to a metropolitan area."

"For those who have whole armies to conquer singlehandedly," the introduction suggests, "I'm sure the section on the production and use of nerve gases will interest you."

Then there's a three-volume set of books, "Scientific Principles of Improvised Warfare," which offers details on where to find anthrax spores and how to cultivate them and turn them into an aerosol.

"If you can make Jell-O," the book promises, "you can wipe out cities. Enjoy!"

Fortunately, it's not that easy. But still, do we as a nation really want to permit books that facilitate terrorism and mass murder? As Justice Arthur Goldberg declared in a 1963 Supreme Court case, the Constitution "is not a suicide pact."

A main barrier to the use of chemical or biological weapons has been knowledge. It's hard to weaponize sarin or anthrax, and so the I.R.A., the Basque separatist group E.T.A., the Tamil Tigers and even Al Qaeda (not to mention people like the Unabomber) have relied on conventional weapons and explosives.

But the information needed to produce lethal cocktails is beginning to spread, partly because these books are getting better. For example, the Japanese group Aum Shinrikyo tried to kill people with anthrax but never got hold of the proper spores. If it were trying today, it could consult one of these books and learn where to obtain deadly spores.

"I do think that there is forbidden knowledge, and for me the 'cookbooks' fall into that class of information," said Dr. Ronald M. Atlas, the president of the American Society for Microbiology. "I do not want to see them out there for potential use by terrorists."

In fairness, much of the information in the gun-show books is "garbage," notes Milton Leitenberg, an expert on weapons of mass destruction at the University of Maryland. Another bio-warfare specialist, Raymond Zilinskas of the Monterey Institute of International Studies, also notes that bio- and chemical weapons are very hard to get right – although he adds that the "cookbook" recipes are getting better.

All three experts reluctantly favor curbs on information about bio-, chemical and nuclear weapons.

Whether such curbs are constitutional is uncharted legal territory. But in 1979 a U.S. District Court temporarily blocked The Progressive from publishing an article about the hydrogen bomb because of the risks to national security.

In the 1990's the Senate several times passed measures that would have banned weapons cookbooks. But because of concerns about constitutionality, the final version that became law in 1999 was neutered. It allows prosecution only if the publisher intends for the information to be used to break federal laws. That is usually an impossible test to meet.

We rightly complain about weapons proliferation by China and Russia. But we also need to confront the consequences of our own information proliferation. Our small presses could end up helping terrorists much more than Saddam ever has.

I'm a journalist, steeped in First Amendment absolutism, and book-burning grates on my soul. But then again, so does war. As we prepare to go to battle to reduce our vulnerability to weapons of mass destruction, it seems appropriate for us in addition to consider other distasteful steps that can also make us safer.

We have a window now, while terrorists still have difficulty obtaining reliable recipes for bio- and chemical weapons. If we continue to allow these cookbooks to improve, buttressed by helpful articles in professional journals, then over the next 10 years we may empower terrorists to kill us on an unimaginable scale ([New York Times, 2002](#)).

**Title:** In Attics And Closets, 'Biohackers' Discover Their Inner Frankenstein

**Date:** May 12, 2009

**Source:** [Wall Street Journal](#)

**Abstract:** In Massachusetts, a young woman makes genetically modified E. coli in a closet she converted into a home lab. A part-time DJ in Berkeley, Calif., works in his attic to cultivate viruses extracted from sewage. In Seattle, a grad-school dropout wants to breed algae in a personal biology lab.

These hobbyists represent a growing strain of geekdom known as biohacking, in which do-it-yourselfers tinker with the building blocks of life in the comfort of their own homes. Some of them buy DNA online, then fiddle with it in hopes of curing diseases or finding new biofuels.

But are biohackers a threat to national security?

That was the question lurking behind a phone call that Katherine Aull got earlier this year. Ms. Aull, 23 years old, is designing a customized E. coli in the closet of her Cambridge, Mass., apartment, hoping to help with cancer research.

She's got a DNA "thermocycler" bought on eBay for \$59, and an incubator made by combining a styrofoam box with a heating device meant for an iguana cage. A few months ago, she talked about her hobby on DIY Bio, a Web site frequented by biohackers, and her work was noted in New Scientist magazine.

That's when the phone rang. A man saying he was doing research for the U.S. government called with a few polite, pointed questions: How did she build that lab? Did she know other people creating new life forms at home?

The caller said the agency he represented is "used to thinking about rogue states and threats from that," recalls Ms. Aull, a recent Massachusetts Institute of Technology graduate.

The man on the other end of the line was Nils Gilman, a researcher with Monitor 360, a San Francisco company that provides "geo-strategic" research. Mr. Gilman declined to identify his client, saying only that it's a branch of the U.S. government involved in biosecurity. "I think they want to know, is this something we need to worry about?" he said -- particularly, could the biohackers' gadgets and methods, in the wrong hands, create dangerous pathogens?

Mr. Gilman's claim that he is working for the U.S. government couldn't be verified. A Department of Homeland Security official said "it does not appear that we contract with Monitor 360." A spokesman for the Federal Bureau of Investigation declined to comment, and a Department of Defense official said he couldn't find any record of the department hiring Monitor 360 or its parent company, Monitor Group. But he said another arm of Monitor Group has done work for the department in recent years.

Previously, some researchers and law-enforcement officials have raised red flags. In a paper published in Nature Biotechnology in 2007, a group of scientists and FBI officials called for better oversight of so-called synthetic DNA, an ingredient widely used by professional biologists and hobbyists, saying it could theoretically lead to the creation of harmful viruses like Ebola or smallpox, since their genomes are available online. "Current government oversight of the DNA-synthesis industry falls short of addressing this unfortunate reality," the paper said.

Ms. Aull, who lives with a cat and three roommates who are "a little bit weirded out" by her experiments, says the worries are overblown. DIY biologists are trying to "build a slingshot," she says, "and there are people out there talking about, oh, no, what happens if they move on to nuclear weapons?"

Other biohackers argue that Mother Nature is more likely than any home hobbyist to create dangerous new pathogens. They cite the current A/H1N1 "swine flu" virus, which is a made-in-the-wild brew of human, bird and pig influenzas. Mackenzie Cowell, a founder of DIY Bio, says members aim to do good and are committed to working safely.

The movement has made big strides recently thanks to the commercial availability of synthetic DNA. This genetic material, normally found inside the nucleus of cells, can now easily be purchased online. That provides any amateur with the ingredients for constructing an organism.

Dan Heidel, a 32-year-old aerospace employee and former molecular biology student in Seattle, has rented a 300-square-foot space in an old warehouse to make genetically modified algae that he thinks might be useful in producing cheap biofuels. The space is stuffed with \$20,000 worth of secondhand lab equipment he bought on eBay, including, he says, centrifuges, a liquid-nitrogen storage unit and "a bunch of stuff for water purification."

"It's frankly a run-down, piece-of-crap warehouse, half falling apart," says Mr. Heidel. But "the landlord basically stays out of everyone's hair as long as they don't burn the building down, which is really pretty ideal."

The easy availability of synthetic DNA is at the heart of some scientists' concerns. The National Science Advisory Board for Biosecurity, a government body, has recommended that companies selling DNA be required to screen all orders for signs that the buyers might have nefarious intent. Some biologists argue that anyone wishing to custom-make new organisms, even if it's just glow-in-the-dark bacteria (a popular trick among biohackers), should have to get a license first.

Currently, regulation of labs like these is murky. It's unclear what agency, if any, is responsible.

So far, most garage biologists playing around with synthetic DNA are simply adding a gene or two to an existing organism, a fairly standard scientific practice involving some test-tube mixing, and not something biosecurity experts are very worried about. But technology promises to allow the creation of entire organisms from scratch -- something academics are aiming to do in university labs -- and that has some experts worried.

A senior official in the FBI's Weapons of Mass Destruction Directorate says the bureau is working with academia and industry to raise awareness about biosecurity, "particularly in light of the expansion of affordable molecular biology equipment" and genetic databases.

George Church, a professor of genetics at Harvard Medical School, says anyone using synthetic DNA should have to have a license, including garage biologists. But he says he's not too concerned by the current home hobbyists. "The younger generation need something they feel they can do, in the same sense that my generation was inspired by NASA and home chemistry kits," he said.

Phil Holtzman, a college student and part-time DJ at dance parties in Berkeley, Calif., is growing viruses in his attic that he thinks could be useful in medicine someday. Using pipettes and other equipment borrowed from his community college, he extracts viruses called bacteriophage from sewage and grows them in petri dishes. Mr. Holtzman's goal: Breed them to survive the high temperatures of the human body, where he thinks they might be useful in killing bad bacteria.

He collects partly treated sewage water from a network of underground tunnels in the Berkeley area, jumping a chain-link fence to get to the source. But Mr. Holtzman says his roommates are "really uncomfortable" with him working with sewage water, so he's trying to find another source of bacteriophage ([Wall Street Journal, 2009](#)).

**Title:** The Worry Of Biohacking: Closet Frankensteins Or Kafkaesque Government?

**Date:** May 12, 2009

**Source:** [Discovery](#)

**Abstract:** There's a piece in the *Wall Street Journal* today about biohacking: people experimenting with genetically engineered microbes and viruses at home. It tries to inject anxiety into your brain right from the start, with a headline, "[In Attics and Closets, 'Biohackers' Discover Their Inner Frankenstein—Using Mail-Order DNA and Iguana Heaters, Hobbyists Brew New Life Forms; Is It Risky?](#)"

I was surprised, however, to discover that the reporter does not mention the one time that somebody actually got arrested and charged with biohacking. At last year's World Science Festival, I moderated a panel with the artist Steven Kurtz, who had just finished navigating [a Kafkaesque experience](#) with the FBI for having a PCR machine and some harmless soil bacteria in his house. While we certainly need protection against bioterrorism and risky experiments, we definitely do not need the sort of ignorance of basic biology that was on display in the Kurtz affair.

Eyebeam, the New York gallery that hosted the panel, later posted the talk in several parts [on YouTube](#). Kurtz has a sad and surreal story to tell ([Discovery, 2009](#)).

**Title:** Could Terrorists Exploit Synthetic Biology?

**Date:** Spring 2011

**Source:** [New Atlantis](#)

**Abstract:** The emergence over the past decade of synthetic genomics, a set of methods for the synthesis of entire microbial genomes from simple chemical building blocks, has elicited concerns about the potential misuse of this technology for harmful purposes. In 2002, scientists at Stony Brook University recreated the polio virus from scratch based on its published genetic sequence. This demonstration prompted fears that terrorist organizations might exploit the same technique to synthesize more deadly viral agents, such as the smallpox virus, as biological weapons. Since then, legitimate scientists have recreated other pathogenic viruses in the laboratory, including a SARS-like virus and the formerly extinct strain of influenza virus responsible for the 1918-19 "Spanish Flu" pandemic, which is estimated to have infected a third of the world population and killed three to five percent. (The scientific rationale for resurrecting the 1918 influenza virus was to gain insight into the genetic factors that made it so virulent, thereby guiding the development of antiviral drugs that would be effective against future pandemic strains of the disease.)

In assessing the risk that would-be bioterrorists could misuse synthetic genomics to recreate dangerous viruses, a central question is whether they could master the necessary technical skills. Skeptics point out that whole-genome synthesis demands multiple sets of expertise, including considerable "tacit knowledge" that cannot be transmitted in writing but must be gained through years of hands-on experience in the laboratory. Other scholars disagree, arguing that genome synthesis is subject to a process of "de-skilling," a gradual decline in the amount of tacit knowledge required to master the technology that will eventually make it accessible to non-experts, including those with malicious intent. This debate is of more than academic interest because it is central to determining the security risks associated with the rapid progress of biological science and technology. The Role of Tacit Knowledge

Sociologists of science distinguish between two types of technical knowledge: explicit and tacit. Explicit knowledge is information that can be codified, written down in the form of a recipe or laboratory protocol, and transferred from one individual to another by impersonal means, such as publication in a scientific journal. Tacit knowledge, by contrast, involves skills, know-how, and sensory cues that are vital to the successful use of a technology but that cannot be reduced to writing and must be acquired through hands-on practice and experience. Scientific procedures and techniques requiring tacit knowledge do not diffuse as rapidly as those that are readily codified.

Tacit knowledge can itself be divided into two types. Personal tacit knowledge is held by individuals and can be conveyed from one person to another through a master-apprentice relationship (learning by example) or acquired by a lengthy process of trial-and-error problem solving (learning by doing). The amount of time required to gain personal tacit knowledge depends on the complexity of a task and the level of skill involved in its execution. Moreover, such knowledge tends to decay if it is not practiced on a regular basis and transmitted to the next generation. Communal tacit knowledge is more complex because it is not held by a single individual but resides in an interdisciplinary team of specialists, each of whom has skills and experience that cohere into a larger scientific project or experimental protocol. This social dimension makes communal tacit knowledge particularly difficult to transfer from one laboratory to another, because doing so requires transplanting and replicating a complex set of technical practices in a new context.

Field research by sociologists of science has shown that advanced biotechnologies such as whole-genome synthesis demand high levels of both personal and communal tacit knowledge. For example, Kathleen Vogel of Cornell University found that the Stony Brook researchers who synthesized the polio virus did not rely exclusively on written protocols but made extensive use of intuitive skills acquired through years of experience. Tacit knowledge was particularly important in one step of the process: preparing the cell-free extracts needed to translate the synthetic genome into infectious virus particles. If

the cell-free extract was not prepared correctly by relying on subtle tricks and sensory cues, it proved impossible to reproduce the published experiment.

Based on her empirical research, Vogel concludes that biotechnology is a “socio-technical assemblage” — an activity whose technical and social dimensions are inextricably linked. Such factors help to explain the problems that scientists often encounter when trying to replicate a research protocol developed in another laboratory, or when translating a scientific discovery from the research bench to commercial application. Despite the ongoing “revolution” in the life sciences, these traditional bottlenecks persist. Other case studies of technological innovation have confirmed the importance of the socio-technical dimension, which includes tacit knowledge, teamwork, laboratory infrastructure, and organizational factors.

In the field of whole-genome synthesis, for example, the importance of socio-technical factors continues to grow as scientists take on larger and more complex genomes. Researchers at the J. Craig Venter Institute announced in May 2010 that they had synthesized an artificial bacterial genome consisting of more than one million DNA units, a task that required a unique configuration of expertise and resources. In an interview, Dr. Venter noted that at each stage in the process, a team of highly skilled and experienced molecular biologists had to develop new methodologies, which could be made to work only through a lengthy process of trial and error. For instance, because the long molecules of synthetic bacterial DNA were fragile, they had to be stored in supercoiled form inside of gel blocks and handled carefully to keep them from breaking up. “As with all things in science,” Venter explained, “it’s the little tiny breakthroughs on a daily basis that make for the big breakthrough.”

Recent developments in scientific publishing also reflect the fact that the growing complexity of research tools and processes has increased the importance of tacit knowledge. One online scientific publication, the Journal of Visualized Experiments, has since 2006 used video recordings of experimental techniques to portray subtle details that cannot be captured in written form. Other online repositories of research-protocol videos include Dnatube.com and SciVee.tv. Based on such evidence, Vogel, along with Sonia Ben Ouagrham-Gormley of George Mason University, have concluded that the technical and socio-organizational hurdles involved in whole-genome synthesis pose a major obstacle to the ability of terrorist organizations to exploit this technology for harmful purposes. The De-skilling Dynamic

Some scholars, however, have come to the opposite conclusion of those who emphasize the hurdles associated with tacit knowledge. Members of this second school point to a contradictory trend in biotechnological development that they claim will ultimately prove stronger. They note that the evolution of many emerging technologies involves a process of de-skilling that, over time, reduces the amount of tacit knowledge required for their use. Chris Chyba of Princeton, for example, contends that as whole-genome synthesis is automated, commercialized, and “black-boxed,” it will become more accessible to individuals with only basic scientific skills, including terrorists and other malicious actors.

De-skilling has already occurred in several genetic-engineering techniques that have been around for more than twenty years, including gene cloning (copying foreign genes in bacteria), transfection (introducing foreign genetic material into a cell), ligation (stitching fragments of DNA together), and the polymerase chain reaction, or PCR (which makes it possible to copy any particular DNA sequence several million-fold). Although one must have access to natural genetic material to use these techniques, the associated skill sets have diffused widely across the international scientific community. In fact, a few standard genetic-engineering techniques have been de-skilled to the point that they are now accessible to undergraduates and even advanced high school students, and could therefore be appropriated fairly easily by terrorist groups.

Gerald Epstein, of the Center for Science, Technology, and Security Policy, writes that whole-genome synthesis “appears to be following a trajectory familiar to other useful techniques: Originally accessible only to a handful of top research groups working at state-of-the-art facilities, synthesis techniques are becoming more widely available as they are refined, simplified, and improved by skilled technicians and craftsmen. Indeed, they are increasingly becoming ‘commoditized,’ as kits, processes, reagents, and services become available for individuals with basic lab training.” In 2007 Epstein and three co-authors



predicted that “ten years from now, it may be easier to synthesize almost any pathogenic virus than to obtain it through other means,” although they did not imply that individuals with only basic scientific training will be among the first to acquire this capability.

To date, the de-skilling of synthetic genomics has affected only a few elements of what is actually a complex, multi-step process. Practitioners of de novo viral synthesis note that the most challenging steps do not involve the synthesis of DNA fragments, which can be ordered from commercial suppliers, but the assembly of these fragments into a functional genome and the expression of the viral proteins. According to a report by the U.S. National Science Advisory Board for Biosecurity, a federal advisory committee, “The technology for synthesizing DNA is readily accessible, straightforward and a fundamental tool used in current biological research. In contrast, the science of constructing and expressing viruses in the laboratory is more complex and somewhat of an art. It is the laboratory procedures downstream from the actual synthesis of DNA that are the limiting steps in recovering viruses from genetic material.”

Along similar lines, virologist Jens Kuhn has called for a more nuanced assessment of the technical challenges involved in de novo viral synthesis. He notes, for example, that constructing the polio virus from scratch was fairly straightforward because its genome is small and consists of a single positive strand of RNA that, when placed in a cell-free extract, spontaneously directs the production of viral proteins, which then self-assemble to yield infectious viral particles. By contrast, the genomes of negative-strand RNA viruses, such as Ebola or the 1918 strain of influenza, are not infectious by themselves but require the presence of viral helper proteins, which must be synthesized and present in the host cells in the right numbers. Because such reverse-genetic systems are relatively difficult to create, only a limited number of scientists have the requisite skills and tacit knowledge.

It is also important to note that developing and producing an effective biological weapon involves far more than simply acquiring a virulent pathogen, whether by isolating it from nature or synthesizing it from scratch. Tacit knowledge also plays an important role in the “weaponization” of an infectious agent, which includes the following steps: (1) growing the agent in the needed quantity, (2) formulating the agent with chemical additives to enhance its stability and shelf life, (3) processing the agent into a concentrated slurry or a dry powder, and (4) devising a delivery system that can disseminate the agent as a fine-particle aerosol that infects through the lungs. According to Kuhn, “The methods to stabilize, coat, store, and disperse a biological agent are highly complicated, known only to a few people, and rarely published.” Thus, even if terrorists were to synthesize a viral agent successfully, “they will in all likelihood get stuck during the weaponization process.” Synthetic Biology’s De-skilling Agenda

The debate over de-skilling has focused not only on whole-genome synthesis but also on the related but broader field known as “synthetic biology.” Despite the overlap between these two disciplines, there are important differences. Whereas synthetic genomics is an “enabling” technology that makes possible many other technological applications, synthetic biology is an umbrella term that covers several distinct research programs. Two prominent and outspoken scientists, Thomas Knight of M.I.T. and Drew Endy of Stanford, advocate a particular synthetic-biology paradigm that aims to facilitate biological engineering through the development of a “tool kit” called the Registry of Standard Biological Parts. These parts, also known as “BioBricks,” are pieces of DNA with known protein-coding or regulatory functions that behave in a predictable manner and have a standard interface. In principle, such parts can be joined together to create functional genetic “circuits,” much as transistors, capacitors, and resistors are assembled into electronic devices. A major goal of parts-based synthetic biology is to design and build genetic modules that will endow microbes with useful functions not found in nature, such as the ability to produce biofuels or pharmaceuticals.

At least in theory, the use of standard genetic parts and modular design techniques should significantly reduce the need for tacit knowledge in the construction of synthetic organisms. As Gautam Mukunda, Kenneth A. Oye, and Scott C. Mohr of M.I.T. and Boston University have argued, “De-skilling and modularity ... have the potential to ... decrease the skill gradient separating elite practitioners from non-experts.” Nevertheless, not everyone in the synthetic biology community has bought into the standardized-parts approach, and some believe that it is destined to fail — or, at the very least, not to live up to its ambitious claim of providing a simple and predictable way to design and build artificial genomes.

One problem is that many biological parts have not been adequately characterized, so their activity varies depending on cell type or laboratory conditions, and some parts do not function optimally, or at all, because they are incompatible with the biochemical machinery of the host cell.

In other cases, the characteristics of individual biological parts may be well understood, but the parts do not behave as expected when combined as an intended functional module. Indeed, even fairly simple genetic circuits tend to be “noisy,” operating stochastically rather than predictably. Furthermore, as the size of synthetic biological constructs increases, nonlinear interactions among the genetic and epigenetic elements may become increasingly difficult to predict or control, resulting in unexpected behaviors and other emergent properties. It is therefore conceivable that large genetic constructs could pose safety hazards that are impossible to predict in advance. (This possibility was discussed in these pages by Raymond Zalinkas and the author; see “[The Promise and Perils of Synthetic Biology](#),” Spring 2006.) In sum, although certain aspects of parts-based synthetic biology may well become more accessible to non-experts, the field’s explicit de-skilling agenda is far from becoming an operational reality. Democratizing Synthetic Biology

Another element in the agenda of parts-based synthetic biology, as conceived by Knight and Endy, is to make the Registry of Standard Biological Parts freely available to interested researchers without patents or other restrictions. Over 130 academic labs now participate in the Registry community. An important vehicle for this “open-access biology” movement is the International Genetically Engineered Machine competition (iGEM), held annually at M.I.T. by the BioBricks Foundation. The goals of iGEM are “to enable the systematic engineering of biology, to promote the open and transparent development of tools for engineering biology, and to help construct a society that can productively apply biological technology.” Starting in 2003 with a small group of student teams from American universities, iGEM has since become a global event: in 2010, 118 teams from 26 countries participated. Nevertheless, many of the teams have had trouble creating or using biological parts that work reliably and predictably in different contexts.

In May 2008, a group of amateur biologists in Cambridge, Massachusetts, launched another open-access initiative called DIYbio (“do-it-yourself biology”) with the goal of making biotechnology more accessible to non-experts, including the potential use of synthetic-biology techniques to carry out personal projects. DIYbio has since expanded to other U.S. cities as well as internationally, with local chapters in Bangalore, London, Madrid, and Singapore. Although the group’s technical infrastructure and capabilities are still rudimentary, they may become more sophisticated as gene-synthesis technology matures.

Some observers contend that the de-skilling and open-access agendas being promoted by iGEM and DIYbio will unleash a wave of innovation as a growing number of people from different walks of life acquire the ability to engineer biology for useful purposes. According to a team of social scientists affiliated with the Synthetic Biology Engineering Research Center (SynBERC) at the University of California, Berkeley, “The good news is that open access biology, to the extent that it works, may help actualize the long-promised biotechnical future: growth of green industry, production of cheaper drugs, development of new biofuels and the like.” Extrapolating from these trends a few decades into the future, the physicist Freeman Dyson published a controversial article in 2007 envisioning a world in which synthetic biology has been de-skilled to the point that it is fully accessible to amateur scientists, hobbyists, and even children:

There will be do-it-yourself kits for gardeners who will use genetic engineering to breed new varieties of roses and orchids. Also kits for lovers of pigeons and parrots and lizards and snakes to breed new varieties of pets. Breeders of dogs and cats will have their kits too.... Few of the new creations will be masterpieces, but a great many will bring joy to their creators and variety to our fauna and flora. The final step in the domestication of biotechnology will be biotech games, designed like computer games for children down to kindergarten age but played with real eggs and seeds rather than with images on a screen. Playing such games, kids will acquire an intimate feeling for the organisms that they are growing. The winner could be the kid whose seed grows the prickliest cactus, or the kid whose egg hatches the cutest dinosaur.

Whether such rosy predictions come true will depend on, among other things, the degree to which

synthetic biology is de-skilled in the future. Looking at the historical record, scientific claims about de-skilling have been made repeatedly in the past but have often failed to materialize. For example, Helen Anne Curry, a graduate student in the history of science at Yale, has studied the development of plant-breeding techniques from 1925 to 1955. She found that during this period, agricultural interests promised that the use of radium, x-rays, and chemicals to generate genetic mutations would facilitate the creation of new and useful plant varieties, and that these methods would soon become available to amateur gardeners. But in fact, although the breeding techniques did result in novel varieties of roses and orchids, the predictions about de-skilling never came to pass. How Great Are the Risks?

In addition to the potential benefits of de-skilling and open access, a number of commentators have warned that the democratization of synthetic biology could give rise to new safety and security risks. One concern is that substantially expanding the pool of individuals with access to synthetic-biology techniques would inevitably increase the likelihood of accidents, creating unprecedented hazards for the environment and public health. Even Dyson's generally upbeat article acknowledges that the recreational use of synthetic biology "will be messy and possibly dangerous" and that "rules and regulations will be needed to make sure that our kids do not endanger themselves and others."

Beyond the possible safety risks, Mukunda, Oye, and Mohr warn that the de-skilling of synthetic biology would make this powerful technology accessible to individuals and groups who would use it deliberately to cause harm. "Synthetic biology," they write, "includes, as a principal part of its agenda, a sustained, well-funded assault on the necessity of tacit knowledge in bioengineering and thus on one of the most important current barriers to the production of biological weapons." Drawing on the precedent of "black-hatted" computer hackers, who create software viruses, worms, and other malware for criminal purposes, for espionage, or simply to demonstrate their technical prowess, some have predicted the emergence of "bio-hackers" who engage in reckless or malicious experiments with synthetic organisms in basement laboratories. Such nightmare scenarios are probably exaggerated, however, because the effective use of synthetic biology techniques relies on socio-technical resources that are not generally available to hobbyists. According to Andrew Ellington, a biochemistry professor at the University of Texas, "There is no 'Radio Shack' for DNA parts, and even if there were, the infrastructure required to manipulate those parts is non-trivial for all but the richest amateur scientist."

Indeed, when assessing the risk of misuse, it is important to distinguish among potential actors that differ greatly in financial assets and technical capabilities — from states with advanced bio-warfare programs, to terrorist organizations of varying size and sophistication, to individuals motivated by ideology or personal grievance. The study of past state-level bio-warfare programs, such as those of the Soviet Union and Iraq, has also shown that the acquisition of biological weapons requires an interdisciplinary team of scientists and engineers who have expertise and tacit knowledge in fields such as microbiology, aerobiology, formulation, and delivery. States are generally more capable of organizing and sustaining such teams than are non-state actors.

Conceivably, the obstacles posed by the need for personal and communal tacit knowledge might diminish if a terrorist group managed to recruit a group of scientists with the required types of expertise, and either bribed or coerced them into developing biological weapons. But Vogel and Ben Ouaghran-Gormley counter this argument by noting that even in the unlikely event that terrorists could recruit such a scientific A-team, its members would still face the challenge of adapting the technology to a local context. Dysfunctional group dynamics, such as a refusal by some team members to work together, would also create obstacles to interdisciplinary collaboration in areas requiring communal tacit knowledge.

Taking such factors into account, Michael Levi of the Council on Foreign Relations has questioned the ability of terrorists to construct an improvised nuclear device from stolen fissile materials. He notes that the process of building a functional weapon would involve a complex series of technical steps, all of which the terrorists would have to perform correctly in order to succeed. The same is true of assessing bioterrorism risk: one must examine not only the likelihood of various enabling conditions, but also the probability that all of the steps in the weapon development process will be carried out successfully.

Finally, problem-solving is crucial to the mastery of any complex technology. Biotechnologists must be

creative and persistent to overcome the technical difficulties that inevitably arise during the development of a new process. Thus, a key variable affecting the risk that terrorists could exploit synthetic biology for harmful purposes would be their ability to perform multiple iterations of a technique until they get it right, a requirement that presupposes a stable working environment and ample time for experimentation. Such amenities would probably be lacking, however, for individuals working in a covert hideaway or conducting illicit activities (such as the synthesis and weaponization of a deadly virus) in an otherwise legitimate laboratory. Resolving the Debate

Whether commercial kits and automation will merely make it easier for experienced scientists to perform certain difficult or tedious operations more quickly and easily, or whether de-skilling will truly make advanced biotechnologies available to non-experts — particularly those with malicious intent — is still an open question and will probably remain so for some time. To resolve the debate over the extent to which terrorists could misuse synthetic biology to cause harm, it is important to determine whether de-skilling affects those aspects of the technology that currently require personal or communal tacit knowledge.

Preliminary evidence suggests that de-skilling does not proceed in a uniform manner but affects some biotechnologies more than others. A number of techniques have proven resistant to de-skilling for the reasons mentioned, including the complexity of biological organisms and the critical role of tacit knowledge and other socio-technical factors. Moreover, although scientists commonly use genetic-engineering “kits” containing all of the materials and reagents required for a particular laboratory procedure, these kits do not necessarily remove the need for tacit knowledge when applied in the context of a particular experiment.

Instead of making assertions based on anecdotal evidence about whether or not synthetic biology will become de-skilled and accessible to non-experts, it would be more useful to conduct empirical research on the nature of tacit knowledge and the process of de-skilling. Shedding new light on the debate will require addressing several questions about the role of tacit knowledge and other socio-technical factors in biotechnological development: First, what are the specific conditions, skills, and socio-organizational contexts that are required for advanced biotechnologies to work reliably? Second, why do certain tools, techniques, and practices of biotechnology become de-skilled, while others do not? Third, what are the conditions, both technical and social, that facilitate or hamper the process of de-skilling?

Possible methodological approaches for answering these questions include the analysis of past efforts to transfer complex technologies from one laboratory setting to another, in-depth interviews with practicing scientists about the role of tacit knowledge and other socio-technical factors in their research, and the close ethnographic observation of laboratory work. Such studies should permit a more nuanced assessment of the safety and security risks associated with synthetic biology and other emerging biotechnologies, and will help policymakers determine which areas warrant oversight or regulation to prevent deliberate misuse ([New Atlantis, 2011](#)).

**Title:** Synthetic Biology Raises Bioterror Fears

**Date:** October 24, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** The potential for synthetic biology to become a tool for bioterrorists has caused a rift within a coalition of research laboratories heavily funded by the National Science Foundation.

A dispute over security procedures at the Synthetic Biology Engineering Research Center, led by the University of California 0 Berkeley, has highlighted the potentially dangerous consequences of the research, according to the New York Times.

The controversy centers on the resignation of a biosafety expert Paul Rabinow, who left SynBERC because he believed the coalition was not doing enough to prevent a future biological disaster.

Rabinow was initially hired to evaluate the ethical and security ramifications of the center's research and to report his findings to the top administrators, including the National Science Foundation, which granted SynBERC \$23.3 million.

"It had begun to worry me how profoundly irresponsible these guys are," Dr. Rabinow said, the New York Times reports. "There are possibilities of all kinds of nefarious things happening. There is no reason that someone couldn't modify a virus; you could release it on an airplane or subway, and it could have profound terror effects."

Jay Keasling, SynBERC's director, disagrees with Rabinow's assessment and said that Rabinow had failed to do his job.

"Paul failed in two realms: actively communicating what he wanted to do and actively carrying them out," Dr. Keasling, who is also an executive of the United States Department of Energy's Joint BioEnergy Institute, said, the New York Times reports. "It became clear over time that he wasn't going to do the job."

Rabinow is particularly concerned that hackers or rogue scientists could use seemingly benign DNA sequences to manufacture a deadly virus. SynBERC scientists possess the technology to identify which DNA sequences can be used to modify genes to create novel functions, but the sequences are stored in public databases.

"DNA synthesis companies have no way of currently telling, once the sequences are put together, what the result will be," Dr. Rabinow said, according to the New York Times. "Somebody could manufacture pathogens that are dangerous to the environment."

Keasling said that synthetic biologists diligently police themselves and added that the notion of a terrorist using a company to acquire and customize genetic sequences is "far-fetched" ([Bio Prep Watch, 2011](#)).

**Title:** The Bioterrorist Next Door

**Date:** December 15, 2011

**Source:** [Foreign Policy](#)

**Abstract:** In September, an amiable Dutchman stepped up to the podium at a scientific meeting convened on the island of Malta and announced that he had created a form of influenza that could well be the deadliest contagious disease humanity has ever faced. The bombshell announcement, by virologist Ron Fouchier of Erasmus Medical Center, sparked weeks of vigorous debate among the world's experts on bioterrorism, influenza, virology, and national security over whether the research should have been performed or announced and whether it should ever be published.

Meanwhile, a joint Japanese-American research team led by the University of Wisconsin's Yoshihiro Kawaoka says that it, too, has manufactured a superflu. Additionally, a team at the U.S. Centers for Disease Control and Prevention (CDC) in Atlanta has acknowledged doing similar research, without successfully making the über flu. The U.S. National Science Advisory Board for Biosecurity is now deliberating whether to censor publication of the Fouchier and Kawaoka papers, though it lacks any actual power to do so: It could so advise scientific journals, but editors would still decide. The advisory board is expected to release its decision on Dec. 15.

The interest in this brave new world of biology is not limited to the scientific community. U.S. Secretary of State Hillary Clinton made a surprise visit to Geneva on Dec. 7, [addressing the Biological Weapons Convention](#) review conference. The highest-ranking U.S. official to speak to the biological weapons group in decades, Clinton warned, "The emerging gene-synthesis industry is making genetic material widely available. This obviously has many benefits for research, but it could also potentially be used to assemble the components of a deadly organism."

"A crude but effective terrorist weapon can be made by using a small sample of any number of widely available pathogens, inexpensive equipment, and college-level chemistry and biology," Clinton also stated. "Less than a year ago, al Qaeda in the Arabian Peninsula made a call to arms for, and I quote, 'brothers with degrees in microbiology or chemistry to develop a weapon of mass destruction.'"

Noting that "It is not possible, in our opinion, to create a verification regime" for biological weapons compliance under the convention, Clinton called for voluntary transparency on biological experimentation among the 165 countries that have signed the agreement.

Officials throughout the U.S. government are declining to comment on the influenza experiments or elaborate on Clinton's comments and appearance in Geneva. The influenza scientists were politely but firmly instructed recently by U.S. officials to keep their mouths shut and provide no data or details regarding their experiments to anybody. Sources inside the Dutch, German, and French governments say that discreet agreement was reached among Western leaders to greet the influenza pronouncements with a wall of silence, pending the advisory board's decision and detailed analysis of the experiments by classified intelligence and scientific bodies.

Should we worry? If these scientists have indeed used the techniques that they have [verbally described](#) (but not yet published) to produce a highly contagious and virulent form of the so-called "bird flu," the feat can at least theoretically be performed by lesser-skilled individuals with nefarious intentions. Perhaps more significantly, the evolutionary leaps might be made naturally, via flu-infected birds, pigs, even humans. In other words, the research has implications for both terrorism and a catastrophic pandemic. Moreover, several experimental antecedents involving smallpox-like viruses and polio lend credence to the idea that concocting or radically altering viruses to create more lethal or transmissible germs is becoming an easier feat and an accidental byproduct of legitimate research.

The advisory board is debating whether the work, as well as details on how the flu viruses were deliberately mutated, should be published. That is the wrong question. As a practical matter, experimental results are now shared with lightning speed between laboratories, and I know that several leading scientists outside Fouchier's and Kawaoka's labs already recognize exactly how these experiments were executed. The genie is out of the bottle: Eager graduate students in virology departments from Boston to Bangkok have convened journal-review debates reckoning exactly how these viral Frankenstein efforts were carried out.

The list of attempts by governments to stifle scientific information is lengthy and marked by failure. I was at a [1982 optical engineering meeting](#) in San Diego that was disrupted by a censorship order handed down by the Ronald Reagan administration's security chief, Adm. Bobby Ray Inman, compelling seizure of about 100 papers. The administration claimed the findings in those mathematics papers would, in Soviet hands, pose an existential threat to the United States --an assertion that proved laughable when the studies soon saw the light of day. In 2006, George W. Bush's administration [tried to block](#) climate change-related presentations by NASA scientist James Hansen; every single one of Hansen's data points swiftly appeared on the Internet.

Rather than trying to censor research because its inevitable release might be harmful, we ought to be having a frank, open discussion about its implications. The correct questions that scientists, national security and political leaders, and the public ought to be asking are: How difficult was it to perform these experiments? Could they be replicated in the hands of criminals or would-be terrorists? What have these experiments shown us about the likelihood that the H5N1 "bird flu" virus will naturally evolve into this terrifying form? Are we safer, or less secure, today due to the post-2001 anthrax-inspired proliferation of high-security biological laboratories?



## What Genie Has Popped from Which Bottle?

In 1997, the form of influenza now dubbed H5N1, or avian flu, emerged in Hong Kong, killing [six people](#) and forcing the destruction of every chicken in the protectorate. The virus had been circulating in aquatic migratory birds and domestic poultry flocks within mainland China for at least two years, but it was not recognized as a unique entity until the Hong Kong outbreak. The spread of H5N1 was temporarily halted by Hong Kong health official Margaret Chan, who ordered the mass culling of the area's poultry. Chan now serves as director general of the World Health Organization (WHO).

The virus reappeared in Thailand in 2003, killing flocks of chickens and ducks that November and infecting humans in January 2004 in Thailand and Vietnam. The H5N1 virus mutated in 2005 as it spread among various species of birds migrating through northern China, giving avian flu the capacity to infect a far greater range of bird species, as well as mammals -- including human beings. That year, human and animal outbreaks of H5N1 appeared across a vast expanse of the globe, from the southernmost Indonesian islands, up to central Siberia, and as far west as Germany.

By mid-2011, H5N1 had become a seasonal occurrence in a swath of the world spanning 63 countries of Asia, the Pacific Islands, Eastern and Western Europe, the Middle East, and North and West Africa. Since its 2004 reappearance, H5N1 has sickened at least 565 people, killing 331, for an overall mortality rate of 59 percent. The Ebola virus can be more lethal -- as high as 90 percent -- but is not terribly contagious. Rabies, in the absence of vaccination, is 100 percent lethal, but it can only be transmitted through the bite of an animal. It is estimated that in pre-vaccine days, the smallpox virus killed about a third of the people it infected.

Only influenza holds the potential of both severe contagion and, in the case of H5N1, astounding mortality rates, ranging from about 35 percent in Egypt (where the virus circulates widely) to more than 80 percent in parts of Indonesia (where 178 confirmed cases have resulted in 146 deaths). The virulence of H5N1 is far higher than that seen with any other influenza, including the notorious 1918 flu that killed an estimated [62 million people](#) in less than two years. (Some reckonings of 1918 death tolls in poor countries that lacked epidemic reporting systems, such as China, India, and all of Africa, put the final mortality at 100 million, when the world population was just 1.8 billion and commercial air travel did not exist.) Six years ago, the spread of H5N1 sparked concern in the Executive Office of the Secretary-General of the United Nations, the White House, and many of its counterpart centers of government worldwide. Tremendous efforts ensued to kill infected domestic poultry, rapidly identify outbreaks, and pool scientific resources to track and scrutinize various H5N1 strains as they emerged. Some 400 million domestic birds were killed between 2004 and 2010, at an estimated global cost of \$20 billion. It all seemed to work: By the end of 2008 the annual number of poultry outbreaks of H5N1 had shrunk from 4,000 down to 300.

In fearful anticipation, health and virus experts also watched for signs that the virus was spreading from one person to another. Although there were clusters of victims, infected families, and isolated person-to-person possible infections, the dreaded emergence of a form of humanly contagious H5N1 never occurred. By 2010, many leading virologists concluded that H5N1 was a terrifying germ -- *for birds*. The confident consensus, however, was that the mutations that avian flu would have to undergo to be able to spread easily from one human lung to another's were so complex as to approach evolutionary impossibility.

By mid-2011 the global response to avian flu had grown lethargic and complacent. Predictably, in the absence of vigilant bird-culling and vaccination efforts, trouble emerged as outbreaks mounted across Asia. Between January 2010 and the spring of 2011 more than 800 outbreaks were dutifully logged by government officials worldwide. In late July, a 4-year-old [girl died of H5N1 in Cambodia](#), making her the seventh avian flu mortality in a country that had been free of the microbe for a long time.



On Aug. 29, the Food and Agriculture Organization sounded a [mutation alarm](#), noting a new strain of the virus, dubbed H5N1-2.3.2.1, had surfaced in wild and domestic bird populations in Vietnam. Vietnam was one of six countries (including Bangladesh, Egypt, Indonesia, China, and India) in which avian flu had become *endemic*, meaning it permanently circulated among local and migratory birds. A week later, a Boston biotech company called Replikins announced the [discovery of a mutant combination](#) of the avian H5N1 flu and the so-called "swine flu" that spread swiftly among people during the 2009 global pandemic. Replikins's claim implied that the highly virulent bird flu could gain the capacity to spread rapidly between people by absorbing infection genes from the contagious-but-wimpy H1N1 swine influenza.

Although these announcements sparked a minor panic in Asia, further scrutiny of both the 2.3.2.1 and Replikins's claim left the WHO convinced that no new human threat loomed. In early September, a collective sigh of public-health relief was expelled.

Three days later, the conference of the European Scientists Fighting Influenza (ESWI, the Romance-language acronym) convened in Malta, opening with scientific evidence of current [pandemic potentials](#). The stage was set by renowned University of Hong Kong flu scientist Malik Peiris, who described with exquisite precision which genetic factors made the "swine flu," H1N1, highly contagious between pigs, ferrets, humans, and other mammals. Peiris offered evidence that the 2009 H1N1 pandemic started among American pigs but had been circulating in swine populations throughout North America and China for decades before making the mutational steps that sparked global spread.

Fouchier, the Dutch scientist, who has tracked H5N1 avian flu outbreaks in Indonesia for years, then suggested that vaccines used for years on chicken farms are now failing. Perhaps under selective evolutionary pressure, forms of vaccine-resistant H5N1 have appeared, Fouchier told the Malta meeting, [adding](#), "We discovered that only one to three substitutions are sufficient to cause large changes in antigenic drift." In other words, naturally occurring, infinitesimal changes in the flu's genetic material are sufficient to render vaccines useless.

Fouchier went on to describe what he dubbed his "[stupid](#)" experiment of infecting ferrets in his lab [sequentially with H5N1](#). One set of the animals would be infected, and then Fouchier would withdraw nasal fluid from the ferrets and use it to inoculation-infect a second set of animals. After 10 repeats, the superkiller H5N1 emerged, [spreading through the air rapidly](#), killing 75 percent of the exposed animals. (Because Fouchier's work has not been published, accounts of the experiment vary, based on reporting from those who were present to hear his Malta speech. In some accounts the superlethal bird flu resulted from only five serial passages in ferrets -- a number far more likely to occur randomly in nature.)

"This virus is airborne and as efficiently transmitted as the seasonal virus," Fouchier [told](#) the Malta crowd, adding that he had identified which specific five mutations were necessary. Only five minute switches in RNA nucleotides -- the most basic elements of genetics -- were needed.

"This is very bad news, indeed," a sober Fouchier [concluded](#).

The five dire mutations (technically, single nucleotide changes occurring inside two genes) have been separately found in influenza viruses circulating in the world. The actual mutations are not, therefore, unique. Fouchier's only innovation was in making all five occur inside the same virus at once. The more famous flu researcher from Erasmus, Albert Osterhaus, told reporters that what is done in the lab [can happen in nature](#), adding, "Expect the unexpected.... *The mutations are out there, but they have not gotten together yet.*"

Under questioning in Malta, Fouchier said his ferret form of H5N1 would certainly spread among humans and is "one of the most dangerous viruses you can make."

Shortly after Fouchier's announcement, Kawaoka, the University of Wisconsin scientist, let it be known that he, too, has made an airborne-transmissible H5N1 that readily spreads among mammals. Kawaoka's

efforts were jointly executed by teams he heads at the University of Wisconsin and the University of Tokyo. No further details regarding this effort are publicly available, though Kawaoka has submitted a paper detailing his techniques and discoveries for review by the U.S. National Science Advisory Board for Biosecurity, as has Fouchier. Both scientists wish to publish their work in major scientific journals.

Scientists are deeply divided regarding publication. "If I were a journal editor and I received an article that said how to make a bioweapon, I'd never publish it, but that would be based on self-regulation, not any government restriction," anthrax expert and retired Harvard University professor Matt Meselson [told](#) an interviewer. "I've never heard of a case where the government has restricted publication. I don't think it would work." But fellow anthrax researcher Paul Keim, who chairs the advisory board, [told reporters](#), "I can't think of another pathogenic organism that is as scary as this one. I don't think anthrax is scary at all compared to this."

Perhaps the most intriguing comments came from Australian scientist Ian Ramshaw, who suggested that the Fouchier or Kawaoka papers could serve as bioterrorism blueprints: "As a researcher you do the good thing, but in the wrong hands it could be used for evil. In this case I'm not so worried about bioterrorism. It's the disgruntled researcher who is dangerous -- the rogue scientist," [Ramshaw warned](#), according to the *Canberra Times*. Ten years ago Ramshaw accidentally made a [superkiller form of mousepox](#), the rodent version of smallpox, in his Australian National University laboratory. He injected lab mice with the pox virus to test out a completely unrelated contraceptive vaccine, but the experiment transformed the virus into a deadly monster with a 100 percent fatality rate. In 2001 Ramshaw's work spurred high-level concern about the use of genetically modified smallpox by a rogue nation or terrorist group, launching the vigorous, multibillion-dollar post-9/11 American smallpox vaccine effort, as detailed in my new book, [I Heard the Sirens Scream](#).

Within two years of Ramshaw's accidental mousepox creation, separate labs deliberately created viruses. In 2002, researchers at the State University of New York in Stony Brook built a polio virus from its genetic blueprint. This constituted a proof of principle, demonstrating that in a sufficiently skilled laboratory, all that is required to make a deadly virus is its nucleotide sequence -- details of which are now routinely published for everything from anthrax to the Ebola virus. At the time, Eckard Wimmer, the lead scientist on the project, [warned](#): "The world had better be prepared. This shows you can re-create a virus from written information."

The following year another scientific team deliberately mimicked Ramshaw's mousepox accident, not only with the rodent form of pox but also with pox viruses that infect rabbits and cows. And in 2005 the CDC famously joined fragments of RNA from thawed tissue of victims of the 1918 flu, re-creating the original superkiller.

### **The Genie Is Out of the Bioterrorism and Pandemic Bottles: How Scared Should We Be?**

This April, a team of CDC scientists published word that it had tried to [manipulate H5N1 genes](#) to render the avian virus a human-to-human spreader, but could not make it work. The team used a different method from the one apparently deployed by Fouchier and Kawaoka's team: The CDC group directly altered the genes of viruses, rather than sequentially infecting ferret after ferret. The CDC [concluded](#), "An improvement in transmission efficiency was not observed with any of the mutants compared to the parental viruses, indicating that alternative molecular changes are required for H5N1 viruses to fully adapt to humans and to acquire pandemic capability."

That seemed comforting.

But in 2007 a [different CDC team](#) did to the SARS virus what Fouchier apparently has done to H5N1, with lethal results. Just as Fouchier produced highly infectious bird flu in ferrets by sequentially infecting one group of animals after another, the CDC group passed the SARS virus through one group of mice after another. Mice are normally harmlessly infected by SARS, which cannot cause disease in the rodents. But

after 15 such passages, the team got a 100 percent fatal form of the virus. Moreover, it was an [airborne killer](#), sniffed out the air. (SARS, or severe acute respiratory syndrome, killed more than 900 people worldwide in 2002 and 2003, mostly in China.)

The University of Minnesota's Michael Osterholm, an expert on both bioterrorism and pandemics, thinks that understanding how animals might pass a virus like SARS or H5N1 among themselves, in a fashion in nature that mimics the laboratory experiments, may hold a vital key to predicting future epidemics. "We don't want to give bad guys a road map on how to make bad bugs really bad," he recently [told](#) *Sciencereporter* Martin Enserink. Health experts, however, do applaud the controversial research because it shows which mutations are necessary and at least one way they might arise.

There is no way to put a number on the probability of such natural mutational events. Are the odds 50-50 that a deadly, contagious form of H5N1 will wreak havoc across the world in the next 10 years? Anybody who claims to answer such a question, or pooh-pooh the asking of it, is a fool or a charlatan. It is an unknown.

### **What About the Proliferation of High-Security Biology Labs: Good or Dangerous?**

Before the anthrax mailings terrorized America in 2001, there were only a handful of top security Biosafety Level 4 (BSL-4) labs in the world and a few dozen of the next-level BSL-3 facilities. The CDC and U.S. Army had the two largest pre-2001 BSL-4 labs, which nested like [matryoshka](#) dolls, with one layer of security inside another and another. The innermost labs required identity clearance, scientists wore protective space suits, and all air and water were specially cleansed and filtered to prevent accidental escape of Ebola, smallpox, and dozens of other superlethal organisms. The world's most dangerous known microbes were carefully kept under lock and key in a clearly identified handful of BSL-4 labs.

Even the less-secure BSL-3 labs required that scientists undergo security checks, wear spacesuits, and breathe through special respirators. Their numbers were finite and known, and researchers working on influenza, anthrax, or other deadly-but-treatable microbes represented a fairly small pool of scientists.

Since the 9/11 terrorist attacks, however, the number of such laboratories has proliferated spectacularly, not only inside the United States, but all over the world. In 2001 the United States had five "centers of excellence," as they were called, devoted to bioterrorism. By the end of 2002, more than 100 such centers were named, amid a record-breaking expansion in the numbers of laboratories and scientists studying anthrax, smallpox, Ebola, botulism, and every other germ somebody thought could be weaponized. After 9/11, the European Union saw the number of BSL-4 labs grow from six to 15. In the United States: from seven to 13. Canada built a BSL-4 complex in Winnipeg. Just as possession of rockets in the 1950s or nuclear power plants in the 1960s seemed the marks of a serious state power, so having BSL-3 and BSL-4 labs suddenly became a mark of national significance in the world -- an achievement to which countries should aspire. This year India opened its first BSL-4 facility, and it is rumored that Pakistan is now building one.

The proliferation of high-security labs means a great deal more than the mere construction of physical buildings. Where 10 years ago a finite pool of predominantly senior scientists toiled in such facilities, today thousands of graduate students, postdoctoral fellows, technicians, and senior researchers work in facilities stocked with humankind's worst microbial foes. Accidents have occurred with alarming regularity since the lab proliferation commenced, as I have detailed in my book. The facilities also constitute locations wherein individuals could theoretically execute experiments to produce supergerms without risking harm to themselves or others, regardless of whether the intent were noble, as appears to be the case for Fouchier and Kawaoka, or whether the intent were evil, as was the case with those responsible for the anthrax mailings.

Since 2005, several flu experiments conducted under BSL-3 conditions have raised eyebrows, as critics have charged the work should have been done inside the far more difficult but secure BSL-4 conditions. The original 1918 virus was "revived" from a long-frozen human body and grown inside a BSL-3 lab. Experiments were done on the 1918 virus in an effort to discover what genes made it so lethal. And the research that the CDC team, Fouchier, and Kawaoka performed on the H5N1 virus was all done in BSL-3 labs.

In September, when news of the Fouchier work started to appear in science magazines, Thomas Inglesby of the Center for Biosecurity at the University of Pittsburgh [told](#) *New Scientist*, "Small mistakes in biosafety could have terrible global consequences." His Pittsburgh colleague D.A. Henderson concurred: "The potential for escape of that virus is staggering."

According to the FBI, the culprit behind the 2001 anthrax mailings was Bruce Ivins, who worked in the U.S. Army's BSL-3 and BSL-4 labs in Maryland. Whether or not the FBI caught the right man -- a point of controversy among scientists -- it remains extraordinary that the response to what the agency calls "Amerithrax" is the creation of more such facilities in which more "Ivins" might toil.

The questions that arise from these H5N1 experiments have nothing to do with publication of the Fouchier and Kawaoka papers. We should be asking what we can do to ensure that such terrible man-made viruses never accidentally escape their laboratory confines or are deliberately released. And we should heed the question posed in the recently released Hollywood thriller [Contagion](#) when a Homeland Security character queries a CDC scientist:

"Is there any way someone could weaponize the bird flu? Is that what we're looking at?"

"Someone doesn't have to weaponize the bird flu," the CDC scientist responds, "The birds are doing that" ([Foreign Policy, 2011](#)).

**Title:** Should Medical Journals Print Info That Could Help Bioterrorists?

**Date:** December 27, 2011

**Source:** [TIME](#)

**Abstract:** Bird flu is deadly, but it generally does not spread easily from human to human. Now, scientists in Wisconsin and the Netherlands have created a strain of bird flu that can spread through the air — a virus that could kill millions if terrorists managed to create a batch and weaponize it. This raises a thorny question: Should medical journals be allowed to print the details of how the virus is made?

A government advisory board has urged two scientific journals to omit some of the specifics about the virus — the first time it has issued such a request. Supporters insist that the board's request is a much-needed precaution that could save millions of lives. But critics say that the government is engaging in censorship and interfering with academic freedom.

It is a classic clash of liberty versus security. The question is such a difficult one because whichever course the government takes carries risks and costs. Which option — blocking publication or allowing it — is the lesser of two evils?

It is not hard to see why the government is seeking to keep details of the virus out of print. The H5N1 bird-flu virus rarely infects humans. But when it does cross the species barrier, the mortality rate can be as high as 60%. If terrorists were able to use the new research to make a contagious strain of the virus, the result could be a real-world version of the movie *Contagion*. That is: worldwide panic and mass deaths.

The government is trying to avoid this by urging scientific journals to describe the virus only in general terms and keep out the sort of details that could be used to replicate it. The National Science Advisory Board for Biosecurity, which was created after the deadly anthrax attacks of 2001, asked the journals *Science* and *Nature* to be selective when they published articles on the highly contagious strain of H5N1.

So what's the problem? Critics say the government is engaging in censorship by telling the media what it should and should not write about. It sets a terrible precedent, they argue, for the government to set itself up as a national-security censor. The next time, they say, the government will try to prevent the publication of information that is far less dangerous than contagious bird flu.

Press-freedom watchdogs have a point: the government often trots out national security to try to intimidate the press into not doing its job. A few years back, the New York *Times* was about to expose the NSA spying program, in which the government was intercepting emails and phone calls without getting court orders. President George W. Bush called the paper's top brass down to the White House and warned them that exposing the program would compromise national security. The *Times* went ahead and published — and we are all still here.

The skeptics raise another important concern: the long tradition of scientific openness. Research science works by having experiments reported publicly, so other scientists can test the findings — and build on them with their own research. This tradition breaks down when the government puts a shroud of secrecy on some research.

The editor of *Science* has suggested that his journal might agree to withhold the information the advisory board is worried about — provided that the government creates a system that would allow legitimate scientists to access the full results.

That sounds like the right answer. We should be wary of government attempts to stop the media from publishing information. But in extreme cases, it may be necessary — and weaponizable highly contagious bird flu could be just such a case.

What factors should we be looking for in considering whether the government should try to stop publication? First, the threat of harm should be real and it should be truly extraordinary. That is a test the contagious strain of H5N1 seems to meet. Second, it should be clear that the government has no ulterior motives — that it is acting to protect the nation, not to advance a political agenda.

That can be a tough thing to evaluate — governments that use national-security arguments for political goals are quick to deny that they are doing so. The best check on this sort of politicization is making sure that anyone who feels pressure from the government not to publish or speak is able to challenge the policy in court. Judges are in the best position to balance risks of serious harm against the infringement on speech — and to determine whether the government is crossing any First Amendment lines.

Those who oppose the Scientific Advisory Board's decision are right that we must be wary whenever the government tries to suppress speech. As Supreme Court Justice Potter Stewart said, censorship is "the hallmark of an authoritarian regime." But the board's defenders are right that ultimately the government has a duty to protect the public from the most serious threats. They can cite Supreme Court Justice Robert Jackson, who noted that the Constitution is not a suicide pact ([TIME, 2011](#)).

**Title:** The Polio Genome

**Date:** 2012

**Source:** [NMAH](#)

**Abstract:**

It's now possible to go from data printed on a piece of paper or stored in a compute and, without the organism itself, re-construct a life form.

John LaMontagne, National Institute of Allergy and Infectious Diseases, 2002

A [genome](#) is the genetic material of an organism. In 1981, two different research groups, Vincent Racaniello and David Baltimore at Massachusetts Institute of Technology and Eckard Wimmer's team at State University of New York, Stony Brook, published the [poliovirus](#) genome. They used an [enzyme](#) to switch the single strands of viral ribonucleic acid—[RNA](#)—to double strands of deoxyribonucleic acid—[DNA](#)—and then determined the sequence of adenine, thymine, guanine, and cytosine encoding the five molecules that are the substance of the virus's existence.

Poliovirus lacks the ability to correct its mutations, so its genome evolves at one to two nucleotide substitutions per week. It is always changing.

In 2002, investigators at the State University of New York in Stony Brook used the published genetic sequence to synthesize a DNA version of poliovirus. Then they used an enzyme to convert the DNA to RNA and grew the virus in a cell-free extract. Animal tests showed that the synthesized poliovirus caused [paralysis](#).

"I did not use any machine for sequencing the poliovirus genome. It was all done by hand—my hands! I used what was known as the 'Maxam-Gilbert' method, in which four different chemical reactions are carried out on the DNA. The products are then fractionated on thin polyacrylamide gels, which were poured manually, run, and then carefully removed from the plates, dried, and exposed to X-ray film. The sequencing 'ladders' were then read by myself on a light box and entered manually into a computer. But we didn't have individual computers back then, so I used a terminal hooked up to an MIT central computer."

—*Vincent Racaniello, 1981* ([NMAH, 2012](#)).

**Title:** 'Biohackers' Get Their Own Space To Create

**Date:** January 12, 2012

**Source:** [Wall Street Journal](#)

**Abstract:** Silicon Valley has sprouted numerous "hacker spaces" in recent years, where software geeks get together to program and build new Web creations. Now there's a hangout for "biohackers," too.

BioCurious, a 2,500-square-foot community lab in a low-slung office building in Sunnyvale, opened in November as a place where scientists, entrepreneurs and others can meet to conduct biology experiments and innovate on everything from bacteria to thermal cyclers. The facility also offers classes on topics ranging from DNA sequencing to microfluidics.

So far, the lab has attracted about 30 members who shell out \$100 a month for use of the facility, says Raymond McCauley, one of half a dozen co-founders of BioCurious and the chief science officer of genomics start-up Genomera. At some point, he adds, the nonprofit may also launch a for-profit incubator program to cultivate and fund biotechnology start-ups.

"We're applying Silicon Valley principles to biotech and allowing people to just roll on in their projects," says Mr. McCauley, 45 years old.



George Church, a genetics professor at Harvard Medical School who has visited BioCurious, says the lab is part of a growing do-it-yourself biology movement. Many do-it-yourselfers see the biotech field as being at the same point that the personal-computer industry was more than 30 years ago, when Steve Jobs and Steve Wozniak debuted what became the Macintosh computer and founded Apple Inc.

"I compare BioCurious and other such labs to the 1970s electronics hackers in their garages," says Mr. Church.

BioCurious arrives amid a wave of new hacker spaces for computer programmers, such as Hacker Dojo in Mountain View, and a flood of tech start-up incubators such as Y Combinator. But while tech hacker spaces typically only require a physical space with Internet access, a biohacking space is complicated to launch because labs usually need expensive biochemistry equipment and procedures for dealing with biohazardous materials.

Mr. McCauley says the lab navigated city, county, state, federal and water-district rules on zoning and safety issues. The lab launched with about \$35,000 in funding from volunteers and has relied on donated equipment, including a thermal cycler that copies DNA sequences.

BioCurious has since gotten some commercial sponsorships from biotech start-ups and equipment makers, Mr. McCauley says. With 30 paying members, "we're right about at break-even," he adds.

One regular user of BioCurious is Ron Shigeta. Mr. Shigeta, a 47-year-old Emeryville-based bioscientist, has been going to the lab once a week to work on learning more about the genes associated with the E. coli bacterium and is now collaborating with other scientists he has met at the facility on the project. "We're sharing the work," he says.

Patrik D'haeseleer, a computational scientist at Lawrence Livermore National Laboratory, says he has been going to BioCurious recently to work on a community project to hack an inkjet printer and make it a "bioprinter" that can print out cells, among other things.

"In my day job, I'm on the computational side but I don't get to get my hands dirty," says the 45-year-old. "So BioCurious is my opportunity to learn what my colleagues say is 'real' biology" ([Wall Street Journal, 2012](#)).

**Title:** E. Coli Vials Found In Arkansas Apartment Used To Treat Aliment

**Date:** February 13, 2012

**Source:** [Fox News](#)

**Abstract:** Two dozen vials of [E. coli](#) were left in the refrigerator of two Arkansas college students when they vacated their apartment are now being tested by state health officials, though the bacteria isn't thought to pose a health threat.

The bizarre discovery Friday set off a storm of panic, as state and federal agencies sent HazMat teams to [the apartment](#) complex in Jonesboro, Ark. Two of the vials were unsealed, and the samples are to be tested Monday at a state [Health Department](#) lab as a precaution, county officials said.

One of the tenants was located by authorities and said that his roommate, who returned a week ago to his native home of [South Africa](#) had the vials to treat an ailment, officials said.

"We spoke to his roommate, who told us that he used it to treat an illness and that it was a common treatment in his country," David Moore, director of the Craighead County Office of Emergency Management told FoxNews.com. "We looked into it and we were satisfied with the fact that it was used for medical reasons."



Certain strains of E. coli are used to treat a number of gastrointestinal ailments, including irritable bowel disorder.

A maintenance worker who was cleaning out the apartment found the vials, marked "E-Coli," inside a foam container after opening the refrigerator, officials said. He notified the building manager, who called the Arkansas Department of Health and the [Centers for Disease Control and Prevention](#). Local authorities, along with the National Guard, immediately shut down the area and spent a majority of the day securing the medical-grade vials for removal.

The [apartment complex](#) was not evacuated at the time, and tenants were told there was no danger posed from the discovery. Representatives from the Willow Creek Apartment Complex, where the bacterium was found, did not immediately return calls for comment ([Fox News, 2012](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#), or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Date:** April 20, 2003

**Source:** [UCLA](#)

**Title:** Lethal Legacy: Bioweapons For Sale

**Abstract:** Daan Goosen's calling card to the FBI was a vial of bacteria he had freeze-dried and hidden inside a toothpaste tube for secret passage to the United States.

From among hundreds of flasks in his Pretoria lab, the South African scientist picked a man-made strain that was sure to impress: a microbial Frankenstein that fused the genes of a common intestinal bug with DNA from the pathogen that causes the deadly illness gas gangrene.

"This will show the Americans what we are capable of," Goosen said at the time.

On May 6, 2002, Goosen slipped the parcel into the hands of a retired CIA officer who couriered the microbes 8,000 miles for a drop-off with the FBI. If U.S. officials liked what they saw, Goosen said he was prepared to offer much more: an entire collection of pathogens developed by a secret South African bioweapons research program Goosen once headed.

Goosen's extraordinary offer to the FBI, outlined in documents obtained by The Washington Post and interviews with key participants, promised scores of additional vials containing the bacteria that cause anthrax, plague, salmonella and botulism, as well as antidotes for many of the diseases. Several strains, like the bacterial hybrid in the toothpaste tube, had been genetically altered, a technique used by weapons scientists to make diseases harder to detect and defeat. All were to be delivered to the U.S. government for safekeeping and to help strengthen U.S. defenses against future terrorism attacks.

U.S. officials considered the offer but balked at the asking price -- \$5 million and immigration permits for Goosen and up to 19 associates and family members to come to the United States. The deal collapsed in

confusion last year after skeptical FBI agents turned the matter over to South African authorities, who twice investigated Goosen but never charged him.

Participants in the failed deal differ on what happened and why. But they agree that the bacterial strains remain in private hands in South Africa, where they have continued to attract attention from individuals interested in acquiring them.

The episode throws new light on the extraordinarily difficult task of preventing the proliferation of weapons of mass destruction. South Africa, which built nuclear, chemical and biological arsenals under apartheid, renounced its weapons in 1993, and sought to destroy all traces of them, including instruction manuals and bacterial seed stocks. But like other countries that have attempted such a rollback, such as Ukraine and Kazakhstan, South Africa finds itself in a gray zone where weapons of the past pose serious dangers for the present.

"The weapons programs were ostensibly terminated, yet clearly they weren't able to destroy everything," said Jeffrey M. Bale of the Center for Nonproliferation Studies at the Monterey Institute of International Studies, which is carrying out a study of South Africa's weapons programs. "The fact that Goosen and others are providing samples and being approached by foreign parties suggests that these things never really went away."

To disarmament experts, the case is especially troubling because of the kinds of terrorist-ready weapons produced by Project Coast, a top-secret biological and chemical program created by South Africa's white-minority government, which came to light in the late 1990s. Unlike U.S. and Soviet programs that amassed huge stockpiles of bombs and missiles for biological warfare, Project Coast specialized in the tools of terrorism and assassination -- including "stealth" weapons that could kill or incapacitate without leaving a trace. The program's military commanders also researched anti-fertility drugs that could be clandestinely applied in black neighborhoods, and explored -- but never produced -- biological weapons that would selectively target the country's black majority population.

Even if all of Project Coast's bacterial strains are secured, the know-how and skills acquired by dozens of its scientists may be impossible to contain, South African officials acknowledged in interviews. Several key scientists have pursued business interests overseas since the program was disbanded shortly before South Africa's transition to democracy. Others, including Goosen, have acknowledged they were approached by recruiters claiming to represent foreign governments or extremist groups. While the United States has spent tens of millions of dollars to re-train and re-employ weapons scientists in the former Soviet Union, many Project Coast scientists have been shunned by their peers and left to try to support themselves any way they can.

"It would have been galling to most South Africans to see their government take care of these scientists, after all the revelations about them," said Chandre Gould, an investigator for South Africa's Truth and Reconciliation Commission in the late 1990s and now the co-author of an official United Nations study on Project Coast. "They were part of a program that tried to kill people in this society."

## **Novel Weapons**

The failed deal with the South African scientist is documented in hundreds of pages of memos, contracts and reports. Many of the documents were provided by Don Mayes, a former CIA operative who acted as go-between in the deal, and helped arrange for the bacterial sample to be brought to the United States for testing. Mayes, Goosen, and several other South African participants were also interviewed at length for this article.

The FBI and CIA, which were jointly involved in the encounter with Goosen, declined to speak about it on the record. However, U.S. government officials, who asked not to be identified by name, have provided details of the negotiations. They say the agencies were troubled by Goosen's claims but suspected the

scientist and his partners were more interested in cashing in than helping out. They viewed Goosen and his partners as naive, at best, for expecting to be rewarded for turning over what they viewed as 1990s-vintage biological material -- products that could be duplicated in any well-equipped, modern microbiology lab.

"If they thought we were going to put out good money for that kind of stuff, they came to the wrong group," said one U.S. law enforcement official who reviewed Goosen's proposal. "Thanks for being good citizens, but no thanks."

Goosen acknowledged that he had hoped to benefit financially, and sought permission to work in the United States, where he wanted to start a new business. But he says the FBI misjudged both his intentions and his ability to help them defend against future bioterrorism.

"At minimum, they should have copies and DNA fingerprints for each of the strains from Project Coast," he said. "If one of the strains were to turn up in Iraq, at least they would know where it came from."

Goosen, an affable 51-year-old who became a veterinarian like his father, was picked in 1981 as the founding director of Roodeplaat Research Laboratories, the bioweapons research arm of Project Coast.

Project Coast's notorious military commander, Wouter Basson, used the lab to create novel weapons for use against anti-apartheid activists and the black communities that supported them, according to documents and testimony in a murder and fraud case that ended last year in Basson's acquittal. One of Goosen's first assignments, he has said, was to harvest highly lethal venom from the black mambo snake for use in secret assassinations. Fangs from a dead snake were used to make impressions in the victim's skin so the death would appear accidental.

A widening rift between Goosen and Basson over the lab's direction ended with Goosen's resignation in 1986. But he continued to work as a consultant for the lab and maintained close ties with its scientists, some of whom would later work for him in his private laboratory. After Project Coast was disbanded, Goosen was among the first scientists to publicly acknowledge and condemn its offensive weapons research.

South African officials claimed to have destroyed all of Project Coast's biological materials in 1993, several months before the outgoing government of Frederik W. de Klerk revealed the secret program to Nelson Mandela, the first president of post-apartheid South Africa. But Goosen says many scientists kept copies of organisms and documents in order to continue work on "dual-use" projects with commercial as well as military applications. Goosen's vaccine production lab ended up with hundreds of strains, at least half of which were from Project Coast. At his home in Pretoria, he showed a visiting reporter two trays of what he described as vaccine strains that he kept in a freezer.

"The products should have been destroyed. The products were not destroyed," he said.

After the U.S. [anthrax attack](#) in October 2001, at the urging of American friends, Goosen approached the U.S. Department of Defense with an offer of "open cooperation" in sharing Project Coast's extensive research in anthrax vaccines and novel antidotes known as antiserums. The Pentagon was sufficiently interested to arrange a meeting in January 2002 between Goosen and Bioport Corp., the Michigan company that produces anthrax vaccines for the military. But interest from the U.S. side evaporated quickly, to Goosen's amazement.

"At that time there was a massive amount of good will toward the United States, and a feeling that we could contribute," Goosen said. "My thinking was: If George Bush had contracted anthrax, our technology could have cured him."

## Clandestine Deals

The two men who finally brought Goosen to the FBI's attention knew little of germ warfare but were old hands in the shadowy world of arms trading and secret deals. Goosen had met neither until May 4, 2002, just two days before the toothpaste tube filled with genetically-altered bacteria began the journey across the Atlantic.

One of the men, retired South African Maj. Gen. Tai Minnaar, was a former military intelligence officer who had worked undercover for the CIA in Cuba in the 1970s, according to his resume. After Goosen's unsuccessful meeting with Biopart, Minnaar phoned Goosen, offering to put him in touch with U.S. officials who would appreciate the value of his work. And, Minnaar said, the Americans might be willing to pay money -- perhaps tens of millions of dollars, Goosen recalled.

Minnaar's first call was to Mayes, the former CIA operative, whom he had met and befriended during Mayes' frequent business trips to South Africa in the 1980s and 1990s. On March 4, Minnaar wrote to Mayes warning that dangerous biological material from Project Coast still existed in South Africa and posed unacceptable risks.

"With the current situation here at present, we need to ensure that the technology as well as 'stock in hand' (at present stored safely in a private facility) are safeguarded from finding its way to the people on the wrong side of the fence," Minnaar wrote in an e-mail to Mayes. "This is a very real danger, as some of the other technology we fear has already been sold."

Mayes, 64, a missiles expert who had built a career out of making clandestine deals to acquire foreign-built weapons and air-defense systems for the CIA, said he became quickly convinced that Minnaar was right. Within three weeks, he arranged the first of a series of meetings with FBI and CIA officials to discuss the feasibility of bringing Goosen and his bacterial collection to the United States.

Mayes said that he sought "not a penny" of compensation for himself because "it didn't seem like the patriotic thing to do." Mayes acknowledged he was hoping to shore up his reputation with the U.S. intelligence community following a series of highly publicized legal troubles in the late 1990s. Mayes had been investigated for alleged offenses ranging from the mishandling of classified documents to violating export regulations. Two separate grand juries found no evidence that Mayes had broken the law. His ex-wife made the allegations during a difficult divorce.

To remove the bacterial strains from South Africa, Mayes and an associate, Robert Zlockie, a former CIA officer, drew up an extraction plan in the event an agreement was reached to sell the pathogens to the United States.

A private aircraft would land at a remote airfield 600 miles from coastal city of Durban. From a waiting camper-trailer on the runway, the bacteria in two cryogenic canisters would be loaded onto the plane along with two of the South African scientists. The canisters were to be labeled "oxygen" to avoid suspicion. One of the canisters was to contain more than 20 liters of antiserum and other antidotes, documents show. The other would contain 200 glass vials of biological material described as "extremely harmful to people and the environment." An inventory later provided to the FBI listed the contents of those vials as more than 150 strains of bacteria, including six that were marked as "genetically modified."

Before the large transfer of pathogens could be made, Goosen first sent a sample to the FBI, which they insistently sought. It was meant to ice the deal and dispel any doubts about Goosen's credentials. Goosen recalled that he thought carefully before selecting a strain and settled on "*Escherichia coli* 078:K80 (+K60 GM)," a common intestinal bacterium that had been spliced with a toxin-producing gene from *Clostridium perfringens*. *C. perfringens* causes several potentially fatal conditions including gas gangrene, a rare and severe form of gangrene in which bacteria aggressively attack living tissue.

Biodefense experts have long worried about the implications of genetic modification for biological warfare or terrorism. The kind of engineering accomplished by Project Coast could theoretically be used to transfer lethal properties to ordinary bacteria. Or, conversely, it could be used to inoculate people and animals against disease.

The problem of how to transport the sample to the United States was quickly solved by Goosen himself. Microbes can easily be transported, he said, in a sealed glass cylinder inserted inside an ordinary toothpaste tube. A few grams of cooling gel squirted into the tube would ensure a stable temperature for a trip of up to several days.

"I can take it all over the world," Mayes quoted the scientist as saying.

### **Offer Declined**

At 5 p.m. on May 9, 2002, Robert Zlockie, the retired CIA officer who had couriered the toothpaste tube across the Atlantic, delivered the package to an agent at the FBI's office in Key West, Fla. In return, he was given a hand-written receipt on FBI letterhead. "One toothpaste tube containing one ampul of E. coli genetically coded with epsilon toxin," it read.

Within days, the bacteria arrived at the Army's top biodefense laboratory at Fort Detrick, Md. for scientific analysis. Government biodefense scientists were consulted about the findings, and helped the FBI in assessing the implications. By May 15, the FBI arrived at several conclusions, according to officials who participated in the discussion.

They decided that Goosen's altered bacteria was precisely as the scientist had described it and that the pathogens listed in his collection were likely "legacy" materials from Project Coast, just as Goosen claimed. They also decided that the FBI would not offer a penny for any of it.

"The material was just as advertised, but the hands-down reaction was, 'So what?' " said one law-enforcement official familiar with the assessment.

U.S. officials involved in the decision say they saw no compelling reasons for paying Goosen or for excluding the government of South Africa, a U.S. ally, from an operation affecting the security of biological material in that country. Mayes, in an urgent note to the FBI, pleaded against alerting South African authorities, saying the scientists "have no faith that the material would ever reach" the United States government. But within days of the note, the FBI reported the matter to South Africa in an official letter relayed through the U.S. Embassy in Pretoria. "From that point on, it became a police matter for South Africa," the law enforcement official said.

The FBI also was not convinced that buying Goosen's vials would make Americans safer, the official said. Deadly anthrax and *C. perfringens* can be found in nature, the official noted. And, while Project Coast's experiments in genetic engineering were state-of-the-art at the time, technology had advanced so rapidly that similar kinds of genetic alterations are now performed by microbiology students "at the graduate or even undergraduate level," the official said.

Other biological weapons experts have criticized the FBI's decision, saying the agency missed the point. While genetic engineering has become increasingly common, there are few known instances where scientists have deliberately tried to adapt organisms for germ warfare. Soviet bioweapons scientists were beginning to produce genetically altered prototypes when their program was shut down in 1992, according to Ken Alibek, a former Soviet scientist who defected to the United States.

Back in Pretoria, Goosen heard not a word from the United States after sending his toothpaste tube. But he assumed the deal was off when local authorities obtained a warrant to search his laboratory. Nothing was confiscated, said Goosen, who has never been charged with a crime.

The experience left Goosen embittered and disillusioned, but otherwise little has changed in his circumstances -- except that more people are aware of his bacteria collection and are inquiring about it. In the past nine months, the scientist has been offered money by a German treasure-hunter and a man claiming to be an Arab sheik. Goosen says he turned the offers down, but worries about future bioterrorism.

"A small container of pathogens could kill a million people," he said. "It's hard enough to secure fissile materials, which are large and easy to detect. How do you begin to control a substance that looks like nothing more than sugar?"

Bale, the Monterey Institute researcher, believes U.S. officials should have jumped at the opportunity to secure the South African strains. "Here was a guy who had worked in a former chemical and biological program and was willing to provide information and assistance to the United States," Bale said. "That's worth following up on. If a person like Goosen decides to collaborate with a foreign party, it's far better that he collaborates with us and not with rogue elements in other parts of the world" ([UCLA, 2003](#)).

**Title:** Biotoxins Fall Into Private Hands

**Date:** April 21, 2003

**Source:** [UCLA](#)

**Abstract:** In three days of secret meetings last July, the man known throughout South Africa as "Doctor Death" astounded U.S. law enforcement officials with tales of how the former white-minority government carried out unique experiments with chemical and biological weapons.

Wouter Basson, the bearded ex-commander of South Africa's notorious 7th Medical Battalion, spoke candidly of global shopping sprees for pathogens and equipment, of plans for epidemics to be sown in black communities and of cigarettes and letters that were laced with anthrax. He revealed the development of a novel anthrax strain unknown to the U.S. officials, a kind of "stealth" anthrax that Basson claimed could fool tests used to detect the disease.

But most disturbing was the question Basson could not answer: Who controls the microbes now?

Nearly a decade has passed since the last South African president under apartheid, Frederik W. de Klerk, dismantled the top-secret biological and chemical weapons program known as Project Coast, of which Basson was the director. In 1993, South Africa declared all the weapons, pathogen strains and documents destroyed. Since then, South Africa has been held up as a model -- an example for Iraq and other nations of "what real disarmament looks like," as Secretary of State Colin L. Powell said in a speech in January.

But in reality, Project Coast's legacy continues to haunt South Africa in ways that bode poorly for countries seeking to roll back programs for weapons of mass destruction, according to government officials and weapons experts. South Africa is still struggling to answer basic questions about the kinds of weapons developed in the program, how they were used and what happened to them, the officials said. Bacterial strains that supposedly were destroyed continue to turn up in private hands. Law enforcement officials remain concerned that former weapons scientists may share secrets with extremist groups or foreign governments.

The lingering threats from Project Coast attest to the existence of a gray zone, the combination of weak states, open borders, lack of controls and a ready market of buyers and sellers for weapons of mass destruction.



"So many of the past problems occurred because there weren't enough checks and balances in the system," said Torie Pretorius, one of two lead prosecutors in the state's case against Basson on murder and fraud charges stemming from Project Coast, of which he was acquitted. "Are those checks and balances any better today? I don't think so," he said.

"The rollback in South Africa is incomplete," said Milton Leitenberg, an arms control expert and senior research scholar at the University of Maryland's School of Public Affairs. "It's unclear that the government ever wrapped these programs up, and they need to wrap them up. The fact that you've got a guy with a walking collection of bacteria traveling around the world is just more evidence of that."

### **'Black Bomb'**

Project Coast was a closely guarded state secret, created as a unit of the South African National Defense Force (SADF) in 1981, at a time when the white-minority government saw itself under siege from all sides -- from communist-led insurgencies in neighboring countries and from an increasingly restive majority black population within its borders.

"The SADF viewed the liberation movements as terrorist organizations, a view that held that every white South African was a potential target," South African researchers Chandre Gould and Peter Folb wrote in a major study on Project Coast released in January for the United Nations.

The first authoritative accounts about Project Coast surfaced only in 1998 when Basson and other top scientists were called to testify before South Africa's Truth and Reconciliation Commission hearings. In 1999, state prosecutors began a 2 1/2-year trial of Basson on murder and fraud charges, alleging that he had directed the use of weapons in assassinations and misused state money. The trial resulted in the release of thousands of pages of documents, and produced sensational disclosures about South Africa's use of chemicals and pathogens. In a stunning rejection of the state's case, a South African judge acquitted Basson on all counts last April, finding that Basson did not break any laws. Prosecutors are appealing the case.

Testimony in the trial portrayed Basson as a skillful and wily manager who built a sophisticated weapons program on a modest budget with little oversight from the country's political and military leadership. Unlike the vastly larger Soviet weapons program, Project Coast produced no warheads or missiles and no "weaponized" agents that would be considered militarily significant. Instead, it focused entirely on small-scale, custom-made weapons intended to terrorize, weaken and kill opponents of the apartheid government, testimony and documents showed.

"The most characteristic feature of the South African program was the development, testing and utilization of a wide array of hard-to-trace toxic agents to assassinate 'enemies of the state,' " said Gary Ackerman, a South African weapons expert with the Center for Nonproliferation Studies at the Monterey Institute for International Studies.

Project Coast scientists collected hundreds of strains of deadly pathogens, including 45 types of anthrax and the bacteria that cause cholera, brucellosis and plague, according to documents released by the government. They also developed novel methods for distributing toxins. A 1989 sales list released by the government provided a partial inventory: sugar cubes laced with salmonella, beer bottles and peppermint candies poisoned with pesticide, cigarettes and letter-size envelopes sprinkled with anthrax spores.

More sinister were the attempts -- ordered by Basson -- to use science against the country's black majority population. Daan Goosen, former director of Project Coast's biological research division, said he was ordered by Basson to develop ways to suppress population growth among blacks, perhaps by secretly applying contraceptives to drinking water. Basson also urged scientists to search for a "black bomb," a biological weapon that would select targets based on skin color, he said.

"Basson was very interested. He said, 'If you can do this, it would be very good,' " Goosen recalled. "But nothing came of it."

## **Toxic Trail**

When South Africa announced destruction of its nuclear weapons program in 1993, teams of international observers were flown in for verification that the warheads as well as thousands of pages of blueprints and documents were destroyed. But the process was different for biological and chemical weapons -- the only witnesses to the destruction at Project Coast were the program's top managers. Their claims came into question as early as 1997, when steamer trunks filled with Project Coast documents belonging to Basson turned up in the home of an associate. The trunks contained financial and scientific records as well as a sales list of clandestine weapons.

When questioned by U.S. officials in July, Basson said he could offer no assurances about the possible existence of other documents, or bacterial strains and chemicals that he previously claimed were incinerated or dumped at sea.

"His suspicion was that people working in the labs had probably taken things with them," said a knowledgeable U.S. law enforcement source. "As the program ended, an effort was made to destroy or sell off as many assets as possible. That's because the white leadership didn't relish the prospect of this technology ending up in the hands of the new black government."

Goosen acknowledged in an interview that scientists had retained copies of bacterial strains to continue work on vaccines and antidotes with commercial applications. Goosen said he ended up with scores of such strains in his private laboratory, a collection he attempted unsuccessfully to sell to the United States last May. Goosen did not destroy them, he said, because he considered them vital to his continued research and vaccine business.

Documents and e-mails generated as part of that attempted sale to U.S. officials suggested that additional "replica" copies of Project Coast strains existed. Tai Minnaar, a retired South African general who represented Goosen in the attempted sale, wrote to a retired CIA official describing one such replica that "is in fact a copy of the original in every way." Goosen said he had no knowledge of such a replica.

Reconstructing what happened to Project Coast materials is made more difficult because of uncertainties over the identities of outside companies and institutes that may have provided assistance. Most of Project Coast's scientists worked for one of two front companies, Roodeplaat Research Laboratories and Delta G Scientific But based on interviews with former South African military leaders, some U.S. researchers have concluded that other entities were deeply involved.

"There were a number of different research and testing centers at universities and companies, and scientists in various parts of South Africa assisted," professors Helen E. Purkitt and Stephen F. Burgess wrote in a June 2002 article in the *Journal of Southern African Studies*. Over time, Basson was able to acquire or develop "pathogens that had never before been seen," they wrote.

## **Global Marketplace**

During his trial, Basson boasted of logging many tens of thousands of miles visiting foreign capitals, from Taipei to Tripoli. According to his own testimony, his trips included a visit to Iran to acquire samples of chemical weapons used in the Iran-Iraq war, and a trip to Russia to purchase sophisticated equipment used in genetic engineering. Along the way he built a network of foreign contacts who later became business partners.

Although weapons experts dismiss many of Basson's claims, travel records confirm that he made at least five trips in the 1990s to Libya -- a country the CIA believes is attempting to establish a biological weapons program. The State Department became so concerned about his visits that a formal complaint was made to the South African government in 1995.

Other former Project Coast officials have made extended visits to Libya as well as China, and still others have received visitors from countries regarded by the United States as proliferation concerns. Gould and Folb, in their U.N.-sponsored study, describe a visit by a group of Syrian businessmen to meet with former Project Coast scientists Andre Immelman and Jan Lourens some time after the program was shut down.

One of the visitors was "quite open in his request for technology in the form of documentation or skills," Lourens was quoted as saying. He said the Syrians returned home empty-handed, and no further contact was made.

Deciphering the intent of the foreign contacts was a key objective of U.S. officials who met with Basson during a secret three-day session last summer. Basson, who did not respond to requests for an interview for this story, has kept a relatively low profile while awaiting the outcome of the state's appeal of his acquittal. But in July, he offered himself to U.S. government officials for questioning at the fortress-like U.S. Embassy in Pretoria, the capital.

Officials knowledgeable of the meeting agreed to discuss some of the revelations on the condition they not be identified. They recalled Basson had requested the meeting, saying he wanted to clear his record with U.S. law enforcement officials who had tracked his movements in recent years to determine whether he was trying to sell biological agents or secrets to other countries. During three days of questioning, Basson answered questions and told stories with the assurance that none of his statements could be used against him in any criminal or civil court, the officials said.

In past statements, Basson told extraordinary tales that later turned out to be either fabricated or unverifiable. The U.S. visitors were not convinced of his candor on many points, particularly about his foreign travels. Basson acknowledged the trips but offered innocuous explanations. For example, he said that in Libya he consulted with senior government officials about plans to construct a hospital and a railway.

"He was having one hell of a time going all over the world," said a law enforcement official familiar with details of the embassy meetings. "He told us about Libya, Iran, Syria, Egypt and Israel. He mentioned meeting officials from North Korea. And of course, we're convinced he only told about the things he thought we already knew."

The officials did find disturbingly credible Basson's account of an unknown "stealth" anthrax strain. South Africa's most tightly guarded anthrax weapon was a native bacterial strain, known to be lethal to humans and animals -- one of 45 anthrax types in Project Coast's collection. But the strain achieved a whole new significance, he said, when his scientists were able to induce a change that rendered the microbe invisible to standard field tests commonly used in South Africa and neighboring countries.

"They ended up with an organism that would confound conventional detection," said one U.S. law enforcement official who reviewed Basson's claim. "That way, the spread of the disease is not stopped, and more people would become ill." The official said more sophisticated anthrax tests commonly used in the United States would not be fooled by the "stealth" microbe.

Anthrax experts who learned details of Basson's claim said the reported accomplishment was possible, but likely not very effective as a weapon. The alterations described by Basson would likely have severely reduced the virulence of the strain, said Martin Hugh-Jones, an anthrax specialist at Louisiana State University.

"It might make a few goats sick but it wouldn't do very well at killing people," Hugh-Jones said. "It appears he turned a pathogenic organism into a nonpathogenic one."

Basson acknowledged to U.S. officials that the modifications stripped the microbe of some of its virulence, but said Project Coast scientists remained interested because of the strain's ability to sicken and debilitate targets without leaving a trace.

Basson also told U.S. officials he had learned the technique from Israeli government scientists, a claim that could not be independently verified. Israel has persistently denied having biological or chemical weapons programs, although many U.S. weapons experts believe such programs exist. Israel also is widely believed to have assisted South Africa with the development of its former nuclear weapons program, a claim Israeli officials also deny. Basson and at least one other member of South Africa's biological and chemical weapons team made extended trips to Israel in the 1980s, according to testimony and documents cited by authors Gould and Folb.

"The two countries at the time shared a similar mind-set: Both saw groups inside their own borders that threatened the country's survival," said a U.S. government weapons analyst with first-hand knowledge of Project Coast and its aftermath, who spoke on condition of anonymity. "The enemy wasn't another nation-state but pockets of individuals within their own population" ([UCLA, 2003](#)).

**Title:** Universal Detection Technology Bioweapons Detection Kits Combat Black-Market Botox, Bioterrorists

**Date:** June 21, 2010

**Source:** [Business Wire](#)

**Abstract:** [Universal Detection Technology](#) a developer of early-warning monitoring technologies to protect people from bioterrorism and other infectious health threats, and provider of counter-terrorism consulting and training services, commented today on a recent study that said worldwide consumer demand for Botox was driving a black-market of fake versions of the cosmetic. The uncontrolled and unregulated production and distribution of counterfeit Botox could lead to would-be bioterrorists harboring botulinum-toxin, the study warns.

The study was conducted by Monterey Institute's [James Martin Center for Nonproliferation Studies](#) and [published](#) in the June issue of *Scientific American*.

According to the authors, "the fake cosmetic products generally contain real toxin, albeit in widely varying amounts." However, while one small vial might not pose a serious threat, the potential for would-be terrorists to purchase the products in bulk, or attempt to manufacture botulinum toxin themselves, is a grave concern.

Botulinum toxin is one of the most toxic substances known to man, more toxic than sarin nerve agent. It is estimated that a single gram of crystallized botulinum toxin could kill more than one million people. Botulinum toxin could be used to contaminate food supplies, but a more likely scenario involves dissemination of the toxin as an aerosol.

"This biowarfare potential puts the existence of illicit laboratories churning out the toxin and of shady distributors selling it worldwide through the internet into a more disturbing light than most pharmaceutical fraud," noted the authors.

"The growing black-market for counterfeit Botox, while a consumer protection issue, should be a major red flag for our national security," said Jacques Tizabi, CEO of Universal Detection Technology. "Universal Detection Technology is prepared to equip law enforcement, military, special forces and customs agents with the tools necessary to easily detect the lethal bioagent botulinum toxin, as well as a host of other deadly biohazards."

Tizabi noted that the company's flagship [bioweapons detection kits](#), certified last year by the U.S. Department of Homeland Security as an "[Approved Product for Homeland Security](#)," are ideally suited for law enforcement teams uncovering counterfeit Botox detection labs in the field, as well as rapidly identifying suspicious agents discovered in unsecured locations. The kits are designed to detect and identify up to five separate threats using one sample in a single, easy-to-use device. The kits equip first responders with an effective tool for the rapid onsite detection of up to five biological warfare agents: anthrax, ricin, botulinum toxin, Y. pestis (plague) and Staphylococcal Enterotoxin B (SEB). Detection time is under three minutes.

#### **About Universal Detection Technology**

Universal Detection Technology is a developer of monitoring technologies, including bioterrorism detection devices. The Company on its own and with development partners is positioned to capitalize on opportunities related to Homeland Security. For example, the Company, in cooperation with NASA, has developed a bacterial spore detector that detects certain biohazard substances. The Company is also a reseller of handheld assays used for detection of five bioterrorism agents, radiation detection systems, and antimicrobial products. For more information, please visit [www.udetection.com](http://www.udetection.com).

#### **Forward-Looking Statements**

Except for historical information contained herein, the statements in this news release are forward-looking statements that involve known and unknown risks and uncertainties, which may cause the Company's actual results, performance and achievement in the future to differ materially from forecasted results, performance, and achievement. The Company undertakes no obligation to publicly release the result of any revisions to these forward-looking statements that may be made to reflect events or circumstances after the date hereof, or to reflect the occurrence of unanticipated events or changes in the Company's plans or expectations ([Business Wire, 2010](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#), or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** The Role Of Insects As Biological Weapons

**Date:** 1990

**Source:** [Montana State University](#)

### **Abstract:**

*The following is based on the notes for a seminar presented by R.K.D. Peterson in 1990 at the University of Nebraska. The information is from several published primary and secondary sources listed at the end of this article.*

### **What is a Biological Weapon**

Before discussing the role of insects in biological warfare (BW), we need to define biological warfare and just what a biological warfare agent is. The definition is from the 1972 biological weapons convention. The definition for a BW agent is fairly straightforward:

"Microbial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes."

This definition includes all living BW agents, including insects, as well as toxins produced from these agents (e.g., the botulinum toxin).

### **PRE 1800**

The recorded allegations and instances of BW before 1800 do not involve insects. However, it is important to discuss some of these records to understand the full spectrum of BW.

## **600 B.C.**

Solon, the legislator of the Athenians, contaminated the river Pleisthnes with the plant root of helleborous to give the defenders of Kirrha violent diarrhea, which led to their defeat.

## **ca. 200 B.C.**

Carthaginian general Maharbal purposely retreated from his encampment and left behind a large stock of wine that he treated with mandagora, a toxic root which produces a narcotic effect. The enemy, upon drinking the tainted wine, fell into a deep sleep and the Cartheginians returned to slay their enemy.

## **190 B.C.**

Hannibal won a naval victory over king Eumenes of Pergamon by firing earthen vessels full of snakes into king Eumenes ships.

There are many records throughout the ages of armies dumping dead humans and animals into wells, ponds, streams, and rivers to pollute the enemies' water supplies.

## **Mid 1300s**

Mongol tartars, sieging the port city of Feodosia (then Kaffa) on the Black Sea, finally broke the three-year siege by catapulting plague-infested cadavers over the walls of the city.

The city fell from plague in 1346 and it was suspected that escaping residents of the city introduces plague into Italy, initiating the pandemic (the Black Death) that decimated the European populace between 1348 and 1350.

## **1763**

The next recorded instance of BW was in the new world. Smallpox was strongly suspected of being used against the Indians in the French and Indian War. Sir Jeffrey Amherst, commander in chief of the British forces in the American colonies had two blankets and a handkerchief from a British smallpox hospital sent to Indian chiefs. A smallpox epidemic soon erupted.

## **1800-Present**

### **The American Civil War**

The American Civil War marked the first instance of alleged use of an insect as a weapon of war. The Confederacy accused the Union of deliberately introducing the harlequin bug, *Murgentia histrionica*, into the South.

Tremendous crop damage resulted in the South because of this pest. This allegation was never proven and it now appears that the harlequin bug moved on its own into the South from Mexico. However, humans may have aided in the movement of this pest.

Disease relationships (microbial and insect vector) were elucidated in the early twentieth century. As soon as the mechanisms were known, military planners began to apply them as possible warfare agents.



## **World War I**

None of the belligerent countries in WWI took official notice of BW. No country involved had a BW research facility and there was no BW on a large scale.

BW clearly was used in sabotage operations in the war to end all wars. In 1915, German agents inoculated horses and cattle that were leaving the U.S. for allied ports with glanders and anthrax. In 1917, the Germans again were accused of spreading glanders to 4,500 donkeys on the French front, and of spreading plague on the Russian front in 1915 and 1916.

As most people know, WWI was known more for the development of chemical weaponry, which was spawned by advances in the dye industry.

## **Between the Wars**

17 June 1925. Geneva Protocol for the prohibition of the use in war of asphyxiating, poisonous or other gases, and of bacteriological methods of warfare. Even though biological weapons were not used on a large scale in WWI, the framers of the Geneva Protocol viewed BW as a serious emerging threat and incorporated a bacterial warfare component into the protocol. Most major countries in the world at that time ratified the treaty.

The United States, however, did not ratify the treaty because of the then current isolationist movement in this country. The U.S. finally ratified this treaty in 1975, 50 years after its inception. The failure of the U.S. to ratify the treaty led the Japanese to not ratify the treaty either and to believe that BW was promising and had a future in warfare.

## **World War II**

The world still is heavily influenced by the events that took place from 1939-1945, and in some respects the war finally ended less than a month ago with German reunification.

World War II also was pivotal when we consider the development and use of BW. I need to look at each belligerent country's involvement because each country's involvement was unique, both axis and allied.

### **Germany**

German involvement in BW was not nearly as advanced as Japan or the Allied Nations. It now appears that BW and BW research was not taken seriously by the German military hierarchy. Hitler, especially, viewed the emerging sciences as some sort of Jewish plot. He called the physics of Einstein, Jew physics, and felt similarly about the new biology, and the new psychology.

After the successful Russian counterattacks in Russia in 1943, Hitler agreed to establish an SS BW research station at Posen. As the Russians got closer to the research station, work accelerated at the station, but no real advances were made before the Russians occupied the station in March 1945.

At the Posen BW research station, the Germans performed work on the diseases [plague](#), cholera, [typhus](#), [yellow fever](#), and performed experiments on the feasibility of using insects such as the Colorado potato beetle to attack Allied potato crops. The Germans were accused of dropping cardboard boxes filled with Colorado potato beetles over England from 1941-1943. The containers were never recovered but abnormalities associated with the presence of the beetles prompted Sir Maurice Hankey, head of Britain's BW effort, to write a memo to Winston Churchill with his concerns.

Also, as British invasion fears grew after the successful evacuation from Dunkirk, rumors spread that the Germans had created an omnivorous strain of grasshopper which would soon starve the British into surrender. This was a myth. However, the fact that Nazi doctors used human subjects for experiments on insect-borne diseases is no myth. Concentration camp inmates were intentionally infested with typhus-infected lice by SS doctors at Natzweiler, Dauchau, and Buchenwald. Many of these doctors and scientists were sentenced to death by the Nuremberg Tribunal after the war.

### **Great Britain and the Commonwealth**

England had a viable BW research program since 1934. After hearing that Germany was initiating a program in 1936, a BW advisory group was established which procured antisera for human and animal diseases, and stocked insecticides and fungicides as a contingency for anti-crop attacks.

In 1939, the BW advisory group assessed BW as less effective than the conventional forms of warfare, but they advised the government to begin a BW research effort.

In 1940, shortly after the fall of France, a BW research unit was established within the chemical warfare research establishment at Porton Down. An experiment conducted in 1941 involved the dissemination of anthrax spores from small aircraft bombs at Gruinard Island off the northwest coast of Scotland. All the other work at Porton Down has been heavily classified and still is unavailable. The only reason the Guinard island episode is known to the general public is because the island is still uninhabitable to this day because of the presence of anthrax spores.

The British effort was combined with the Canadian effort in 1942. Canada had several BW research stations throughout the country. Field testing was performed at a proving ground near Ralston, Alberta. Not much is known about what was studied there. Apparently Canada feared that North American livestock were very susceptible to Old World diseases so several were studied. As a result they studied rinderpest and a few other diseases. Also, botulinal toxins were studied and antidotes were developed.

After the U.S. Entered the war, Canada and Britain shared their BW research experience with the U.S.

### **Japan**

The only verified instance of BW during the war was the use by Japan against the Chinese, from 1937-1945.

The Japanese BW program was headed by General Shiro Ishii, an army surgeon with a doctorate in bacteriology. Before Ishii began his BW efforts, he was famous for developing a portable water filtration system, capable of being transported by army regiments.

Ishii strongly believed that the western powers had advanced BW programs and were prepared to use them. Again, failure of the U.S. to sign the 1925 Geneva Protocol influenced his thoughts and actions.

BW research was considered too risky to study in Japan proper. Therefore, the Japanese puppet state of Manchukuo (formerly Manchuria), under complete Japanese control since 1932, was chosen as an ideal location for the studies.

### **Mukden POW Camp**

In 1936, detachment 731 was formed in the town of Harbin. The official name of the detachment was "Epidemic Prevention and Water Supply Unit of the Kwantung Army." In reality, the mission of unit 731 was to forge deadly new biological weapons for the Japanese army to be used against all possible enemies.

In 1938, the success of the research and development efforts at Harbin necessitated the move of unit 731 to Pingfan, a more secure area outside of Harbin. The Pingfan complex included an insectary among its 150 buildings, where 1000 staff members worked around the clock. In total, with out-stations and personnel in the water purification units, 10,000 people were involved.

Like the German scientists, human subjects were used to study these diseases. As early as 1932, people were taken from prison camps (mainly Chinese soldiers, intellectuals, and local workers). The study subjects were called Marutas, which means logs of wood. This is how they were treated. Unspeakable horrors awaited those that entered the Ro block. No subjects that entered ever left alive.

The subjects were tied to posts and were forced to be bitten by plague-infested fleas. The progression of the disease was then charted very scientifically until the subjects died. If the subject did not die, he or she was usually killed, and the body dissected. Many of the human subjects were vivisected at the Ro block. A room existed there where body parts were kept and catalogued.

Of course, human subjects were used on all the diseases studied at Pingfan. Gangrene was studied by exploding gangrene soaked shrapnel bombs in front of tied up Marutas. Also, frostbite was studied by gradually freezing subjects.

It is estimated that 3600 people were sacrificed by the Japanese scientists in the Ro block. This was addition to possibly more than 200 American and British POW's, who were studied at the Mukden POW Camp. More than 1500 Allied soldiers may have been used in BW experimentation. The Japanese were curious to see if Anglo-Saxons and Caucasians in general responded differently to the treatments than the Chinese subjects.

The Pingfan facility was able to produce 300 kilograms of viable [plague](#) germs every month, *Yersinia pestis*. The facility also produced cholera, typhoid, paratyphoid, dysentery, and anthrax.

Ishii believed quite strongly that [plague](#) was a promising weapon of war and the insect vector was needed for delivery to the enemy. Therefore, a four-story granary was built which housed rats used as the plague reservoir. At production height in 1945, 4500 flea breeding machines were set up to produce 100 million [fleas](#) every few days. It is estimated that 3 million rats may have been used.

Bombs made primarily of clay were developed for dissemination of plague-infested fleas. Also, saboteur initiation of plague via distribution of rats with plague was studied. Plans were designed for the Japanese balloon bomb to carry pathogens to America. The balloon bombs were used to attempt to ignite forest fires in the Pacific Northwest (albeit with unsatisfactory results).

The actual use of bioweapons distinguished Japan from the other belligerents. Several attacks were launched against China from 1939-45. Plague-infested fleas were disseminated directly out of aircraft or via specialized bombs. In 1944, an assault team was assembled to sprinkle plague-infested fleas around the Saipan airfield, which the Americans held. The ship carrying the assault team, however, was sunk by an American submarine and the mission was never completed.

By war's end, Unit 731 was preparing for a major war with Russia. The enormous breeding program was interrupted when Russia invaded Manchuria on August of 1945. The remaining human subjects were slaughtered by the fleeing Japanese guards and Pingfan was abandoned with most of the complex intentionally set on fire to destroy particularly damaging information. A plague epidemic in the Harbin and Pingfan area occurred almost immediately after the abandonment of Pingfan. It is strongly suspected that escaped rats were responsible.

After the U.S. occupation of Japan, Russia began to begin making protests that the U.S. government knowingly was protecting Japanese BW specialists, and failing to bring them to justice. At the same time,

the Truman administration sent a team of bacteriologists to investigate the Japanese BW program during the war.

It now appears that General Douglas MacArthur, who was in charge of the occupation of Japan after the war, and his intelligence staff deliberately withheld contacts and information from the Washington scientists. These U.S. scientists found out, after they granted immunity from prosecution to the Japanese scientists in exchange for their bw knowledge, that the Japanese scientists experimented on human subjects, and specifically American POWs. Immunity would not have been granted had the scientists known this. It appears, however, that MacArthur's intelligence staff knew this, but was so desperate for the Japanese BW information, that they deliberately coached the Japanese interviewees. The fear of Russia as the next major adversary was strong in MacArthur's eyes.

The Soviet Union was so frustrated by this episode, that they had their own trial and sentenced many of the scientists they captured in Manchuria to various prison terms, from 1 to 30 years. Many of the top Japanese BW scientists, however, lived comfortably in Japan, and some went on to become respected scientists of international repute.

Ishii continued to consult with American authorities, especially during the height of the Cold War, and died in 1959 of throat cancer.

### **The Soviet Union**

Russian outrage at the Japanese BW research and use may have been hypocritical. There are numerous reports that the Soviets themselves conducted studies involving human experimental subjects in Mongolia before and during the war. In one account, political prisoners and prisoners of war were chained in tents with pens of diseased rats until the subjects were bitten by the [fleas](#). Supposedly, in the summer of 1941, one of the prisoner/experimental subjects escaped and began an epidemic that was controlled only because the Soviets bombed entire Mongol communities. It may never be known as to what extent Russia was involved in BW before, during, or after the war.

### **The United States**

The U.S. army medical corps maintained a passing interest in BW since the 1920's. However, it was not until 1941 that the U.S. BW research program got off the ground, mainly because BW was viewed as a national security threat as the U.S. was drawn closer to the war.

In 1937, Roosevelt declared that the U.S. would never resort to the use of chemical or biological weapons unless they were first used by the enemy. Roosevelt, however, had to agree to increased research in BW as America was being drawn into the war.

The U.S. may have been one of the last major belligerent nations to research BW, but by the war's end the U.S. was probably the most advanced. By war's end, in August 1945, the U.S. BW effort employed 4,000 civilian and military workers, and vied with the Manhattan project for talented scientists and staff.

In all, the U.S. spent \$45-50 million for BW installations during the war. The installations included the main research station at Camp Detrick, Maryland, a field-test station on Horn Island in the Mississippi sound, and a huge field-testing facility at the dug way proving grounds in Utah. Also, an ordnance plant was constructed at Terre Haute, Indiana was converted into BW agent production center.

Little is known about the U.S. BW research during the war. Most of the information is still heavily classified and may never be published. A 500 page monograph exists which details the U.S. effort during the war, but it is unavailable for publication because of its classification.

From the flood of journal papers published, it is known that during the war the bacteria of anthrax, glanders, brucellosis, tularemia, meliodosis, and [plague](#) were studied.

The fungus of coccidioimycosis was studied, as well as several plant pathogens, including rice blast, rice brown-spot disease, late blight of potato, and stem rust of cereals. Also, animal pathogens such as rinderpest virus, newcastle disease virus, and fowl plague virus were studied.

Of course, insects played a large role in the study of many of these diseases. [Fleas](#), [lice](#), the [yellow fever mosquito](#), and the Colorado potato beetle were reared in large quantities.

The U.S. also worked on aerosol transmission of pathogens, and freeze-drying of BW agents.

### **Korea and the Cold War**

The U.S. BW research and development continued after WWII. As the cold war heated up, so did the BW effort at Fort Detrick.

In 1952, China accused the U.S. of engaging in germ warfare against the people of North Korea. The Chinese began producing large amounts of evidence which suggested that the U.S. was spreading bacteria-laden insects and other objects over the Korean countryside.

Also plague appeared in areas where it had not been documented for over 500 years.

Chinese entomologists accused the U.S. of distributing disease-carrying anthomyid flies, springtails, and stoneflies with P-51 fighters. Also, accusations were leveled stating that America was contaminating areas with plague infested rats and fleas, and anthrax infested flies and spiders. In all, the U.S. was accused of dropping ants, beetles, crickets, fleas, flies, grasshoppers, lice, springtails, and stoneflies. The alleged associated diseases included anthrax, cholera, dysentery, fowl septicemia, paratyphoid, plague, scrub typhus, and typhoid.

The Chinese set up an international scientific commission for investigating the facts about bacterial warfare. The commission, consisting of scientists from all over the world, ruled that the United States probably did engage in limited biological warfare in Korea.

The U.S. maintains that the commission was nothing more than a communist front, however, and denied all the allegations. The U.S. proposed that the United Nations send a formal inquiry committee to China and Korea and investigate, but China and Korea refused.

Most of the allegations were based on eyewitness reports, photographs of strange paper cartons, anomalous appearances of the insects in question, and testimony by POW's.

It is strange why the Chinese would pick insects such as springtails and stoneflies and allege they were deliberately infected with disease and dropped on Korea. Clearly these insects would not be the best choices if the U.S. wanted to initiate BW.

U.S. and Canadian entomologists claimed that the accusations were ridiculous and argued that the anomalous appearances of insects and appearances of new species to an area could be explained through natural phenomena. The U.S. wrote off the whole incident as communist propaganda, but speculation to this day exists as to whether the U.S. may have been experimenting in the field during the Korean war.

Ten years later it was admitted by Dale Jenkins, the chief entomologist at Fort Detrick, that the U.S. at the time of the allegations was able to initiate BW if they saw fit and this BW would have involved insects as

vectors of human diseases. Also, during the Korean War U.S. BW specialists were consulting heavily with former Japanese 731 scientists who were granted immunity from war crimes prosecution.

Despite the allegations and negative press from the Korean war episode, BW research by the U.S. and Britain progressed at an accelerated pace through the 50's and 60's. Britain's BW effort tripled after WWII extensive fundamental research was done, including field testing, and promising results were passed on to the U.S. Top BW leaders in Britain and the U.S. grouped bioweapons in with atomic weapons as "weapons of mass destruction." They felt that situations might exist in which BW agents would be preferable to atomic weapons.

In 1951, BW and chemical warfare were incorporated into official strategic planning by the armed forces of the U.S. Brig. General Rothchild, chemical officer of the Far East command, in 1953 wrote that BW could have played a vital role in the Korean War, by distributing anthrax or yellow fever pathogens into the cold air flows that travel from Siberia through the populated areas of China.

Clearly, BW received strong support among the brass in the U.S. and British armed forces. By the end of the 50's the Fort Detrick labs were set up to breed 130 million yellow fever mosquitoes a month, infect them with yellow fever, and deliver them to the enemy via cluster bombs or from the warheads in a Sergeant Missile. Also, the facilities could accommodate the breeding of 50 million fleas per week. By 1960, the labs were experimenting with malaria, dengue, cholera, anthrax, and dysentery, relapsing fever, tularemia.

### **The 1960's and Vietnam**

After the Cuban Missile Crisis, BW research and testing accelerated even further. President John F. Kennedy wished to balance the defense forces of the U.S. and therefore decided that BW and chemical weapons should be stepped up even further.

In 1962, General Stubbs told congress that insect strains were being developed that were more cold hardy and were resistant to insecticides. All other information pertaining to BW involving insects during the 60's to the present have been classified and have not appeared in the congressional testimonies.

In the early 60's, insects as BW vectors fell out of favor with the scientists and planners. This was due in large part to the successful development of dry biological formulations of toxins and microbes.

With dry formulations of BW agents, the practicality and ease of disseminating diseases was greatly increased. It became easy for pneumonic plague, botulinum toxin, q-fever, and other diseases to be spread reliably and efficiently without the need for insects.

Insects, however, were studied which could vector plant diseases. During the Cuban missile crisis, the U.S. considered destroying the sugarcane crop in Cuba with Fiji disease, which is vectored by leafhoppers.

### **The Biological Weapons Convention**

In 1969, President Nixon called for the unilateral destruction of biological weapons. Three years later, the U.S. signed the Biological Weapons Convention Treaty, which banned the development, production, stockpiling, transfer, and acquisition of BW. In 1975, the U.S. also signed the Geneva Protocol of 1925, which also banned the use of these weapons in war. The treaties, however, do not ban research on BW.

## Biological Weapons Today

BW development after 1975 virtually is unknown. Because all major nations signed the BW convention making BW illegal, little information is available as to what is going on today ([Montana State University, 1990](#)).

**Title:** Terrorists Could Use 'Insect-Based' Biological Weapon

**Date:** January 5, 2009

**Source:** [The Telegraph](#)

**Abstract:** Terrorists would find it "relatively easy" to launch a devastating attack using swarms of insects to spread a deadly disease, an academic has warned.

Jeffrey Lockwood, professor of entomology at Wyoming University and author of *Six-legged Soldiers: Using Insects as Weapons of War*, said such Rift Valley Fever or other diseases could be transported into a country by a terrorist with a suitcase.

He told BBC Radio 4's Today programme: "I think a small terrorist cell could very easily develop an insect-based weapon."

He said it would "probably be much easier" than developing a nuclear or chemical weapon, arguing: "The raw material is in the back yard."

He continued: "It would be a relatively easy and simple process.

"A few hundred dollars and a plane ticket and you could have a pretty good stab at it."

Governments, he advised, needed to have robust "pest management infrastructure that's able to absorb and respond to an introduction" of infected insects, he said.

Trying to stop everything coming in at the border would not work, he said.

Rift Valley Fever is an east African disease which "can cause severe disease in both animals and humans, leading to high rates of disease and death" according to the World Health Organisation.

However, WHO says that "the vast majority of human infections result from direct or indirect contact with the blood or organs of infected animals" ([The Telegraph, 2009](#)).

**Title:** Prof: Terrorists Could Enlist '6-Legged Soldiers' In Bio-Attack

**Date:** January 7, 2009

**Source:** [Wired](#)

**Abstract:** Terrorists could easily contrive an "insect-based" weapon to import an exotic disease, according to an entomologist who's promoting a book on the subject.

Jeffrey Lockwood, an entomologist at the University of Wyoming, is on the talk show circuit to promote his [new book](#), *Six-legged Soldiers: Using Insects as Weapons of War*. He told BBC Radio 4's [Today](#) program that planning a bio-terror attack using insects would "probably be much easier" than developing nuclear or chemical weapons. *Today* does not post the transcript, but the *Daily Telegraph* [quotes him as saying](#): "It would be a relatively easy and simple process ... A few hundred dollars and a plane ticket and you could have a pretty good stab at it."



Nothing like a little bio-warfare scare to drum up sales for your book. Military historian Max Hastings, for one, gave Lockwood's book a [less-than-stellar review](#) this weekend in the London *Sunday Times*. But he also noted:

*The last section of Lockwood's book is the most plausible and interesting, because it addresses the risks of biological terrorism in our own times. In particular, the author speculates about the consequences if terrorists were to broadcast Aedes aegypti, the mosquito that carries the yellow fever virus. The consequences of a yellow fever epidemic in America, where scarcely anyone is inoculated against the disease, could be devastating.*

As Noah has noted here, biodefense labs [have soaked up massive amounts of funding](#) in recent years to deal with precisely this kind of theoretical threat. But the real question, thus far, seems to be [whether the boom in biodefense research has actually made us safer](#) (Wired, 2009).

**Title:** Mosquito Bioweapons: The History of Testing Inside the United States

**Date:** December 25, 2011

**Source:** [Activist Post](#)

**Abstract:** With the recent announcement by UK-based [biotechnology](#) firm [Oxitec](#) that the company would be releasing [thousands of genetically modified mosquitoes](#) in Southern Florida as early as January, 2012, [GM opponents](#), [environmentalists](#), and a diverse group of Floridians have issued calls to suspend the experiment at least until further tests have been undertaken. Many are simply calling for informed consent protocol to be followed such as is required by law.

Yet, unfortunately, a great many of the responses to the [GE \(genetically engineered\) mosquito release](#) are missing the deeper agenda which is at work here. Undoubtedly, the sordid history of experimental tests involving mosquitoes, mosquito-borne illnesses, and uninformed and unwitting humans has been largely overlooked.

For instance, many of the articles I have read over the last few days dealing with this issue have made the claim that the release scheduled for early January would be the first ever of this type of experiment in the [United States](#). This, however, is not the case; and considering the history of such testing — specifically that conducted via the release of mosquitoes — the American people should be very concerned.

I, myself, wrote a detailed article close to a year ago, entitled "[Viruses and the GM Insect 'Flying Vaccine' Solution](#)," in which I chronicled the experiments that have taken place over the years both inside and outside of the [United States](#) involving mosquitoes and mosquito-borne illnesses, specifically [Dengue Fever](#).

That being said, it has already been discussed in [other recent presentations](#) after my initial article in 2010 how, under the guise of eradicating [Dengue Fever](#), GM mosquitoes were released into the environment in the [Cayman Islands](#) in 2009.

Dengue fever is a mosquito-borne, virus-based disease that has largely been non-existent in [North America](#) for several decades. Dengue Fever can morph into a much more dangerous form of the illness known as Dengue Hemorrhagic Fever. Symptoms of Dengue Fever are high fever, headache, pain behind the eyes, easy bruising, joint, muscle and bone pain, rash, and bleeding from the gums. There is no known treatment for Dengue Fever besides adequate rest and drinking plenty of water.

Generally speaking, it is one specific type of mosquito, *Aedes Aegypti*, which transmits the virus.

The publicly given method for using these GM mosquitoes to eradicate Dengue Fever was that the [genetically modified](#) mosquitoes were “engineered with an extra gene, or inserted bacterium, or have had a gene altered so that either their offspring are sterile and unable to spread dengue, or simply die.” More specifically, the male GM mosquitoes are supposed to mate with natural females which produce larvae that die unless tetracycline, an antibiotic, is present. Without the antibiotic, an enzyme accumulates to a level that is toxic enough to kill the larvae.

It is important to note that these GM mosquitoes, known as OX513A, necessarily have to be of the *Aedes Aegypti* type in order to achieve the goals publicly stated by the developers. Therefore, the millions of male mosquitoes that were released into the open-air environment in 2009, and again in 2010, were *all* of the Dengue-carrying type.

It is also important to note that the company’s popular claim that the GM mosquitoes are sterile is patently false. They are not sterile. If they were, they would not be able to produce offspring with the tetracycline-dependent gene.

The OX513A mosquitoes were developed by a British [biotechnology](#) company named Oxitec, and their subsequent release was overseen by the Mosquito Research and Control Unit (MRCU) in the Cayman Islands, a British overseas territory.

Although [Oxitec Limited](#) was the developer who engaged in most of the groundwork for the GM insects, the project was not theirs alone. The Bill and Melinda Gates Foundation, the [World Health Organization](#), [The PEW Charitable Trusts](#), and [government agencies](#) in the United States, England, [Malaysia](#), and others were all involved in the development and promotion of the GM mosquitoes, along with [Oxford University](#), an institution to which Oxitec is [closely related](#). Indeed, the Bill and Melinda Gates Foundation even went so far as to award Oxitec part of a [\\$20 million consortium grant](#) with which to conduct the research regarding [genetically modified mosquitoes](#).

What has been quite suspicious, however, is the fact that Dengue fever, which has been nonexistent in [North America](#) for decades, has begun to [resurface in Florida](#). Initially, the fever was found in 2009, but by 2010 the cases had vastly increased. In July 2010, a CDC study was released to very little media attention indicating that about 10 percent of the population of Key West had been infected with Dengue fever. This had doubled from 2009 where 5 percent had been infected. One might wonder what caused a virus that had been almost entirely eradicated to suddenly reappear with such vigor. That is, one might wonder if the answer weren’t so blatantly obvious. Of course, official reports do not address whether or not the Dengue fever is connected to the millions of mosquitoes capable of carrying the fever which were released just miles away in the Cayman Islands.

While Dengue fever had been eradicated in terms of naturally occurring outbreaks in the United States, cases that were research-related and laboratory-generated have occurred in the country for many years. This is because Dengue fever has been of particular interest to the United States [government](#), US Army, and CIA since at least the middle part of the 20<sup>th</sup> century. There is a great deal of evidence suggesting that the biochemical research facilities at Fort Detrick were conducting tests on Dengue fever as a bio-weapon as far back as 1942. It is generally known that in the 1950s the CIA partnered with Ft. Detrick to study Dengue fever and other exotic diseases for use as [biological weapons](#). It is also interesting to note that, according to CIA documents, as well as a 1975 congressional committee, the three locations of Key West, Panama City, and Avon Park (and two other locations in central Florida) were testing sites for Dengue fever research.

As is generally the case, the experiments in Avon Park were concentrated in low-income neighborhoods, in areas that were predominantly black with newly constructed housing projects. According to H.P. Albarelli Jr. and Zoe Martell of [Truthout](#), CIA documents related to the MK/NAOMI program revealed that the agency was using the *Aedes Aegypti* type of mosquito in these experiments as well. In one of these

experiments, 600,000 mosquitoes were released over Avon Park; and in another, 150,000 insects were released in paper bags that were specially designed to open up when they hit the ground.

Truthout interviewed residents (or test subjects) of Avon Park still living in the area who related that there were at least 6 or 7 deaths resulting from the experiments. As quoted by Truthout, one resident said, “Nobody knew about what had gone on here for years, maybe over 20 years, but in looking back it explained why a bunch of healthy people got sick quick and died at the time of those experiments.” Truthout goes on to point out that around the same time of the Avon Park experiments “there were at least two cases of Dengue fever reported among civilian researchers at Fort Detrick in Maryland.”

In 1978, a Pentagon document titled, “[Biological Warfare](#): Secret Testing & Volunteers” revealed that similar experiments were conducted in Key West by the Army Chemical Corps and Special Operations and Projects Divisions at Fort Detrick.

Like the current situation, [U.S. government](#) agencies teamed with NGOs, academia, and other organizations to conduct mosquito-related projects. Operation Bellweather, a 1959 experiment consisting of over 50 field tests, was conducted over several states including Georgia, Maryland, Utah, and Arizona, and Florida. Operation Bellweather was coordinated with the [Rockefeller Institute](#) in New York; the facility that actually bred the mosquitoes. What’s more, the experiment was aided by the Armour Research Foundation, the Battelle Memorial Institute, Ben Venue Labs, Inc., the University of Florida, Florida State University, and the Lovell Chemical Company.

The military and CIA connections to Dengue fever outbreaks do not end with these experiments, however. It is widely believed that the 1981 outbreak in Cuba was a result of CIA and U.S. military covert [biological](#) attacks. This outbreak occurred essentially out of nowhere and resulted in over one hundred thousand cases of infection. Albarelli and Martell write:

American researcher William H. Schaap, an editor of *Covert Action* magazine, claims the Cuba Dengue outbreak was the result of CIA activities. Former Fort Detrick researchers, all of whom refused to have their names used for this article, say they performed ‘advance work’ on the Cuba outbreak and that it was ‘man made.’

In 1982 the CIA was accused by the Soviet media of sending operatives into Pakistan and [Afghanistan](#) for the purposes of creating a Dengue epidemic. Likewise, in 1985 and 1986, authorities in Nicaragua made similar claims against the CIA, also suggesting that they were attempting to start a Dengue outbreak.

While the CIA has characteristically denied involvement in all of these instances, army researchers have admitted to having worked intensely with “arthropod vectors for offensive [biological warfare](#) objectives” and that such work was conducted at Fort Detrick in the 1980s. Not only that, but researchers have also admitted that large mosquito colonies, which were infected with both yellow fever and Dengue fever, were being maintained at the Frederick, Maryland facility.

There is also evidence of experimentation with federal [prisoners](#) without their knowledge. As [Truthout](#) reports:

Several redacted Camp Detrick and Edgewood Arsenal reports indicate that experiments were conducted on state and federal [prisoners](#) who were unwittingly exposed to Dengue fever, as well as other viruses, some possibly lethal.

With all of the evidence that CIA and military tests have been conducted regarding Dengue fever, there is ample reason to be concerned when one sees a connection like the recent release of mosquitoes and the subsequent outbreak of Dengue fever in Florida, a traditional testing site for these organizations.

The response to the Dengue outbreak should also be questioned as [aerial spraying](#) campaigns were intensified. While these sprayings were claimed to be for the eradication of the Dengue-carrying mosquitoes, the number of people who contracted the illness actually rose.

Clearly, the announcement that experiments are being conducted involving [genetically modified mosquitoes](#), mosquito-borne illnesses, and especially Dengue fever, should be met with great concern and heavy skepticism in regards to the true purpose of the experiments. Considering the track record of corporations, governments, [intelligence agencies](#), foundations, and academia, there is no logical reason why anyone should trust any of these institutions with their progress and well-being. Indeed, in light of this recently announced experiment, one should question just who is the test subject – the insect or the human ([Activist Post, 2011](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#), or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** Publish And Perish?

**Date:** October 11, 2002

**Source:** [UCLA](#)

**Abstract:** In 1863, when Abraham Lincoln was waging war against renegade Southern states, the U.S. Congress recruited the nation's top scientists to help. They formed a private body, the National Academy of Sciences, that has advised presidents and Congress ever since, through two global wars and the threat of nuclear annihilation. Now, as the United States finds itself again in battle, the academy has broken with its independent tradition and allowed the federal government to assume unusual oversight power.

Earlier this year, an academy committee was finishing a report on agricultural bioterrorism that found the nation markedly ill-prepared for countering an attack against livestock and crops.

The report identified broad weaknesses, especially within the U.S. Department of Agriculture, which had paid for the study. Mindful of the threat of bioterrorism, the report's authors had taken pains not to divulge any information they felt would compromise the nation. More than a dozen scientific reviewers, including specialists from the U.S. Army and the Federal Bureau of Investigation, raised no security concerns about the study. The White House Office of Homeland Security, in its review, also determined that the report contained no classified data.

Nonetheless, the office and the Agriculture Department asked the academy to withhold the report from the public indefinitely, to keep potentially dangerous information away from enemies of the United States.

Academy officials say they struggled to balance security concerns against the need to advise the nation about a serious threat. The academy's leaders eventually made the extraordinary decision to cut out a substantial section of the document. The incomplete report, including an explanation of the self-censorship, was published last month on paper, but it is noticeably missing from the academy's Web site,

which makes other reports available for free downloads. The academy is providing Congress, the administration, and select others with access to the report's missing parts, which detail scenarios for agricultural attacks.

The excisions deeply disappointed R. James Cook and some other members of the committee that had written the report. "We in the scientific community depend on openness to do our work, and we depend on being able to evaluate everybody's results," says Mr. Cook, a professor of plant pathology at Washington State University. "That's how we wrote that [report]. The strategy we seem to be up against from the standpoint of the Office of Homeland Security, and even of a lot of the legislation that's already been passed, is a strategy of security and secrecy and protection. So the two don't match."

The conflict reaches far beyond the marble halls of the academy, potentially spilling into every laboratory in the United States, especially those, in the medical and biological sciences, that investigate diseases. Congress and the executive branch are considering plans to restrict scientific communication in order to prevent the spread of information that could be used in terrorist attacks, such as the anthrax letters of last year. But some of the proposals have sent a chill through academe.

"We are concerned that there may be, in the future, a gutting of some of our publications," says Mr. Cook.

"This could change the very definition of science," says Ronald M. Atlas, president of the American Society for Microbiology and a professor of biology and dean of the graduate school at the University of Louisville. "It can really alter the way we communicate as scientists and who has access to information."

But national-security experts warn that the current system of openness in science could lead to dire consequences. Some papers already published "can be used for nasty, evil, illicit purposes by criminals or terrorists," says Raymond A. Zilinskas, a microbiologist and specialist in biological weapons at the Monterey Institute of International Studies. "Some of the more technical papers could be used by national bioweapons programs, by, for example, Iraq or North Korea."

## **A Tug of War**

Mr. Atlas says he recognized the coming crisis within minutes of learning about the anthrax attacks last October. His association includes members who study anthrax, smallpox, Ebola, and other highly infectious and deadly diseases.

Meeting a few days later with other leading microbiologists, Mr. Atlas posed two questions: "What do we need to do within the scientific community to ensure that we're not providing the information that these terrorists would be using? And at the same time, how do we provide legitimate information to the research community so that we find the next vaccine and cure?"

The tug of war has grown stronger since then. The introduction to the academy report on agricultural terrorism says it appears "in the midst of a vigorous national debate" over the issue of so-called sensitive information -- a vast gray zone of material that is not classified but might, in theory, provide aid to our enemies.

The debate reached the national stage this past summer, following a series of events:

1. In late May, the *Proceedings of the National Academy of Sciences* published a study by scientists at the University of Pennsylvania that provided details about how smallpox uses a protein to evade the human immune system. An editorial in the journal noted that there had been calls not to publish such observations because of fears that terrorists might use the information to cook up new bioweapons.

2. In June, the Massachusetts Institute of Technology released a report endorsing openness as one of the fundamental values of the university. Among other findings, the report stated that faculty members were facing increasing restrictions on access to scientific information.

3. In July, *Science* published a paper in which scientists at the State University of New York at Stony Brook described making poliovirus from mail-order DNA. The publication of that study spurred Rep. Dave Weldon, a Florida Republican, to introduce a resolution criticizing *Science* for publishing "a blueprint that could conceivably enable terrorists to inexpensively create human pathogens for release on the people of the United States." The resolution, which is still in committee, calls on the executive branch to review policies on the publication of federally financed research.

4. In August, officials from the White House Office of Management and Budget met with scientists and lobbyists to discuss new restrictions on what kind of information could be published by scientists employed directly by the federal government.

### **Fear Factor**

The issue of sensitive information has academic scientists and government officials fumbling like newlyweds in an arranged marriage, unsure of how to deal with each other but certain that they must. The tension has produced little agreement and big fears about the dangers that come from leaning too far in the direction of either openness or restrictions.

A case study of those concerns might well focus on a paper published in February 2001 in the *Journal of Virology*. In that study, Australian researchers tried to use a relative of smallpox, called mousepox, to render mice infertile. The strategy was to insert a gene for a molecule called interleukin-4 into mousepox, hoping it would stimulate the mouse's immune system to block reproduction and thereby keep pest populations in check. But the pathogen ended up being the ultimate contraceptive, killing the mice that normally were resistant to mousepox. Even those mice that had been vaccinated against mousepox died of the engineered virus.

To some, the interleukin-4 paper provided an instruction booklet for enterprising terrorists. "There are people who were horrified," says Mr. Atlas, whose organization publishes the journal. "The paper told of the potential that you could manipulate smallpox, if you had access to smallpox, and you could create a more deadly strain that could circumvent our current vaccine." When viewed that way, he says, "that's dangerous information."

After the anthrax attacks, the criticism of Mr. Atlas's group intensified. In meetings with other scientists and with government officials, he heard the study denounced as "the greatest mistake we ever published."

Mr. Atlas was not president of the society at the time of the paper's publication, and he played no role in accepting it. Nonetheless, he defends the report, saying that it raised important points the public needed to know. "That paper said to me that you can't rely on vaccination as your only line of defense against smallpox." When a panel of the National Academy of Sciences met to discuss future security measures, Mr. Atlas used the interleukin-4 paper to push for more research on antiviral drugs that could work even on people already infected with smallpox or other viruses. What's more, the paper placed a renewed importance on quarantine procedures, he says.

Samuel Kaplan, head of the society's publications board, calls the paper an example of excellent science. "If we had to do it all over again, we would proceed to publish it, notwithstanding the flak that it has taken," says Mr. Kaplan, chairman of the department of microbiology and molecular genetics at the medical school of the University of Texas Health Science Center at Houston.



## **Changing the Rules**

The controversy did, however, spur the organization to change its review policy at the start of 2002. The editors of its 11 journals and its book division now look out for sensitive information as they examine manuscripts. If a question comes up, the editors of a particular journal consult and can, if necessary, bring the issue before the society's entire publications board. The members of the board can then decide whether to send the paper on for external review or to tell its author of their concerns.

So far, the society's journal editors have flagged more than 50 papers dealing with such topics as the anthrax bacterium, the botulism toxin, and the Ebola virus. But only two papers have triggered greater concern among the board members, says Mr. Kaplan. Even in those cases, however, the society has proceeded with the review process. The editors have not yet deemed any paper unpublishable, he says.

After adopting the new policy, journal editors at the microbiology society encountered an unanticipated problem: Several authors decided on their own to withhold important pieces of information from their papers because of concerns about giving away too many details to terrorists, they told the editors. But that meant the papers lacked sufficient information for other scientists to replicate the experiments -- procedures that form the foundation of modern science.

The society has always required authors to provide such information, but it had never explicitly said so in its publication policy, says Mr. Kaplan. So the group revised the policy once more this past summer.

Some authors of the problem papers have agreed to supply the missing information, while others have declined. In one instance, an incomplete paper slipped through and was published; the journal now plans to publish the missing data.

As events were heating up over the summer, Mr. Atlas found himself making many trips to Washington to discuss the issue of how to handle sensitive information. In most meetings, participants mentioned the interleukin-4 paper, the smallpox-protein report, or the poliovirus study, and debated their risks and benefits.

Given the consternation and the possibility of new federal restrictions on publishing, Mr. Atlas called for backup. He asked the National Academy of Sciences to organize a meeting of scientific publishers to discuss the issue. The academy agreed, but it realized it would need the input of security experts to put together comprehensive recommendations. So it decided to collaborate with the nonprofit Center for Strategic and International Studies to organize the meeting, tentatively scheduled for December.

But that center has run into its own publication problems of late. Earlier this year, the group wrote a report on the nation's response to last year's anthrax attacks and submitted it to the Defense Threat Reduction Agency, which had paid for the study. To produce the report, which recommended ways to improve the response to any future attacks, the center used only publicly available information. But the Defense Department shelved the document, saying it was not to be released.

The center's staff has argued to reverse that decision. "This is really bad policy," says the report's author, David Heyman.

## **A Slippery Slope**

In public, the White House has discussed restricting publications of federal scientists only. But the Defense Department confirms that it is considering whether to require all researchers financed by the department to submit papers for review prior to publication. Other agencies are also considering changes

to their review policies. More restrictions could emerge if academic scientists do not adopt voluntary measures, which could come in several forms, says Mr. Atlas.

In one scenario, publishers would manage access to information, keeping sensitive material out of the open literature and allowing only certain people to view it -- the path chosen by the National Academy of Sciences with the recent report. In another plan, authors would submit papers to a security agency that would decide whether to scrub out information, classify an entire article, or let it go through unchanged.

Such policies, however, could create major problems, says D. Allan Bromley, a professor of the sciences at Yale University who served as science adviser to President George H.W. Bush. "I'm not at all happy with federal involvement."

The category of sensitive but unclassified, he says, "is a rather slippery slope because the question then becomes, Who decides whether it's sensitive or not? Bureaucrats can cause considerable damage if they start trying to make that decision rather than the scientists themselves."

He cites the Department of Energy and its national laboratories, which struggled through their own version of the current debate in the late 1990s. The crisis struck after the labs suffered several high-profile security lapses, including the possible loss of nuclear secrets to China.

The department clamped down on the labs, in part by restricting access to sensitive but unclassified information. Mr. Bromley served on a commission that examined the effect of those policies and found serious problems. The definition of "sensitive but unclassified," for example, remained fuzzy and differed from place to place, so scientists and security officers had a hard time developing clear standards. Morale plummeted among scientists, as did their productivity.

Mr. Bromley worries about applying such an approach to universities. "That would have a chilling impact on the training of students -- undergraduate, graduate, postdoc -- and on the conduct of U.S. research generally."

He suggests instead that individual scientists and journals watch out for dangerous information, much as they did in the early 1940s, when physicists agreed to keep a lid on nuclear-fission and microwave research.

## **Controlled Free Speech**

The current debate mirrors one that 20 years ago engulfed mathematicians and computer scientists who did research in cryptography, the making and breaking of codes. During the mid-to-late-1970s, cryptographers were developing significant new algorithms, and they attracted unwanted attention from the National Security Agency.

At first, the agency adopted an ironhanded approach. It pressured a researcher to pull a paper from a conference, and it threatened to seek restrictions on publications if the cryptographers did not voluntarily censor themselves, says Susan Landau, a senior staff engineer at Sun Microsystems and a co-author of *Privacy on the Line: The Politics of Wiretapping and Encryption* (MIT Press, 1998). The American Council on Education intervened and recommended that cryptographers voluntarily submit their papers to the agency for review.

The result now is that some researchers submit and others do not, says Ms. Landau. Some people have altered their papers at the agency's request, she says, and at least one person she knows has withheld a paper at its suggestion. But the agency did help lift a restriction that the U.S. Army had unnecessarily placed on the work of one cryptographer, she says.

"Some people will say it's an uneasy peace" between the cryptographers and the agency, she adds. "Others say it's a good working relationship. There is not the kind of tension as there was 20 years ago. There seems to be a mutual respect."

Administration officials have asked biologists why they can't live with the same restrictions that cryptographers and nuclear scientists have accepted. An obvious reason is the difference in numbers. The main journal in cryptography, the *Journal of Cryptology*, publishes fewer than 20 papers a year, and researchers present about 125 papers at conferences annually. The American Society for Microbiology, however, publishes about 6,000 papers a year in its journals.

Even more important, says Mr. Atlas, are the consequences of suppressing information. "These are public-health issues," he says. "If we fail to communicate information vital to public health, then people die."

The definition of sensitive information could be quite broad, because all such data have good and bad sides, health researchers say, especially as they start designing drugs aimed at particular spots on the genome. "Every target we have for drug therapy is also a potential target for manipulation by a terrorist," says Mr. Atlas. "That's the Catch-22 of all this."

But others argue that the gray zone of truly sensitive information is actually quite narrow. "We're talking about a very small subset of papers that would not be completely published," says the Monterey Institute's Mr. Zilinskas, who recently organized a conference on the issue that brought together scientists, Defense Department officials, and journal editors.

And not all academic scientists are displeased at the prospect of tighter restrictions. Harley W. Moon, a professor of veterinary pathology at Iowa State University and the chairman of the National Academy panel that wrote the recent agriculture report, says he understands the academy's decision to leave out information that his committee had deemed safe. "I think it was the right process," he says.

Some researchers even denounce the journals' policies of openness. "That's fine in theory, but we live in a new world right now, a world with the threat of bioterrorism," says Richard F. Meyer, director of a laboratory at the Centers for Disease Control and Prevention that designs tests to quickly determine the presence of bioweapons such as the anthrax bacterium.

Mr. Meyer ran afoul of the publication policies when he and colleagues submitted a paper on a smallpox-detection test to the *Journal of Clinical Microbiology*, published by the American Society for Microbiology. The journal initially refused to publish the report because the researchers did not list the specific DNA sequences they had used to identify the virus. "It makes absolutely no sense to me to give away the shop by giving out all the information that would allow someone with the knowledge and sophistication to create a genetically altered organism that perhaps could bypass our detection strategies," says Mr. Meyer, who notes that he is not speaking for the CDC.

His group finally put the information in the article, because it was an experimental technique and was not being used by the government to detect smallpox. In cases where the stakes were higher, however, Mr. Meyer has withheld the information. "The way things are going now," he says, "unless there's a change in attitude from the journals, it's really going to prevent people in this area of work -- the bioterrorism arena -- from going forward and publishing anything." That would cut off needed information for public-health officials, and could limit its value to prosecutors bringing alleged terrorists to court, he says.

Another scientist at a national laboratory encountered problems with the same journal when editors insisted that his team provide complete DNA sequences. "For reasons that are obvious to us at least, this was not possible," he says. "Letting potential terrorists know exactly what portions of a genome we are using for detection signatures is not worth whatever benefit is gained by having a publication."

Security concerns were not the only roadblock in this case, admits the scientist, asking not to be identified. The research group withheld information on one of the organisms in the paper in order to protect the intellectual-property rights of the university that runs the laboratory. The team plans to rewrite its paper using organisms not encumbered by security or commercial restrictions and then resubmit it to the journal.

Still, the scientist blames the journals for having unrealistic policies. "It appears that the journals themselves have been caught ill-prepared to deal with these kinds of issues that arise when research science -- and scientists -- get thrust onto the front lines of a war against terrorism."

### **The Wrong Kind of People**

Most scientific leaders, however, support openness and fear that the restrictions will chill more than just publications. The federal government has removed volumes of data from the World Wide Web, and it is prohibiting certain scientists from having access to even unclassified information.

Federal regulations bar the export of hardware, software, and information related to military technology, but the rules exempt basic and applied scientific research at universities. Now, there is growing concern that the government will begin to apply the same strict regulations to university research in sensitive areas, according to MIT's recent report "In the Public Interest," which examined the issue of access to scientific information. Such rules could forbid scientists to discuss research with foreign colleagues and students.

Indeed, the MIT report says that "the designation 'No Foreign Nationals' is often placed on scientific and technical material, and access to such materials and meetings discussing them is restricted. Clearly, such restrictions are not compatible with the educational environment at MIT."

As new laws and regulations emerge, the university will comply with them, says Sheila E. Widnall, an MIT professor of aeronautics and astronautics and head of the commission that wrote the report. "But we always reserve the right not to do research in an area that is heavily impacted by rules, regulations, and legislation."

"It's a very slippery slope, once one turns the coin over and decides that scientific openness is a threat," adds Ms. Widnall, who served as secretary of the Air Force under President Bill Clinton. "Then there really is no limit to what can be regulated and restricted. And it's a failure to understand the conditions under which science advances and the benefits that flow to our society, both in terms of actual results and in terms of the people who are educated."

Because foreign graduate students play important roles in many top research programs, restricting their activities would force major changes on American universities and would slow scientific progress here. What's more, international students bring back American ideals of openness to their home countries when they return, says Ms. Widnall.

In the wake of last year's airplane and anthrax attacks, the push to restrict information has picked up speed, and scientists must make their voices heard to avert draconian policies, says Margaret A. Hamburg, a bioweapons specialist and vice president for biological programs at Nuclear Threat Initiative, a group working to reduce the threat of nuclear, biological, and chemical weapons.

At the same time, however, she says that some scientists are unaware of the threats that might arise from their work. "There needs to be a deepening appreciation about just how powerful the tools of science are in the brave new world we live in," says Dr. Hamburg, who was New York City's health commissioner at the time of the 1993 World Trade Center bombing and who later served as an assistant secretary of the U.S. Department of Health and Human Services.

The CDC's Mr. Meyer is even blunter: "American scientists are virtually naive to certain things."

Some scientists do discount the possibility that their work might pose a threat, despite a chorus of criticism. Ariella M. Rosengard, an assistant professor of pathology and laboratory medicine at Penn, caused a stir this past summer, when she published her paper on creating a smallpox protein.

Dr. Rosengard remains unrepentant, however, saying that scientists must disseminate their work in order to cure diseases. "We need to galvanize the scientific community to develop safer vaccines and therapies, not to make it so difficult that scientists say there are so many restrictions that I'm going to study something else. Because then the terrorists really do win."

## **PAPERS UNDER FIRE**

Three recent scientific papers have drawn criticism, and support, in the debate over whether scientists should publish information that might help bioterrorists.

### **Controversial Paper**

By Ronald J. Jackson and colleagues at Australia's Commonwealth Science and Industrial Research Organization and Australian National University

*Journal of Virology*, February 2001

In trying to develop a mouse contraceptive to control pest populations, the researchers inserted a gene for an immune-system molecule called interleukin-4 into the mousepox virus. Instead of rendering mice infertile, the engineered virus was far more deadly than the natural strain, killing even mice that had been vaccinated against mousepox.

### **Critics Say**

The technique described in the paper could be used to make a more powerful smallpox that could kill people vaccinated against the virus. "That paper shouldn't have been published," says a biodefense researcher at a national laboratory. "You don't want to publish how to make an organism more virulent."

### **Defenders Say**

By publishing, the Australian scientists alerted the world to the possibility of much more deadly diseases. "The best protection against any misuse of this technique was to issue a worldwide warning," says the director of the research center that performed the work. "We also want researchers to use this knowledge to help design better vaccines."

### **Controversial Paper**

By Ariella M. Rosengard and co-workers at the University of Pennsylvania

*Proceedings of the National Academy of Sciences*, June 25, 2002 (online edition, May 28)

The team took a protein from a relative of smallpox and altered it to form a smallpox protein. In test-tube studies, the researchers studied how the protein turned off human immune molecules.

## Critics Say

All scientists contacted by *The Chronicle* said that the paper should have been published, but some noted that bioweaponeers could put the smallpox protein studied by Dr. Rosengard into a relatively innocuous virus, rendering it more deadly.

## Defenders Say

"The potential for good in doing this kind of research greatly outweighs the bad," says Dr. Rosengard, who emphasizes that she studied just one protein. "One protein does not make a virus. They have thousands of proteins, and they have several hundred for evading the human immune response."

## Controversial Paper

By Eckard Wimmer and researchers at the State University of New York at Stony Brook

*Science*, August 9, 2002 (online edition, July 11)

The scientists used the genetic sequence of poliovirus to order pieces of DNA from a company. By patching the pieces together and putting the complete DNA chain into a soup of cellular molecules, the team created poliovirus particles capable of paralyzing and killing mice.

## Critics Say

A resolution was introduced in the U.S. House of Representatives criticizing *Science* for publishing a potential blueprint for terrorists. Although poliovirus would not make a good weapon of mass destruction, Raymond A. Zilinskas, a bioweapons specialist at the Monterey Institute of International Studies, says that the paper could help a motivated nation to assemble other small viruses that would be suitable as biological weapons.

## Defenders Say

The poliovirus created by the team was 1,000 to 10,000 times as weak as the natural form and may offer clues on how to make new vaccines for poliovirus and related viruses, says Mr. Wimmer. What's more, the funds for the research came from the Defense Department, which would not have financed unclassified work with dangerous applications, he says ([UCLA, 2002](#)).

**Title:** U.S. May Classify Some Data On Disease Due To Terror Fears

**Date:** January 10, 2003

**Source:** [UCLA](#)

**Abstract:** With germs looming as potential weapons of mass destruction, biomedical scientists can expect some federally funded projects to become classified under national-security law, a White House science aide warned.

Such restrictions, historically more common to nuclear research, now apply equally to disease research, said John Marburger, director of the president's Office of Science and Technology Policy, addressing a meeting on science and security at the National Academy of Sciences in Washington.

Under the law, researchers applying for federal grants would be notified upon approval of funding if their projects are classified, meaning the results can't be shared or published.

Balancing national security with the freedom to share research results will be tough, Mr. Marburger said. Of greatest concern is how to handle new research on deadly bacteria and viruses. Much basic research has therapeutic applications leading to new vaccines or drugs, but can also be diverted into germ weaponry.

Ron Atlas, head of the American Society of Microbiology, issued a plea against scientific censorship. Still, he and others have been haunted since the Sept. 11, 2001, attacks by potential misuse of medical discoveries.

"Every time we move toward a cure or identify a gene, we give information to terrorists," Dr. Atlas said at a biosecurity meeting in November in Las Vegas. "I don't know where we'll end up," he said. "Everything tears at our fundamental values."

Still, putting disease data in terrorist hands is unthinkable, said Gary Fleisher, a professor at Harvard Medical School. "I don't think anyone would say during World War II that we should have published information on the atomic bomb so the Nazis could use it. We are at war. [Terrorists] will use it to kill Americans."

Unusual scrutiny of people in biomedical circles already is taking place. Dr. Atlas said he gave a list of the microbiology society's 42,000 members to the Federal Bureau of Investigation during its anthrax probe, but wouldn't supply other information without a subpoena. At Biosecurity 2002, the November meeting hosted by Harvard in Las Vegas, sponsors sought an Federal Bureau of Investigation agent's help in "surveillance" of the list of attendees, said Miles Shore, a professor at Harvard Medical School.

Screening was done to allay fears that "someone with evil intent would sign up for the meeting" to hijack data for weapons or to attack the meeting itself ([UCLA, 2003](#)).

**Title:** Journals To Censor Bioterrorism Data

**Date:** March 14, 2003

**Source:** [Down to Earth](#)

**Abstract:** In response to worries about bioterrorism, prominent journals have decided to take security issues into account while reviewing research papers. Details of published studies that might help terrorists make biological weapons would also be deleted. The 'Statement on Scientific Publication and Security' was endorsed by journals like *Science*, *Nature* and *The Lancet*.

At present, research is reviewed for accuracy. The journals are now amending this process to include the assessment of the security implications. The journals would establish their own expert panels to review the papers. Editorial boards would work with the authors to make specific changes and "tone down the research papers".

Experts say that the restraint is not enough, as there is nothing to stop scientists from posting their research on the internet. Ronald Atlas, president of the American Society of Microbiology, emphasises that the process does not give governments a formal role in vetting research. The statement was partly aimed at staving off calls to make the US government a prime scientific censor board ([Down to Earth, 2003](#)).

**Title:** Will Bioterror Fears Spawn Science Censorship?

**Date:** April 25, 2007

**Source:** [Wired](#)

**Abstract:** Since September 11th, people have been increasingly worried about the misuse of legitimate scientific research to create dangerous weapons or to bypass security measures. Now a federal advisory



board is about to recommend new guidelines to limit publication of life-sciences research that could be misused by terrorists. I think it's treading on dangerous ground.

Last Thursday, a draft of the rules was formally adopted by the National Science Advisory Board for Biosecurity, or NSABB, at a meeting in Bethesda, Maryland. The draft proposes voluntary compliance by scientists, universities and journals, but leaves open the possibility of federal legislation to turn the guidelines into law. Indeed, it almost invites that result by supporting application of the NSABB recommendations to researchers that do not receive federal funds -- a result that can only be achieved through regulation.

As a lawyer for computer security researchers, it is impossible to regard this prospect with anything but dread. For example, [the proposal](#) (.pdf) broadly defines "dual use research of concern" as any "research that, based on current understanding, can be reasonably anticipated to provide knowledge, products, or technologies that could be directly misapplied by others to pose a threat to public health and safety, agriculture, plants, animals, the environment, or materiel."

That's a perfectly reasonable description of an article or paper worth a closer look before publication. But if this language becomes a statute that prohibits publication under some circumstances, the author risks criminal prosecution if law enforcement disagrees with a scientist, university or peer-review publication's decision that the research should be published.

And, legally, I'd find it extremely difficult to advise the author with any certainty whether publishing the research is lawful or not. Whose "current understanding" applies? What does "reasonably anticipated" mean? When is research "directly" misapplied, or merely indirectly used? How much of a risk "poses a threat"?

The NSABB draft also sets out a procedure to follow once a scientist has identified research of concern. Instead of outright suppression in every case, the proposal suggests a risk/benefit analysis, which can result in a variety of options for communicating the research to the public.

This seems flexible and case-specific, which again, is great in a guideline, but terrible when you are trying to advise a client how to avoid the risk of jail. We know that reasonable scientists can and do disagree about these things. What do prosecutors, judges and juries think?

Rejecting new regulation doesn't mean we have to be subject to the whims of bioterrorists. Voluntary self-regulation, ethical training, peer review and additional practices currently followed by recombinant DNA researchers, microbiologists and other scientists all have a track record of success. And smart federal laws can control access to pathogens -- and prohibit dangerous practices -- while steering clear of restricting scientific publications.

Until recently, U.S. policy has been to allow the publication of information, with only narrow controls on classified information. Then, in 2002, the president signed the National Security Act, which requires federal agencies to create procedures to protect "sensitive but unclassified" knowledge. The statute is unclear about whether these procedures should take the form of voluntary guidelines, or regulations with the force of law, and whether they'll apply outside of federal agencies. But the NSABB report appears to be part of the effort to craft such procedures.

The scientists on the board have good reasons for wanting to be involved in crafting the guidelines. They want to stop terrorists, and they take the dangers from dual-use research seriously. They also want to protect the scientific process, and they believe correctly that if regulation is going to happen, it would be much, much better if scientists were involved.

Once such scientist is NSABB board member David A. Relman, M.D., associate professor of medicine, microbiology and immunology at Stanford University School of Medicine. He told me about a 2004

addition to federal law which [criminalizes possession](#) of the smallpox virus. Unfortunately, the statute defines the pathogen as any virus that contains 85 percent or greater sequence similarity to smallpox, effectively outlawing a whole range of pox viruses, including the smallpox vaccine. The maximum penalty for violating the law is a fine of \$2 million dollars and 25 years in prison.

Doctor Relman views his role on the NSABB as helping the government avoid a similar kind of mistake in the future. He and his colleagues are doing us a service by participating, but they have to be extremely careful that their work is not used to legitimize regulation. Any guidelines should be crystal clear that they are good only as that -- guidelines.

If the NSABB is not careful, its well-balanced recommendations may become a precursor for abandoning voluntary self-regulation in favor of federal regulation of scientists. Once we have regulations, we will also have penalties for non-compliance. At that point, the only question left will be how much scientific self-determination remains ([Wired, 2007](#)).

**Title:** Bird Flu Bioterror Risk Seen Increased By Censorship

**Date:** December 21, 2011

**Source:** [Reuters](#)

**Abstract:** Any number of laboratories worldwide could engineer bird flu viruses into bioterror weapons capable of causing a human pandemic, and U.S. government efforts to censor research might only increase the risk that rogue elements may give it a try.

Experts say an unprecedented request by the U.S. National Science Advisory Board for Biosecurity (NSABB) for two leading scientific journals to withhold details of research into H5N1 bird flu is unlikely to block anyone already intent on evil.

Yet ironically, the fact that the potential for H5N1 to be deliberately engineered into a highly pathogenic form has become headline news might put fresh thoughts into the wrong minds.

"Anything like this has the potential to trigger ideas in some maverick," said Peter Openshaw, director of the centre for respiratory infection and Britain's Imperial College.

"There are many crazy people out there, and there are also people who are fixed on some idea at the extreme end of the political norm. Both groups have the potential to cause harm."

H5N1 bird flu is extremely deadly in people who are directly exposed to it from infected birds.

Since the virus was first detected in 1997, about 600 people have contracted it and more than half of them have died. But so far it has not mutated into a form that can pass easily from person to person.

Scientists around the world have been working for many years trying to figure out which mutations would give H5N1 the ability to spread easily from one person to another, while at the same time maintaining its deadly properties.

## **Anthrax Attacks**

The U.S. National Institutes of Health funded two research teams, one in The Netherlands and one in Wisconsin in the United States, to carry out research into how the virus could become more transmissible in humans.

The aim was to gain early insight on how to contain the public health threat if such a mutation occurred naturally, but now the NSABB says it wants publication of the studies censored to stop the information falling into the wrong hands.

"It's very important work that has shown that with relative ease it is possible to mutate H5N1 into a mammal-to-mammal transmissible virus," said Openshaw.

Wendy Barclay, an expert in flu virology at Imperial College, said stopping the *Science* and *Nature* journals from publishing full scientific data from the work would do little more than set an uncomfortable precedent.

"The exact mutations that made this transformation possible were not particularly novel or unexpected so anyone with a reasonable knowledge of influenza virology could probably guess at them if they so wished," she said.

"I'm not convinced that withholding scientific know-how will prevent the highly unlikely scenario of misuse of information, but I am worried that it may stunt our progress towards the improved control of this infectious disease."

Scientists agreed on the need to maintain high levels of safety and security around labs working with dangerous viruses, and be cautious about deliberately doing things that enhance their pathogenicity and disease potential.

One the other hand, seeking to impose unprecedented levels of regulation on laboratories and scientists who proceed with extreme caution anyway is unlikely to have a positive impact.

"Whatever regulations are put in place in sensible, well-run labs in the developed world, we have no way of regulating what goes on in facilities in [China](#) or Korea, or possibly in India and Pakistan," said Openshaw.

He pointed out, however, that as a weapon, a mutated H5N1 virus would be pretty unsophisticated and virtually impossible to target at any one group or population.

In contrast, the anthrax powder attacks in the United States

in 2001, which prompted the formation of the NSABB, were able to be highly targeted by the perpetrators who sent the powder in letters to particular groups and individuals.

"(With H5N1), you'd really have to have a grudge against the whole of humanity," Openshaw said.

"These would be very indiscriminate bioweapons that couldn't be controlled. They wouldn't be selective. So it would be a very bizarre decision for someone to release an agent like this, because it would cull humanity" ([Reuters, 2011](#)).

**Title:** Bioterrorism Fears Spark Censorship Call

**Date:** December 22, 2011

**Source:** [SMH](#)

**Abstract:** The US government has asked the publishers of *Nature* and *Science* magazines to censor details on a laboratory-made version of the deadly bird flu virus for fear that the information could be used as a biological weapon.

Scientists seeking to fight future pandemics have created a variety of the H5N1 virus that is so dangerous that the US National Science Advisory Board for Biosecurity has for the first time asked two science journals to hold back on publishing details of research.

The editors at *Science* are taking the request of the advisory board seriously, said the journal's editor-in-chief, Bruce Alberts. They are trying to balance the need for other researchers to have detailed information against possible threats, he said in a statement.

"Science editors will be evaluating how best to proceed," Mr Alberts said.

Responses are contingent on the government developing a plan so that withheld information can be provided to researchers who request it "as part of their legitimate efforts to improve public health and safety", he said.

In the experiments, university scientists in the Netherlands and Wisconsin created a version of the H5N1 influenza virus that is highly lethal and easily transmissible between ferrets, the lab animals that most closely mirror human beings in flu research.

Members of the National Science Advisory Board for Biosecurity, which was created after the anthrax bioterrorism attacks of 2001, worried that such a hazardous strain might be intentionally or accidentally released into the world if directions for making it were generally known.

The board advises the US Department of Health and Human Services, which agreed with the non-binding recommendation.

After weeks of reviewing papers describing the research, the board said it had recommended that the experiments' "general conclusions" be published but not "details that could enable replication of the experiments by those who would seek to do harm".

"Censorship is considered the ultimate sin of original research. However, we also have an imperative to keep certain research out of the hands of individuals who could use it for nefarious purposes," said Michael Osterholm, a member of the board who is also the director of the Centre for Infectious Disease Research and Policy at the University of Minnesota. "It is not unexpected that these two things would clash in this very special situation."

The board cannot stop publication. Its advice went to the Department of Health and Human Services, whose leaders asked the authors of the papers and the journals reviewing them - *Science*, published in Washington, and *Nature*, published in London - to comply.

The journals' responses to the request were initially very chilly.

Reuters reported that the journals objected to the request, although later reports suggested they were willing to go along with it under certain conditions.

Dutch researchers said they "are currently working on a new manuscript that complies with the recommendation". The scientists at the University of Wisconsin could not be reached.

About 600 people, mostly in south-east Asia, have become ill from the H5N1 virus since 1997. About 60 per cent have died. The virus is rarely passed from person to person, more likely to occur with close contact with sick birds.

Because of its extreme virulence, H5N1 has been the flu strain most feared as the source of a possible influenza pandemic.

What it lacked were the genetic changes permitting easy transmission by coughing, sneezing and touch. The new research has produced those changes for the first time, at least in ferrets.

Exactly how the key new mutations occurred is unclear, although it seems in part to be the product of chance. Influenza viruses are constantly changing in small ways, which is one of the reasons vaccines against them have to be reformulated every few years. Infecting ferrets enough times with the virus may have been sufficient to allow mutations favouring easy transmissibility to emerge by chance and then be "saved" by natural selection ([SMH, 2011](#)).

**Title:** Should Medical Journals Print Info That Could Help Bioterrorists?

**Date:** December 27, 2011

**Source:** [TIME](#)

**Abstract:** Bird flu is deadly, but it generally does not spread easily from human to human. Now, scientists in Wisconsin and the Netherlands have created a strain of bird flu that can spread through the air — a virus that could kill millions if terrorists managed to create a batch and weaponize it. This raises a thorny question: Should medical journals be allowed to print the details of how the virus is made?

A government advisory board has urged two scientific journals to omit some of the specifics about the virus — the first time it has issued such a request. Supporters insist that the board's request is a much-needed precaution that could save millions of lives. But critics say that the government is engaging in censorship and interfering with academic freedom.

It is a classic clash of liberty versus security. The question is such a difficult one because whichever course the government takes carries risks and costs. Which option — blocking publication or allowing it — is the lesser of two evils?

It is not hard to see why the government is seeking to keep details of the virus out of print. The H5N1 bird-flu virus rarely infects humans. But when it does cross the species barrier, the mortality rate can be as high as 60%. If terrorists were able to use the new research to make a contagious strain of the virus, the result could be a real-world version of the movie *Contagion*. That is: worldwide panic and mass deaths.

The government is trying to avoid this by urging scientific journals to describe the virus only in general terms and keep out the sort of details that could be used to replicate it. The National Science Advisory Board for Biosecurity, which was created after the deadly anthrax attacks of 2001, asked the journals *Science* and *Nature* to be selective when they published articles on the highly contagious strain of H5N1.

So what's the problem? Critics say the government is engaging in censorship by telling the media what it should and should not write about. It sets a terrible precedent, they argue, for the government to set itself up as a national-security censor. The next time, they say, the government will try to prevent the publication of information that is far less dangerous than contagious bird flu.

Press-freedom watchdogs have a point: the government often trots out national security to try to intimidate the press into not doing its job. A few years back, the New York *Times* was about to expose the NSA spying program, in which the government was intercepting emails and phone calls without getting court orders. President George W. Bush called the paper's top brass down to the White House and warned them that exposing the program would compromise national security. The *Times* went ahead and published — and we are all still here.

The skeptics raise another important concern: the long tradition of scientific openness. Research science works by having experiments reported publicly, so other scientists can test the findings — and build on them with their own research. This tradition breaks down when the government puts a shroud of secrecy on some research.

The editor of *Science* has suggested that his journal might agree to withhold the information the advisory board is worried about — provided that the government creates a system that would allow legitimate scientists to access the full results.

That sounds like the right answer. We should be wary of government attempts to stop the media from publishing information. But in extreme cases, it may be necessary — and weaponizable highly contagious bird flu could be just such a case.

What factors should we be looking for in considering whether the government should try to stop publication? First, the threat of harm should be real and it should be truly extraordinary. That is a test the contagious strain of H5N1 seems to meet. Second, it should be clear that the government has no ulterior motives — that it is acting to protect the nation, not to advance a political agenda.

That can be a tough thing to evaluate — governments that use national-security arguments for political goals are quick to deny that they are doing so. The best check on this sort of politicization is making sure that anyone who feels pressure from the government not to publish or speak is able to challenge the policy in court. Judges are in the best position to balance risks of serious harm against the infringement on speech — and to determine whether the government is crossing any First Amendment lines.

Those who oppose the Scientific Advisory Board's decision are right that we must be wary whenever the government tries to suppress speech. As Supreme Court Justice Potter Stewart said, censorship is "the hallmark of an authoritarian regime." But the board's defenders are right that ultimately the government has a duty to protect the public from the most serious threats. They can cite Supreme Court Justice Robert Jackson, who noted that the Constitution is not a suicide pact ([TIME, 2011](#)).

**Title:** Can Scientific Censorship Stop Bioterrorism?

**Date:** January 31, 2012

**Source:** [Reason](#)

**Abstract:** Today the U.S. National Scientific Advisory Board for Biosecurity recommended that the journals *Nature* and *Science* restrict publication about controversial new research relevant to the transmission of avian flu between humans. The fear: Would-be bioterrorists are combing the pages of the journals for tips on how to wreak havoc.

The H5N1 avian flu virus has killed 60 percent of the 600 or so people known to have come down with it since it was first identified in 1997. For comparison, seasonal flu in the United States kills about 0.1 0.003\* percent of those who catch it. So far the H5N1 virus has not become easily transmissible between humans. But recently two research teams, one in the Netherlands and another in Wisconsin, reported that they had succeeded in transforming the virus into versions that are transmissible via respiratory drops through the air between mammals. In the normal course of scientific research, the teams approached the journals *Science* and *Nature* about publishing their results. Publication is the way that scientists get credit for their achievements and enable fellow researchers to benefit from and build upon their work.

Reports of this research, however, provoked worries that publishing the recipe for making the bird flu virus transmissible could enable bioterrorists to unleash a devastating global epidemic that could kill billions of people. The editorial page editors at *The New York Times* are so frightened at the prospect that they have called on the researchers to [destroy](#) their new strains of the virus. Consequently, concerned journal editors and peer reviewers sought the advice of the U.S. National Scientific Advisory Board for Biosecurity (NSABB). In December, the NSABB recommended that the journals withhold research details to impede would-be bioterrorists.

In January, the two research teams agreed to a [two-month moratorium](#) on further research on their modified flu viruses. In addition, the World Health Organization is convening a meeting of prominent

influenza researchers to discuss what should be done. Today, the NSABB is publishing its recommendation to [restrict communication](#) [PDF] of these scientific results in *Nature* and *Science*.

A research moratorium is not new to the life sciences. Back in 1974, several prominent biologists concerned about the “[potential biohazards](#)” [PDF] posed by then new gene-splicing techniques published in leading scientific journals a call for a moratorium on certain kinds of experiments. A year later, a group of 140 scientists along with a few lawyers and journalists convened at Asilomar in California where they proposed a [scheme for containing gene-spliced experimental organisms](#) [PDF] in laboratories. This scheme evolved into laboratory regulations under the auspices of the National Institutes of Health. The NSABB cites this history, arguing, “We believe that this is another Asilomar-type moment for public health and infectious-disease research that urgently needs our attention.” That’s about right, but not necessarily in a good way.

The positive spin on history is that the 1974 research moratorium and the 1975 Asilomar meeting calmed public fears and enabled the new biotech research to proceed. Some participants now disagree, arguing that the fact that researchers had called for a moratorium instead inflamed the public. “I knew the [Asilomar] letter would give rise to a sort of fire-storm of ill-informed brave new world stuff,” [said](#) Asilomar participant and former *New York Times* science reporter Victor McElheny in 2009.

In fact, *The New York Times* in 1976 helped fan the flames of “brave new world stuff” by publishing an article, “[New Strains of Life—or Death](#),” in which Cornell University biochemist Lieke Cavalieri warned that gene-splicing could lead to accidental outbreaks of infectious cancer. “In the case of recombinant DNA, it is an all or none situation—only one accident is needed to endanger the future of mankind,” warned Cavalieri. Forty years after the [first gene-splicing experiments](#) by biologists Paul Berg, Herbert Boyer, and Stanley Cohen, unregulated molecular biology experiments are [common in high school](#) biology classes and humanity is not yet afflicted with lab-made infectious cancers.

The NSABB research censorship recommendations provoke reflection on two general issues. First, governments, and especially defense bureaucracies, are [addicted to secrecy](#) [PDF]. Knowledge is power and government bureaucracies are in the business of accumulating and hoarding power. This is the opposite of science, which thrives in an atmosphere of transparency. While on very rare occasions there may be reasons to withhold temporarily scientific findings from the public, the default must always be openness.

The second issue is just how plausible is it that bioterrorists or hostile governments are eager to brew up and release a pandemic strain of deadly flu? The would-be bioterrorists would have no way to prevent it from infecting themselves, their families, friends, fellow citizens, and co-religionists. It’s possible that unleashing a pandemic might appeal to some kind of [millenarian death cult](#), but your average terrorist and dictator are unlikely to conclude that a flu epidemic is a good idea. Bioterrorism using infectious agents is likely self-deterring.

On the other hand, even as the NSABB recommends secrecy and restriction, it acknowledges “that there are clear benefits to be realized for the public good in alerting humanity of this potential threat and in pursuing those aspects of this work that will allow greater preparedness and the potential development of novel strategies leading to future disease control.” First, avian flu is percolating out in nature, and there is every possibility that it will eventually mutate into a strain that infects people. The new research may have given public health officials a jumpstart on what to look for as they monitor changes in natural avian flu strains.

Second, researchers have been working on various treatments aimed at ameliorating or [preventing](#) avian flu among humans. These new air-transmissible strains could be used to see how effective current treatments may be and to guide the development of new treatments and vaccines.



Consider an earlier case of bioterrorism jitters provoked by publishing research on how to resurrect the Spanish flu. In 2005, researchers published the details of the viral strain that killed perhaps 50 million people in 1918. At the time some [warned](#) that the 1918 flu was “perhaps the most effective bioweapons agent now known.” However, as a result of the publication of that research we now know that that bioweapon fear was overblown.

As one of the lead researchers on the Spanish flu genome project, Peter Palese, recently [pointed out](#), after publication lots of new researchers focused on the virus and happily discovered that it responds to seasonal vaccines and anti-flu drugs like Tamiflu and Symmetrel. “Had we not reconstructed the virus and shared our results with the community, we would still be in fear that a nefarious scientist would recreate the Spanish flu and release it on an unprotected world,” writes Palese. “We now know such a worst-case scenario is no longer possible.”

On January 25th, one of the lead avian flu researchers, Yoshihiro Kawaoka from the University of Wisconsin-Madison, argued in *Nature* that the research on transmissible avian flu must continue in order to protect people. Now that researchers know that avian flu can be transformed into transmissible strains, monitoring could facilitate eradication efforts and other countermeasures should such changes be detected in natural strains.

“The redaction of our manuscript, intended to contain risk, will make it harder for legitimate scientists to get this information while failing to provide a barrier to those who would do harm,” asserts Kawaoka. Spanish flu researcher Palese concurs, “The more danger a pathogen poses, the more important it is to study it (under appropriate containment conditions), and to share the results with the scientific community. Slowing down the scientific enterprise will not ‘protect’ the public—it only makes us more vulnerable.” Both are right.

The best defense against bioterrorism is the open and international scientific enterprise itself, not government recommended (and perhaps one day enforced) secrecy ([Reason, 2012](#)).

**Title:** No Way Of Stopping Leak Of Deadly New Flu, Says Terror Chief

**Date:** February 8, 2012

**Source:** [Independent](#)

**Abstract:** The bioterrorism expert responsible for censoring scientific research which could lead to the creation of a devastating pandemic has admitted the information “is going to get out” eventually.

Professor Paul Keim, chairman of the US National Science Advisory Board for Biosecurity, controversially recommended that researchers be stopped from publishing the precise mutations needed to transform the H5N1 strain of birdflu virus into a human-transmissible version.

In an exclusive interview with The Independent, he argued it had been necessary to limit the release of the scientific details because of fears that terrorists may use the information to create their own H5N1 virus that could be spread easily between people.

Professor Keim said that it was necessary to slow down the release of scientific information because it was clear that the world is not yet prepared for a strain of highly lethal H5N1 influenza that can be transmitted by coughs and sneezes.

“We recognised that, in the long term certainly, the information is going to get out, and maybe even in the mid term. But if we can restrict it in the short term and motivate governments to start getting busy in terms of building up the flu-defence infrastructure, then we’ve succeeded at a certain level,” he said.

“If we can slow down the release of the specific information that would enable somebody to reconstruct this virus and do something nefarious, even for a while, then that was a good thing.”

By withholding key details of the mutations needed to make an airborne strain of H5N1, this would give time for governments to prepare for and prevent a possible pandemic, he added.

“The infrastructure to stop a pandemic in this area is not there. We just don’t have the capabilities. The very first time we knew that the swine flu virus [coming out of Mexico] was there, it was already in 18 countries. I’m not confident at all that we have the surveillance capability to spot an emerging virus in time to stop it,” he said.

“And even if we did spot it early on, I don’t think we have sufficient vaccines. The vaccines aren’t good enough, and the drugs are not good enough to stop this emerging and being a pandemic.”

Although H5N1 spreads rapidly between birds, it has so far affected only about 600 people worldwide who have had direct contact with infected poultry. However, two teams of researchers have shown independently that it only requires five mutations for H5N1 to become an airborne pathogen for laboratory ferrets, the standard animal model for human influenza.

Professor Keim said that the biosecurity board was asked by the US Government to review the two independent studies because they had already been submitted to the journals Science and Nature. The board had to make a recommendation on whether any or all of the information should be published.

Scientists involved in showing how the H5N1 birdflu virus can be transmitted in the air between ferrets have criticised the biosecurity board’s decision to part-censor their research on the grounds that it would hinder the development of new vaccines and drugs.

However, Professor Keim dismissed the criticism as disingenuous. “The argument that we need this information to make better vaccines and better drugs does not ring true,” he said. “There are lots of ways to make drugs against this virus. The very drugs they were using against this virus were the very same ones used against other flu viruses. The drug-invention problem has nothing to do with having this virus to hand,” he added.

Professor Keim revealed that although he is personally in favour of the research that led to the creation of airborne strains of H5N1, some other members of the board were not convinced. “I’m personally in favour of this research but that opinion is not universal on the board. Some people on the board wanted to stop this research and destroy the virus,” he said.

“I don’t think we need this virus to prove that Tamiflu works against it. And we know that the H5 antigen is not a great antigen for vaccines, we don’t need the virus to tell us that. But there are some experiments that can only be done with the live virus and I’m in favour of keeping the virus for those type of experiments” ([Independent, 2012](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#), or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** The Prospect Of Domestic Bioterrorism

**Date:** August, 1999

**Source:** [CDC](#)

**Abstract:** Would domestic terrorists use biological weapons? The conventional wisdom among experts has been that terrorists "want a lot of people watching, not a lot of people dead" and are unlikely to turn to weapons of mass destruction. A new school of thought proposes that improved technology has made biological attacks resulting in hundreds of thousands or millions of deaths all but inevitable. While terrorists are increasingly interested in weapons of mass destruction, proponents of the latter view exaggerate the threat. Using biological weapons to create mass casualties would require more than having biological agents in hand. The terrorists would need to disseminate the agent, which presents technical and organizational obstacles that few domestic groups could surmount. In addition, relatively few terrorists would want to kill millions of people, even if they could.

For most terrorists, the costs of escalation to biological weapons would seem to outweigh the benefits. Most modern terrorists have had substantively rational goals, such as attaining national autonomy or establishing a government purportedly more representative of the people's will. Escalating to such frightening weapons would result in a massive government crackdown and could alienate the group's supporters. Biological weapons are also dangerous to produce. A number of Aum Shinrikyo members reportedly damaged their own health while working on biological agents. Additionally, some terrorists may perceive moral constraints.

**Candidates for successful use of biological weapons represent the intersection of three sets: groups that want to use these weapons despite formidable political risks; groups that can acquire the agent and a dissemination device (however crude); and groups whose organizational structure enables them to deliver or disseminate the agent covertly.** The intersection of these sets is small but growing, especially for low-technology attacks such as contaminating food or disseminating biological agents in an enclosed space. Major attacks are also becoming more likely. In the sections that follow, we consider eroding motivational, technical, and organizational constraints.

## **Motivational Factors**

### **Getting Attention**

Some terrorists may turn to biological weapons because they believe it would attract more attention to their cause than conventional attacks. Studies of perceived risk show an inexact correlation between scientists' assessment of risk and the level of fear invoked by risky technologies and activities.<sup>4</sup> Biological weapons are mysterious, unfamiliar, indiscriminate, uncontrollable, inequitable, and invisible, all characteristics associated with heightened fear.

### **Economic Terrorism**

Unlike conventional weapons, radiologic, chemical, and biological agents could be used to destroy crops, poison foods, or contaminate pharmaceutical products. They could also be used to kill livestock. (Conventional weapons could be used for the same purposes, albeit less efficiently.) Terrorists might use these agents to attack corporations perceived to be icons of the target country, for example, by contaminating batches of Coca-Cola, Stolichnaya vodka, or Guinness stout. Terrorists could attempt to disseminate anthrax with the explicit goal of imposing expensive clean-up costs on a target government.

### **Millenarianism**

The millenarian idea is that the present age is corrupt and that a new age will dawn after a cleansing apocalypse. Only a lucky few (usually selected on the basis of adherence to doctrine or ritual) will survive the end of time and experience paradise.<sup>5</sup> Some millenarians believe that the saved will have to endure the 7 years of violence and struggle of the apocalypse, and they want to be prepared.<sup>6</sup> Shoko Asahara, leader of the doomsday cult that released sarin gas in the Tokyo subway in 1995, killing 12, told his followers that in the coming conflict between good and evil they would have to fight with every available weapon.<sup>7</sup> A similar belief system explains the attraction to survivalism by Identity Christians, white supremacists who believe in an imminent Armageddon.

### **Premillennial Tension**

Slight tension connected with the millennium presumably affects most people. Many are concerned about the Y2K problem, the prospect that computer systems will malfunction or fail at the end of 1999. Some fear the breakdown of air-traffic control systems and are planning to avoid traveling around January 1, 2000. Others fear an accidental launch of Russian nuclear missiles due to malfunctioning computers. Many are stockpiling food and medicine or will have extra cash on hand in case automated banking systems fail. Some feel vague religious fears. Members of antigovernment groups and religious cults are often vulnerable psychologically and appear to be especially affected by premillennial tension. Larry Wayne Harris, a white supremacist and born-again Christian, predicts that the Y2K bug will cause a civil war in the United States and that after January 1, 2000, the government will be unable to deliver welfare checks and food stamps for at least 3 years. He predicts that biological attacks could be carried out by domestic groups fighting for their heritage, traditions, and communities, causing devastating plagues like those described in the Bible's Book of Revelation. He urges all U.S. citizens to prepare. For some domestic groups, preparation involves stockpiling weapons and training to use them.

### **Exacting Revenge or Creating Chaos**

Politically motivated terrorists who desire to change societies rather than destroy them might avoid killing very large numbers of people because the political costs would exceed the benefits. Some terrorists, however, want to annihilate their enemies or demolish the societal order. William Pierce, leader of the neo-Nazi organization National Alliance, aims to initiate a worldwide race war and establish an Aryan state. "We are in a war for the survival of our race," he explains, "that ultimately we cannot win... except by killing our enemies... It's a case of either we destroy them or they will destroy us, with no chance for

compromise or armistice." Creating social chaos is thus a worthwhile objective in Pierce's view. Ramzi Yousef, organizer of the World Trade Center bombing, claimed he was exacting revenge against the United States. Osama bin Laden seems to have similar motives.

### **Mimicking God**

Terrorists hoping to create an aura of divine retribution might be attracted to biological agents. The fifth plague used by God to punish the Pharaoh in the Bible's Book of Exodus was murrain, a group of cattle diseases that includes anthrax. In the fifth chapter of Samuel I, God turned against the Philistines and "smote them with emerods." Medical historians consider these emerods a symptom of bubonic plague. Some terrorists may believe they are emulating God by employing these agents.

### **The Aura of Science**

Terrorists may want to impress their target audience with high technology or with weapons that appear more sophisticated than conventional ones. Terrorists may find technology appealing for various reasons. William Pierce, who studied physics at California Institute of Technology, is interested in high-technology weapons. In his novel *The Turner Diaries*, right-wing extremists use nuclear, chemical, biological, and radiologic weapons to take over the world. Pierce believes he can attract more intelligent recruits to his organization over the Internet than through radio or leaflets.

### **The Copycat Phenomenon**

Domestic extremists have shown greater interest in chemical and biological weapons in the last 5 years. For example, in 1998, members of the Republic of Texas were convicted of threatening to assassinate with biological agents President Clinton, Attorney General Janet Reno, and other officials. In May 1995, 6 weeks after the Aum Shinrikyo incident on the Tokyo subway, Larry Wayne Harris bought three vials of *Yersinia pestis*, the bacterium that causes bubonic plague. No law prohibited Harris or any other U.S. citizen from acquiring the agent. The law has been tightened up since, although many fear it is still not restrictive enough. The Federal Bureau of Investigation (FBI) Director Louis Freeh reports that "a growing number while still small of 'lone offender' and extremist splinter elements of right wing groups have been identified as possessing or attempting to develop or use" weapons of mass destruction.

In February 1998, Harris boasted to an informant that he had enough military-grade anthrax to wipe out all of Las Vegas. Eight bags marked "biological" had been found in the back of a car he and his accomplice were driving. Several days later, federal authorities learned that the anthrax Harris had brought to Las Vegas was a vaccine strain not harmful to human health. Nevertheless, the incident frightened many people and sparked a proliferation of anthrax hoaxes and threats in the second half of 1998 continuing into 1999 by groups including Identity Christians and other antigovernment groups, extortionists, antiabortion activists, and presumed prochoice groups. In many cases, the perpetrator's motives were unknown, but some incidents appear to have been student pranks, demonstrating the extent to which the threat of anthrax has entered U.S. consciousness.

### **Technical Factors**

With the end of the cold war and the breakup of the Soviet Union, weapons of mass destruction and their components have become easier to acquire. Underpaid former Soviet weapons experts may be providing biological weapons and expertise to Iran. South African biological weapons scientists have offered their expertise to Libya. State-sponsored groups are most capable of overcoming technical barriers to mass-casualty attacks, but the sponsor would presumably weigh the risk for retaliation before supporting this type of terrorist attack.

College-trained chemists and biologists could presumably produce biological agents, although they might have trouble disseminating them as aerosols. Microorganisms can be disseminated by air in two forms:

as liquid slurries or as dry powders. While producing liquid slurries is relatively easy, disseminating them as respirable infectious aerosols over large open areas is not. Although dry powders can be disseminated far more easily, high-quality powders require substantial development, involving skilled personnel and sophisticated equipment. Milling biological agents would require a level of sophistication unlikely to be found among many domestic terrorist groups. Far more likely are low-technology incidents such as contaminating foods, poisoning livestock, or disseminating industrial poisons in an enclosed space. Such attacks could still be lethal. Major attacks cannot be ruled out; however, governments need to prepare.

## **Organizational Factors**

In the mid-1980s, a little-known survivalist group called The Covenant, the Sword, and the Arm of the Lord (CSA) acquired a large drum of cyanide with the intention of poisoning water supplies in major U.S. cities. At the time, CSA was unusual among terrorist groups in that its sole objective was large-scale murder rather than influencing government policies. CSA overcame two of three large obstacles to successful employment of a chemical agent. It had the motivation to use a chemical agent to kill large numbers and no political or moral constraints. The group had acquired a chemical agent, although not in sufficient quantity to contaminate city water supplies. The group's leaders had not recruited technically trained personnel and chose an unworkable dissemination technique. Moreover, the group lacked discipline and was easily penetrated by FBI. It is unlikely that CSA would make such mistakes if it were operating today, when antigovernment groups are so much more aware of the potential of poison weapons for inflicting mass casualties.

CSA was run as a relatively open compound. Some members wrote articles in local papers espousing antigovernment beliefs, and some worked in neighboring towns. Several former CSA members became informants, often because they hoped to get their sentences reduced for other, unrelated, crimes. In recent years, however, antigovernment groups have become more aware of the danger of penetration by law-enforcement authorities and have devised a new way of organizing themselves called "leaderless resistance." Members are encouraged to act on their own, minimizing their communication with the leadership of the movement. Timothy McVeigh operated according to this model. His bombing of the Oklahoma City Federal Building was originally conceived of by CSA, although it is not clear that McVeigh knew of CSA's earlier plot. If future terrorists with chemical or biological agents act on their own or in small, secretive groups, FBI may have difficulty apprehending them.

One of CSA's objectives was to establish a computerized, nationwide system linking right-wing groups. This goal has been achieved, although CSA is not exclusively or even principally responsible for this achievement. The nationwide linking of right-wing groups has implications that have not been adequately appreciated by the law enforcement community. The Internet makes terrorist acts easier to carry out. It facilitates leaderless resistance by allowing leaders of the movement to communicate with sympathizers worldwide without having to meet face-to-face with their followers.

## **The Likeliest Perpetrators**

A small but growing number of domestic terrorists could attempt to use biological weapons in the belief that doing so would advance their goals. The most likely are religious and extreme right-wing groups and groups seeking revenge who view secular rulers and the law they uphold as illegitimate. They are unconstrained by fear of government or public backlash, since their actions are carried out to please God and themselves, not to impress a secular constituency. Frequently, they do not claim credit for their attacks since their ultimate objective is to create so much fear and chaos that the government's legitimacy is destroyed. Their victims are often viewed as subhuman since they are outside the group's religion or race.

Religiously motivated groups are increasing. Of 11 international terrorist groups identified by the Rand Corporation in 1968, none were classified as religiously motivated. By 1994, a third of the 49 international groups recorded in the Rand-St. Andrews Chronology were classified as religious.<sup>22</sup> Religious groups



are not only becoming more common; they are also more violent than secular groups. In 1995, religious groups committed only 25% of the international incidents but caused 58% of the deaths.[23](#)

Identity Christians believe that the Book of Revelation is to be taken literally as a description of future events. Many evangelical Protestants believe in a doctrine of rapture: that the saved will be lifted off the earth to escape the apocalypse that will precede the Second Coming of Christ. Followers of Christian Identity (and some other millenarian sects), however, expect to be present during the apocalypse.[24](#) Because of this belief, some followers of Christian Identity believe they need to be prepared with every available weapon to ensure their survival.

Organizational pressures could induce some groups to commit extreme acts of violence. Followers tend to be more interested in violence for its own sake than in the group's purported goals, making them less inhibited by moral or political constraints than the leaders. Leaders may have difficulty designing command and control procedures that work. Offshoots of established groups may be particularly dangerous. Groups may also become most violent when the state is closing in on them, potentially posing difficulties for those fighting terrorism. Another factor is the nature of the leader. Charismatic leaders who isolate their followers from the rest of society often instill extreme paranoia among their followers. Such groups can be susceptible to extreme acts of violence.

Asked who he thought the most likely domestic perpetrators of biological terrorism were, John Trochman, a leader of the Montana Militia, said that extremist offshoots of Identity Christian groups are possible candidates, as are disaffected military officers.[25](#) Some antigovernment groups are attempting to recruit inside the U.S. military.[26](#) William Pierce also foresees the use of biological weapons by antigovernment groups. "People disaffected by the government include not only the kind of people capable of making pipe bombs. Bioweapons are more accessible than are nuclear weapons."[27](#)

## Conclusions

Terrorism with biological weapons is likely to remain rare. **This is especially the case for attacks intended to create mass casualties, which require a level of technologic sophistication likely to be possessed by few domestic groups. While state-sponsored groups are most likely to be capable of massive biological weapons attacks, the state sponsor would presumably have to weigh the risk for retaliation.** As in the case of other low-probability high-cost risks, however, governments cannot ignore this danger; the potential damage is unacceptably high. Because the magnitude of the threat is so difficult to calculate, however, it makes sense to focus on dual-use remedies: pursuing medical countermeasures that will improve public health in general, regardless of whether major biological attacks ever occur. This would include strengthening the international system of monitoring disease outbreaks in humans, animals, and plants and developing better pharmaceutical drugs.

The risk for overreaction must be considered. If authorities are not prepared in advance, they will be more susceptible to taking actions they will later regret, such as revoking civil liberties. Attacks employing biological agents are also more likely and will be far more destructive if governments are caught unprepared ([CDC, 1999](#)).

**Title:** Experts: Bioterror Threat More Domestic Than Foreign

**Date:** November 2, 2005

**Source:** [Fox News](#)

**Abstract:** The bacteria lie dormant, freeze-dried in sealed ampules, in a refrigerator on a teeming university campus beside the Nile.

They're among Earth's most common germs — clostridia perfringens, a cause of food poisoning, a specimen for research.



But this pathogen can also be a weapon: Iraqi scientists worked for years to mobilize this "Agent G" for Saddam Hussein's wars.

In an America nervous over bioterrorism, new laws clamp controls on clostridia and other "select agents," demanding registrations, reporting, background checks on scientists.

Egypt, in a region roiled by terrorism, has no such laws, although the bacteria at Ain Shams University are kept in a locked refrigerator, accessible by one authorized technician, in a laboratory protected by foolproof electronic keys, said Nabil Magdoub, microbe collection director.

"We have to be alert," he said, but not "unreasonable."

After all, Magdoub said, any hospital is also rife with dangerous microorganisms.

"The American people have become so sensitive towards a lot of normal, ordinary matters," he said, echoing a sentiment heard increasingly in America, where microbiologists fear that ever-stricter controls might stifle their ability to exchange samples and conduct research.

Four years after the Sept. 11 attacks, terrorist use of disease agents to inflict mass casualties looms more and more as the bottom line of America's sum of all fears. Tom Ridge, former homeland security secretary, has said authorities don't believe terror groups can build nuclear bombs, and so bioweapons become the greater threat.

"Anthrax is a concern," said Donald Van Duyn of the FBI's Counterterrorism Division. "You could do as much damage with anthrax and other substances" as with a nuclear bomb, the FBI analyst said in a Washington interview.

One attack scenario now used in U.S. planning sees more than 300,000 people in an American city exposed to aerosolized anthrax bacteria spread by terrorists via a truck sprayer, with more than 13,000 dying.

The fear is reflected in the U.S. budget's bottom line as well: Spending on civilian "biodefense" has leaped 18-fold since 2001, to \$7.6 billion this year. Project Bioshield, to develop bioterrorism countermeasures, awarded its first contract last November, \$877 million for 75 million doses of a new anthrax vaccine.

The anthrax scare began when someone mailed anthrax powder through the U.S. postal system in late 2001 and five people died.

As a result, "I'd say we get five white-powder threats a week, people calling saying, 'I found white powder. What do I do?'" said Van Duyn.

Because of the high quality of those 2001 anthrax spores, however, experts believe the perpetrator, still at large, was not linked to foreign terrorists, but possibly to the U.S. government's own anthrax program. That research began decades back as an offensive weapons program, but is now considered defensive.

Even a terror group as well-financed and educated as Japan's Aum Shinrikyo, whose homemade sarin chemical agent killed 12 people in 1995, failed to isolate a virulent strain in four years' work on anthrax.

Usama bin Laden's Al Qaeda also pursued anthrax in Afghanistan, captured documents showed. But it turned the job over to a Malaysian with a mere bachelor's degree in biology, U.S. investigators found. He, too, apparently failed to find a virulent strain — let alone a workable way to "weaponize" anthrax — before being arrested in 2001 after returning to Malaysia.

Drying and refining anthrax spores into particles readily inhaled, and then engineering equipment to spread them extensively, is a formidable challenge, U.S. congressional researchers noted in a 2004 study.

"Even a Ph.D. microbiologist doesn't know the dark arts of putting microbes into weapons," said Jonathan Tucker, a bioweapons expert with California's [Monterey Institute for International Studies](#).

It took Iraqi scientists five years to weaponize anthrax in the 1980s. Meanwhile, others in Saddam's secret program were working on "Agent G," U.N. arms inspectors later learned. The toxin-spewing *Clostridium perfringens*, applied to shrapnel, would kill the wounded by spreading virulent gas gangrene in their shrapnel wounds.

The Iraqis apparently never weaponized Agent G, however, and eventually reported to inspectors they had destroyed all 900 gallons they made.

Today *Clostridium perfringens* is one of 49 microbes on the U.S. list of "select agents" considered potential "severe threats." American laboratories handling the germ must register with the government, their personnel must undergo background checks, and transfers of cultures must be reported.

That list's length, from the toxin abrin to the plague bacteria *Yersinia pestis*, tells some that billions of U.S. dollars won't go far, since only three on the list — anthrax, smallpox and botulinum toxin — are being addressed so far in stepped-up biodefense research programs. And that's not counting any new genetically re-engineered microbes.

"What's going to come at you is impossible to predict," molecular biologist Roger Brent told a U.S. House panel in July.

Others question whether anything will come, in view of what Tucker calls Al Qaeda's "gap in technical sophistication."

Milton Leitenberg, a bioweapons authority at the University of Maryland, contends the threat has been "systematically exaggerated."

Few question the need, however, to tighten security at microbe collections worldwide. Only 500 of the estimated 1,500 major repositories — which maintain, exchange and sell samples for research and diagnostics — subscribe to the [World Federation for Culture Collections'](#) voluntary security guidelines.

Magdoub's Egypt Microbial Culture Collection is one. But a team of Egyptian microbiologists noted in a recent study that smaller collections have proliferated in Egypt, which has no "biosecurity" laws.

Team member Youssef Hamdi told The Associated Press all such resources should be combined in a single "National Culture Collection" to "insure purity, conservation and security."

Internationally, "the problem is the ones you don't know about," said Barry Kellman, director of the [International Weapons Control Center](#) at Chicago's DePaul University. Perhaps one-third of the world's microbe collections are poorly protected, he estimated.

The [World Health Organization](#) plans a "guidance document" next year promoting laboratory biosecurity, but only individual governments can enforce restrictions.

Kellman, meanwhile, agrees with those who doubt that Al Qaeda, "in a cave in Afghanistan," poses a bioterrorism threat.

He worries more about a homegrown menace, asking, "What if Ted Kaczynski" — America's notorious Unabomber — "had been a biology professor instead of a math professor?" ([Fox News, 2005](#)).

**Title:** Breivik's Interest In Anthrax And Religious Extremism

**Date:** August 2, 2011

**Source:** [IDSA](#)

**Abstract:** Known as a lone wolf, Anders Behring Breivik planned and killed 77 Norwegians on July 22, 2011. Such a cruel expression of 'belief' by an individual shocked the entire world, particularly since it occurred in peaceful Norway.

Breivik's terrorism was an act of intolerance that stemmed from the migration of Muslims to Europe. He has outlined his ideology in a 1,518-page online manifesto 2083 – A European Declaration of Independence. In this manifesto, Breivik reveals his views on politics, culture, history, Marxism, Islam, and so on. He discusses various 'revolutionary' concepts and also expresses his views on the use of Weapons of Mass Destruction (WMDs) to bring about a change in the system and society. His manifesto deals with issues related to conventional as well as chemical, biological and nuclear weapons.

Particularly alarming is his belief that Anthrax is 'one of the most effective weapons' and an instrument to help him achieve his goal. It appears that he neither had expertise in this field nor did he have a stockpile of Anthrax. According to the New York Times, the word Anthrax appears more than 50 times in his manifesto. He discusses the success of Anthrax attacks in the United States post 9/11. He is of the opinion that it should not be difficult to acquire Anthrax spores from the black market. He has also published a photograph of a man (mostly likely of himself) in a protective suit with respirator and a vial and a syringe in his hands. He speculates that any large scale Anthrax attack could kill 200,000 people and feels that this weapon has excellent shock value.

This highlights the necessity for a fresh debate on the otherwise ignored subject of biological weapons. Global concerns about biological weapons have been mainly concentrated on bioterrorism for many years. However, the history of the use of biological agents by non-state actors indicates that radical groups, religious fanatics and even disgruntled scientists have a deep interest in this form of intimidation and violence.

The most prominent case of the successful use of a biological weapon was by the Rajneesh (Osho) cult in the US state of Oregon. The cult had used Salmonella Typhimurium to contaminate salad bars in a particularly locality. Its purpose was not to kill people but make them ill for a few days and thus stop them from voting in local elections. Another instance of a radical group employing weapons of mass destruction was by the Aum Shinrikyo, which released Sarin gas in the Tokyo subway in 1995. This cult had made significant investments in biological weapons as well and had probably experimented with them though without much success. The third prominent instance was the anthrax attacks in the United States in the aftermath of the September 11 attacks, which was the handiwork of a disgruntled scientist.

These instances and Breivik's interest in using Anthrax highlight the need to expand the debate on biological weapons and bioterrorism to include the involvement of religious groups and cults; something that must be undertaken at the 7th Review Conference of the Biological and Toxic Weapons Convention (BTWC/BWC) scheduled for December 2011.

Hitherto, the primary argument about the threat from biological weapons has been that they may not be the first preference for terrorist groups since their impact is mostly unpredictable. Secondly, terrorist organisations are generally involved in a struggle to gain political power or control over a certain territory; and the use of such WMDs could turn world opinion against them and thus impede the achievement of the groups' final goal. Moreover, a covert state supporter (if any) may not support such an attack because of geopolitical compulsions. Thirdly, since terrorist organisations gain legitimacy from their supporters, the use of biological weapons could result in the death of those who support and sympathise with their cause. Lastly, most terrorist organisations have a 'copy cat' syndrome. Since no terrorist organisation has used biological weapons as the primary mode of attack till date, it seems unlikely that there will be any such attack in the future.

However, such arguments do not deter terrorists and if they decide to opt for this form of terrorism they will. None of the above arguments holds good for a lone wolf like Breivik or for that matter any other radically motivated group in any part of the world. Consequently, it is important to take the threat of use of biological weapons by radical groups and cults seriously. Their occasional acts of terrorism are likely to have major consequences particularly if these involve the use of biological weapons.

The future use of biological weapons, which are easy to carry and disguise, cannot be ruled out. Norwegian police found 5000 kilograms of fertiliser in Breivik's farm house. While the actual purpose of such a large stockpile is not known, it might well have been for the manufacture of 'conventional' bombs or for developing some form of chemical weapons. Breivik's terrorism highlights the fact that there are always such people in every society who could use weapons of mass destruction in general and biological weapons in particular ([IDSA, 2011](#)).

# Bio & Terror Bible

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While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#), or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** Leap From Animals To Humans: Pets From The Wild Can Pose Health Risks

**Date:** June 15, 2003

**Source:** [UCLA](#)

**Abstract:** It appeared at first we'd dodged the bullet. Now it's not so clear. Monkeypox, a close cousin to the smallpox virus, unexpectedly appeared this month in the Midwest, far from its natural home in the rain forests of Congo, Liberia and Sierra Leone. For the last couple of decades, monkeypox in Africa has been an elusive threat. It has erupted in Congolese villages after someone has become infected through killing, skinning and eating a rat, squirrel or monkey. Sometimes the disease has been passed on to the victim's family or fellow villagers and sometimes it hasn't. Experts from the Centers for Disease Control and Prevention and other health officials have been telling us that monkeypox isn't a very infectious disease. The truth, however, is a bit more complicated.

To understand why, we have to look at the biology of the disease. Unlike smallpox, monkeypox isn't a human specialist. It's an animal disease, and no one is sure what range of animals it infects. It kills monkeys, hence the name. Someone once found a dead squirrel on a Congo highway with suspicious-looking lesions on its skin. It turned out to have died of monkeypox, so some scientists decided that the disease is more a rodent disease than a primate disease. Apparently the disease infects giant Gambian rats, and now we know that prairie dogs, frequent victims of plague and tularemia, also can die from African monkeypox.

What has emerged from the remarkably rapid and effective investigation into the Midwest monkeypox outbreak is that African rodents, unsurprisingly, are the source of the disease. It appears that one giant Gambian rat, infected with monkeypox and housed with prairie dogs in a pet store, transmitted the disease to the prairie dogs, which were sold and swapped across several states.

Up to 68 people as of Friday had been infected. In the great bulk of those cases, the affected people appeared to have had direct contact with a sick pet. What doctors are more concerned about is person-to-person transmission, which indicates a more virulent strain, one better adapted to humans. At least

three possible cases of monkeypox have now been found in people not exposed to animals. In Congo, where the death rate is up to 10%, monkeypox often spreads from person to person — in part, public health officials say, because of primitive conditions.

But there's more to it than that. In the Congo province of Kasai-Oriental, where monkeypox occasionally breaks out, people inhabit fairly large, airy huts within a family compound, which is usually some distance from other compounds. These are not such terrible conditions for keeping the disease in check. We can't automatically assume, as some health experts contend, that it is better sanitation and living conditions in America that are keeping monkeypox from being so deadly here. Several other factors, hidden and not so hidden, are also at work.

As Peter Jahrling, the army's chief virologist, explains it, monkeypox, like other diseases, is not a single strain; there are lots of variants. Like all forms of life composed of DNA or RNA, the monkeypox virus is subject to evolution, mutation, the force of natural selection. Whatever afflicted that Gambian rat, it probably wasn't a single pure strain but a swarm of variants. And some of those strains possessed the ability to transmit from animals to people. We don't know yet whether some of the strains also were capable of spreading from human to human, but that would not be surprising given what we know about the disease in Africa. It is the inevitable logic of natural selection at work: Those variants that are best at transmitting to people will be the ones that make the jump from animal to human. Then, among those strains, those even better at transmitting might jump again from human to human. This is a sort of winnowing-out process, where the best jumpers win.

In one well-documented outbreak in Congo, the chain of person-to-person monkeypox transmission was seven links long. If it hadn't stopped moving, whether through medical intervention or because it ran out of hosts in the village, the disease would have become better and better at spreading among people. It would have become a more "humanized" disease.

It would have looked more and more like smallpox.

What would make a monkeypox germ a good jumper? Putting it simply, the virus has to do something to its host so it can get out of one human body and into the next. Some viruses, like measles, cause sneezing. Polio is passed in the stool and spread through the process unattractively known as "fecal/oral contact." Monkeypox, like smallpox, has two such methods. As evolutionary biologist Paul W. Ewald, author of the well-known "Plague Time," puts it, smallpox and monkeypox are "sit-and-wait pathogens": Viral particles shed from the pox wait outside the body for the next host to happen by. These particles can last a long time in the external environment. Smallpox scabs kept on a shelf in a researcher's office contained live, infectious virus after 13 years!

But smallpox, a highly evolved human disease, has another property that monkeypox sometimes has and sometimes hasn't. This is the capacity to form sores or lesions in the throat. Such a sore, called an enanthema, is one of the chief ways smallpox spreads, particularly since these sores are formed before the patient gets terribly sick. You can walk around coughing and sneezing, infecting many people, before the disease knocks you off your feet. (This is why biodefense experts fear the so-called suicide cougher scenario for a smallpox attack.)

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The precautions taken by health departments in Milwaukee and elsewhere have helped to slow the spread of the disease, and their epidemiological investigations have been admirable. But the story is not over yet, and we should not be complacent.

Even if this outbreak is controlled quickly, the next time someone is foolish enough to pluck a wild African animal out of its natural habitat and ship it to the United States to entertain some animal fancier too jaded for a dog or cat or hamster, the strains might include some variants even better suited to human spread. To keep diseases out of this country, we must remember that it is not just people who transmit deadly human infections. Animals do as well ([UCLA, 2003](#)).

**Title:** Leap From Animals To Humans: Pets From The Wild Can Pose Health Risks.

**Date:** June 15, 2003

**Source:** [UCLA](#)

**Abstract:** It appeared at first we'd dodged the bullet. Now it's not so clear. Monkeypox, a close cousin to the smallpox virus, unexpectedly appeared this month in the Midwest, far from its natural home in the rain forests of Congo, Liberia and Sierra Leone. For the last couple of decades, monkeypox in Africa has been an elusive threat. It has erupted in Congolese villages after someone has become infected through killing, skinning and eating a rat, squirrel or monkey. Sometimes the disease has been passed on to the victim's family or fellow villagers and sometimes it hasn't. Experts from the Centers for Disease Control and Prevention and other health officials have been telling us that monkeypox isn't a very infectious disease. The truth, however, is a bit more complicated.

To understand why, we have to look at the biology of the disease. Unlike smallpox, monkeypox isn't a human specialist. It's an animal disease, and no one is sure what range of animals it infects. It kills monkeys, hence the name. Someone once found a dead squirrel on a Congo highway with suspicious-looking lesions on its skin. It turned out to have died of monkeypox, so some scientists decided that the disease is more a rodent disease than a primate disease. Apparently the disease infects giant Gambian rats, and now we know that prairie dogs, frequent victims of plague and tularemia, also can die from African monkeypox.

What has emerged from the remarkably rapid and effective investigation into the Midwest monkeypox outbreak is that African rodents, unsurprisingly, are the source of the disease. It appears that one giant Gambian rat, infected with monkeypox and housed with prairie dogs in a pet store, transmitted the disease to the prairie dogs, which were sold and swapped across several states.

Up to 68 people as of Friday had been infected. In the great bulk of those cases, the affected people appeared to have had direct contact with a sick pet. What doctors are more concerned about is person-to-person transmission, which indicates a more virulent strain, one better adapted to humans. At least three possible cases of monkeypox have now been found in people not exposed to animals. In Congo, where the death rate is up to 10%, monkeypox often spreads from person to person — in part, public health officials say, because of primitive conditions.

But there's more to it than that. In the Congo province of Kasai-Oriental, where monkeypox occasionally breaks out, people inhabit fairly large, airy huts within a family compound, which is usually some distance from other compounds. These are not such terrible conditions for keeping the disease in check. We can't automatically assume, as some health experts contend, that it is better sanitation and living conditions in America that are keeping monkeypox from being so deadly here. Several other factors, hidden and not so hidden, are also at work.

As Peter Jahrling, the army's chief virologist, explains it, monkeypox, like other diseases, is not a single strain; there are lots of variants. Like all forms of life composed of DNA or RNA, the monkeypox virus is subject to evolution, mutation, the force of natural selection. Whatever afflicted that Gambian rat, it probably wasn't a single pure strain but a swarm of variants. And some of those strains possessed the



ability to transmit from animals to people. We don't know yet whether some of the strains also were capable of spreading from human to human, but that would not be surprising given what we know about the disease in Africa. It is the inevitable logic of natural selection at work: Those variants that are best at transmitting to people will be the ones that make the jump from animal to human. Then, among those strains, those even better at transmitting might jump again from human to human. This is a sort of winnowing-out process, where the best jumpers win.

In one well-documented outbreak in Congo, the chain of person-to-person monkeypox transmission was seven links long. If it hadn't stopped moving, whether through medical intervention or because it ran out of hosts in the village, the disease would have become better and better at spreading among people. It would have become a more "humanized" disease.

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**Title:** Tale Of A Dangerous Rat  
**Date:** June 17, 2003  
**Source:** [UCLA](#)

**Abstract:** OK, enough already with all the animal viruses. They live over there. And we live over here. And unless all cuddly creatures housing weird viruses decide to don little face masks, there's a good reason for separation.

Everyone likes fuzzy little things. Thanks to animal cartoons and superheroes, Americans grow up anthropomorphizing, reading the most darling of preposterous thoughts into the simple instincts of ordinary animals, who can be grand companions. So it's but one small step for mankind that live, moving critters from the wild are even more exciting than stuffed teddy bears. And in our interaction with them lies a genuine health problem, apparently growing and unmonitored.

Dogs, cats and the like are usually coddled, vaccinated, even bathed in perfume-y stuff that no normal four-legged critter would be caught dead wearing outdoors. That's their price for a roof, free eats and sleeping anywhere. In return, humans may qualify for affection.

The problem comes with so-called exotic pets. They walk the wild, unknowingly housing harmful viruses that cleverly don't kill their host. The viruses jump to humans. Now we've seen the first non-Africa monkeypox in humans. A smallpox cousin, this ugly disease was spread by a platoon of pet shop prairie dogs, cute guys unless mining lawns. The prairie dogs, since sold, resold and traded, caught the virus in an Illinois pet shop from a nearby Gambian rat. Now, you might ask, exactly who needs a giant Gambian pet rat, especially an immigrant from the heart of monkeypox land? No one thought to ask.

Remember ebola? Scary stuff. The fatal hantavirus that hangs in the dust of mice feces? SARS probably came from a civet in China. Lyme disease from ticks. Mosquitoes bite humans and deliver West Nile virus, unknown here just four years ago. Even HIV hopped to humans from monkeys, which are eaten in Africa. And mad cow disease can pass through the food chain's unregulated links. Officials moved swiftly to find humans exposed to monkeypox. But imagine if one sick prairie dog escapes. Not noted for marital fidelity, these social creatures could spread monkeypox nationally because of an exotic rat in an unmonitored business.

Capital's global liquidity is one measure of the world's accelerating connectedness. So are air travel, immigration and now, animal trading. Foreign travel always carries risks; the plague spread to Europe on stowaway rats. Dutch elm disease and fire ants arrived in lumber shipments. The 9/11 terrorists came as immigrants and students.

But with the breadth and pace of trade growing faster than our ability to detect or, indeed, anticipate threats, we must step up vigilance of exotic wildlife arriving on our shores. If you must have a rat, you must prove it healthy — lest the nation's most powerful pets become less the cuddly, benign critters and more the lethal, invisible viruses ([UCLA, 2003](#)).

**Title:** Beyond Cute: Exotic Pets Come Bearing Exotic Germs  
**Date:** June 17, 2003  
**Source:** [New York Times](#)

**Abstract:** Epidemiologists can be such killjoys. Consider, for instance, Dr. Michael T. Osterholm, who has been publicly denouncing prairie dogs since 1997. A prairie dog in a burrow is one thing, but a prairie dog in the house makes Dr. Osterholm a bit edgy.

The fact that the United States has exported thousands of prairie dogs to Japan, where they are not found in nature and where people find them adorable, gives Dr. Osterholm a full-blown case of the willies. Japan banned prairie dog imports in March, and the European Union halted them yesterday, but

researchers still worry about what havoc may be wrought by the animals that have already been shipped overseas.

Where some people see a cute and cuddly ball of fur, scientists like Dr. Osterholm see a vector: a ball of disease-causing viruses, bacteria, parasites and who knows what other germs. Dr. Osterholm, who is director of the Center for Infectious Disease Research and Policy and a professor of public health at the University of Minnesota, said that until recently, his main objection to prairie dogs was that they and their fleas sometimes carried bubonic plague. He had not even thought about monkeypox, the disease brought to the Americas for the first time last month, presumably by a three-pound African rat, which infected its fellow inmates in a pet shop, prairie dogs, which may then have spread the disease to as many as 82 people in five states.

Though Dr. Osterholm had not predicted monkeypox, its arrival did not entirely surprise him. The worldwide trade in so-called exotic pets has done two things that are practically a recipe for spreading exotic diseases. First, the trade has transported animals like giant Gambian rats across oceans and brought them together with species that they would never encounter naturally, like prairie dogs. Not much is known about what microbes those animals might spread to each other, or what the microbes might do inside a new host. Second, the trade has brought people close to animals — and to diseases — they had little or no contact with before.

"It clearly stacks the deck in favor of infectious agents," Dr. Osterholm said, and he rattled off a list of agents that have animal origins and can cause severe illness in people: H.I.V., Ebola virus, a highly virulent form of the bacterium *E. coli*, the Nipah virus that spread from bats to pigs to people in Malaysia in 1998, and the current epidemic of the respiratory disease SARS.

Like SARS, which has been traced to a previously unknown coronavirus carried by palm civets and badgers in the jam-packed live-animal markets of southern China, the outbreak of monkeypox in the United States is a reminder of how little is known about infectious diseases in wild animals and the threat they may pose to humans.

Dr. Frank Fenner, an expert on pox viruses and other viruses at Australian National University in Canberra, said, "Quite a lot of new viruses have been turning up, all coming out of animal hosts."

He added: "I think we know so little about the viruses of wild animals."

Dr. Fenner said scientists were familiar with hundreds of viruses carried by people and domestic animals, but had much less information about the many viruses that are probably carried by wild animals.

"With all the animals in the wild," he said, "we really know so little about what virus diseases they have unless they get into livestock or humans."

Dr. Fenner suggested that every species of wild animal probably carried its own distinct viruses, many more than are known. Most do not infect people, but the ones that do can lead to nasty surprises.

Monkeypox is not new. It was first identified in monkeys in 1959, but its ability to infect people was not recognized until 1970. The disease is usually milder than smallpox in humans, causing a death rate up to 10 percent in Africa, compared to 30 percent for smallpox. Although the disease was named for monkeys (because it was first found in them), scientists later came to realize that its real host is a rodent. Dr. Fenner said three or four species of African squirrels were thought to be the main hosts, and infections in monkeys and people were considered accidental. Squirrels are commonly eaten in some parts of Africa, and people are probably infected from handling sick animals.

Monkeypox outbreaks in people in Congo were detected in the 1990's, and a 1999 report by the World Health Organization suggested that the disease might have found a foothold when health experts said people no longer needed smallpox vaccinations, which can prevent monkeypox because the vaccine and monkeypox viruses are closely related.

Despite that theory, the health organization did not recommend that smallpox vaccination be resumed in Africa, because H.I.V. rates are high there, and the smallpox vaccine can be quite dangerous for people with H.I.V. or AIDS.

The viruses that cause smallpox, monkeypox and cowpox, because they infect people, are among the best-known members of the pox virus family. But the family has several dozen other members that infect a broad range of animals, causing diseases not found in people, like camelpox, skunkpox, raccoonpox, rabbitpox, mousepox and bird poxes specific to canaries or juncos. Suipoxvirus infects pigs, taterapox infects naked-soled African gerbils, and still another pox virus, thought to have an unknown main host, causes a sickness called Uasin Gishu disease in horses in Africa. Chickenpox, despite its name, is not caused by a pox virus; the microbe that causes it belongs to the herpes family.

Some pox viruses, as far as researchers can tell, infect only a single host. Camelpox, for instance, has been found only in camels. And yet of all the pox viruses, it is the one most closely related to smallpox. Smallpox also has only one natural host, people, which explains why it could be eradicated: since there was no animal host in the wild, once the virus was stamped out in people, it had nowhere else to go.

Cowpox, on the other hand, might be called promiscuous: it infects not only cows, but also people, rodents, cats, elephants, rhinoceroses and okapis. In people, it generally causes a very mild disease, and secretions from people and animals with cowpox were among the earliest substances used to vaccinate people against smallpox.

Scientists do not know why some pox viruses are limited to a single species while others infect a multitude, but Dr. Fenner said the ones with more than one host were likely to be the most enduring.

"If a virus affects only one rare species of animal and that animal becomes extinct, the virus becomes extinct with it," he said. "But if it infects several species of animal it may survive, as cowpox does. We know it occurs in gerbils in Russia and in field mice and voles in England as a natural infection in the wild. And there may be other rodents as well, so it's very unlikely to be wiped out except by a new ice age or something like that."

The most familiar member of the pox virus family is in some ways the most mysterious. Many people assume that *vaccinia*, the virus used to make smallpox vaccine, is the same virus that causes cowpox and that was first used by Dr. Edward Jenner in 1796 to vaccinate people against smallpox. In fact, vaccinia is not the cowpox virus. It is a distinct species, and scientists do not know where it came from. But in the early days of vaccination, there was no way to store a vaccine, so people were usually vaccinated with secretions taken from other people or animals. Scientists have speculated that such arm-to-arm passage may have created a hybrid of smallpox and cowpox, or perhaps even brought in a type of horsepox that no longer exists in nature.

Researchers say it should be no surprise that a virus capable of infecting multiple rodents in Africa could find a ready host in a rodent here.

And yet even those who ardently oppose exotic pets in principle may succumb to their furry charms. Dr. Osterholm admitted that he gave in to his son's insistence on having an African dwarf hedgehog.

"Everyone had them," Dr. Osterholm said.

But for a public health expert, letting this animal into the house was as bad as smoking. The moment it relieved itself, Dr. Osterholm collected the droppings and whisked them off to his lab to analyze. He found that the hedgehog was carrying three strains of salmonella bacteria. He let his son keep the pet, but imposed extensive hand-washing requirements any time a family member touched it.

"It was no fun at all," Dr. Osterholm said ([New York Times, 2003](#)).

**Title:** Scientists Search For Human Hand Behind Outbreak Of Jungle Virus

**Date:** June 19, 2003

**Source:** [UCLA](#)

**Abstract:** Thick jungle vegetation has taken over the concrete pens that once held thousands of pigs at the Leong Seng Nam farm. Rusting tractors bake in their tracks under a blistering sun. Only the lush mango and jackfruit trees appear unchanged from four years ago, when the farm and most everything on it were abandoned in terrific haste.

At the main gate, a sign bearing the silhouette of a man shooting a trespasser warns that no one should return: "We accept no visitors in view of the outbreak of swine disease."

But an ambitious group of outsiders has come back -- to ground zero of a frightening viral outbreak in 1998 and 1999. The previously unknown "Nipah" virus, named for the Malaysian village where it was first isolated, leapt from beast to man and killed both at a torrid rate. Then it disappeared back into the surrounding forests and limestone cliffs. The virus decimated Malaysia's fast-growing pork industry and killed 40% of the 257 people who caught it. So deadly is Nipah that the U.S. lists it among potential bioterrorism agents.

As governments begin to declare cautious victory over severe acute respiratory syndrome -- a disease that, like HIV, Ebola and Nipah is believed to have jumped from an animal host to humans -- some scientists are turning their attention to a question asked all too infrequently once deadly viral outbreaks have been contained: Where did that come from?

One such group of investigators is digging in at Ipoh, with an unconventional, multidisciplinary approach involving virologists, ecologists, zoologists, botanists and even agronomists familiar with pig-farming techniques.

Organized by the Consortium for Conservation Medicine in Palisades, N.Y., and equipped with a \$1.4 million grant from the National Institutes of Health, the team of scientists will test over the next four years a compelling, if complex, theory of Nipah's emergence. It goes like this: The burning of over 12 million acres of virgin forest in Borneo and Sumatra in the fall of 1997 cast an extreme haze over a huge swath of Southeast Asia for months. That haze blocked sunlight, reducing the ability of trees to flower and bear fruit. This caused giant bats to travel great distances in search of sustenance. They settled on fruit trees fertilized with the manure of pigs on huge Malaysian farms cut out of the forests where the so-called flying foxes roost.

Somehow, the theory goes, the bats then passed the virus to the pigs who -- because of physiological and genetic similarities to humans -- amplified its potency and began infecting people in contact with them.

To some conservationists and scientists, there would be a dark poetic justice in a disease passed to man from an animal endangered by man's encroachment on its treetop environment. "In the case of almost every emerging disease, complex human changes to the environment drive emergence," says Dr. Peter Daszak, a parasitologist and executive director of the consortium that organized the study. "Nipah appears to be a case of the bats getting some payback."

The results of the Nipah investigation could be a key to understanding the many variables involved in sudden viral outbreaks.

They could also have implications for environmental policy. If human intervention in nature is shown to have triggered the deadly epidemics, then the arguments for protecting fragile ecology suddenly become much more palpable than the desire to preserve rare landscapes or endangered species.

It's far from certain that man brought on Nipah, or any of the other sudden viral scourges of recent years. And determining conclusively how a virus progresses among different species is extraordinarily difficult.

"There is always a massive knowledge gap in understanding what drives a virus that evolved over thousands of years and co-exists peacefully with one animal to jump and eventually come into contact with man," says Malaysian scientist Dr. Chua Kaw Bing, the first researcher to trace the Nipah virus to enormous endangered fruit bats, known locally as flying foxes.

In the case of SARS, researchers in Hong Kong have identified the civet cat, a relative of the raccoon, as one animal player in the spread of the virus. But they have also found SARS coronavirus antibodies in a Chinese ferret badger and a raccoon, meaning researchers are still a long way from establishing whether the civet is the virus's natural "reservoir" or just one link in a much more complex ecological chain.

Pinning down the animal source of the terrifying Ebola virus has also been difficult. In 1994, the first appearance of Ebola in 15 years occurred in a Swiss researcher on the Ivory Coast. Investigators quick to the scene thought they could trace the virus from chimpanzees dying of the disease to their prey, red colobus monkeys, which also die of the virus. World Health Organization researchers armed with a \$250,000 grant undertook an ambitious study to find Ebola's natural host.

But even after collecting thousands of insects, birds and mammals that interact with the monkeys, the Ebola reservoir was as elusive as ever. "After four years, our agencies got fed up and our funding disappeared," says Francois Meslin, the WHO's top expert on diseases acquired from animals.

Determining the role of the flying foxes -- known scientifically as *pteropus vampyrus* -- will be critical to charting the origins of the Nipah virus. The bats are the world's largest, with the Malayan variety boasting a five-foot wingspan. Local hunters shoot and eat them. In Cambodia, they are prized as aphrodisiacs, and the bats are used as good-luck talismans in Filipino wedding ceremonies.

The bats are also Nipah's most likely natural host, since they have natural antibodies that protect them from the virus. As flying mammals common across the region, they also -- at least in theory -- make a highly mobile carrier of disease that could cross over to human populations.

The scientific team organized by the Consortium for Conservation Medicine, a joint venture between the Harvard Medical School's Center for Health and the Global Environment, Tufts University's School of Veterinary Medicine, the Wildlife Trust and the U.S. government's National Wildlife Health Center, starts with a working theory that the Nipah virus transmitted from bat to pig as a result of the flying foxes' messy eating habits.

After sucking the juice from fruit, they spit out pulp and drop half-eaten fruit to the ground. Scientists believe this is what they did while feeding in trees overhanging the pig pens at the Leong Seng Nam farm and other farms in Ipoh, delivering a lethal dose of virus-laden saliva to voracious hogs.

Pigs can pick up pathogens from a natural host and render them more infectious before passing them on to humans. In the case of Nipah, pigs developed encephalitis and a "one-mile cough" -- so called because their violent hacking could be heard at great distances -- before quickly dying. Men working with the swine

then picked up the disease. More than 100 people died in Malaysia. Humans apparently don't infect each other with Nipah, so a massive culling of 1.1 million pigs stopped its spread.

The linchpin of the theory is that virus-carrying flying foxes can migrate great distances -- something that has never been studied due to the nocturnal animal's remote and vast range.

The scientists hope to outfit a handful of flying foxes with solar-powered radio collars that can last four years -- if the bats don't shake the \$5,000 devices. Such radio-tracking in Australia has shown that some bats will periodically travel up to 375 miles.

But the Malaysian team first has to catch them. "Very difficult," says Azizi bin Mohammed Yatim, a bat catcher with Malaysia's Veterinary Research Institute in Ipoh. On a recent nighttime trip into the jungle, Mr. Azizi and his crew struggled to apprehend even small bats in fishing nets set up around fruit trees. One small cave-dwelling bat the size of a chipmunk let out a series of terrific squeals while biting repeatedly at a handler's welding gloves.

"You can imagine the time we'll have with vampyryus," says Kevin Olival, a 27-year-old working on his Ph.D. at Columbia University. Mr. Olival is on hand to perform sophisticated genetic tracing of the bats. He hopes this will prove that flying foxes migrate over great distances and across water.

Mr. Olival hopes to take "wing punches" from captured flying foxes -- 3-millimeter holes cut from the bat's wing (they grow back). Then, he will use satellite location technology and genetic data extracted from those punches to track the movement of bats from Thailand down through Sumatra. If a "marker" in the DNA sequence of a bat in Malaysia, for instance, matches that of a bat in Sumatra, one can assume the bat populations move and mix -- or that flying foxes are all part of one huge population.

To prove the thesis of an environmental trigger to the Nipah virus, the team must also establish whether the forest fires of 1997 could really have caused atmospheric conditions disruptive enough to so alter the migratory movements of the giant bats.

As the dry, summer haze season approaches in Southeast Asia, another member of the team, 26-year-old Malaysian graduate student Chong Kwai Hoe, will use satellite images to track and map smoke from forest fires. He will then criss-cross Malaysia's ubiquitous oil palm plantations, taking readings on the effect of smoke on the fruit production of palm trees -- a proxy for all species of fruiting trees.

Other scientists will study flying-fox blood and urine -- even the ticks and fleas they carry. Then they will collate and compare what they find with studies under way in Australia of bats bearing the Hendra virus -- another killer closely related to Nipah. They also will go to India to study a recent outbreak of a deadly virus in Uttar Pradesh state similarly thought to have come from fruit bats. That virus responds to the same antibody test as Nipah.

A separate Japanese team, meanwhile, is in Malaysia analyzing pig tissue samples from as far back as 1994. If they find the Nipah virus, the thesis that extreme haze in 1997 ignited the outbreak will have to be reconsidered ([UCLA, 2003](#)).

**Title:** When Animal Germs Infect Humans

**Date:** June 24, 2003

**Source:** [UCLA](#)

**Abstract:** "A Mysterious Disease." "Never Seen in the West." "Doctors Baffled."

A number of such headlines have appeared since West Nile virus surfaced here in the summer of 1999. Sporadic cases of bubonic plague have been reported in New York City and mad cow disease in Britain.



The Asian outbreak of severe acute respiratory syndrome became public in March and, earlier this month, monkeypox announced its foray into the Western Hemisphere - specifically, the U.S. Midwest.

What these diseases have in common is transmission into the human population through contact with animals - a process termed zoonosis.

"Every so often there is a species jump, when an infection - one we've never heard of or never described in the literature - makes a leap from one animal to another," said Dr. Dan Shapiro, a specialist in infectious diseases and an associate professor at Boston University School of Medicine, who is writing a book on zoonosis. "If the second animal is human, that can be a problem."

Federal health officials took quick action to stem the spread of monkeypox, banning the sale of domestic prairie dogs as well as six types of rodents imported from Africa - animals sold in response to Americans' taste for exotic pets. Dozens of Midwesterners had fallen ill after handling pet prairie dogs apparently infected when housed near the rodents.

Zoonotic diseases are not a new phenomenon; animals have been known to transmit a long list of illnesses, including rabies, scabies, salmonella, trichinosis, botulism, malaria, measles, yellow fever, hantavirus and a number of strains of both streptococcus and influenza. Even the pandemic of Spanish influenza that killed an estimated 20 million people in 1918 is believed to have originated in swine.

"What is potentially unique about monkeypox, and what has caught people's attention, is that monkeypox has not been introduced to the Western Hemisphere before," said Dr. Robert Kim-Farley, visiting professor of epidemiology at the University of California, Los Angeles School of Public Health.

But experts say it's hard to determine if the number of such diseases crossing the species barrier to humans has been rising in recent years. What is known is that increasing urbanization worldwide, encroachment on previously uninhabited forest and desert land and a mobile human population traversing oceans at jet speed provide ample opportunities for diseases to emerge - or re-emerge, occasionally in more virulent forms - just about anywhere.

"People are increasingly encroaching on to out-of-the-way places," said Dr. Stephen Morse, director of public health preparedness at the Mailman School of Public Health of Columbia University. "Deforestation provides more contact with forest creatures. As more land is being given over to agriculture, and there's a higher density of both animals and human beings, that puts them in contact with obscure infections that were sequestered."

And the speed of global travel heightens the potential.

"An animal can, within 24 hours, go from the jungle in the Congo to someone's bedroom in the United States," Kim-Farley said. "You just never saw that before."

"If they had been shipped by sea, they would have either no longer been contagious by the time they arrived, or have died," he said.

Some epidemiologists do believe zoonotic diseases are on the rise, but they say there's no cause for alarm because scientists today are adept at tracing new infections and eager to follow the trail.

"The conditions that favor these transfers into human populations continue to increase," Morse said.

The leap between species can be made a number of ways: by consuming diseased meat, being bitten by mosquitoes or fleas, handling a pet or having contact with animal products like blood, hides, fur or wool, or dairy products, experts say.

Britons were infected with the human version of mad cow disease by eating beef containing the microscopic protein particle that causes the disease. And health officials believe food handlers in China may have become infected with the SARS virus after handling animals at a market that supplied restaurants in Guangdong.

In the United States, the growing popularity of exotic pets led to a chain of monkeypox infection that is believed to have started when the prairie dogs were housed with imported animals that carry the illness. Federal health officials said six types of rodents have been implicated in the monkeypox outbreak in humans: the giant Gambian rat, tree squirrel, rope squirrel, brush-tailed porcupine, striped mouse and dormouse. All African rodents have been banned for sale and import, and it is illegal to release them to the wild.

This is not the first time federal health officials have taken the bold action of banning pets. In 1975, federal officials banned the miniature pet turtles kids used to win at street fairs when it became known they were the source of 14 percent of all human salmonellosis cases in the country.

The same year, officials also banned imported monkeys and other nonhuman primates as pets because they carry serious diseases like tuberculosis.

The problem with zoonotic diseases is two-fold, experts say. Once an animal population harbors a virus, it is virtually impossible to eradicate the disease. That's why public health officials have urged pet owners not to let prairie dogs or rodents free, an action that could create a persistent animal reservoir of monkeypox in this country's wildlife.

The second factor is how efficiently a new disease is transmitted among humans. HIV, for example, is transmitted very efficiently through sex, and its virulence doesn't weaken as it is transmitted time after time ([UCLA, 2003](#)).

**Title:** Death Sought for Animals In Monkeypox Case

**Date:** July 3, 2003

**Source:** [New York Times](#)

**Abstract:** Moving to prevent monkeypox from reaching wild animals in the United States, the Centers for Disease Control and Prevention recommended yesterday that all 850 animals from a contaminated shipment of exotic pets from Africa in April be destroyed, along with all prairie dogs that might have been exposed to them.

The agency warned pet owners not to release any sick or potentially exposed animals into the wild.

Other mammals in homes or pet shops that might have been exposed should be killed or should be quarantined for six weeks and watched for symptoms — fever or cough, cloudy or crusty eyes, swollen lymph nodes or rash, the agency said. Bodies should be burned, not buried or thrown out, and the premises disinfected, it added.

An outbreak of monkeypox tentatively traced to a Gambian giant pouched rat in the shipment has caused 81 confirmed or suspected cases in humans, mostly in the Midwest. Its spread seems to have stopped, and no cases of human-to-human transmission were found. But the disease spreads easily to rodents.

A spokesman for the agency acknowledged that the authorities did not know the whereabouts of many of the estimated 850 animals in an April 9 shipment from Ghana to Texas, nor do they know if any were released.

"That's one of the things we're really worried about," said David Daigle, a spokesman for the agency. "Tracking them all down is darn near impossible."

Nonetheless, a "very aggressive" effort is on now, said Dr. Martin Cetron, the agency's deputy director for quarantine. But many were sold at informal pet swaps, he said, "and then things end without a good paper trail."

Monkeypox — so called because it was first diagnosed in monkeys — is a less virulent cousin of smallpox, and vaccination against smallpox appears to protect against it. There were no deaths in the June outbreak, but in West Africa, up to 10 percent of cases are fatal.

At the beginning of the outbreak, the centers and the Food and Drug Administration banned importing of all African rodents and the sale or distribution of six species from the April shipment: tree squirrels, rope squirrels, dormice, Gambian giant pouched rats, brush-tailed porcupines and striped mice. They also banned the transport, sale or release of prairie dogs.

Yesterday's directive was ambiguous about what constituted contact with an infected animal, and it confused some pet shop owners. Details of the directive are at [cdc.gov/ncidod/monkeypox/quarantineremoval.htm](http://cdc.gov/ncidod/monkeypox/quarantineremoval.htm).

Eileen Whitmarsh, an owner of Rainbow Pets in Shorewood, Wis., who caught monkeypox from a prairie dog in her store, mistakenly thought the order meant she had to kill the 60 apparently healthy hamsters, rats and gerbils she now has quarantined.

"Our animals are checked by the Health Department daily, and they are having babies," Ms. Whitmarsh said. "Sick animals do not have babies."

David Crawford of Boulder, Colo., acting director of the Prairie Dog Coalition, which defends wild prairie dog habitats and opposes keeping the animals as pets, called the euthanasia suggestion "a classic case of blaming the victim."

"This problem was caused by human beings, and it's easy for us to take the 'kill them all' approach," he said. "But if this was a human population, we'd be aghast at an order to kill. This calls for quarantine and testing, not euthanasia."

Two weeks ago, at a meeting of the Advisory Committee on Immunization Practices at the centers, Dr. Gregory A. Poland, a committee member and the chief of vaccine research at the Mayo Clinic in Minnesota, asked why the agency had not already ordered all possibly exposed animals killed.

An official of the centers replied that people became attached to their pets.

"So what?" Dr. Poland said. "I know what we'd do if this was an outbreak of mad cow disease. We'd kill the whole herd" ([New York Times, 2003](#)).

**Title:** Zoonoses Likely To Be Used In Bioterrorism

**Date:** May-June 2008

**Source:** [Pub Med](#)

**Abstract:** Bioterrorism is the deliberate release of viruses, bacteria, or other agents used to cause illness or death in people, animals, or plants. Only modest microbiologic skills are needed to produce and effectively use biologic weapons. And biological warfare has afflicted campaigns throughout military history, at times playing an important role in determining their outcomes.

There is a long list of potential pathogens for use by terrorists, but only a few are easy to prepare and disperse. Of the infectious diseases, the vast majority are zoonoses. The Centers for Disease Control and Prevention's highest-priority bioterrorism agents are in Category A. The only disease that does not affect animals in Category A is smallpox, which was eliminated by a worldwide vaccination program in the late 1970s. Because these diseases can infect animals and humans, the medical and veterinary communities should work closely together in clinical, public health, and research settings.

The Model State Emergency Health Powers defines bioterrorism as the intentional use of any microorganism, virus, infectious substance, or biological product that may be engineered as a result of biotechnology—or any naturally occurring or bioengineered component of any such microorganism, virus, infectious substance, or biological product—to cause death, disease, or other biological malfunction in a human, animal, plant, or other living organism to influence the conduct of government or to intimidate or coerce a civilian population. Biological weapons (bioweapons) are relatively easy and inexpensive to produce, cause death or disabling disease, and can be aerosolized and distributed over large geographic areas.

There is a long list of potential pathogens for use by terrorists; however, only a few are easy to prepare and disperse. Traditional agents of offensive biological warfare (biowarfare) programs have included the causative organisms of anthrax, plague, tularemia, brucellosis, glanders, melioidosis, various foodborne illnesses, cryptosporidiosis, cryptococcosis, Q fever, psittacosis, dengue fever, smallpox, viral equine encephalitides, and the viral hemorrhagic fevers. All are seen in animals, except for smallpox and dengue fever.

A Russian panel of bioweapons experts reviewed pathogens and determined the vast majority of pathogens were animal diseases transmissible to people, or zoonoses. A report in the *Journal of the American Medical Association* concluded that 80% of the common pathogens likely to be used in biowarfare are zoonoses. The Centers for Disease Control and Prevention (CDC) currently classifies bioterrorism diseases/agents most likely to be used into categories A, B, and C, with A having the highest priority. Of the infectious diseases in CDC's classification system, the majority are zoonoses. Of the Category A diseases, more than 80% are zoonoses. Category C includes emerging diseases, of which about 75% are zoonoses ([Pub Med, 2008](#)).

**Title:** Animal Health - Beware of Animal Diseases In Bioterrorism

**Date:** July 1, 2010

**Source:** [All Africa](#)

**Abstract:** The suspected outbreak of anthrax in hippos in Western Uganda in the past weeks has yet again reminded us of some of the ignored facts about animal diseases. I overheard someone on the streets of Kampala inform a colleague ignorantly that anthrax was a disease of those who live with or stay near animals in the villages. This totally shocked me and I felt like going over to him and giving a lecture of a lifetime.

I, however, restrained myself and just thought about how they didn't know that the same disease could be brought right at their footsteps in their so-called city. They were possibly unaware of what we call bioterrorism.

It is possible for unscrupulous people to use known lethal animal disease agents as weapons of mass destruction. This is known as bioterrorism. Anthrax is indeed one of the microorganisms that can be used as biological weapons of mass destruction. The other significant animal diseases in that group include; Botulism, Plague, Tularaemia, Ebola and Marburg diseases. These diseases are of great public health importance because:

The host animals or carriers that are sources of infection often show little or no sign of disease at all.

The disease agents have mechanisms of propagation that allow infection to move from one individual to another.

Their effects result in high mortality rates and have the potential for a major impact on the public.

They can cause public panic and social disruption.

They require special action when they occur and also need public health preparedness in order to limit their progress.

Anthrax is clearly documented as one of the diseases whose agents have been used in the past for bioterrorism. This can be alternatively spread through spraying in the air, mailed packages and release in the ventilation systems of public buildings.

In the wake of the September 11th, attacks on the USA, some people were reported to have been exposed to anthrax in powder form that had been sent to them as mail in envelopes. This incident, a classic example of how an animal disease can find you in the comfort of your office, sparked off a major public health awareness campaign on bioterrorism that got many US citizens and others around the world to be alert about such diseases.

As for Ugandans, even though we are far from the USA, and that we probably have far less enemies, we should not ignore the likelihood of such events happening ([All Africa, 2010](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#), or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** Institute Responsible For Anthrax Accident In California, In Charge Of Safety And Security At Chicago Biodefense Laboratory

**Date:** June 22, 2004

**Source:** [Sunshine Project](#)

**Abstract:** Non-Profit Watchdogs Renew Call for a Moratorium on Construction of Biodefense "Hot Zones"

Southern Research Institute, the military biodefense contractor recently in the news for sending live anthrax to the Children's Hospital of Oakland (CA), is also in charge of safety and security for a major new \$30 million biodefense facility being built at the Department of Energy's Argonne National Laboratory near Chicago.

The new Ricketts Regional Biocontainment Laboratory is funded by the National Institute of Allergy and Infectious Disease (NIAID) and is named after Howard T. Ricketts, a celebrated pathologist who acquired typhus in the course of research and died at age 39. It will begin biodefense work with studies of anthrax (Ames strain) and *Yersinia pestis*, the causative agent of plague.

Southern Research Institute, with major labs of its own in Frederick, Maryland and Birmingham, Alabama, has a \$75 million annual budget including biodefense contracts from an impressive roster of Pentagon agencies. Its Frederick, Maryland facility is located near the Army's biological weapons research headquarters at Fort Detrick, yet despite its biodefense prominence, Southern Research in Frederick does not maintain an institutional biosafety committee that complies with federal research rules. (And Southern Research in Birmingham has not honored requests for records of its institutional biosafety committee.)

"Southern Research's incompetence is plain to see. Its own house is in dangerous disarray and does not comply with federal research rules," said Edward Hammond, Director of the Sunshine Project. "That

threat is bad enough; but even after leaking anthrax, the institute is still developing biosafety and operating procedures for new high containment labs."

According to a national coalition of biodefense watchdogs, formed in 2002 to monitor the US biodefense program, the Southern Research situation epitomizes their concern that biodefense laboratories are proliferating unsafely and with unsound planning, and that this could result in health, environment, and international security problems.

The watchdogs also point to Southern Research's links to classified biodefense research. (Southern Research's facilities and personnel have "secret" clearance.) "Public interest groups seeking information about military biodefense programs are being stonewalled by the Army and other agencies," says Steve Erickson of Citizen's Education Project in Salt Lake City, which monitors the Army's Dugway Proving Ground. "That Southern Research and other secretive military contractors are also insinuating themselves into civilian biodefense programs is cause for concern that we are witnessing a steady erosion of openness and accountability, not only at Pentagon labs; but at academic institutions and in work funded by the National Institutes of Health."

Two other Department of Energy (DOE) labs that design and develop the nation's nuclear weapons are also building new biosafety level three biodefense facilities. Both Lawrence Livermore and Los Alamos Labs have been sued by local community groups under the National Environmental Policy Act (NEPA). Inga Olson, Program Director at Tri-Valley CAREs, one of the groups that sued DOE, warns "Biodefense dollars are flowing like champagne at a wedding - into everywhere from nuclear weapons labs to children's hospitals - everyone wants a piece of the action. But a far more sober look is needed at whether the rapid spread of labs, pathogens, and bioweapons knowledge poses a greater threat than the problem we are trying to solve."

"After all," says Mary Wulff of Citizens for a Safe Lab in Hamilton, Montana (where NIH is building a new biosafety level four facility), "the Bush administration continues to rely on fear generated by the anthrax attacks and shaky allegations against other countries, like Iraq, to push billions and billions through Congress. Instead of an informed national discussion, the government's actions are based on fear and unsound information. The importance of reigning in knee-jerk reactions is underscored by the nearly tragic exposure of workers at Children's Hospital in Oakland, California."

The national coalition of nonprofit groups is calling for a moratorium on new biodefense labs until comprehensive national assessment is conducted, and transparency guarantees in place, and a binding and open federal system exists to review dual-use research with biological weapons agents ([Sunshine Project, 2004](#)).

**Title:** Report: America Is Not Ready To Defend Against Bioterrorism

**Date:** December 16, 2004

**Source:** [Daily News Central](#)

**Abstract:** Three years after 9/11, America is not ready to respond effectively to a bioterrorist attack, according to a report issued by [Trust for America's Health](#) (TFAH). This is the second year in a row that TFAH has conducted a review of bioterrorism and public health preparedness. "Ready or Not? Protecting the Public's Health in the Age of Bioterrorism -- 2004" examined 10 key indicators to gauge state preparedness and determine America's overall readiness to respond to bioterrorist attacks and other health emergencies.

### **Not Enough Improvement**

Over two-thirds of states and D.C. achieved a score of six or less. Florida and North Carolina scored the highest, achieving nine out of the possible 10 indicators, and Alaska and Massachusetts scored the lowest, at three out of 10.

Although direct comparisons are difficult because the indicators were modified to reflect the changed



expectations of additional time and funding, in this year's report, 34 states and D.C. obtained higher scores, nine scores remained the same, and seven scores declined.

The scores demonstrate continued incremental progress; however, preparedness is still lagging behind goals and expectations. With most states still in the middle range of the scale and no states meeting all of the indicators, there are still major areas of vulnerability that leave Americans at risk.

Overall, the report found that many basic bioterrorism detection, diagnosis, and response capabilities are still not in place. This report found that more than three years after 9/11 and the anthrax tragedies, we've only made baby steps toward better bioterrorism preparedness, rather than the giant leaps required to adequately protect the American people, said Lowell Weicker, Jr., TFAH Board President and former three-term U.S. Senator and Governor of Connecticut.

### **What Will It Take?**

The conclusions of this study demand an answer to the big question here: What will it take to make bioterrorism and public health preparedness a real national priority?

### **Some of the report's major concerns include the following:**

1. Nearly one-third of states cut their public health budgets between Fiscal Year 2003 and 2004, and federal bioterrorism funding decreased by over \$1 million per state in 2004;
2. Shifting federal priorities and programs are distracting from improvement efforts, and there is little, if any, accountability to the public;
3. Only six states -- Florida, Illinois, Louisiana, and three undisclosed states -- have achieved "green" status for the Strategic National Stockpile, which means that they are recognized as being adequately prepared to distribute vaccines and antidotes in an emergency;

### **Brain Drain Imminent**

4. Only five public health labs report sufficient capabilities (facilities, technology, and/or equipment) to fully respond to a chemical terrorism threat, and only one-third of states report sufficient bioterrorism lab response capabilities;
5. Nearly 60 percent of states do not have adequate numbers of laboratory scientists to test for anthrax or the plague if there were to be a suspected outbreak;
6. Two-thirds of states do not electronically track disease outbreak information by national standards, causing serious delays in reporting making early warning of disease threats difficult;
7. The public health workforce is on the brink of a "brain drain" as the baby boomers retire and next-generation recruitment efforts suffer;
8. Concerns remain that states are unprepared to implement a quarantine, although every state except Alaska has adequate statutory authority to quarantine in response to a hypothetical bioterrorism attack scenario;
9. Although planning for a flu pandemic, which is often viewed as requiring a similar response to a bioterror attack, has improved, 20 states still do not have publicly available response plans in place; and
10. Based on model estimates, a pandemic flu hitting the U.S. could result in 89,000 to 207,000 deaths and could cost the economy between \$71.3 and \$166.5 billion. Sixteen states could face over 5,000 deaths and 33 states would face over 10,000 people hospitalized in the first wave of the disease hitting the U.S.

### **'Flash Distracting from Substance'**

"Germs in the hands of terrorists is a frightening proposition. Americans deserve to know how their tax dollars are being used to better protect the homeland," said Shelley A. Hearne, DrPH, Executive Director of Trust for America's Health. "Sadly, what we found is that public health professionals have been left to juggle competing priorities with limited resources, and that flash is distracting from substance. We need to focus on fixing the fundamentals and get back to the tried-and-true basics."

During a news conference announcing his resignation earlier this month, departing HHS Secretary Tommy Thompson highlighted the importance of bioterrorism preparedness issues, saying, "for the life of me, I cannot understand why the terrorists have not attacked our food supply, because it is so easy to do," and that a pandemic flu is "a really huge bomb out there that could adversely impact on the health care of the world."

### **Better Bio-Game Plan Needed**

To improve bioterrorism and public health preparedness, TFAH recommends the following:

1. Building a better bio-game plan, with consistent, measurable standards for improvement that require demonstration of how funds were used to achieve progress. In anticipation of the reauthorization of the Public Health Security and Bioterrorism Response Act of 2002, a systematic review of preparedness gaps should be conducted;
2. Getting back-to-basics, by building on fundamental components of a comprehensive public health system that is fully prepared to meet both emergency and ongoing challenges from threats of terrorism to the flu and cancer;
3. Conducting practice drills to assess capabilities and vulnerabilities, to help identify gaps and improve coordination of roles and responsibilities; and
4. Limiting liability to encourage vaccine development and protect health care workers. The report was supported by grants from The Robert Wood Johnson Foundation (RWJF), the Bauman Foundation, and the New York Community Trust. The report and state-specific information is available on TFAH's [Web site \(Daily News Central, 2004\)](#).

**Title:** Bedfellows At The Biosecurity Board

**Date:** October 30, 2006

**Source:** [Sunshine Project](#)

**Abstract:** How US science's *nouveau riche* bioweapons constituency is flexing its muscle to carve up safety and security rules.

Karl Rove would probably be impressed by the brand of government "oversight" being developed by the [National Science Advisory Board on Biosecurity](#) (NSABB). Like a Bush administration investigation of itself, on last Wednesday (October 25th) an NSABB working group moved to creatively thwart its charge. Although it was formed to recommend biosecurity rules to govern the new field of synthetic biology, the working group will instead assault regulation of a wide range of biodefense and biotech risks.

The working group's outlook is more political than technical. Its science is a veneer that disguises the maturing political muscle of a constituency of bioscientists that has become accustomed, perhaps addicted, to lavish federal biodefense funding. This constituency is challenging the regulations that apply to it and has allied itself with those seeking to block effective regulation of the emerging field of synthetic biology. As such, it will pose a major long-term obstacle bringing under control the wild proliferation of dangerous biodefense research in the US.

**The working group's politics deftly unite two distinct scientific camps** under the same banner. One camp is synthetic biology, a burgeoning, dangerous science that currently is an unregulated Wild West free-for-all, a condition that many practitioners believe is desirable. The working group also tapped a deep vein of discontent among its other camp, infectious disease researchers. Specifically, the researchers that receive biodefense handouts; but who resent being required to comply with the Select Agent Rule, a law designed to protect the public from bioterrorism.

In biodefense, the synthetic biologists (who use DNA like building blocks) and the infectious disease bug jockeys (who work with full-blown dangerous microbes) usually don't get along very well. The synthetic crowd scoffs at the bug jockey's focus on vaccines and pills for specific microbes, dubbing the narrow approach a "Maginot Line" after the inflexible border defenses that failed to protect France from German invasion in 1940. Genetic tweaks and new bugs, the synthetic biologists say, can outflank these countermeasures. A subtext, of course, is that synthetic biologists think they should get a bigger piece of the biodefense pork pie from the federal budget.

The bug jockeys, on the other hand, argue that the synthetic guys are a bunch of nerdy engineers whose science of using genes like tinker toys is young and unproven. The bug jockeys claim that they can deliver here and now, whereas the synthetic folks are still in scientific diapers, working out basic principles of their discipline. Perhaps interesting down the road, the bug jockeys say, but what counts is the present. (Neither group questions the wisdom of the government bankrolling tens of billions of dollars in biodefense research at hundreds of places across the country.)

**What unites these two quarrelling factions?** Apart from the fact that their science is potentially dangerous, the two share an appetite for tax dollars and a disdain for federal security rules. The latter point has led to an NSABB marriage of convenience: The synthetic biologists want to shake pressure for new regulation while the bug jockeys want to assassinate the existing Select Agent Rule, enabling both to do as they please with less "interference" from Uncle Sam.

Thus was born a politico-scientific Coalition of the Willing that aims to invade federal rulemaking to take down what they perceive as a threat: biosecurity legislation designed to protect the public. By hijacking the NSABB, they are on well on their way to Mission Accomplished. And because the current political leadership of the US holds itself to its own unique (nonbinding) standards and sees little reason to reign in dual-use research for safety, security, or treaty compliance reasons, the NSABB working group probably won't have to waterboard anybody in the US government - unless there are radical changes in officialdom.

**The specifics of the working group recommendations?** They include unusual and dubious arguments about taxonomy, gene sequences, and law. These have far broader implications than the working group apparently paused to contemplate. More on that later.

From an unsurprising "finding" that microbial taxonomy systems are imperfect, the working group leaps to the illogical conclusion that this is justification to eviscerate government regulation of (but not cash handouts for) research with biological weapons agents. That's quite a jump. Considering the recommendations carefully, however, it is clear that the working group's intellectual shortcomings - its recommendations don't logically follow from its findings - stem from an attempt to paper over the distinctions between the need for synthetic biology regulation and the need for the select agent rule.

Synthetic biology may be new; but challenges to taxonomic conventional wisdom are not. Evolution happens. Genes turn up in new places, by the hand of man and through the many ways that biodiversity moves itself. The novel possibilities of synthetic biology are thus not without precedent in nature, in the sense that taxonomy is always encountering the difficult-to-classify and is currently incapable of fully describing naturally occurring diversity.

No matter what is cooked up in a synthetic biology lab, that doesn't change the fact that there are diseases out there that can kill you. Scientists know what most of them are, and can reasonably define them. Hence the need for the Select Agent Rule is unaltered by the powers to manipulate, even create, dangerous forms of life (and nucleic acids) that is possibly offered by synthetic biology.

**But don't tell the NSABB working group, because that would get in the way of its political agenda.**

That the working group's logic doesn't parse is unsurprising in view of the fact its science is merely a pretext to table a pre-emptive attack on regulation of synthetic biology and the extant Select Agent Rule. For good measure, the working group adds a pork barrel recommendation to loosen controls on smallpox virus and DNA that suffers from the same logical flaws as the other recommendations.

And, in an easy to overlook item, the working group suggests that biosafety of synthetic DNA can be handled by the failed genetic engineering oversight system known as the NIH Guidelines, designed three decades ago and declining ever since. It's another failure of the logic to parse. The synthetic biologists literally argue that their science antiquates biodefense before it like the Nazi blitzkrieg through Belgium outmoded the Maginot Line. But then they go on to reason that, for biosafety, the scientific equivalent of the Treaty of Versailles (NIH Guidelines) is sufficient to keep the peace!

**In the long run, this quagmire of faulty scientific-legal verbiage won't stop the real risks of biodefense proliferation.** It would take an intelligence failure of a very different type than Iraq in order for NSABB to be allowed to thwart its charge and debilitate proper federal oversight of dual-use research. But that may be exactly what NSABB does. Certainly that's the way that its working group on synthetic biology is heading. And if it is an indicator of how biodefense researchers, a sort of bioscience nouveau riche, intend to flex their political muscle, then we may be in for many more dangerous years before the wild excesses of the biodefense boom are brought under control ([Sunshine Project, 2006](#)).

**Title:** Obama Gets 'F' On Stopping Spread Of Weapons Of Mass Destruction

**Date:** January 26, 2010

**Source:** [Fox News](#)

**Abstract:** A bipartisan, independent commission on stopping the spread of weapons of mass destruction says that the Obama administration has failed in its first year in office to do enough to prevent a germ weapons attack on America or to respond quickly and effectively should such an attack occur. In a 19-page report card being published Tuesday, the Commission on the Prevention of Weapons of Mass Destruction, Proliferation and Terrorism, chaired by former Senators Bob Graham, a Democrat from Florida, and Jim Talent, a Missouri Republican, gives the new administration the grade of "F" for failing to take key steps the commission outlined just over a year ago in its initial report.

Specifically, the commission concludes that the Obama administration, like the three administrations before it, has failed to pay consistent and urgent attention to increasing the nation's ability to respond quickly and effectively to a germ attack that would inflict massive casualties on the nation. The commission repeated its warning that unless nations acted decisively and urgently, it was more likely than not that a WMD will be used in a terrorist attack somewhere in the world by the end of 2013, and that the terrorists' weapon of choice would be biological, rather than nuclear.

The administration's delayed response to the H1N1 virus, the report concludes, demonstrated that the United States was "woefully behind in its ability to rapidly produce rapidly vaccines and therapeutics, essential steps for adequately responding to a biological threat, whether natural or man-made." Even with time to prepare, the report noted, the epidemic peaked "before most Americans had access to vaccine." And a bio-attack, it warned, would have no such warning.

The administration's lack of urgency was also reflected in its lack of priority on producing and distributing enough vaccines and other medical countermeasures for Americans, its reluctance to insist that hospitals have enough surge capacity to treat people who would be infected in a bioterror attack, and the lack of a national plan to coordinate federal, state and local efforts following a bioterror strike, the document

asserts.

Ultimately, the commission chairman and vice chairman say, the "lack of preparedness" and "consistent lack of action" reflect "a failure of the U.S. government to grasp the threat of biological weapons." Unlike its effort to prevent a nuclear attack, the Obama administration has shown "no equal sense of urgency" about preventing or responding to germ warfare that might cause comparable death and suffering, the commission concludes. The report assigns 17 grades that it says highlight the issues of greatest priority in protecting Americans from WMD. The commission gave the administration a "D+" for its efforts to tighten oversight of high-containment labs in which experiments involving the deadliest pathogens are conducted.

There were still far too many Federal, state, and local agencies regulating germs in sometimes conflicting ways, it states. The commission also gave Congress a failing grade for failing to consolidate the estimated 82 to 108 committees and subcommittees that oversee some part of the Department of Homeland Security. "Virtually no progress has been made since consolidation was first recommended by the 9/11 Commission in 2004," the report asserts.

The Obama administration disputed the findings of the report Tuesday, arguing that the president has accomplished a "great deal" in his first year in office. White House spokesman Nick Shapiro cited a recently signed executive order establishing "federal capability to rapidly provide medical countermeasures to supplement state and local response in the event of a large-scale biological attack." He said Obama would launch a new initiative aimed at addressing potential "public health threats" during his State of the Union address Wednesday.

The Graham/Talent WMD Commission, as it is known, is a legacy of the 9/11 Commission, which recommended its creation to examine WMD proliferation threats in its own report. In December, 2008, the WMD commission concluded in its final report that American national security faced ever growing threats from unconventional weapons, and from biological weapons in particular. Its report, "World at Risk," unanimously concluded that bioterrorism was the most likely WMD threat the nation confronted given the exponential growth of biological technology and the stated desire of Al Qaeda and other terrorist groups to acquire such weapons. It called upon the administration to take 13 steps to reduce America's vulnerability to such an attack.

The new report card assesses the progress that the Obama administration has made in implementing its recommendations. The report is not uniformly negative. It gives the Administration high marks -- an "A" -- for the reviews it has conducted into how best to store and secure dangerous pathogens, and two "A-minus" grades for appointing a WMD coordinator and restructuring how the White House oversees homeland security issues. But it warns that such steps are not commensurate with the threat the nation faces from terrorist groups searching for unconventional weapons in asymmetrical warfare.

Robert Kadlec, President Bush's former special adviser on bio-defense policy, declined to comment on the commission's failing grade in the area in which he worked, saying there was still "ample opportunity to provide more focus and resources" for bio-preparedness in the administration's remaining three years. "This is a hard problem which deserves high priority," he said. Two defenders of the administration's policies, both of whom asked not to be identified by name because they were speaking without authorization, said that the Obama White House gave bio-defense and countering nuclear proliferation high priority.

One official said that Obama's second presidential security directive -- the first being the reorganization of the White House national security apparatus -- mapped out a national strategy to defend the nation against biological attacks. He also predicted that the administration would seek increases in its new budget for bio-defense and global surveillance programs.

Having been extended for one more year of work in 2009, the 9-member WMD Commission is disbanding after issuing this final report card. But staff members said that its chairman and vice-chairman intend to

form a non-profit organization to continue pressing the government to do more to counter WMD threats ([Fox News, 2010](#)).

**Title:** \$1B Effort Yields No Bioterror Defenses

**Date:** January 17, 2011

**Source:** [Boston.com](#)

**Abstract:** The Pentagon is scaling back one of its largest efforts to develop treatments for troops and civilians infected in a germ warfare attack after a \$1 billion, five-year program fell short of its primary goal. Even the heavy infusion of research cash and a unified effort by university labs and biotech companies from Boston to California were insufficient to break through limitations of genetic science, according to government officials and specialists in biological terrorism.

Instead, the Pentagon's next \$1 billion for the Transformational Medical Technologies program will focus on better ways to identify mutant versions of Ebola, Marburg, and other deadly viruses. Those are among the genetically modified agents that officials fear could be used by terrorists or rogue states against urban or military targets.

The continued flow of money, even with the shift in strategy, should help Massachusetts and other states retain jobs and research labs focused on this arena.

"There is tremendous potential for further development of a biodefense subcluster in the state," said James D. Rooney, vice president of the Massachusetts High Technology Council.

Among Bay State firms that have received contracts under the germ warfare effort is Worcester-based Microbiotix. Representatives from Microbiotix did not respond to requests for comment.

The new strategy represents a return to the drawing board for an ambitious program conceived after the Sept. 11 terrorist strikes and subsequent mailing of anthrax to members of Congress and media organizations — events that helped US military planners realize that the nation lacked adequate defenses against bioterrorism.

Scientists initially set out to develop new medicines capable of attacking viruses that might be altered by terrorists to make them more deadly. But after more than 50 research projects by more than 100 contractors — including biotech firms, pharmaceutical companies, and universities, including several in the Boston area — only two experimental medicines have shown promise. And even those are far from being ready for limited clinical tests, according to project officials.

"They are trying to come up with new medical technologies that are more difficult to develop," said Crystal Franco, a specialist at the Center for Biosecurity at the University of Pittsburgh Medical Center who specializes in biological defense policy. "They are really trying to push the envelope."

Another hurdle in the government's effort: such treatments cannot be tested in human clinical trials, which are typically required for Food and Drug Administration approval, because it is unethical to expose people to deadly virus in such a study, requiring animals with similar traits as humans to serve as surrogates.

Alan S. Rudolph, director of science and technology at the Defense Threat Reduction Agency, said in an interview that the agency will now focus more attention on ways of identifying new pathogens. That research could lay the groundwork for further advances in the development of antidotes that could eventually win FDA approval.

The new focus of the program will be making a "cadre of investments that are able to take an unknown

sample that may contain different agents, and be able to determine very quickly what is in there,” Rudolph said. “It is our intent to continue to grow this capability.”

He added the ultimate goal will still be to someday develop therapeutic remedies that could treat someone infected with any number of deadly viruses — what the Pentagon called “one size fits all” or “one drug, many bugs.”

In addition to Ebola and Marburg, some of the potential biological threats on the Pentagon’s target list are Lassa, Sabia, Machupo, and Junin, especially modified versions designed to cause more severe symptoms of hemorrhagic fever that are more resistant to traditional drugs.

The difficulty in developing medicines so far, however, demonstrates how much more research is needed, say biological warfare specialists.

It turns out it is easier to modify a germ or virus for an offensive threat than it is to develop an effective defense, they said.

“The offensive capabilities outrun the defensive capabilities as the march of biology continues,” said Richard J. Danzig, a former Navy secretary and noted expert on bioterrorism who sits on the Pentagon’s high-level Defense Policy Board.

“The theory behind [the program] was these same advances should empower the defenses,” he said. “I think that intuition is worth exploring and investing in, but it is easier to conceive than to execute.”

Margaret Kosal, an assistant professor at Georgia Tech who worked on the program between 2006 and 2007, said “there is a fundamental need for basic science. The low-hanging fruit has all been picked.”

One Pentagon contractor involved in the program who was not authorized to speak publicly put it more bluntly: “We’re years away from any reasonable FDA certification, let alone production.”

Franco said the project’s hurdles also highlight the need for ongoing taxpayer-investment commitments from government, to encourage private-sector focus on such technologies that will generate little in sales, compared to, say, cholesterol and diabetes treatments.

“These are not going to be blockbuster drugs,” said Franco. “It is different when the government is your only market. There needs to be incentives for companies to participate, to take it on for the public good”([Boston.com, 2011](#)).

**Title:** Pentagon Retools Bio-Effort After \$1 Billion Flop

**Date:** January 18, 2011

**Source:** [Wired](#)

**Abstract:** It was supposed to come up with antidotes for pathogens that terrorists might use for a mass-casualty bio-attack. But after spending over \$1 billion during the last five years, the Pentagon’s Transformational Medical Technology initiative can barely develop drugs ready for a clinical trial. That’s why the officials tasked with running it are setting their research-subsidy targets much lower.

In a shift, the Defense Threat Reduction Agency’s science and technology chief tells the *Boston Globe* that the bio-initiative will now invest money on early detection of new pathogens. That puts about another \$1 billion worth of Pentagon cash closer to where science is, rather than throwing money at crash programs for undeveloped antidotes. Ultimately, the Pentagon wants to develop multi-pronged vaccines that can resist a variety of biological agents — what it calls “[One Drug, Many Bugs](#).” But that’s a long way off: step one is understanding how those sicknesses develop.



The *Globe* reports that the program has hit one snag after another. Out of nearly 50 research programs, only two (unspecified) efforts to neutralize pathogens like Ebola and Marburg have shown promise, and they're not ready for clinical trial. Making matters worse for the program, the Food and Drug Administration doesn't allow experimenting on people, so Transformational Medical Technology would have to make do with animal surrogates.

It's also become something of an object of fun within the military's chem-bio community. Our pal Jason Sigger lamented the program's inability to come up with a lightweight, portable Tricorder-like [bio-detection device](#). The office tasked with coming up with one still sought to buy a Cadillac, one networked into troops' communications system and that can also detect chemical weapons. "All they need to do is warn the individual that there's a bad bug nearby," Sigger wrote.

But don't expect the Pentagon to steer away from far-out bio-medical research. In 2009, Darpa wanted to create a bank of "[universal immunity donor cells](#)" to head bio-outbreaks off at the pass. More recently, in September, it doled out over \$5 million so Arizona State University could experiment with [growing vaccines with the aid of tobacco plants](#). "I don't know if we can pull this off, but I think this basic idea might work," one of the ASU researchers shrugged when the grant was announced.

Still, according to the *Globe*, if the military wants to speed up the day when it can deliver mass antidotes for a host of bio-threats, it's got to subsidize pharma companies' research in areas that won't yield the next generation of lucrative "blockbuster drugs." Bio-defense expert Crystal Franco of the Center for Biosecurity tells the paper, "It is different when the government is your only market. There needs to be incentives for companies to participate, to take it on for the public good." That is, until someone figures out how to make Viagra stop anthrax ([Wired, 2011](#)).

**Title:** Congress Continues To Struggle With WMD, Bioterror Legislation

**Date:** June 25, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Efforts to secure the United States from weapons of mass destruction, particularly biological warfare agents, continue to suffer from a lack of funding, coordination and leadership, a panel of witnesses told Congress on Thursday.

At a joint hearing of the Cybersecurity, Infrastructure Protection and Security Technologies Subcommittee and the Emergency Preparedness, Response and Communications Subcommittee of the House Homeland Security Committee, members sought to move forward a bill on WMD preparedness that stalled in Congress last year.

In testimony before the House, Representative Bill Pascrell, Jr., co-sponsor of the WMD Prevention and Preparedness Act of 2011, called on members to work together in a "bipartisan" manner to "swiftly consider" the bill. In a prepared statement, Pascrell stressed that he hoped "jurisdictional turf battles will not stop the full House and Senate from passing this important legislation as soon as possible."

Most members and witnesses agreed that the urgency of the bill was matched only by the threat posed to the country from biological weapons. The former 9/11 WMD Commission issued a report last year titled "World at Risk" that warned that a WMD attack is "likely" to occur by 2013. The same report gave the country particularly low grades for bioterrorism preparedness. Since that time, jurisdictional turf battles in Congress and between agencies, funding constraints and a lack of leadership from the White House have hampered efforts to develop a more closely coordinated bioterrorism strategy.

"As the WMD Commission stated in its report, it is unacceptable that now, nearly 10 years after September 11, we do not have a comprehensive national strategy to counter the threat that WMD poses to our country," the committee's lead-off witness, Representative Bill Pascrell, said. "One year later, and hopefully a little wiser, I hope we will swiftly consider by this committee this legislation, and that

jurisdictional turf battles will not stop the full House and Senate from passing this important legislation as soon as possible.”

The vice chairman of the WMD Center, former Senator Jim Talent, praised committee members “for consistently acting with the urgency that we at the WMD Center think is justified by this threat.”

Recalling the failing grade given biodefense efforts and the dire warnings of last year’s report, Talent revealed that a follow-up report will be issued this fall that will more fully explore the failures to integrate detection and surveillance efforts and the necessity for sacrificing jurisdictional turf among numerous committees in order to make progress in protecting the nation from biological threats.

Robert Kadlec, the former special assistant to President George W. Bush for biodefense, said that the nation has spent approximately \$50 billion over the last 10 years on biodefense efforts, but that few improvements are discernible. He also pointed out that he was the last special assistant to the president for biodefense policy and that the Obama administration has not named a successor to that post.

“We see how biodefense is managed today, it’s not being seen as a national security priority,” Kadlec said.

Kadlec called for streamlining cross-cutting budgetary proposals across agencies, an emphasis on pre-vaccination of first responders and studies on environmental clean-up efforts should the nation suffer a bioterror attack, arguing that preparedness for biological threats can be a form of deterrence.

At a somewhat more grassroots level, the final committee witness, Sheriff Richard Berdnik of Passaic, New Jersey, one of the six Tier 1 regions considered at greatest risk of a terrorist attack, told House members funding cuts could have a potentially devastating impact on state and local first responders. He added that the nation’s communications system continues to lack interoperability among responders and that there was presently no way to notify the public of a WMD event in a timely manner.

The 2011 bill, introduced on Friday, retains a comprehensive approach to securing the country against weapons of mass destruction, emphasizing prevention, preparedness, protection, response and recovery. New provisions in this year’s bill include establishing a new Special Assistant to the President for Biodefense responsible for crafting a federal biodefense plan and putting together a cross-cutting biodefense budget, and a provision to allow the secretary of Health and Human Services to make surplus vaccines with short shelf lives from the Strategic National Stockpile available to state and local first responders.

Ranking Member Laura Richardson (D-Calif.), in a prepared statement, said that efforts to better integrate state and local first responders would be accomplished “through training, exercise participation, intelligence information, grant funding and inclusion in the preparedness planning process.”

The central theme of the committee’s hearing was repeatedly emphasized by former Senator Jim Talent, who said that “nobody is looking at the whole picture,” and that the U.S. has got to “get somebody in charge,” responsible for coordinating efforts, expenditures and priorities.

Congress and the administration need to reach a degree of uniformity in understanding the urgency posed by biological threats, either man-made or natural, Talent said. Oversight rules by a number of committees continue to make it difficult for agencies to develop the trust and relationships necessary to address the problem, with literally dozens of agencies involved in biodefense issues.

While the death of al-Qaeda leader Osama bin Laden by U.S. special forces last month was a crippling blow to the organization, former Senator Talent noted that bin Laden’s successor, Ayman al-Zawahiri,

was an Egyptian doctor with a background in medicine and infectious disease, "One more reason we worry about bioterrorism."

Such a background could lead to a renewal of interest in biological agents as weapons of mass destruction, a much less complicated and cost effective endeavor than efforts to develop or steal nuclear weapons. Kadlec said in his prepared testimony that Zawahiri, is "one who has and likely still aspires to attack the United States with anthrax."

An additional highlight of the new bill is elimination of the National Bio-Surveillance Integration Center.

"The bill also eliminates the under-performing National Bio-Surveillance Integration Center," Chairman Daniel Lungren (R-Calif.), said. "The goal of the NBIC was to provide early detection of an event of national significance, such as anthrax. While an effective national bio-surveillance capability is an important component of preparedness and response, NBIC has not fulfilled its mandate due in part to the lack of cooperation of other federal agencies. And we have limited evidence that this situation will improve. This bill rightly realizes that continuing to fund NBIC under the current operations scheme will be money wasted and calls on White House leadership to develop a new plan and program that works effectively and efficiently."

Ranking Member Richardson also emphasized the importance of public participation and ensuring that at-risk populations are included in planning.

"As the WMD Commission found in its December 2008 report, America needs to move more aggressively to address our vulnerability to a bioterror attack," Richardson said. "As an original co-sponsor of this particular act, I'm proud to take up this bipartisan legislation that addresses this bio-WMD issue from prevention to recovery...One of the key provisions in this bill includes ensuring that we empower our citizens by providing WMD preparedness guidance and early warning systems."

Overall, the current state of WMD preparedness in the biological sector was bemoaned by Rep. Pascrell, who said that, "As the WMD Commission stated in its report, it is unacceptable that now, nearly 10 years after September 11, we do not have a comprehensive national strategy to counter the threat that WMD poses to our country."

According to Pascrell, the new legislation "addresses the findings from the Government Accountability Office on the state of our biodefense enterprise. It creates an entirely new top-down approach centered at the White House. This includes establishing a new special assistant to the president for biodefense who will be responsible for crafting a federal biodefense plan and putting together a yearly cross-cutting biodefense budget, which will help streamline agency efforts and improve efficiency. It includes a new provision that will allow the secretary of Health and Human Services to make surplus vaccines with short shelf lives available from our strategic national stockpile to our state and local first responders."

While the WMD Prevention and Preparedness Act of 2011 appears to have a measure of bipartisan support, fiscal constraints and Congressional gridlock make its passage anything but certain.

"Funding for our various Homeland Security State and Local grant programs that help at-risk areas prepare and secure sensitive infrastructure, are under severe funding constraints," Rep. Pascrell said. "Grant programs for our Cops and Firefighters to purchase equipment and ensure they have adequate personnel are slated for cuts" ([Bio Prep Watch](#)).

**Title:** Biodefense Takes Hit In Obama's Budget

**Date:** February 16, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** President Obama's recent budget request for 2013 contains mixed news for the biodefense effort in the United States.

The effort for biodefense came under major criticism in 2011 for failing to deliver biodefense threat treatments despite spending approximately \$60 billion in the previous decade, *Nature* reports.

Crystal Franco, a representative of the Center for Biosecurity of UPMC, said that winners for the budget proposal include the Department of Homeland Security, the National Institutes of Health, the Food and Drug Administration and the Biomedical Advanced Research and Development Authority.

The apparent losers include military biological-defense development efforts and public health programs for U.S. Centers for Disease Control and Prevention.

"It's good news that there is more money for BARDA, and no significant cuts to basic science at NIH or to regulatory science at FDA," Randall Larsen, the founding director of the WMD Center, said, according to [Nature](#).

The DHS will get an \$11 million boost for the BioWatch program, BARDA's budget would see an increase from \$415 million to \$547 million and the FDA would receive \$346 million for biodefense, which is close to last year's budget. The CDC would experience a \$47 million dip for the Strategic National Stockpile and the Department of Defense's biological-defense program would see a \$257 million cut in the proposed budget.

"Taking money out of the military research budget and leaving NIH funded at \$1.3 billion, even though it hasn't produced a single countermeasure, is pretty tragic," Phillip Russell, an advisor to the U.S. Department of Health and Human Services, said, [Nature](#) reports.

The budget also does not commit any funding to the construction of the National Bio and Agro-Defense Facility in Manhattan, Kansas, which has yet to be constructed ([Bio Prep Watch, 2012](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#), or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** Mail-Order Molecules Brew A Terrorism Debate

**Date:** July 17, 2002

**Source:** [UCLA](#)

**Abstract:** The orders arrive by fax and e-mail 24 hours a day from pharmaceutical companies, government agencies and academic scientists. And every day at Integrated DNA Technologies, an army of machines responds by producing hundreds of batches of microscopic merchandise: custom-designed snippets of genetic material.

Until recently the Coralville, Iowa, company prospered in quiet anonymity, spewing out for scientists round the world various made-to-order pieces of DNA, the molecular code upon which so much biotechnology research depends today.

But last week's announcement that scientists in New York had used the company's mail-order molecules to make polioviruses from scratch has prompted questions about whether the DNA synthesis industry deserves closer scrutiny, and whether strategies for preventing the proliferation of biological weapons need to be rethought.

For decades the United States and other nations have sought to limit the risk of biological warfare and bioterrorism by placing controls on the cultivation and shipment of dangerous microbes. The new work threatens to undermine that approach by proving for the first time that potentially deadly viruses can be built from the ground up.

If infectious agents can be made from off-the-shelf smidgens of DNA that are individually benign, then government regulators, law enforcement agencies and even DNA synthesis companies may have no way of knowing when someone is building a biological bullet.

"The customer gets to design the sequence they want manufactured and there is a limited ability for us to know what people are going to do with it," said Roman Terrill, vice president of legal and regulatory affairs at Integrated DNA Technologies.

Indeed, Terrill said, with perhaps \$10,000 and a few months time, motivated scientists could manufacture the genetic components of a deadly virus. "You could buy your own used DNA synthesizer," he said, "and make whatever you want in the comfort and privacy of your own garage."

Integrated DNA is one of about a half-dozen major U.S. manufacturers of small DNA strands, which are known in the trade as oligonucleotides or "oligos." The bigger companies, including Qiagen Operon of Alameda, Calif., Invitrogen of Carlsbad, Calif., and Sigma-Genosys of Woodlands, Tex., make thousands of customized oligos each day.

Each oligo typically consists of about 25 or 30 units of DNA, representing a tiny fraction of an organism's entire genome (a full viral genetic code can be tens of thousands of units long or more). Scientists generally use the oligos as molecular tools to help them find genes in various organisms or to trigger biological chain reactions that allow them to mass produce DNA strands in test tubes.

Because they are so small, most individual oligos lack any "fingerprint" that might identify them as part of something dangerous. But it was just such oligos that Eckard Wimmer and two colleagues at the State University of New York in Stony Brook painstakingly stitched together into a full length, 7,741-unit poliovirus genome, which spontaneously began making infectious polioviruses.

The feat arguably fell short of creating life from scratch because most scientists maintain that viruses are not truly alive. But the implications were clear.

"If you can go from a viral DNA sequence on paper to an infectious agent using things you can order out of catalogues, obviously that has big implications for bioterrorism," said Mildred Cho of the Center for Biomedical Ethics at Stanford. Two years ago Cho chaired an expert panel on the implications of creating novel life forms.

In fact, it was the Department of Defense that funded the three-year research effort as part of a program to devise protections against "unconventional pathogens." In a statement, the department said Friday it did not believe that the techniques could be used to build viruses with greater bioterror potential, such as smallpox. But others disagreed.

"With a little more advancement in technology you could probably make something more complex than polio," said Jim Cornette, a retired Air Force colonel with a doctorate in biochemistry who served in the Defense Intelligence Agency and was involved in biodefense planning during Operation Desert Storm. "Smallpox is probably just two or three years down the road, maybe less," said Cornette, who now lives in Florida. "Then what about the things that are 'none of the above?' Something dangerous but totally new?"

Several scientists said in interviews they would be reluctant to see new layers of oversight slapped on oligo makers, which have become to the biotechnology industry what silicon chip makers are to the computer industry. But many suggested the time was ripe for a public discussion about how best to prevent nefarious use of the science.

Today most biodefense efforts focus on disease-causing organisms themselves, rather than the genetic instructions for making them. Federal regulations restrict shipments of dangerous microbes and toxins listed by the government as "select agents," but those rules do not apply to shipments of their DNA components, at least within the United States.

DNA exports are more strictly regulated, with the Commerce Department requiring licenses for overseas shipments of DNA deemed a threat to national security. But those rules are open to interpretation and are easily flouted, scientists inside and outside the government said.

When Terrill of Integrated DNA wanted to learn more about the export rules last year, he went to the Commerce Department's Bureau of Exchange Administration (renamed in April the Bureau of Industry and Security), which oversees and enforces export rules for "dual-use" technologies, including microbial DNA strands. He learned that the bureau restricts exports of genetic sequences "associated with pathogenicity," which means the ability to cause disease.

"The problem is the bureau has not released those sequences, so ... we would have to decide for ourselves whether a sequence is associated with pathogenicity," Terrill said. "But how pathogenic? And what does 'associated' mean? The phrase is difficult to get a grasp on. It's not really a scientific term. It's a lawyer's term."

Moreover, Terrill learned, the 370-person agency has only one microbiologist on staff to deal with the hundreds of biological export applications the agency receives annually.

That employee was away and not available to be interviewed this week. But another Commerce Department official, speaking on condition of anonymity, confirmed that it is "the responsibility of the exporter" to determine if a genetic sequence falls under the bureau's rules.

The official said the bureau engages in "outreach activities" to educate academic and commercial scientists about the export restrictions. But the official also acknowledged that many scientists -- especially university-based researchers -- have a tradition of sharing DNA freely through the mail, making enforcement difficult.

In any case, scientists said, rules that focus on "pathogenic" DNA sequences are meaningless in an era when manufacturers can make pieces of DNA that are individually benign yet can pose a serious threat if properly assembled.

"I don't know how you could overcome that problem," the Commerce Department official said. "You could get one part [of the sequence] from one company and another part from another company and completely circumvent the law."

Some experts have begun to consider whether manufacturers themselves should be brought under some kind of oversight. "We propose that ... those companies that produce the oligos should be asked to routinely check the sequences against those of known pathogens," said Wimmer, the scientist who led the polio project.

Several computer programs, most notably one known as BLAST, can quickly scan the genetic sequence of a large piece of DNA and report whether it is similar to other known sequences, such as ones encoding parts of a virus or toxin. But company officials said they were not enthusiastic about taking on the cost or legal responsibility of fingering potential perpetrators.

In any case, said Garry Merry, corporate vice president of genomic services at Qiagen Operon, a scientist could evade BLAST's eyes simply by ordering DNA components small enough to be completely generic, then assembling them later. "You could do it," Merry said, "and we couldn't tell."

As an alternative, some are calling for extra layers of institutional review for researchers who, like Wimmer, propose combining genetic components to make viruses or other dangerous entities.

"I would argue there needs to be more oversight in terms of getting approval," said Arthur Caplan, a University of Pennsylvania ethicist who sat on Mildred Cho's expert panel. "Are we going to be seeing this kind of thing done in a science fair soon? I'm in favor of tighter controls."

Craig Venter, president of the Center for the Advancement of Genomics in Rockville who last week called the polio work "irresponsible science," said the nation might need a special advisory committee to publicly review all such studies in advance, just as a National Institutes of Health panel reviews proposed gene therapy experiments as a way of watching for trouble and reassuring the public. Without such openness, Venter said, "this kind of work can set science back in the public eye."

But while institutional or government review may bring more oversight to legitimate research, others said, it's unlikely to deter those who wish to keep their work secret. And with the biotech revolution now 30 years old -- and trade in aftermarket equipment burgeoning -- deterrence may be difficult.

"You can buy an old synthesizer and some raw ingredients and no one would have any idea what you're doing or what you're making," said Terrill of Integrated DNA. With an old machine, he said, "it might take you a week longer. They're big and clunky. But a week isn't that long" ([UCLA, 2002](#)).



**Title:** Synthetic Bioterror  
**Date:** July 18, 2002  
**Source:** [UCLA](#)

**Abstract:** Nobody who studies viruses and their genomes seemed surprised last week when researchers announced that they had [synthesized a polio virus](#) by using publicly available genetic information and chemical sequences ordered by mail. Even so, the feat points to yet another avenue that sophisticated terrorists might take to threaten unprotected civilians. The danger should not be exaggerated -- it is not imminent -- but the fact that bio-weapons might eventually be synthesized from off-the-shelf chemicals suggests the need for additional safeguards against malicious use of biotechnology.

The scientists, based at the State University of New York at Stony Brook, created their synthetic virus by modeling it on the genetic sequence for the polio virus, which can be obtained from a public database on the Internet. They ordered short stretches of DNA in the proper chemical order from a commercial company, stitched those chunks together and transformed them into a polio virus that could reproduce itself and paralyze mice.

The Pentagon sponsored the research as part of a program to develop countermeasures against bio-weapons. Although the work has been criticized as an irresponsible stunt, it sounds a useful warning and should cause no great harm. Most experts agree that polio would not make a good terrorist weapon. Much of the American population has been protected by vaccination, and only a small percentage of unprotected people who are infected become paralyzed or die.

The feat raises the question whether terrorists might some day be able to synthesize more lethal viruses. That would be harder to do, as other dangerous pathogens, such as Ebola, are larger and more complex. Terrorists would probably find it far easier to work with a naturally occurring strain than to create the virus from scratch.

The chief exception might be smallpox, which is supposed to be held only in the United States and Russia, under guard, and thus might be hard for a terrorist to obtain. But even in that case, it might be easier to modify cowpox or monkeypox than to synthesize the whole smallpox genome, which is one of the largest and most complex.

Synthetic viruses seem less immediate a worry than another [anthrax attack](#) or an attack with natural pathogens. But the synthesis of polio underscores how fast biotechnology is progressing, for good or potential ill. It is not too soon for leaders of science and industry to start pondering whether steps can be taken to keep the chemical ingredients of dangerous pathogens out of the hands of terrorists ([UCLA, 2002](#)).

**Title:** Feds Asked To Watch DNA Shipments  
**Date:** July 19, 2002  
**Source:** [UCLA](#)

**Abstract:** The [Iowa company](#) that unknowingly supplied bits of genetic material used by scientists to make their own polio virus from scratch said it had recently asked the government to take steps to oversee the shipment of such DNA supplies.

Last week's [stunning announcement](#) by researchers at State University of New York at Stony Brook that they had made the virus in their lab raised a new set of fears about bioterrorism.

It was the first time a virus had been synthetically produced, and it was done with a genetic blueprint from the Internet and DNA material provided by a mail-order supplier.

The supplier was Integrated DNA Technologies, or IDT, of Coralville, a suburb of Iowa City. An official of the company said Wednesday that IDT wrote the Defense Department on May 13 about the possible terrorist use of such biomedical material, but never got a response.

"We had submitted a proposal to the Defense Department, ironically, suggesting that (DNA) sequences

ordered by suppliers like ourselves be screened and then reported to federal agencies for the purposes of identifying orders or parts of orders that would be perhaps investigated, questioned, double-checked or whatever," said Roman Terrill, vice president of legal and regulatory affairs for IDT. "The inquiries that we sent weren't really responded to."

Defense Department spokesmen declined to answer questions and only provided a statement about the department's involvement in the SUNY project.

Terrill said IDT only became aware that its supplies were used by the SUNY scientists when they made their announcement of the polio virus in the journal *Science* last week.

The Defense Department said it funded the project to research protections against unconventional biological agents. SUNY research team leader, Dr. Eckard Wimmer, said the creation of the virus was an attempt to show the reality of the bioterrorist threat.

The fear is that a terrorist or government might attack by spreading a harmful virus or deadly bacteria. Most of the concern so far has focused on security at labs that have supplies of germs or on finding treatments or vaccines to thwart such an attack.

But the SUNY project demonstrated for the first time that deadly diseases could be made synthetically in a lab.

"This approach has been talked about, but people didn't take it seriously," Wimmer said last week. "Now people have to take it seriously."

Terrill said the project illustrates an ethical dilemma: "DNA can be used to cure a virus or to help develop cures. On the other hand, DNA can be used for more nefarious purposes."

IDT is one of a handful of companies across the country that supplies about 15,000 customers with short fragments of DNA used in medical research. These strands, called oligonucleotides, are basic tools in all genetics labs.

But Terrill said the DNA supplier has no way of knowing how the genetic fragments it ships will be used.

"It's kind of like a phone number. They're ordering a phone number where we have the equivalent of seven digits. Without an area code, you really can't specify where the call is coming from. You need a longer sequence to identify it," Terrill said.

Besides polio, the genetic maps to anthrax, Ebola and other diseases are readily available to researchers in libraries and on the Internet, he said.

Gary Comstock, coordinator of the bioethics program at Iowa State University, said there is "a clash of values" between society's desire for innovation and new bioengineering technologies and the desire to protect ourselves from those who would abuse the new technologies.

"Given the events of Sept. 11 and since, I think the issue has a particular urgency for us that it may not have had a year or two ago" ([UCLA, 2002](#)).

**Title:** New Scientist Investigation Reveals How Easily Terrorists Can Obtain Biological Weapons 'Building Blocks'

**Date:** November 12, 2005

**Source:** [Continuity Central](#)

**Abstract:** You might think it would be difficult for a terrorist to obtain genes from the smallpox virus, or a similarly vicious pathogen. Well, it's not. Armed with a fake email address, a would-be bioterrorist could

probably order the building blocks of a deadly biological weapon online, and receive them by post within weeks.

That's the sobering reality uncovered by a New Scientist investigation into the bioterror risks posed by the booming business of gene synthesis. Dozens of biotech firms now offer to synthesise complete genes from the chemical components of DNA. Yet some are carrying out next to no checks on what they are being asked to make, or by whom. It raises the frightening prospect of terrorists mail-ordering genes for key bioweapon agents such as smallpox, and using them to engineer new and deadly pathogens.

Customers typically submit sequences by email or via a form available on a company's website. The companies then construct the specified genes and mail them back a few weeks later, usually spliced into a bacterium such as *Escherichia coli*. New Scientist approached 16 such firms, identified by a Google search, to ask whether they screened orders for DNA sequences that might pose a bioterror threat. Of the 12 companies that replied, just five said they screen every sequence received. Four said they screen some sequences, and three admitted not screening sequences at all.

The risks posed by gene synthesis first hit the headlines in 2002, when a team from the State University of New York at Stony Brook made infectious polioviruses from synthetic DNA. And just last month, researchers with the US Centers for Disease Control and Prevention in Atlanta, Georgia, said that they had used similar means to recreate the virus that caused the 1918 flu (New Scientist, 8 October, p 16).

In theory, a terrorist group could try to emulate the latter feat, or create a virus such as *Variola major*, which causes smallpox. However, the *Variola* genome comprises some 190,000 base pairs of DNA, and while some companies will make sequences 20,000 or more base pairs long, an attempt to order all the genes necessary to launch a smallpox attack would probably arouse suspicion. "That would stand out from a technological point of view," suggests Drew Endy, a bioengineer at the Massachusetts Institute of Technology.

A more realistic risk is that terrorists could order genes that confer virulence to dangerous pathogens such as the Ebola virus, and engineer them into another virus or bacterium. They could also order genes for a hazardous bacterial toxin – although many of these are also available by isolating the microorganisms from the environment.

Virulence genes are typically no more than a few thousand base-pairs long. Their sequences are publicly available, so screening gene-synthesis orders for potential bioweapons shouldn't pose a huge challenge.

Even if they don't routinely perform sequence checks, some companies say that they do investigate their customers. But the scope of these checks varies widely and email addresses are notoriously easy to fake. Even orders from legitimate institutions may not be what they seem ([Continuity Centra, 2005](#)).

**Title:** Synthetic DNA Makers Warned Of Bioterrorism Threats

**Date:** October 22, 2010

**Source:** [New Scientist](#)

**Abstract:** To make it harder for bioterrorists to build dangerous viruses from scratch, guidelines for firms who supply "custom DNA" are being introduced in the US.

The US and other countries restrict who can work with certain germs, but it might be possible to build some viruses [from their genes](#). A number of firms supply DNA sequences to order. A [2005 investigation](#) by *New Scientist* raised alarms when it found that [only five out of 12 of these firms in North America and Europe always screened orders for sequences that might be used in bioweapons](#).

The US now wants firms to [verify a customer's identity](#) and make sure they are not on a [list of banned buyers](#). It also wants them to screen orders for sequences that are unique to [Select Agents](#), a list of microbes the US deems dangerous.

However, scientists commenting on the draft rules earlier this year [fear](#) that sequences from microbes other than Select Agents might also be dangerous. The US Department of Health says not enough is known about them to say which ones should arouse a firm's suspicions. Other potential weaknesses include the fact that the rules are voluntary, and that much custom DNA is made [outside the US \(New Scientist, 2010\)](#).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#), or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** US, Mexico Discuss Bioterrorism

**Date:** October 16, 2001

**Source:** [VOA](#)

**Abstract:** U.S. Health and Human Services Secretary Tommy Thompson says people fearful of contracting anthrax should not self-medicate with the prescription antibiotic Ciprofloxacin, called Cipro for short. Mr. Thompson was in El Paso, Texas Monday, speaking with his Mexican counterpart, Julio Frenk Mora about a two-nation response to both terrorism and routine health problems.

As pharmacies in some parts of the United States report high demand for Cipro and other antibiotics used for treating anthrax, Secretary of Health and Human Services Thompson is calling for calm. He says people who have not been diagnosed with the disease and take Cipro could be doing themselves harm if they ever are exposed to anthrax. He says the effect of the antibiotics would be reduced by the prior use.

There has also been a run on pharmacies in Mexico by people wanting to buy Cipro. On Monday there was a report of an anthrax infection in the city of Juarez, just across the border from El Paso, that turned out to be false. Mexican Health Minister Frenk has also called for calm and insists that the Mexican health system is prepared to deal with bioterrorist incidents.

Secretary Thompson says the United States is working to defend Mexico's population as well as its own. "[We] have developed very much of an action plan to deal with bioterrorism anywhere in the United State," he said. "I have shared that with Minister Frenk and he knows that if Mexico needs help, we will be the first ones there to help out the Mexican government."

Mr. Thompson says the United States currently has sufficient anthrax vaccine on hand to help two million infected people, but that efforts are underway to increase that stockpile to allow treatment for 12 million.

In addition to the biological weapons threat, the U.S. and Mexican health ministers discussed ongoing health problems on the border, including tuberculosis. Mr. Thompson says it is in the interest of the United States to work in cooperation with Mexico on these issues because "diseases know no boundaries." The Health and Human Services Secretary says the Bush administration will ask Congress for \$25 million this year to improve health services in the border region ([VOA, 2001](#)).

**Title:** Preparedness Against Bioterrorist Attacks In Mexico

**Date:** November, 2001

**Source:** [Sci Elo Public Health](#)

**Abstract:** The vulnerability of human populations to chemical, biological, radiological, and nuclear terrorism has been widely discussed but insufficiently studied. Current public health policies are not guided by solid and relevant information to design cost-effective programs for preventing or controlling this kind of incidents in the future. Governmental budgets are insufficient to respond to bioterrorist attacks. To face these threats, developing countries like Mexico should frame strategies and devise specific preventive actions that consider the transmission dynamics of potential infectious agents likely to be used in a bioterrorist attack.

### Proposals

The international reaction to a biological attack must be supported by international agreements that ban the use of biological agents for warfare and/or defense purposes, as well as on academic and technological exchange for the prevention of bioterrorist attacks. At the national level, the recommendations in the event of a biological attack are: a) establishing a legal defense strategy against bioterrorism; b) implementing education programs as a key strategy for defense against bioterrorism; c) devising a national program of interinstitutional antibioterrorist coordination that includes medical emergency assistance and collection of medical forensic evidence; d) including a biological weapon registry in epidemiological surveillance systems; e) implementing a laboratory for biological material analysis related to terrorist incidents; f) devising public health information campaigns, g) assuring the supply of diagnostic testing, special protection, and emergency treatment materials; h) decentralizing alert systems for the timely detection of bioterrorist attacks; i) responding to bioterrorist actions addressed against animals and plants, and j) organizing Ethics Committees in case of urgent events derived from a biological attack

### Conclusions

The proper response to sudden and unexpected events of emergent or unusual infectious diseases involved in a bioterrorist attack requires an adequate public health infrastructure. Modern technology allows the timely identification of multiple infectious agents by nucleic acid analyses and should be widely available in reference laboratories. All these measures require sufficient funding to respond to this potential threat. Resource allocation to respond to bioterrorist attacks must be consonant with their potential public health consequences ([Sci Elo Public Health, 2001](#)).

**Title:** G7, Mexico Say Preparing For Smallpox Terror Attack

**Date:** December 6, 2002

**Source:** [UCLA](#)

**Abstract:** The world's leading industrial nations are expanding the global stockpile of smallpox vaccine to prepare for a possible terrorist attack using the deadly virus, health officials said on Friday.

Senior health officials from the Group of Seven nations and Mexico, which shares a long, porous border with the United States, said there was no imminent threat of a terrorist attack using the smallpox virus.

However, they said their countries would work to increase the World Health Organization's global reserve of the smallpox vaccine, as well as take steps to prepare to respond to any attack using the virus.

While it is impossible to insure there will be no smallpox attacks, "we can be better prepared to be able to respond for all of our citizens," U.S. Health and Human Services Secretary Tommy Thompson told a news conference.

Smallpox was eradicated in 1978 and the United States stopped vaccinating in 1972.

But concerns about a possible attack have resurfaced because Iraq and North Korea are thought to have stocks of the virus, which kills about a third of those infected and causes oozing pustules that leave scars on the surviving victims.

The so-called Ministerial Meeting on Health Security and Bioterrorism held this week in Mexico City was the third of its kind since the Sept. 11 attacks on New York and the Pentagon.

### **Vaccination Is Complex**

Thompson said the United States already has enough of the smallpox vaccine to inoculate every man, woman and child in the country and the Bush administration was in the process of determining how it would be administered.

He said, most likely, health workers would receive the vaccine first, followed by "first responders" such as police and fire fighters, and then the general population.

But he noted widespread vaccination was a "very complex subject" because one or two out of every million people vaccinated die from the inoculation, and another 15 to 18 out of every million have serious adverse reactions. "This is not a vaccine without consequences," Thompson said

The health officials said their countries would hold a multinational exercise in June to evaluate response plans and protocols for international aid and collaboration in case of a smallpox attack.

Governments were preparing for a worst-case scenario, but not trying to instill panic, the health officials said.

"We don't want to alarm our people," British Health Secretary Alan Milburn said. "We don't want to bring to a halt normal public life for our civic society. And yet we'd be failing in our obligation if we didn't prepare for the worst."

Britain said this week it plans to vaccinate key military and health service workers against smallpox ([UCLA, 2002](#)).

**Title:** Terrorists May Have Crossed Mexican Border With Bioweapons

**Date:** March 22, 2003

**Source:** [Unknown Country](#)

**Abstract:** U.S. and Mexican officials are searching for six Iraqis who crossed the border into the southern U.S. who may have "toxic materials" requiring refrigeration. These could be either biological or radiological materials. The Iraqis got into the U.S. with the help of the same human smugglers who bring in illegal aliens. Tips from the public, as well as undercover investigations, uncovered the plot.

Another report says that earlier this week, Mexican authorities detained six Iraqi citizens as they tried to cross into the U.S. from Tijuana. They claimed to be Germans who had arrived at the Tijuana airport the night before on a flight from Mexico City and have been returned to Mexico City for questioning.



It sounds like these are conflicting reports about the same 6 Iraqis. Let's hope the second report is the correct one.

Last week, the Border Patrol found a diary written in Arabic, containing names and telephone numbers, in a backpack left on a southern Arizona trail frequently used by illegal aliens ([Unknown Country, 2003](#)).

**Title:** Washington Funds Bioterror Defenses On Mexican Border

**Date:** December 15, 2003

**Source:** [NTI](#)

**Abstract:** The United States will put \$5.4 million toward an effort to enhance disease detection capabilities on the border with Mexico, Health and Human Services Secretary Tommy Thompson said Friday (see [GSN](#), Dec. 11).

An improved early warning system could help detect both naturally occurring outbreaks and bioterrorism attacks, according to the department.

The money will be sent to six Mexican border states and the Mexican Secretariat of Health. Thompson made the announcement during the United States-Mexico Border Health Commission's annual meeting.

"Disease and illness recognize no political boundaries and that's why it's imperative that our countries continue to work together to safeguard the health of those along both sides of the border," Thompson said. "Early warning surveillance and prompt sharing of findings is a public health and national security imperative for both of our nations," he added ([NTI, 2003](#)).

**Title:** EXCLUSIVE: Al Qaeda Eyes Bio Attack From Mexico

**Date:** June 3, 2009

**Source:** [Washington Times](#)

**Abstract:** U.S. counterterrorism officials have authenticated a video by an al Qaeda recruiter threatening to smuggle a biological weapon into the United States via tunnels under the Mexico border, the latest sign of the terrorist group's determination to stage another mass-casualty attack on the U.S. homeland.

The video aired earlier this year as a recruitment tool makes clear that al Qaeda is looking to exploit weaknesses in U.S. border security and also is willing to ally itself with white militia groups or other anti-government entities interested in carrying out an attack inside the United States, according to counterterrorism officials interviewed by The Washington Times.

The officials, who spoke only on the condition they not be named because of the sensitive nature of their work, stressed that there is no credible information that al Qaeda has acquired the capabilities to carry out a mass biological attack although its members have clearly sought the expertise.

The video first aired by the Arabic news network Al Jazeera in February and later posted to several Web sites shows Kuwaiti dissident Abdullah al-Nafisi telling a room full of supporters in Bahrain that al Qaeda is casing the U.S. border with Mexico to assess how to send terrorists and weapons into the U.S.

"Four pounds of anthrax — in a suitcase this big — carried by a fighter through tunnels from Mexico into the U.S. are guaranteed to kill 330,000 Americans within a single hour if it is properly spread in population centers there," the recruiter said. "What a horrifying idea; 9/11 will be small change in comparison. Am I right? There is no need for airplanes, conspiracies, timings and so on. One person, with the courage to carry 4 pounds of anthrax, will go to the White House lawn, and will spread this 'confetti' all over them, and then we'll do these cries of joy. It will turn into a real celebration" ([Washington Times, 2009](#)).

**Title:** The UNAM To Discuss Pentagon Bio-Weapons Tests In Mexico

**Date:** June 12, 2009

**Source:** [Aztlan](#)

**Abstract:** The Instituto de Investigaciones Sociales (IIS) of the Universidad Nacional Autonoma de Mexico (UNAM) in Mexico City will be hosting a round table of experts titled, "The Swine Flu, Vaccines and Bioterrorism." The round table discussion will be held on Friday June 17th at 10:00 AM at the Institute's "Sala de Usos Multiples" located on the university campus.

The round table will include Dr. Ana Maria Carillo, Dr. Miguel Angel Marquez and Dr. Manuel Servin Massieu. All three are experts in their fields and Dr. Massieu has broad knowledge of the history of the "Bio-Weapons Program" at Fort Detrick, Maryland and of prior Pentagon bio-weapons tests in Mexico and Latin America.

There has been widespread concern that the current Swine Flu pandemic was caused by a laboratory engineered virus. The epicenter of the outbreak was near Mexico City and even though it has now spread throughout the world, it has been particularly lethal only to Mexicans leading some scientists to speculate that the "new virus" may be an "ethnic specific bio-weapon" ([Aztlan, 2009](#)).

**Title:** National Border Corruption Task Force To Stop CBRNs From Entering Country

**Date:** May 13, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A corrupt U.S.-Mexico border patrol officer could accept a bribe to let a truckload of illegal immigrants pass into the United States only to learn later that the vehicle was filled with terrorists. That officer could also knowingly or unknowingly allow passage of a shipment of WMDs, chemical and biological weapons or bombs.

These are scenarios on the post-9/11 border that, according to syndicated investigative reporter Michael Webster with allvoices.com, the FBI and other law agencies are trying to combat with the National Border Corruption Task Force.

Special Agent Keith Byers in the FBI's Chicago office told allvoices.com that the above scenario set "keeps the FBI very focused on weeding out the occasional dishonest government official who accepts bribes to allow people or contraband into this country illegally."

There are examples, and not just scenarios, of crooked border patrol agents. Disgraced former ICE agent Richard Padilla Cramer held top positions on both the U.S. and Mexican sides of the border. But, allvoices.com states, he was on the take and began drug trafficking with a Mexican drug cartel.

Byers told allvoices.com, "While it's true that the most common acts of border corruption involve drug trafficking and human smuggling, a single incident of the wrong person getting into the country could result in a catastrophe" ([Bio Prep Watch, 2010](#)).

**Title:** Al-Qaeda Sees Mexico Border As Prime Spot For Transporting Anthrax

**Date:** May 19, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Congress has been warned by FBI Director Robert Mueller this week that al-Qaeda has ongoing efforts to acquire weapons of mass attack for the purpose of attacking the United States.

"Al-Qaida remains committed to its goal of conducting attacks inside the United States," Mueller told a House appropriations subcommittee, Newsmax.com reports. "Further, al Qaeda's continued efforts to access chemical, biological, radiological, or nuclear material pose a serious threat to the United States."

Mueller added that Al-Qaeda, to accomplish its goals of conducting new attacks, "seeks to infiltrate overseas operatives who have no known nexus to terrorism into the United States using both legal and illegal methods of entry."

Sheikh Abdullah al-Nasifi, a known al-Qaeda recruiter in Kuwait, told al Jazeera television in February that the ideal infiltration point for terrorists seeking to attack America is Mexico's border.

"Four pounds of anthrax – in a suitcase this big – carried by a fighter through tunnels from Mexico into the U.S., are guaranteed to kill 330,000 Americans within a single hour if it is properly spread in population centers there," al-Nasifi told al Jazeera.

"There is no need for airplanes, conspiracies, timings and so on. One person, with the courage to carry four pounds of anthrax, will go to the White House lawn, and will spread this 'confetti' all over them, and then will do these cries of joy. It will turn into a real 'celebration,' al-Nasifi said. "9/11 will be small change in comparison. Am I right?"

Mueller reminded lawmakers that a 2008 National Intelligence Estimate estimated that a terrorist WMD attack remains a top priority of terrorists and noted that a December Commission on the Prevention of WMD Proliferation and Terrorism report warned that "the risks are growing faster than our multilayered defenses" to prevent such an attack," and that "it was more likely than not that terrorists would attack a major city somewhere in the world with a weapon of mass destruction by 2013" ([Bio Prep Watch, 2011](#)).

**Title:** U.S.-Mexico Border Tunnels Could Transport Bioweapons

**Date:** November 9, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Law enforcement and intelligence agencies are on alert in the southwest U.S. after the discovery of a massive and sophisticated tunneling operation across the Mexican border.

Beyond the concern of spreading drug violence in Mexico, authorities are worried that Islamic extremists might be eyeing the porous border as a means to smuggle terrorists or weapons of mass destruction, including bioweapons, into the country, according to the Washington Examiner.

"Four pounds of anthrax – in a suitcase this big – carried by a fighter through tunnels from Mexico into the U.S., are guaranteed to kill 330,000 Americans within a single hour if it is properly spread in population centers there," Al Qaeda recruiter Abdullah al-Nafisi said to a room of supporter in Bahrain, according to the Washington Examiner.

Al-Nafisi was referring directly to efforts in casing the U.S. border region.

"What a horrifying idea; 9/11 will be small change in comparison," Al-Nafisi said, the Washington Examiner reports. "Am I right? There is no need for airplanes, conspiracies, timings and so on."

Officials in the United States take such threats extremely seriously.

"It is only realistic to believe that an American-born terrorist who knows the border region would have already thought of the possibility of using it for the purposes of terrorist activity," a border patrol agent told the Washington Examiner ([Bio Prep Watch, 2010](#)).

**Title:** Video Game Aids Border Patrol In Fighting Bioterror

**Date:** April 12, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Sandia National Laboratories has designed a new video game that is intended to help the U.S.-Mexico border patrol make fast and effective decisions on a day-to-day basis.

The Border High Level Models game, which is targeted at Department of Homeland Security personnel and other agencies, simulates the daily activities encountered when patrolling the border, KOAT.com reports.

One focus of the simulation is to prepare the learner how to detect and handle a potentially dangerous situation involving bioterrorist weapons.

"We're concerned about people trying to smuggle nuclear, chemical and biological weapons across the border," Sandia Labs senior staff member Brian Hart said, according to KOAT.com.

The game, which cost roughly \$800,000 to develop, features a vast and realistic environment. A total of 64-square miles of border terrain is displayed at a time by the game. The simulation includes topography specific to the region, like the seasonally dry river or creek bed known as arroyos.

According to the U.S. Customs and Border Protection, there were approximately 404,365 illegal alien apprehensions from Mexico recorded during the 2010 fiscal year, KOAT.com reports.

Sandia National Laboratories is a government-owned, contractor-operated facility that has been developing science-based technologies that support U.S. national security since 1949 ([Bio Prep Watch, 2012](#)).

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**Title:** Missile Defense System Fails Fourth Test

**Date:** March 7, 1997

**Source:** [FAS](#)

**Abstract:** An anti-missile missile being developed by Lockheed Martin Corp. failed its fourth test flight in a row yesterday, clouding the future of the \$17 billion program and illustrating anew the technical difficulties in the missile defenses envisioned by President Reagan in the 1980s.

The Ballistic Missile Defense Organization (BMDO), the military command conducting the test, said it hasn't determined why the Theater High Altitude Area Defense (THAAD) missile failed to hit its missile target at the White Sands Missile Range in New Mexico.

"The interceptor took off fine and the radar worked," said Lt. Col. Rick Lehner, a BMDO spokesman. "It just didn't hit the target." Test operators then blew up both missiles by remote control, he said.

"Preliminary indications" are that an on-board computer that prevents the missile from shimmying malfunctioned, Lehner said.

The three previous failures had prompted mounting concern about the program inside the company and the Pentagon. Last month, Pentagon acquisition chief Paul Kaminski said another test failure in the near future would prompt a major restructuring of the project. "I don't think we're going to see funding for ballistic missile systems that aren't working," Kaminski told Aviation Week & Space Technology then.

Capt. Michael Doubleday, a Pentagon spokesman, said yesterday that "it's too early to tell" whether the latest setback endangers the program. But he added, "It certainly is not a result we had hoped for."

Lockheed Martin declined comment. Its shares fell \$1.75 to \$87 on the New York Stock Exchange.

The THAAD missile is designed to strike incoming missiles higher and earlier in flight than the Patriot missile, which was used by U.S. soldiers in the Persian Gulf War. THAAD is supposed to protect U.S. and allied forces from missile attack in a wide area -- the size of a country, say -- while the Patriot missile defends a zone the size of a large city. THAAD is scheduled to be deployed starting in 2004.

Critics of Pentagon weapons programs said the failure raises questions about the recommendation by Congress's Republican majority that new missile development and deployment be sped up. Democrats favor continued testing of various missiles before committing huge sums of money to production.

John Pike, space policy director for the liberal Federation of American Scientists, pointed out that since 1980 the Pentagon has conducted 14 tests of THAAD and similar systems that are supposed to hit enemy missiles at high altitude and only two destroyed their targets.

"That's a pathetic showing," Pike said. "You've got to see whether there's any water in the pool before you jump in the deep end," he added, referring to the GOP proposals for expedited deployment of the unproven missile defenses.

Every aspect of missile defense policy is a matter of debate. While the Army and Raytheon Co., maker of the Patriot, have defended that missile's performance in knocking Iraqi Scud missiles off course in the gulf war, critics in the Israeli military and in American peace groups said the Patriots were relatively ineffective.

But all sides agree that engineers at Lockheed Martin and Raytheon face a daunting task designing missile defenses -- what's known as "hitting a bullet with a bullet." Radar built into trucks is supposed to track an incoming missile hurtling through space at several thousand miles an hour. After the THAAD missile is launched, sensors in its nose must spot the enemy missile, then help guide the THAAD on its "hit-to-kill" mission.

THAAD's first intercept test failed 15 months ago because a software error prompted the missile to make an "errant maneuver" that in turn caused it to run out of fuel as it scrambled through space to resume course toward the target, military officials said.

A malfunction in the separation of the missile's booster caused a test failure last March. The THAAD failed four months later because of an electronic glitch in the missile's seeker "eye," which overloaded the on-board computer that processes information about the target's flight path.

Military officials expressed disappointment in the latest test but took heart in the fact that the three previous failures were blamed on unrelated causes, suggesting there is no inherent breakdown.

BMDO spokesman Lehner urged Pentagon planners considering THAAD's fate to keep matters in perspective. "How many weapons systems in development haven't had technical and bureaucratic problems?" he said.

## **The THAAD Missile:**

### **What It Is**

Theater High Altitude Area Defense missiles are designed to intercept targets high in the air or in space, detonating the incoming missiles' nuclear, biological or chemical warheads. That way, debris would fall farther from the defended area than with the Patriot missile defense system. THAAD missiles can reach altitudes of 50 miles and destroy a target by force of impact.

### **How Would It Work**

THAAD radar receives data on an enemy missile launch, with updates on direction. Guided by computers

in Humvees on the ground, the THAAD heads for its target. As the THAAD closes in, an infrared seeker in its nose takes over ([FAS, 1997](#)).

**Title:** Clinton Wants \$60BN Missile Defence System To Fail Test

**Date:** July 7, 2000

**Source:** [Guardian](#)

**Abstract:** Senior officials in the state department, the Pentagon and the White House itself are opposed to a planned \$60bn missile defence system and are privately hoping that a crucial test planned for late tonight will end in failure.

The test involves launching a rocket from a Pacific island and hitting an incoming mock warhead in space. If it succeeds, President Bill Clinton will come under heavy political pressure to give the national missile defence (NMD) scheme a green light before the November election - despite the concerns of some of his top advisers that the system is unworkable and destabilising.

"I think you have to say this is a dilemma, to say the very least," a political aide in the White House said. "And certainly it is possible to argue that a failure, or a mixed outcome, would be politically easier to handle at this time."

President Clinton, a reluctant convert to the NMD project after coming under heavy Republican attack for being soft on defence, had been hoping to pass on a decision on the scheme to his successor.

"He doesn't want to go down in history as the president who violated the ABM [anti-ballistic missile] treaty," said Chris Hellman, an analyst at the Centre for Defence Information thinktank in Washington.

But according to new Pentagon estimates, a decision has to be taken before the election on whether to go ahead with a key radar installation on Alaska's Aleutian islands, for it to be ready by the administration's self-imposed goal of having a basic network with 20 interceptors up and running by 2005.

By that time, NMD proponents argue, North Korea could be ready to launch a long-range missile at the US, armed with a nuclear, chemical or biological warhead. Other "rogue states" could catch up technologically soon afterwards.

But White House, Pentagon and state department officials have dissented from an intelligence report laying out the North Korean threat. They argue that it focuses purely on the communist nation's technological potential, and not enough on political, economic or social factors.

They also believe that the US faces a far greater threat from terrorists carrying a nuclear, chemical or biological bomb into the country in a suitcase. And there are considerable doubts among defence experts and scientists over whether the scheme will work.

Critics of the scheme say its Pentagon backers and contractors have rigged test results to hide the fact that the rocket-launched interceptors have serious problems distinguishing warheads from decoys ([Guardian, 2000](#)).

**Title:** Missile Defense Test Aborted When Target Fails

**Date:** December 12, 2009

**Source:** [PHYSORG](#)

**Abstract:** The Missile Defense Agency says a planned test of a ground-based missile defense system in Hawaii was aborted because the target missile failed.



The agency said in a statement Friday that a C-17 airplane successfully deployed the target [missile](#) but the target's [rocket motor](#) didn't ignite.

A missile interceptor fired from the Terminal High Altitude Area Defense system at the Pacific Missile Range Facility on Kauai was supposed to shoot down the target. But it didn't launch when the target missile didn't ignite.

The agency says it's investigating why the target missile failed.

The Terminal High Altitude Area Defense system is designed to shoot down ballistic missiles in their last stage of flight ([PHYSORG, 2009](#)).

**Title:** On Heels Of Failed Intercept Test, Missile Defense Leader Excoriates Contractors

**Date:** February 2, 2010

**Source:** [NTI](#)

**Abstract:** Just one day after the Missile Defense Agency failed to achieve an intercept in a major flight test of its Ground-based Midcourse Defense system, its executive director took broad aim at defense contractors for chronic quality-control lapses.

"I'm not going to name names today, but I'm going to tell you we continue to be disappointed in the quality that we are receiving from our prime contractors and their subs -- very, very disappointed," David Altwegg, the MDA executive director, told reporters at a budget briefing yesterday.

He stopped short of blaming quality control for the problems during Sunday's flight test, which began at about 3:40 p.m. local time when a dummy target missile was launched from the Kwajalein Atoll in the Marshall Islands. Roughly six minutes later, a silo-based interceptor was fired from Vandenberg Air Force Base in California, but it failed to hit the target.

The agency [said](#) both the interceptor and target missile "performed nominally after launch" and instead identified a radar system as having malfunctioned.

A Missile Defense Agency spokesman said this week the target missile was intended to mimic the kind of technology that a nation like North Korea or Iran could develop that might someday threaten the United States.

**In six of 16 GMD intercept flight tests since 1999, the missile has failed to hit its target. There have been eight such tests that ended with a successful intercept. In another two, target or missile-decoy failures made it impossible for the main test objectives to be met.**

Prior to this weekend, the most recent intercept attempt occurred in December 2008. An intercept was achieved but decoys failed to deploy, according to officials.

Altwegg said he had "no clue" yet whether poor quality was a factor in this weekend's test failure, but his indictment of contractor performance was so sweeping that such a conclusion down the road might come as little surprise. Quality in manufacturing is widely regarded as important for ensuring that weapons and support systems function as designed.

The MDA executive was specifically asked about his agency's past complaints about quality problems affecting defense contracting giant Raytheon in its Exoatmospheric Kill Vehicle -- a device designed to smash into incoming ballistic missiles as part of the GMD system.

In response, Altwegg took to task virtually every agency contractor "across the enterprise" for "quality design issues, but more in quality of products delivered."

Faulty missile defense components have led to an enormous amount of "rework" that costs taxpayer money -- "the unfortunate aspect," said Altwegg, the agency's No. 3 official. The GMD program carries an estimated \$35.5 billion price tag, [according](#) to the Government Accountability Office.

"I am excusing no one from this conversation," he said, speaking at the Pentagon. "We have problems with all of our [contracting] primes."

A common reason for quality failures across dozens of missile defense efforts has been a "lack of attention to detail," said the official, as he took questions about President Barack Obama's fiscal 2011 budget request for missile defense. "Missilery is all about detail."

One recent example of a quality-control lapse was an early-December test of the Terminal High-Altitude Area Defense system, in which an intercept did not occur because of a target failure, Altwegg said. A Pentagon failure-review board "disclosed a big-time quality problem" as the root cause, he said.

Quality control has been an issue for military procurement for decades and is not unique to the missile defense organization, according to the retired rear admiral.

Asked whether MDA officials bear responsibility for the persistent setbacks, Altwegg said the agency has improved its focus on quality during the nearly eight years he has served there. "We are working this problem assiduously" through MDA personnel monitoring production on-site at contractor plants, but the issue persists, he said.

The Government Accountability Office will meet with MDA leaders about the quality control problems this Thursday, according to Altwegg.

### **Another Test**

Altwegg said it is too early to know what caused Sunday's flight test failure. An MDA news release said the Sea-Based X-band radar -- built by Raytheon for Boeing, the agency's prime contractor -- "did not perform as expected," but the MDA leader declined to elaborate.

A significant amount of data was gathered from the test and it is expected to take months before officials are certain what went wrong, he said.

The agency will conduct an "extensive investigation," according to the MDA statement. A second, independent team will also review the test failure data, which should offer agency officials high confidence in their conclusions, Altwegg told reporters.

Once the organization has determined the cause of the failure and how to rectify it, MDA officials will probably seek to repeat the flight test, he said.

"Our intent, I believe, would be to do it over again when we are ready," he said, noting this would be as "soon" as possible during the current fiscal year, which ends Sept. 30. To pay for a retest, the agency would likely request congressional consent for reallocating an as-yet unspecified amount of 2010 funds from elsewhere in the GMD program, Altwegg said.

In general, though, Missile Defense Agency leaders do not appear to be reconsidering their plan for conducting just one GMD flight test per year through at least 2010, despite repeated calls both in the

Pentagon and on Capitol Hill for more frequent trials of the system under more realistic and challenging conditions.

"We find [that] with the pre-mission analysis that goes on and the post-flight analysis -- to have that done thoroughly and prepare the round and correct things that we discovered on the previous flight test, one year is about the limit and it certainly is a challenge financially," Altwegg said.

A major congressionally mandated review of missile defense -- released yesterday along with the new budget figures -- suggests that increasingly realistic test scenarios are in the offing.

"Before new capabilities are deployed, they must undergo testing that enables assessment under realistic operational conditions," according to the Ballistic Missile Defense Review [report \(NTI, 2010\)](#).

**Title:** Missile Interceptor Fails In Mock Attack

**Date:** February 3, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A malfunction in a radar built by Raytheon Co., caused a U.S. attempt to shoot down a missile mimicking an Iranian attack to fail, the Defense Department has announced.

The \$150 million test, which took place over the Pacific Ocean, followed a Pentagon report noting that Iran's expanded ballistic missile capabilities posed a significant threat in the Middle East to both U.S. and allied forces.

The Pentagon released a review of ballistic missile defense on Monday, which revealed that Iran had developed and acquired ballistic missiles that had the capability to strike targets from the Middle East to Eastern Europe.

This was the first time that a test of the United States' long range defense against a simulated Iranian attack has been performed, though similar tests have been done involving North Korean missiles.

Both the target missile and the interceptor in this weekend's test performed correctly, reports have said, but the Sea-Based X-band radar did not perform correctly according to reports on the Missile Defense Agency's website.

The SBX radar, as it is commonly known, is a major part of the United States' ground based midcourse defense, which is the only response to long range missiles that could be tipped with biological, chemical or nuclear warheads ([Bio Prep Watch, 2010](#)).

**Title:** Missile Defense System Fails Second Test In A Row

**Date:** December 16, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** The sole U.S. defense against long-range ballistic missiles that could carry chemical, biological or nuclear warheads recently failed its second test in a row, according to officials from the Department of Defense.

"The Missile Defense Agency was unable to achieve a planned intercept of a ballistic missile target during a test over the Pacific Ocean today," Richard Lehner, an agency spokesman, said in an e-mailed statement, according to Reuters.

Lehner declined to give a preliminary explanation for the cause of the failure of the Boeing-produced system. The recent setback brings the ground-based midcourse defense's record to eight hits out of 15 attempts, according to the Missile Defense Agency.

"This is a tremendous setback for the testing of this complicated system," Riki Ellison, the head of the Missile Defense Advocacy Group, a booster organization, wrote in a statement, according to Reuters.

Ellison is concerned that the failure raised a cloud of doubt over the deployment of the approximately 30 missile interceptors based in Alaska and California.

The critical test was a repeat of a failed January 31 exercise in which an advanced sea-based radar system did not perform as the DOD had hoped, according to Reuters.

During the December 15 test, an intermediate-range ballistic missile target launched from the Marshall Islands flew successfully, so did a long range interceptor launched from Vandenberg Air Force Base in California.

The sea-based X-Band radar system functioned properly and the interceptor was capable of launching its kill vehicle, designed to collide with the ballistic missile target. The collision never took place and officials will now work to find the cause of the failure. The next test will not occur until the problem is fully identified.

The United States has spent over \$10 billion per year to fund missile defense programs. A team led by Lockheed Martin Corp. and Raytheon are in competition to oust Boeing for the ground-based missile defense program. The contract is valued at \$4.2 billion over the next seven years ([Bio Prep Watch, 2010](#)).

**Title:** Mystery Missile: Launch Of Unknown Missile Caught On Tape In California

**Date:** November 9, 2010

**Source:** [ABC](#)

**Abstract:** Military officials are still unclear as to what caused the "[mystery missile](#)" contrail spotted off the Southern California coast last night, but the most likely theory appears to be that an airplane was responsible.

Some experts believe the "mystery missile" is an optical illusion involving atmospheric conditions and the contrails of a plane flying off in the distance.

Military officials have spent all day trying to determine who or what may have been responsible for what seemed like a mysterious missile launch caught on tape Monday night by a news helicopter off the Southern California coast.

There has been much speculation that the mysterious contrail may have been caused by a missile, a plane or an optical illusion of a plane's contrails.

Defense Department officials say that though there is nothing conclusive, it appears that a plane may have caused the mysterious contrail.

A defense official says the Pentagon has determined there were no scheduled or inadvertent [missile launches](#) off the California coast last night and that U.S. Northern Command has confirmed that there was no foreign military launch off the coast.

In a statement earlier today, Northern Command said they were continuing to investigate the origin of the apparent missile launch, but said they had determined "that there is no threat to our nation, and from all indications this was not a launch by a foreign military."

The contrail of what appears to be a missile streaking into the California sunset was captured on video by a KCBS-TV news helicopter flying above Los Angeles at around 5 p.m. Pacific time.

The crew aboard the helicopter estimated the contrail was approximately 35 miles west out to sea, north of Catalina Island.

### **U.S. Military Says It Did Not Launch Mystery Missile**

The video drew more attention when local news stations were told by Navy and Air Force officials that they did not launch a missile Monday night.

Because the video shows what appears to have been a missile launch at sea, there was speculation that a Navy vessel, perhaps even a submarine, might have launched a missile off the California coast. However, Navy officials determined that none of their vessels had fired a missile.

Vandenberg Air Force Base, north of Los Angeles, is a regular launch point for missile tests, but Air Force officials confirmed that they had no missile activity either on Monday night.

Ivan Oelrich, with the Federation of American Scientists, screened the KCBS-TV video for ABC News and said he could not be certain about what the video shows because it shows characteristics of both a missile launch or perhaps an optical illusion involving a plane's contrail.

Oelrich said it could be a jet contrail because if "it's horizontal goes a long, long distance, almost to the horizon, (then) it looks vertical." But he also said that a plane would have had multiple separate contrails that do not seem to appear on the video.

He speculated that a glint of light seen at the top of the contrail might be the exhaust from a rocket engine, but it "doesn't appear earlier, which is unusual, because if it were a rocket, you would see that continuously."

That could mean the glint of light might be the sun's reflection off the top of a plane, "up high, still in the sunlight while you're down below in the darkness so that could be sun glint."

Oelrich said he does not believe it could have been a secret missile test.

"If they were going to do that and make it secret, they wouldn't launch it 35 miles from Los Angeles, they would launch it in the South Pacific or something, and so it's difficult to conger up some story where that makes sense," he said.

### **U.S. Military Says It Did Not Launch Mystery Missile**

There has been speculation that if the military was not behind the apparent missile firing caught on tape, that it may have been a commercial venture. The U.S. Defense Department said Tuesday it was trying to determine if a missile was launched Monday off the coast of Southern California, and if so, who might have fired it. **Close**

However, even private commercial testing requires coordination with federal aviation and maritime agencies to ensure no civilian aircraft or boats enter a maritime splash or launch area.

The Federal Aviation Administration said it did not approve any commercial launches around the Los Angeles area on Monday.

To add to the mystery of what's on the videotape, the FAA said a radar replay of a large area west of Los Angeles did not reveal any fast moving unidentified targets in that area.

The FAA also said it did not receive any reports of any unusual sightings from pilots who were flying in the area on Monday afternoon ([ABC, 2010](#)).

**Title:** US Officials Warn Failed North Korea Missile Launch Paves Way For Future Tests

**Date:** April 16, 2012

**Source:** [Fox News](#)

**Abstract:** The very public failure of North Korea's latest missile launch lays the groundwork for more testing and potentially more provocative acts by the budding regime of Kim Jong-un, U.S. officials told Fox News.

The rocket tested last week failed about a minute after it was deployed.

Kim Jong-un, in his first public speech, went on to declare that his "first, second and third" priorities are to strengthen the military -- as the regime unveiled a huge display of weapons in a Pyongyang military parade including a purportedly new missile.

"The botched rocket launch is clearly a setback for the North Koreans," one U.S. official told Fox News, while warning that the regime probably will not be deterred.

"The acknowledgment of failure was unprecedented, but it lays the groundwork to say more testing is needed to validate research. We probably haven't seen the last North Korean provocation," the official said.

The public display on Sunday was seen by regional observers as another example of the importance North Korea's leaders place on their weapons-development program, though it's unclear whether the missile on display was real.

Significantly, U.S. officials are not denying that preparations have begun for a third nuclear weapon test. They do not deny that activity had been picked up through satellite imagery -- that shows North Korean workers digging tunnels into the existing mines that were used for tests in 2006 and 2009 ([Fox News, 2012](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#), or by D) the portable petri dish commonly known as the [Trojan condom](#).

**Bio-Terror Scapegoats:** [Africa](#), [Agriculture \(Food & Animals\)](#), [Airports & Air Travel](#), [Al Qaeda](#), [Bio Labs](#), [Bio-Terrorism Is Easy](#), [Bio-Terrorists \(Bio-Hackers\)](#), [Black Market](#), [Bugs & Insects](#), [Censorship / Lack Thereof](#), [Domestic Terrorists](#), [Exotic Animals \(Zoonosis\)](#), [Government Ineptitude](#), [Mail-Order DNA](#), [Mexico](#), [Missile Shield Failure](#), [Mutation](#), [Natural Disaster](#), [No Clinical Trials \(Vaccines\)](#), and [The Monkeys](#).

**Title:** Tinkering With The Genes Of Biological Weapons: Genetic Engineering Is Regularly Used To Produce Lethal Bacteria

**Date:** July 13, 2000

**Source:** [Sunshine Project](#)

**Abstract:** Investigations by the Sunshine Project show that genetic engineering has been used in the past decade to tinker with the genes of biological weapon agents. Researchers in the USA, UK, Russia, Germany and other countries introduced genes into hazardous bacteria that are likely to enhance the biowarfare possibilities of these microbes. Strains have been designed that can withstand antibiotics, are undetectable by traditional equipment, can overcome vaccines, or that cause unusual symptoms, thereby hampering diagnosis. In general, gene transfer can be used to build more effective biological weapons, it could be used to broaden the military biological warfare spectrum, making it more difficult to fight and control bioweapons.

*"Military research seems to be out of control", says Jan van Aken, genetic engineering expert of the Sunshine Project. "Many research projects have a clear offensive potential. To just stick the label 'defense' on it is not enough. We urgently have to draw clear lines and prohibit genetic engineering with biological weapon agents."*

At the same time, it is very unclear that efforts to strengthen the Biological Weapons Convention will succeed in the round of negotiations currently underway in Geneva. In light of the increasing biowarfare threat, the international community decided in 1994 to negotiate a Protocol to strengthen the Biological and Toxin Weapons Convention (BTWC). (1)

Considering that the biowarfare threat is dramatically increasing due to the speedy development of genetic engineering, a Bioweapons Convention that it not updated to reflect new technological realities will not create global security. *"In light of recent advancements in genetic engineering, updating and reinforcement of international law that outlaws bioweapons is urgently needed."* says Edward Hammond of the Sunshine Project's Seattle office. A strong Protocol will be a first step, that enhances transparency,



making it more difficult for countries to conceal a bioweapons program, for example, in the guise of pharmaceutical research.

### **Genetic Engineering: A New Class Of Biological Weapons**

It sounds like science fiction, but it is a deadly reality: lethal microbes, with no cure, invisible to detection systems, and able to overcome vaccines. In 'defensive' programs, researchers in the USA, UK, Russia and Germany have genetically engineered biological weapons agents, building new deadly strains. And this is probably only the tip of the iceberg.

Genetic engineering can be used to broaden the classical bioweapons arsenal. Through genetic engineering, bacteria can not only be made resistant to antibiotics or vaccines, they can also be made even more toxic, harder to detect, or more stable in the environment. By using genetic methods that are standard procedures in thousands of labs worldwide, bioweapons can be made more virulent, easier to handle, and harder to fight. In short, more effective.

Military experts are perfectly aware of the danger of genetically engineered bioweapons, as their traditional defense measures - e.g. detection methods or vaccines - are easily sidestepped by the artificial microbes. The speedy development of genetic engineering is one driving force to strengthen the Bioweapons Convention and establish a verification system.

### **Example 1: Bacteria Causing Unusual Symptoms**

Researchers from Obolensk near Moscow inserted a gene into *Francisella tularensis*, the causative agent of tularemia and a well known biological weapon agent. The gene made the bacteria produce beta-endorphin, an endogenous human drug, which caused changes in the behaviour of mice when infected with the transgenic bacteria. (2) According to the published results, the endorphin gene was not introduced into a fully virulent strain, but only into a vaccine strain.

If inserted into virulent *F. tularensis*, the victims would not show the usual symptoms of tularemia, but instead unusual symptoms that would obscure the diagnosis and delay therapy. Development of symptom-altered BW-agents has been identified as one possible application of genetic engineering for BW purposes by the US Department of Defense. (3)

### **Example 2: Transferring A Lethal Factor To Harmless Human Gut Bacteria**

Genetic engineering could make previously harmless bacteria lethal biological weapons by introducing deadly genes from a highly pathogenic organism. This was done by US researchers as early as 1986. They isolated the gene for the lethal factor of *Bacillus anthracis*, the causative agent of anthrax, and introduced into *Escherichia coli*, a normally harmless gut bacteria. The US team reported that the lethal factor protein was active in *E. coli* and displayed the same deadly effects as it did when in its native *B. anthracis*. (4)

### **Example 3: Antibiotic Resistant Anthrax And Tularemia**

Antibiotic resistance is often used as a marker gene in genetic engineering experiments. However, the very same genes could render biological weapons more dangerous by making agents less treatable. Any experiment with biological weapons agents using antibiotic resistance genes has a strong offensive potential, even if in the context of 'defensive' research. Despite this obvious problem, there is a long list of questionable experiments:

German military researchers at the *Santitaetsakademie der Bundeswehr* in Munich, the main BW research facility of the German army, cultured genetically engineered *Francisella tularensis* subsp. *holarctica* bacteria (5), a close relative of the causative agent of tularemia. An antibiotic resistance marker gene (tetracyclin) was been inserted into these bacteria.

Recently, researchers from Porton Down in the UK used genes conferring resistance to antibiotics for genetic studies in fully virulent strains of anthrax. (6) In the late 1980s, a researcher at the University of

Massachusetts in Amherst also introduced antibiotic resistance genes into anthrax, making it less treatable with antibiotics. (7)

There are even more cases: Researchers from the Institut Pasteur in Paris (8) and from a Russian laboratory in Obolensk (near Moscow) (9) introduced antibiotic resistance genes into anthrax bacteria.

All these studies are allegedly "basic research", where antibiotic resistance is used as a marker gene. But it is obvious that the very same genetically engineered bacteria can be used to design more effective bioweapons compared to the natural anthrax strains.

#### **Example 4: Invisible Anthrax**

In December 1997, the same Russian research group from Obolensk published a paper in a British scientific journal on another effort to genetically engineer anthrax. (10) By putting new genes into fully pathogenic strains of anthrax, the scientists altered anthrax's immunopathogenic properties, making existing anthrax vaccines ineffective against the new genetically-engineered types.

In most cases, detection of bioweapons relies on molecular recognition of the microbe using antibodies similar to the human immune system. Altering the immunogenicity not only overcomes vaccinations; but also the detection systems.

Western military experts were alarmed by this work. The chief of the bacteriology division at the US Army Medical Research Institute of Infectious Diseases (USAMRIID) in Fort Detrick, Md, Col. Arthur Friedlander, commented: "*This is the first indication we're aware of in which genes are being put into a fully virulent strain. They genetically engineered a strain that's resistant to their own vaccine, and one has to question why that was done*". (11)

The Russian researchers also constructed a new vaccine against the new strain. This is of particular importance, as it could enable an army to use such a bioweapon by vaccinating their soldiers against a specific strain, while the enemy remains vulnerable. The case is an example of the frightening potential of genetic engineering applied to biological weapons research ([Sunshine Project, 2000](#)).

**Title:** Losing The Race With Bugs: Bacteria Beats New Drugs

**Date:** April 25, 2002

**Source:** [UCLA](#)

**Abstract:** Cheetahs eat gazelles. The fastest cheetahs catch more gazelles and breed more; and over generations, cheetahs get faster. But gazelles evolve, too. Faster gazelles live longer and breed more; over generations, they get faster, too.

The same evolutionary dynamics apply to humans and bacteria. We develop antibiotics that kill bacteria. They evolve resistance. We develop better drugs. They evolve resistance to the new drugs.

Cheetahs and gazelles evolve at the same pace. From about 1945 to the early 1980s, humans developed new drugs faster than bacteria evolved. But bacteria now are changing faster than our drugs.

The bugs are winning the race. The more antibiotics we use, the quicker they evolve resistant strains.

A common bacterium called pneumococcus, which causes ear and sinus infections as well as more serious illness, first showed resistance to penicillin in the 1960s. Into the early 1990s, only 5% of cases were resistant, according to the Centers for Disease Control and Prevention. By the end of the 1990s, penicillin couldn't touch nearly 40% of cases in some parts of the U.S.

Tuberculosis will kill more this year than last because a drug-resistant strain has evolved. "Strains of five bacterial species capable of causing life-threatening illnesses already evade every antibiotic in the clinician's armamentarium," says Stuart Levy, a Tufts University microbiologist.

The science is clear. The medical establishment is alarmed. The bioterrorism threat intensifies concern. The issue is: what to do?

Think of antibiotic effectiveness as a natural resource, like fish, that we're depleting rapidly, suggests economist Ramanan Laxminarayan of Resources for the Future, a think tank in Washington, D.C. "Everyone harvests this resource, caring only about himself and ignoring the potential harm to others," he says.

Each commercial fisherman profits by catching more fish, no matter how depleted the ocean stocks. Each parent will press a pediatrician for a drug if there's any chance it will cure a child. Yet if every parent and pediatrician does the same, they will speed the evolution of drug-resistant microbes. And what drug company will enlist its marketers to prod doctors to prescribe its antibiotics less?

Until now, the main remedy has been preaching, the equivalent of pleas to commuters to carpool. Government, doctors' groups and insurers are trying to persuade patients and doctors to avoid antibiotics where they won't work, in treating viral infections, for instance.

In northern California, Kaiser Permanente, the big HMO, has reduced antibiotic use by 30% during the past two years by showing doctors how their prescription patterns differ from peers and using posters to educate patients. The CDC, among other things, offers doctors "viral prescription pads" with treatment tips so patients whose ailments can't be helped by antibiotics don't go away empty-handed. It sees signs that this public-relations campaign is succeeding.

Such education is essential, but it won't suffice. So in quiet conversations, scientists and economists are beginning to think about stronger medicine.

One option is discouraging unnecessary drug use by charging consumers more for the most-overused antibiotics or for newer, heavily promoted drugs that ought to be held in reserve. Increasing drug prices -- even if only for people whose insurance policies cover most of the cost -- sounds jarring. But Mr. Laxminarayan draws the parallel to the campaign against smoking, which, he notes, "was accomplished through both cigarette-tax increases and information campaigns" after public pressure overwhelmed opposition from smokers and tobacco companies.

This approach assumes that resistance is simply caused by overuse. It isn't. Higher prices or an antibiotic tax won't solve the problem of incomplete treatment -- not finishing a prescribed dose or, in poor places, not having enough medicine to kill bacteria -- which also gives the bugs an edge.

The bugs also get an edge when doctors all tend to use the same drugs. Despite the famously decentralized U.S. health-care system, the five most commonly used antibiotics account for 80% of all antibiotic prescriptions.

To save money, insurers, hospitals and HMOs often limit the menu of drugs available, reasonably seeking to use the most cost-effective medicine. But using different drugs for the same ailment in different people or at different times, much as farmers rotate crops, may be prudent. This requires more coordination than is possible in the decentralized U.S. system, although some hospitals, prodded by the CDC, are moving in this direction.

Another solution would be to pull ahead of the microbes. A new pneumococcus vaccine will help. But we also need new potent families of antibiotics. We haven't found one in decades, and big pharmaceuticals firms are devoting R&D money to more-lucrative drugs that treat chronic conditions such as cancer or impotence.

So there is talk, and not just from drug companies, of new ways to stimulate research into new antibiotics. One possibility is tinkering with patent rules to make them broader, both to lure research money and to give drug companies more incentive to market drugs with an eye to the evolutionary dangers.

Devising the right remedies and selling them won't be easy. It never is when near-term interests, whether those of patients or of drug companies, diverge from the long-term interests of humankind ([UCLA, 2002](#)).

**Title:** A Weapon Weakened: Antibiotics

**Date:** February 24, 2003

**Source:** [LA Times](#)

**Abstract:** Since hitting the market in 1987, Cipro has been the penicillin of its time, good for knocking out a wide variety of infections. But an increasing percentage of bacteria have grown resistant to this powerful antibiotic, narrowing treatment options and reminding us that microbes find ways to overcome every assault.

Researchers writing in the Feb. 18 issue of the *Journal of the American Medical Assn.* found that in hospital intensive care units, fewer bacteria responsible for respiratory and urinary tract infections are responding to Cipro. An analysis of bacteria samples from hospitals in 43 states plus the District of Columbia found that the percentage of bacteria like *Pseudomonas* and *E. coli* that are susceptible to Cipro fell from 89% in 1990-93 to 76% in 2000.

"The biggest fear is we are losing the battle, that nature can stay ahead of us with mutations," said Dr. Keith Beck, an infectious disease specialist at Harbor-UCLA Medical Center in Torrance.

For now, the arsenal isn't empty. Doctors treating vulnerable hospitalized patients can attack infections with so-called gram-negative bacteria like *Pseudomonas* using existing antibiotics, such as some penicillins and cephalosporins, and aminoglycosides like gentamicin and amikacin. Often, they'll use a combination of these drugs. Instead of overusing fluoroquinolones like Cipro and Levaquin for pneumonia, physicians can still rely on macrolides like erythromycin and clarithromycin (Biaxin) and cephalosporins, which do not create as much gram-negative resistance problems. Although all bacteria have inner-cell membranes, gram-negative bacteria are tough targets because they have an outer membrane that keeps some antibiotics from entering the cell; gram-positive bacteria have a single membrane.

But there's a misperception among consumers that there will always be a new antibiotic around the corner.

"It's not true anymore," said Dr. Stuart B. Levy, director of the Center for Adaptation Genetics and Drug Resistance at Tufts University in Boston. The antibiotic pipeline has slowed in recent years, even as the time it takes for a new drug to lose its effectiveness grows ever-shorter.

For gram-positive bugs, such as streptococcus and staphylococcus, there are powerful new drugs like Zyvox and Synercid and one still in trials called Daptomycin. But for the gram-negatives, there are fewer options. Some promising approaches are coming from small biotechnology companies. Levy started his own to develop new forms of tetracycline that get around the resistance problem. He's also working on molecules that interfere with a bacterium's ability to cause infection.

Although bacteria become resistant through mutations or by picking up resistant genes from other bugs, some of the problem is preventable.

About 75% of all antibiotics prescribed in the United States are given for upper respiratory illnesses: colds, sore throats, bronchitis, sinus and ear infections. Yet, at least half of those prescriptions aren't needed because the infections are caused by viruses, not bacteria. Every time patients take them unnecessarily or improperly -- for example, by not finishing a full course -- the strongest bugs survive the antibiotic hit and flourish.

Levy, founder of the international Alliance for the Prudent Use of Antibiotics, says consumers have come to think antibiotics kill everything: "They believe they're cure-alls; they believe they deserve to have them." And they have ready access through compliant doctors and online pharmacies. He cited the example of Americans stockpiling Cipro after it was prescribed to those potentially exposed to anthrax.

To curb inappropriate use, some hospitals have had success restricting antibiotic prescriptions.

Levy warns that by overusing antibiotics, "we are sowing the seeds of our own destruction. You can't imagine these fabulous drugs are creating in their wake the biggest problem we've ever faced" ([LA Times, 2003](#)).

**Title:** CDC To Mix Avian, Human Flu Viruses In Pandemic Study

**Date:** January 24, 2004

**Source:** [CIDRAP](#)

**Abstract:** One of the worst fears of infectious disease experts is that the H5N1 avian influenza virus now circulating in parts of Asia will combine with a human-adapted flu virus to create a deadly new flu virus that could spread around the world.

That could happen, scientists predict, if someone who is already infected with an ordinary flu virus contracts the avian virus at the same time. The avian virus has already caused at least 48 confirmed human illness cases in Asia, of which 35 have been fatal. The virus has shown little ability to spread from person to person, but the fear is that a hybrid could combine the killing power of the avian virus with the transmissibility of human flu viruses.

Now, rather than waiting to see if nature spawns such a hybrid, US scientists are planning to try to breed one themselves—in the name of preparedness.

The Centers for Disease Control and Prevention (CDC) will soon launch experiments designed to combine the H5N1 virus and human flu viruses and then see how the resulting hybrids affect animals. The goal is to assess the chances that such a "reassortant" virus will emerge and how dangerous it might be.

CDC officials confirmed the plans for the research as described recently in media reports, particularly in a Canadian Press (CP) story.

### **Two ways to make hybrids**

The plans call for trying two methods to create hybrid viruses, CDC spokesman David Daigle told CIDRAP News via e-mail. One is to infect cells in a laboratory tissue culture with H5N1 and human flu viruses at the same time and then watch to see if they mix. For the human virus, investigators will use A (H3N2), the strain that has caused most human flu cases in recent years, according to the CP report.

The other method is reverse genetics—assembling a new virus with sets of genes from the H5N1 and H3N2 viruses. Reverse genetics has already been used to create H5N1 candidate vaccines in several laboratories, according to Daigle. The National Institutes of Health (NIH) said recently it would soon launch a clinical trial of one of those vaccines.

Of the two methods, the co-infection approach was described as slower and more laborious, though closer to what happens in nature.

Any viable viruses that emerge from these processes will be seeded into animals that are considered good models for testing how flu viruses behave in humans, according to Daigle. The aim will be to observe whether the animals get sick and whether infected animals can infect others.

The World Health Organization (WHO) has been "pleading" for laboratories to do this research, because it could provide some evidence to back up the agency's warnings about the risk of a flu pandemic, according to the CP report.

Klaus Stohr, head of the WHO's global influenza program, was quoted as saying that if none of the hybrids caused disease, the agency might be inclined to dial down its level of concern. But if the experiments produce highly transmissible and pathogenic viruses, the agency will be more worried, he said.

### **Safety precautions**

Because of the obvious risks in creating viruses with the potential to spark a pandemic, the work will be done in a biosafety level 3 (BSL-3) laboratory at the CDC in Atlanta, Daigle told CIDRAP News.

"We recognize that there is concern by some over this type of work. This concern may be heightened by reports of recent lab exposures in other lab facilities," he said. "But CDC has an incredible record in lab safety and is taking very strict precautions."

Daigle said the US Department of Agriculture requires that highly pathogenic avian influenza (HPAI) viruses be treated as "Select Agents" and that research on them must be done in BSL-3 labs with "enhancements." These include "special provisions to protect both laboratory workers and the environment."

BSL-3 is the second highest level of laboratory biosecurity. It is used for work with pathogens that may cause serious or potentially lethal disease if inhaled, such as tuberculosis or St. Louis encephalitis, according to the CDC.

CDC experiments with HPAI viruses have to pass reviews by the agency's Institutional Biosafety Committee and Animal Care and Use Committee, Daigle said. The facilities involved are inspected by the USDA and the CDC's Office of Safety and Health, and staff members who work with Select Agents require special clearance.

### **It's been done before**

The upcoming experiments will not break entirely new ground for the CDC, the CP story revealed. The agency already has made hybrid viruses with H5N1 samples isolated from patients in Hong Kong in 1997, when the virus first caused human disease.

The results of that research have not yet been published, and the CDC has said little about them. In the CP report, Dr. Nancy Cox, head of the CDC's influenza branch, commented only, "Some gene combinations could be produced and others could not."

Daigle added little to that. He said, "The reassortment work with the 1997 isolate was intermittently interrupted with SARS [severe acute respiratory syndrome] and then the 2004 H5N1 outbreak. We are currently concentrating our efforts on understanding the pathogenicity of the 2004 strains (non-reassortants) in mammalian models."

He said the CDC hopes to prepare a report on that research "in the near future" ([CIDRAP, 2004](#)).

**Title:** Super-Bacteria Eat Antibiotics For Breakfast

**Date:** April 3, 2004

**Source:** [Discovery](#)

**Abstract:** Antibiotics are meant to kill bacteria, so it might be disheartening to learn that some bacteria can literally eat antibiotics for breakfast. In fact, some species can thrive quite happily on nothing *but* antibiotics, even at high concentrations.

The rise of [drug-resistant bacteria](#) poses a significant threat to public health and many dangerous bugs seem to be developing resistance at an alarming rate. The headline-grabbing MRSA may be getting

[piggybacks from livestock to humans](#), while several [strains of tuberculosis](#) are virtually untreatable by standard drugs.

But a startling new study reveals just how widespread antibiotic resistance really is. Gautam Dantas from Harvard Medical School managed to culture antibiotic-eating bacteria from every one of 11 soil samples, taken from farmland and urban areas across the US. All eleven were positively loaded with a diverse group of bacteria that were extremely resistant to a wide range of antibiotics at high concentrations.

## Soil Super--Bugs

In their natural environment, these soil bacteria are frequently exposed to a massive array of antibiotics from plants and other microbes, and have evolved ways of detecting and evading them. These resistant strains act as a living reservoir of innovative genetic means of resisting antibiotics, known as the '[antibiotic resistome](#)'.

Dantas searched for resistant bacteria by culturing colonies that could grow in solutions where antibiotics were their only source of carbon. He tested 18 different antibiotics that are used to kill a variety of different bacterial species. Some of these were natural, others man-made; some were old, others new. But every single one managed to support at least one strain of bacteria. Six of them, including commonly used drugs like penicillin, vancomycin, ciprofloxacin and carbenicillin, even managed to feed bacteria from all 11 soils.

The degree of resistance in the soil bacteria was nothing short of extraordinary. Dantas cultured a representative set of 75 resistant strains and found that on average, they resisted 17 of the 18 antibiotics at low concentrations of 20 milligrams per litre (full bars in image below). But even at higher concentrations of 1 gram per litre (filled bars in image below), each strain managed to stand firm against an average of 14 out of 18 drugs.

When Dantas studied some of these strains more closely, he found that they nullified the drugs using similar techniques to the drug-resistant versions of disease-causing bacteria. Some shunted the antibiotics out of their cells with molecular pumps, others used enzymes to cut up the drugs, and yet others reprogrammed their own genetic code to deprive antibiotics of their targets.

## Reservoir of Resistance

The real danger is that the soil-living species could provide new defences that more dangerous ones can draw on to shrug off our best drugs. Bacteria are capable of [passing genetic material between one another](#) as easily as two humans might swap business cards, making it trivial for the soil super-bugs to pass their crucial genes on to more dangerous species. To see how easily this could happen, have a look at [this earlier post](#) about how the food poisoning bug *Salmonella* has passed a resistance gene on to the Black Death bacterium.

In principle, bacteria should be more able to successfully take up resistance genes from other closely related species. It's worrying then that Dantas's antibiotic-eaters belonged to such diverse groups. By establishing a family tree of the different strains, he found that they were members of at least 11 different bacterial groups, although over half of them came from just two orders – the *Burkholderiales* and the *Pseudomonadales*. These include a wide variety of species that are known to infect hospital patients with weakened immune systems.

They are known for their large genome sizes (well, large for bacteria anyway) and some groups have suggested that these sizeable genomes allow them to metabolise a wide range of chemicals, antibiotics included. This unusual diet will come as no surprise to many a microbiologist. Bacteria can colonise some of the most extreme environments on the planet and can survive on the most unlikely food sources,



from crude oil to toxic waste. Now, it seems that they can also survive solely on chemicals that are meant to kill them ([Discovery, 2008](#)).

**Title:** Bird Flu Virus Has Mutated Into Form That's Deadly To Humans

**Date:** March 6, 2008

**Source:** [Natural News](#)

**Abstract:** The avian flu has undergone a critical mutation making it easier for the virus to infect humans, according to a study conducted by researchers at the University of Wisconsin at Madison and published in the journal *PLoS Pathogens*.

"We have identified a specific change that could make bird flu grow in the upper respiratory tract of humans," lead researcher Yoshihiro Kawaoka said.

The H5N1 strain of influenza, also known as "bird flu," has decimated wild and domestic bird populations across the world since it emerged between 1999 and 2002. This highly virulent variety of the [flu](#) has been identified as a public [health](#) concern because in the past, varieties of [influenza](#) have mutated and crossed the species barrier to humans.

Since 2003, 329 humans have been confirmed infected with [H5N1](#), with 201 fatalities. The vast majority of these worked closely with infected birds, such as in the [poultry](#) industry.

One of the primary things that keeps [bird flu](#) from infecting humans is that the [virus](#) has evolved to reproduce most effectively in the bodies of [birds](#), which have an average [body](#) temperature of 106 degrees Fahrenheit. Humans, in contrast, have an average body temperature of 98.6 degrees, with temperatures in the nose and throat even lower (91.4 degrees). This vast temperature difference makes it very difficult for the [bird flu virus](#) to survive and grow in the human body.

In the current study, researchers found that a strain of H5N1 has developed a mutation that allows it to thrive in these lower temperatures.

"The viruses that are circulating in Africa and Europe are the ones closest to becoming a human virus," Kawaoka said. But he pointed out that one mutation is not sufficient to turn H5N1 into a major threat to humans.

"Clearly there are more mutations that are needed. We don't know how many mutations are needed for them to become pandemic strains."

"We are rolling the dice with modern poultry [farming practices](#)," warned consumer health advocate Mike Adams, author of the book [How to Beat the Bird Flu](#). "By raising chickens in enclosed spaces, treating them with antibiotics, and denying them access to fresh air, clean water and natural sunlight, we are creating optimal conditions for the breeding of highly infectious diseases that can quickly mutate into human pandemics," Adams said. "Given current poultry [farming](#) practices, it is only a matter of time before a highly virulent strain crosses the species barrier" ([Natural News, 2008](#)).

**Title:** Drugs That Work Against Each Other Could Fight Resistant Bacteria

**Date:** December 13, 2008

**Source:** [Discovery](#)

**Abstract:** When normal bacteria are exposed to a drug, those that become resistant gain a huge and obvious advantage. Bacteria are notoriously quick to seize upon such evolutionary advantages and resistant strains rapidly outgrow the normal ones. Drug-resistant bacteria pose an enormous potential threat to public health and their numbers are increasing. MRSA for example, has become a bit of a media darling in Britain's scare-mongering tabloids. More worryingly, researchers have recently discovered a strain of tuberculosis resistant to all the drugs used to treat the disease.

New antibiotics are difficult to develop and bacteria are quick to evolve, so there is a very real danger of losing the medical arms race against these 'super-bugs'. Even combinations of drugs won't do the trick, as resistant strains would still flourish at the expense of non-resistant ones. Antibiotic combos could even speed up the rise of super-bugs by providing a larger incentive for evolving resistance.

Clearly, fighting the rapidly evolving nature of bacteria is a dead end. So Remy Chait, Allison Craney and Roy Kishoni from Harvard Medical School used a different strategy – they changed the battle-ground so that non-resistant bacteria have the advantage. And they have done so using the seemingly daft strategy of using combinations of drugs that work poorly together, and even those that block each other's effects.

The trio looked at two strains of the common bacteria *Escherichia coli* – one that was normal, and another that was resistant to doxycycline. Doxycycline is widely used to fight off a variety of bacterial invaders, but resistant *E.coli* use a specialised molecular pump to remove the drug. It can withstand 100 times more doxycycline than its normal counterparts.

First, the team hit the two strains with doxycycline and erythromycin, a combination of drugs that work particularly well together and enhance each other's effects. The resistant strain was certainly more vulnerable to this double-whammy, but as expected, it always outperformed the normal bugs. With that advantage and enough time, it would inevitably evolve resistance to both drugs.

But Chait managed to remove this evolutionary impetus by combining doxycycline with a third drug, ciprofloxacin, a combination that would normally be useless. Doxycycline actually blocks the effects of ciprofloxacin, and the two drugs together are weaker than either alone. Predictably, the resistant bug did what it had evolved to do – it pumped out doxycycline. But in doing so, it also unwittingly removed the block on ciprofloxacin, restoring this second drug to its full killing power.

The normal strain encountered no such problem. By leaving the drugs alone, it never faced the full effects of either, and out-competed their more heavily-pummelled resistant cousins.

Chait cautions that it's too early to transfer his findings across to hospital beds. The experiment used non-lethal antibiotic concentrations in a very controlled environment. But they have certainly pointed other researchers down a new and interesting path.

Combinations of drugs that block each other have previously been dismissed by doctors because they would require higher doses. But Chait's study suggests that they could be the key to controlling bacterial drug resistance. We clearly can't stop bacteria from evolving, but we can certainly steer the course of that evolution in our favour ([Discovery, 2008](#)).

**Title:** New Flu Strain Is A Genetic Mix

**Date:** April 24, 2009

**Source:** [Reuters](#)

**Abstract:** A deadly swine flu never seen before has broken out in Mexico, killing at least 16 people and raising fears of a possible pandemic. World Health Organization officials said the flu has killed about 60 Mexicans.

#### **Here are some facts about the virus and flu viruses in general:**

1. The World Health Organization has confirmed at least some of the cases are a never-before-seen strain of influenza A virus, carrying the designation H1N1.
2. Although it's called swine flu, this new strain is not infecting pigs and has never been seen in pigs. The threat is person to person transmission.

3. It is genetically different from the fully human H1N1 seasonal influenza virus that has been circulating globally for the past few years. The new flu virus contains DNA typical to avian, swine and human viruses, including elements from European and Asian swine viruses.

5. The World Health Organization is concerned but says it is too soon to change the threat level warning for a pandemic-- a global epidemic of a new and dangerous flu.

6. When a new strain of flu starts infecting people, and when it acquires the ability to pass from person to person, it can spark a pandemic. The last pandemic was in 1968 and killed about a million people.

7. Seven people in the United States have been diagnosed with the new strain. All have recovered, but the U.S. Centers for Disease Control and Prevention expects more cases.

8. Flu viruses mutate constantly, which is why the flu vaccine is changed every year, and they can swap DNA in a process called reassortment. Most animals can get flu, but viruses rarely pass from one species to another.

9. From December 2005 through February 2009, 12 cases of human infection with swine influenza were confirmed. All but one person had contact with pigs. There was no evidence of human-to-human transmission in those cases.

10. Symptoms of swine flu in people are similar to those of seasonal influenza -- sudden onset of fever, coughing, muscle aches and extreme tiredness. Swine flu appears to cause more diarrhea and vomiting than normal flu.

11. Seasonal flu kills between 250,000 and 500,000 people globally in an average year.

12. In 1976 a new strain of swine flu started infecting people and worried U.S. health officials started widespread vaccination. More than 40 million people were vaccinated. But several cases of Guillain-Barre syndrome, a severe and sometime fatal condition that can be linked to some vaccines, caused the U.S. government to stop the program. The incident led to widespread distrust of vaccines in general ([Reuters, 2009](#)).

**Title:** Swine Flu Smoking Gun? CDC Was Combining Flu Viruses In 2004

**Date:** April 29, 2009

**Source:** [Natural News](#)

**Abstract:** Last week, when what is now called a "swine flu" was first reported to be infecting and killing some people in Mexico, health officials noted it was a strain of flu never before seen. In fact, it is technically incorrect to call this simply a "swine" flu. Analyses showed it's a mixture of swine, human and avian viruses, according to the Centers for Disease Control (CDC). Moreover, it is genetically different from the fully human H1N1 seasonal influenza virus that has been circulating globally for the past few years. **Bottom line: the new flu virus contains DNA from avian, swine viruses (including elements from European and Asian viruses) and human viruses.**

So did this curious mixture just develop naturally, out of the blue? Is it the result of inhumane farming practices, as the Humane Society of the United States (<http://www.hsus.org/>) has suggested, that exposes immune-compromised pigs to all sorts of animal and human feces?

Well, maybe. But let's go back and look at the facts to see if any other scenario could be possible.

First of all, there's the troublesome detail that the virus has elements that come from multiple continents. Then there's the fact that true swine flu is only rarely transmissible to humans -- this flu is spreading human-to-human, most likely because it contains DNA from human flu.

Could someone have deliberately mixed these viruses together? Is that possible? Absolutely.

Was this virus mixing being done artificially in the lab, or had it already been done? Yes.

Who was blending potentially swine, human and/or avian viruses in labs? Were those horrible generic boogie men known to Americans far and wide as "terrorists" doing it? There's no proof of bioterrorism at work here yet. However, there is evidence the United States government has been working on concocting new flu virus blends.

So could the hysteria-provoking, new swine flu have escaped from a lab? Or was it deliberately released as some kind of test? When these kinds of questions are asked, the knee-jerk reaction of the mainstream media (MSM) is to giggle and talk about "conspiracy theories" and to joke about wearing tinfoil hats.

But here's the potential smoking gun, the facts that suggest a potential source of the pandemic could be CDC labs. And at the very least, this possibility deserves thoughtful examination and research.

The University of Minnesota Center for Infectious Disease Research and Policy (CIDRAP) is hardly a place most Americans have heard about and, apparently, the Center's web site has news the MSM isn't familiar with, either. But information they published years ago has now taken on an urgent importance. ***CIDRAP, along with the Canadian newspaper Canadian Press (CP), revealed back in 2004 that the CDC was launching experiments designed to mix the H5N1 (avian) virus and human flu viruses. The goal was to find out how likely it was such a "reassortant" virus would emerge and just how dangerous it might be.*** Of course, it's logical to wonder if they also worked with the addition of a swine flu virus, too.

Here's some background from the five-year-old report by the University of Minnesota research center: "One of the worst fears of infectious disease experts is that the H5N1 avian influenza virus now circulating in parts of Asia will combine with a human-adapted flu virus to create a deadly new flu virus that could spread around the world. That could happen, scientists predict, if someone who is already infected with an ordinary flu virus contracts the avian virus at the same time. The avian virus has already caused at least 48 confirmed human illness cases in Asia, of which 35 have been fatal. The virus has shown little ability to spread from person to person, but the fear is that a hybrid could combine the killing power of the avian virus with the transmissibility of human flu viruses. ***Now, rather than waiting to see if nature spawns such a hybrid, US scientists are planning to try to breed one themselves -- in the name of preparedness.***"

And CDC officials actually confirmed the government had plans for the research. The CIDRAP News folks did a great job covering this important issue, which was apparently mostly ignored by the MSM back in 2004, and CIDRAP News wrote to the CDC for information. This e-mail produced an answer from CDC spokesman David Daigle who admitted the CDC was working on the project in two ways. "One is to infect cells in a laboratory tissue culture with H5N1 and human flu viruses at the same time and then watch to see if they mix. For the human virus, investigators will use A (H3N2), the strain that has caused most human flu cases in recent years," the CIDRAP story stated. This co-infection approach was described as slow and labor-intensive. However, it was a way to produce a new virus that appeared to be closer to what develops in nature.

There was another, faster way CDC scientists could create the mix, too. Called reverse genetics, it involves piecing together a new virus with genes from the H5N1 and H3N2 viruses. Reverse genetics had already been used successfully to create H5N1 candidate vaccines in several laboratories, the CDC's Daigle wrote. "Any viable viruses that emerge from these processes will be seeded into animals that are considered good models for testing how flu viruses behave in humans... The aim will be to observe whether the animals get sick and whether infected animals can infect others," he revealed in his e-mail.

What's more, the CP reported the CDC had already made hybrid viruses with H5N1 samples isolated from patients in Hong Kong in 1997, when there was the first outbreak of that virus, dubbed the "Hong

Kong flu". It is not clear if the results of that research were ever published. Back in 2004, Dr. Nancy Cox, then head of the CDC's influenza branch, would tell the CP only: "Some gene combinations could be produced and others could not."

The CP's report noted that the World Health Organization (WHO) had been "pleading" for laboratories to do this blending-of-viruses research. The reason? If successful, these flu mixes would back up WHO's warnings about the possibility of a flu pandemic. In fact, Klaus Stohr, head of the WHO's global flu program at the time, told the CP that if the experiments were successful in producing highly transmissible and pathogenic viruses, the agency would be even more worried -- but if labs couldn't create these mixed flu viruses, then the agency might have to ratchet down its level of concern.

The 2004 CIDRAP News report addressed the obvious risks of manufacturing viruses in labs that, if released, could potentially spark a pandemic. However, the CDC's Daigle assured the Minnesota research group the virus melding would be done in a biosafety level 3 (BSL-3) laboratory. "We recognize that there is concern by some over this type of work. This concern may be heightened by reports of recent lab exposures in other lab facilities," he told CIDRAP. "But CDC has an incredible record in lab safety and is taking very strict precautions."

Five years later, we must ask more questions. Were those safety measures enough? Was the CDC creating or testing any of these virus mixes in or near Mexico? What other potentially deadly virus combinations has the US government created? Don't US citizens, as taxpayers who funded these experiments, have a right to know? And for all the residents of planet earth faced with a potentially deadly global epidemic, isn't it time for the truth? ([Natural News, 2009](#)).

**Title:** Norway Says Found H1N1 Mutation In Flu Victims

**Date:** November 20, 2009

**Source:** [Reuters](#)

**Abstract:** Norwegian health authorities said on Friday they have discovered a potentially significant mutation in the H1N1 influenza strain that could be responsible for causing the severest symptoms among those infected.

"The mutation could be affecting the virus' ability to go deeper into the respiratory system, thus causing more serious illness," the Norwegian Institute of Public Health said in a statement.

There was no reason to believe the mutation had any implication for the effectiveness of flu vaccines or antiviral drugs made by groups such as Roche ([ROG.VX](#)), GlaxoSmithKline ([GSK.L](#)), Novartis ([NOVN.VX](#)) and AstraZeneca ([AZN.L](#)), the authorities said.

The World Health Organisation said that the mutation did not appear to be widespread in Norway and the virus in its mutated form remained sensitive to antivirals and pandemic vaccines.

A similar mutation had been detected in H1N1 viruses circulating in several other countries, including [China](#) and the United States, in severe as well as in some mild cases, it said.

"Although further investigation is under way, no evidence currently suggests that these mutations are leading to an unusual increase in the number of H1N1 infections or a greater number of severe or fatal cases," the WHO said in a statement.

H1N1, a mixture of swine, bird and human viruses, has killed at least 6,770 people globally, according to its latest update.

In Norway the mutation was found in the bodies of two people killed by the virus and of one person made seriously ill. The two infected by the mutated virus who died were among the first fatalities from the H1N1 pandemic in Norway, the institute said.

It was unclear whether the mutated virus was transmitted among humans, the health authorities said.

"Based on what we know so far, it doesn't seem like the mutated virus is circulating in the population, but rather that spontaneous changes have happened in the three patients," director Geir Stene Larsen at the public health institute said in the statement.

Norway has seen relatively more fatalities in the flu pandemic compared to the size of the population versus other European countries, with 23 confirmed deaths.

Public health authorities have said this could be due to the country being hit early in the pandemic's northern hemisphere winter wave, before a mass vaccination programme got underway.

"Nevertheless, it is important to study if there's still something about the Norwegian fatalities that separate us from other countries, and that make us learn something that strengthens our treatment of the seriously ill," director Bjorn-Inge Larsen at the Norwegian Directorate of Health said.

Dr. Anne Schuchat of the U.S. Centers for Disease Control and Prevention said, "This mutation has been seen sporadically."

She said it is sometimes seen in patients who have mild influenza symptoms.

"I think it is just too soon to say what this might mean long term," Schuchat told reporters in a telephone briefing. (Reporting by Richard Solem; Additional reporting by Stephanie Nebehay in Geneva and [Maggie Fox](#) in Washington; Editing by [Matthew Jones](#) and [Louise Ireland](#)) ([Reuters, 2009](#)).

**Title:** Fighting Bacteria With Bacteria – Common Nose Germ Provides New Weapon Against Superbugs

**Date:** May 19, 2010

**Source:** [Discovery](#)

**Abstract:** Our bodies are under siege, constantly fighting back assaults from disease-causing bacteria. But we are also home to many harmless bacterial species that share our bodies to no ill effects. Now, it seems that these 'commensals' could be our hidden allies against their harmful cousins. In one such ally, a group of scientists has just discovered a potential new weapon against [Staphylococcus aureus](#).

*S.aureus* is incredibly common, colonising the noses of a third of people in the USA, UK, Japan and other countries. Often, these colonies do nothing untoward, but if a full-blown infection sets in, the result can include life-threatening diseases like pneumonia, meningitis, toxic shock syndrome, endocarditis and sepsis. With the rise of [MRSA and other staph strains](#) that shrug off our most common antibiotics, the threat posed by this common nose bug [has never been greater](#).

But *S.aureus* doesn't have our noses to itself. It has to jostle for space with a close relative called [Staphylococcus epidermidis](#). It's the most common commensal in our noses and, indeed, the most common contaminating bacterium in laboratory equipment. *S.epidermidis* is harmless, except in people whose immune systems have been compromised. But more interestingly, it has the ability to stunt the growth of its more infamous cousin. Now, [Tadayuki Iwase](#) from Jikei University has isolated the protein it uses to do so.

Iwase swapped the noses of 88 volunteers and found that virtually all of them were colonised by *S.epidermidis*. However, *S.aureus* had only set up shop in just under a third. On the whole, the two

bacteria seem to be able to co-exist in harmony, but Iwase found that some strains of *S.epidermidis* are anathemas to *S.aureus*.

Specifically, they caused problems for *S.aureus*'s ability to set up [biofilms](#), the bacterial equivalent of cities. Thousands of bacteria swarm within these communities, embedded in a slimy matrix of DNA, proteins and sugars. Within biofilms, bacteria are harder to kill, making them an important public health challenge. But according to Iwase, some strains of *S.epidermidis* not only prevent *S.aureus* from creating biofilms, they also destroy existing ones. People who were colonised by these defensive strains were around 70% less likely to be colonised by *S.aureus*.

To work out the weapon that was keeping the rival bacteria at bay, Iwase let cultures of *S.epidermidis* cut a swath through *S.aureus* biofilms and analysed their secretions when the destruction had reached its peak. He managed to isolate a single protein called Esp or '*S.epidermidis* serine protease' in full. The protein was absent from strains that couldn't wipe out *S.aureus* biofilms and present in strains that could. If Iwase gave the latter bacteria a chemical that negates the Esp protein, or if he removed the esp gene from them entirely, they lost their competitive edge against *S.aureus*.

Esp even works in tandem with our own defensive proteins, including one called hBD2 (human beta-defensin 2) that's secreted by our skin cells. Alone, hBD2 can kill bacteria but it's a bit of a wimp about it, while Esp (for obvious reasons) has no bacteria-killing ability of its own. But together, their powers are far greater, and they effectively kill *S.aureus*, even when it was under the protection of biofilms. (The idea that the two proteins have co-evolved with one another is an intriguing question for another time.)

As a final test, Iwase introduced the competitive strains of *S.epidermidis* into the noses of volunteers who were already colonised by *S.aureus*. Sure enough, these transplanted bacteria eliminated their evolutionary cousins. Even a purified dose of Esp alone did the trick.

These experiments are very exciting. Humans are fighting a pitched (possibly losing) battle against staph and MRSA in particular, and our antibiotic arsenal is falling short. What better source of new weapons than other bacteria that have been fighting the same fight for millennia? Obviously, there's a lot of work to do to turn Esp into a viable treatment, but this study is a promising first step.

Even better, it seems that, for some unclear reason, *S.aureus* can't evolve resistance to Esp. With its biofilms under attack, you would expect *S.aureus* to quickly adapt, but after a year of culturing the two species together, Iwase couldn't find any evidence that of resistance ([Discovery, 2010](#)).

**Title:** Charitable Bacteria Protect Vulnerable Sisters From Antibiotics

**Date:** September 1, 2010

**Source:** [Discovery](#)

**Abstract:** Humans are capable of great charity, taking hits to their bank accounts and bodies to benefit their peers. But such acts of altruism aren't limited to us; they can be found in the simple colonies of bacteria too.

Bacteria are famed for their ability to adapt to our toughest antibiotics. But resistance doesn't spring up evenly across an entire colony. A new study suggests that a small cadre of hero bacteria are responsible for saving their peers. By shouldering the burden of resistance at a personal cost, these charitable cells ensure that the entire colony survives.

[Henry Lee](#) from the Howard Hughes Medical Centre assaulted a vat of *Escherichia coli* with increasingly strong waves of the drug norfloxacin, always using just enough to seriously impede their growth without killing them outright. As expected, the group became more resistant over time. By the end of the experiment, they were shrugging off doses of antibiotics that would have previously killed them.



But Lee found that not all the bacteria were equal. Most still remained vulnerable to the drug, and the group's overall defences were bolstered by a small group of highly resistant individuals. The leaders of the resistance ~~had all developed a mutation in a gene called~~ all had particularly high levels of a protein called tryptophanase. Tryptophanase breaks down the amino acid tryptophan and produces indole, a chemical that acts like a call to arms. It rallies the colony into action.

When bacteria detect indole, they start mass-producing molecular pumps that evict any drugs that have breached their walls. With these molecules, the beleaguered bacteria can pump out norfloxacin faster than it can kill them.

Indole also tells bacteria to start toughening up. In response, the cells tune down certain genes that norfloxacin would normally use to kill them and tune up genes that protect their insides from damage. By producing indole, the most resistant bacteria were prompting changes in their weaker neighbours that greatly increased the amount of norfloxacin they could withstand.

When Lee peered into the genes of the most resistant cells, he found that their own resistance was the result of several personal adaptations that averted death by norfloxacin. They had altered genes that would normally be targeted by the drug, removing its targets. They had switched on genes that protect them from chemical damage or that mass-produce drug-pumps. None of these mutations affect the production of indole; they just gave the mightiest cells the chance they needed to produce this rallying chemical.

When Lee challenged his bacteria with another drug called gentamicin, he found exactly the same thing – a resistant elite promoting the survival of the group by releasing waves of indole. This seems to be a general tactic, rather than a drug-specific one.

Producing indole isn't easy; it takes energy to manufacture. Why should a small number of bacteria shoulder this burden to protect other members of the colony? Lee thinks that relationships are the answer. Having multiplied from common ancestors, the bacteria in the group are all related to one another and carry virtually the same genes. In this light, making a small sacrifice for the sake of genetically identical others is a good move ([Discovery, 2010](#)).

**Title:** Tough Bacteria Use Domesticated Viruses To Resist Antibiotics

**Date:** January 5, 2011

**Source:** [Discovery](#)

**Abstract:** Even bacteria get sick. Tiny though they are, bacteria can be infected by even tinier viruses known as [phages](#). Like tiny hypodermic needles, phages inject their genetic material into their bacterial hosts, turning them into factories for making more phages. The host usually dies in the aftermath. But some bacteria have turned these enemies into their allies. By adding the viruses' DNA into their own genomes, they have become superbugs, able to tolerate harsh environments and shrug off antibiotics.

Once phages have injected their genes into a bacterium, they can make copies of themselves in two ways. The first is a brutish approach. The genes commandeer the host, using it to manufacture new viruses that eventually burst out of the cell – this is the lytic cycle. Alternatively, the phage DNA can infiltrate the bacterium's genome, becoming part of it. When the bacterium divides in two, it copies the phage's genes along well as its own. This is the lysogenic cycle, an altogether stealthier approach to making more phages.

Within the bacterial genome, the viral DNA is called a prophage. After being copied many times over in these new surroundings, it can pop out again to create a new phage. The prophage is little more than a genetic parasite. But sometimes, a prophage gets trapped by a crippling mutation. Unable to pop out, it becomes a genetic fossil, forever stuck within its host and destined only to preserve a trace of a past infection.

These captives are called cryptic prophages and they can make up a fifth of a bacterium's DNA. Their existence is puzzling. Bacteria are known for having small, streamlined genomes, yet in they have foreign and potentially harmful viral DNA loitering among their genes. Why?

To find out, Xiaoxue Wang from Texas A&M University found all nine cryptic prophages from the common bacterium *Escherichia coli* and, with care and precision, snipped them all out. And to his surprise, the bacteria were the worse for it.

The prophages weren't essential by any means. Without them, the bacteria survived quite reasonably, although they grew more slowly than normal strains. But they proved to be wimps when challenged with difficult conditions. They became up to 400 times more sensitive to antibiotics. They succumbed more readily to extremely salty or acidic conditions. And they were almost completely unable to form biofilms – fortified 'cities' where the microbes gather under the shelter of substances that they themselves secrete.

In many of these cases, Wang could weaken the bacteria by removing a single prophage, which suggests that many of the genes are active parts of the host. The cryptic prophages are no longer selfish parasites, nor are they truly passive fossils. Rather, they have been domesticated to serve their host.

There are other examples of phages bestowing important powers upon the bacteria they infect. *E.coli* is typically harmless but if it gets infected with the right phage, it can turn into a monster that causes dysentery. The phage inserts two genes into the bacterium's genome, which allow it to produce poisons called [Shiga toxins](#). Phages carry the CTX toxin that the bacterium *Vibrio cholerae* needs to cause cholera. Phages allow the bacteria that causes anthrax to find [shelter in the guts of earthworms](#). Phages even allow [bacteria to come to the aid of aphids](#). But in these cases, the phage genes need to pop out of their host. In the case of the cryptic prophages, even though the viral genes stay put, the bacterium still reaps the benefits.

Bacteria are great survivors, able to adapt to a wide variety of conditions, from [oil-soaked oceans](#) to [arsenic-rich lakes](#) to [antibiotic-treated humans](#). Wang's study suggest that phages could provide bacteria with new ways of coping with these environments, maybe even acting as vehicles for transporting genes from one species to another. He writes, "In effect, the cell uses the tools it obtained from its former enemy, phage, to cope with new environments."

Now that we know about these alliances, we could use them to our advantage. Wang suggests that we could find new ways of preventing bacteria from resisting our antibiotics by blocking the proteins produced by their domesticated viruses ([Discovery, 2011](#)).

**Title:** Fighting Evolution With Evolution – Using Viruses To Target Drug-Resistant Bacteria

**Date:** May 31, 2011

**Source:** [Discovery](#)

**Abstract:** We are losing the war against infectious bacteria. They are becoming increasingly resistant to our antibiotics, and we have few new drugs in the pipeline. Worse still, bacteria can transfer genes between each other with great ease, so if one of them evolves to resist an antibiotic, its neighbours can pick up the same ability. But [Matti Jalasvuori](#) from the University of Jyväskylä doesn't see this microscopic arms-dealing as a problem. He sees it as a target.

Usually, antibiotic-resistance genes are found on rings of DNA called plasmids, which sit outside a bacterium's main genome. Bacteria can donate these plasmids to one another, via their version of sex. The plasmids are portable adaptations – by trading them, bacteria can rapidly respond to new threats. But they aren't without their downsides. Plasmids can sometimes attract viruses.

Bacteriophages (or “phages” for short) are viruses that infect and kill bacteria, and some of them specialise on those that carry plasmids. These bacteria may be able to resist antibiotics, but against the phages, their resistance is futile.

Scientists have known about these plasmid-hunting phages for over four decades, but Jalasvuori has only now shown that they could prove useful to us. He found that the phages can dramatically reduce the level of antibiotic resistance in colonies of bacteria, by selectively assassinating the plasmid-carriers.

Jalasvuori worked with two common gut bacteria – *Escherichia coli* and *Salmonella enterica* – both of which carried plasmids with antibiotic-resistance genes. In the absence of phages, all of the bacteria resisted antibiotics. When Jalasvuori added a phage called PRD1, that proportion fell to just 5% within 10 days.

The bacteria adapted to the phage assault by jettisoning their plasmids, and with them, their antibiotic-resistance genes. These survivors were now resistant to *phages*, but the vast majority of them could once again be killed by antibiotics.

The method isn't perfect. A small proportion of the bacteria resisted both phages *and* antibiotics. However, Jalasvuori found that they also formed smaller colonies and had lost the ability to swap genes between one another. Their invincibility came at a substantial cost – compared to normal cells, they were hobbled eunuchs.

Targeting plasmids is a clever strategy that uses the rapid evolution of bacteria against them. Rather than coming up with new weapons in an ever-escalating arms race, Jalasvuori made it too costly for bacteria to keep their defences. It's like tackling gun crime by penalising gun ownership rather than developing better bullet-proof vests.

However, Jalasvuori is refreshingly cautious about his work. He says, “There are a number of important caveats to these promising preliminary results.” For a start, his bacteria evolved under the threat of phages, but not antibiotics. If they had been exposed to both, there would almost certainly have been more double-resistant strains, which could have ultimately found ways of getting over their weaknesses.

On top of that, not all plasmids are the same; some could potentially hide from threatening phages, and go on to harbour resistance genes. Finally, as Jalasvuori writes, “As with all test-tube studies, the relevance to natural environments is unclear.”

It's debatable whether this would ever lead to a practical way of dealing with drug-resistant microbes, but it's certainly a lead. And with a problem as worrying as antibiotic resistance, every lead is an interesting one ([Discovery, 2011](#)).

**Title:** House Mice Picked Up Poison Resistance Gene By Having Sex With Related Species

**Date:** July 21, 2011

**Source:** [Discovery](#)

**Abstract:** Since 1948, people have been [poisoning unwanted rats and mice with warfarin](#), a chemical that causes lethal internal bleeding. It's still used, but to a lesser extent, for rodents have become increasingly resistant to warfarin ever since the 1960s. This is a common theme – humans create a fatal chemical – a pesticide or an antibiotic – and our targets evolve resistance. But this story has a twist. [Ying Song](#) from Rice University, Houston, has found that some house mice picked up the gene for warfarin resistance from a different species.

Warfarin works by acting against vitamin K. This vitamin activates a number of genes that create clots in blood, but it itself has to be activated by a protein called [VKORC1](#). Warfarin stops VKORC1 from doing its job, thereby suppressing vitamin K. The clotting process fails, and bleeds continue to bleed.

Rodents can evolve to shrug off warfarin by tweaking their *vkorc1* gene, which encodes the protein of the same name. In European house mice, scientists have found at least 10 different genetic changes (mutations) in *vkorc1* that change how susceptible they are to warfarin. But only six of these changes were the house mouse's own innovations. The other four came from a close relative – the [Algerian mouse](#), which is found throughout northern Africa, Spain, Portugal, and southern France.

The two species separated from each other between 1.5 and 3 million years ago. They rarely meet, but when they do, they can breed with one another. The two species have identifiably different versions of *vkorc1*. But Song found that virtually all Spanish house mice carry a copy of *vkorc1* that partially or totally matches the Algerian mouse version. Even in Germany, where the two species don't mingle, a third of house mice carried copies of *vkorc1* that descended from Algerian peers.

What does the Algerian version of the gene do? Song found out after getting a tip from a pest control officer who she works with. He told her that he was having trouble getting rid of house mice in a German bakery, even after trying a powerful second-generation rodenticide called bromadiolone, or "[super-warfarin](#)".

The officer sent over some of these resistant mice and when Song looked at their genes, she found a surprise. Both copies of their *vkorc1* genes were perfect matches for the version carried by Algerian mice, but the rest of their genes showed them to be house mice. This tiny out-of-place gene made all the difference – it made the house mice high-invulnerable to warfarin and its chemical relatives. Super-warfarin kills around 85% of normal house mice, but it only worked against 9% of the German ones with the Algerian gene.

By the time humans developed warfarin, Algerian mice already had a head-start in resisting it. These rodents live in open, scrubby habitats and they feed mostly on seeds. They don't get a lot of food that's rich in vitamin K, such as leafy green vegetables and Song thinks that their *vkorc1* genes have adapted to help them cope with this vitamin deficiency – indeed, it's one of the fastest-evolving genes in its entire genome.

It just so happens that the same adaptations also allow the mice to resist pesticides like warfarin that target vitamin K. It's probably no coincidence that other rodents which specialise on grains – such as the golden hamster and Egyptian spiny mouse – also tend to tolerate warfarin-based chemicals.

The Algerian mice transferred their resistance to house mice by breeding with them, somewhere between 5 and 32 years ago. Hybrids between the two species would normally suffer from physical problems that limit their survival in the wild, and around half of them are sterile.

But these mice were buoyed by their warfarin-resistant copies of *vkorc1*. At a time when humans were using warfarin and related poisons, these hybrid mice had suddenly gained a valuable defence, one powerful enough to compensate for their other disadvantages. They survived and mated with other house mice, spreading the resistance gene to their own pups.

In this way, the mice are rather reminiscent of bacteria. Individual bacteria can develop genetic tweaks that render them invulnerable to antibiotics, but they can also pick up such mutations from one another. They do so via their equivalent of sex – a process called conjugation where genetic material passes across physical bridges, established across two bacteria. The house mice have done something similar, picking up a warfarin-resistant version of *vkorc1* by having sex with Algerian mice.

Humans were probably responsible for these lucky liaisons. The two species used to live in completely different parts of the world. They would never have met, had humans not brought house mice with them as they expanded into Western Europe. Once the two species showed up in the same place, they started mating. Later, humans were again responsible for giving the hybrids an edge over their pure-bred house mouse relatives. Our attempts to kill them merely unveiled a strength that had been hiding for centuries ([Discovery, 2011](#)).

**Title:** Bacteria: Resisting Antibiotics Since At Least 30,000 BC

**Date:** August 31, 2011

**Source:** [Discovery](#)

**Abstract:** The [rise of drug-resistant bacteria](#) is one of the most important threats facing modern medicine. One by one, our arsenal of antibiotics is coming up short against microbes that can pump them out, slip under their notice, deactivate them, or even eat them. But these tricks aren't new. Bacteria have been defeating antibiotics for millennia, long before [Alexander Fleming noticed a piece of mould](#) killing off bacteria in a Petri dish. And the best proof of that longstanding struggle has just emerged from the ice-fields of Alaska.

In 30,000-year-old samples of frozen soil, [Vanessa D'Costa and Christine King](#) from McMaster University have found a wide variety of antibiotic-resistant genes. They would have allowed ancient bacteria to shrug off many modern drugs such as tetracyclines, beta-lactams and vancomycin.

Vancomycin resistance is especially interesting. This drug has traditionally been used as weapon of last resort, a drug to use when all others have failed. When vancomycin-resistant bacteria first emerged in 1987, it was a [surprising blow](#). Since then, resistant versions of more common bacteria, such as staph (VRSA) have reared their heads.

These superbugs neutralise vancomycin using a trio of genes known collectively as vanHAX. Together, they alter the protein that's attacked by the drug, rendering it useless. D'Costa and King found that their ancient sequences include the entire vanHAX cluster. They even resurrected these ancient genes, created proteins from them, and showed that they have the same shape, and do the same thing, as their modern counterparts.

D'Costa and King write that their results disprove the idea that antibiotic resistance is a modern phenomenon. Instead, it's been part of bacterial life long before the modern use of antibiotics. But I'm really not sure how many people would still hold to that view. First, many antibiotics come from natural sources. Penicillin, the first to be synthesised, famously comes from Fleming's surreptitious mould. These natural antibiotics evolved to keep bacteria at bay between 40 million and 2 billion years ago, so it's extremely likely that bacteria have been resisting them for just as long.

Second, we know that the environment is teeming with resistance genes. In her own earlier study, D'Costa found that soil bacteria are a [massive reservoir for resistance genes](#) – a “resistome” – which infectious bacteria could draw upon. Meanwhile, Gautam Dantas found that our soils are so full of resistant bacteria that random sampling produced strains that not only resist antibiotics, [but actually eat them](#). He also found that the bacteria in our guts are [another reservoir of resistance](#).

Regardless, D'Costa and King's point stands: they have certainly found the oldest known examples of resistance genes. There have been similar claims in the past, but all of them controversial. Bacteria are so omnipresent that any team claiming to have found ancient samples must bend over backwards to prove that these aren't modern contaminants. And none of the previous groups did this well enough, which means that their claims have not been replicated.

To show that their samples are authentically ancient, D'Costa and King pulled out all the stops. They did all of their lab work in special clean rooms. They showed that their samples included DNA from other

animals that lived at the right time, such as mammoths, but nothing from species that are common today, like elk, moose or spruce. They even sprayed their drilling equipment, and the surface of their unearthed ice cores, with glow-in-the-dark bacteria. This way, they could immediately tell if anything from the outside world had leached into the interior parts of the cores – the parts where they drew their samples from. Nothing had.

So what does this mean for the problem of antibiotic resistance today? Is this an old problem that is being blown out of proportion? Can we let the wanton use of antibiotics in modern healthcare and agriculture off the hook? Hardly. These conditions still create intense evolutionary pressures that favour the rise of resistant bacteria. The fact that resistant genes are widespread and ancient does not change that. It simply means that in times of need, beleaguered bacteria have a vast and longstanding range of defences to draw from. For every new sword that we fashion, there is a millennia-old shield lying around, just waiting to be brandished again ([Discovery, 2011](#)).

**Title:** FAO Warnings Follow Rise In Replikins Count For Both H5N1 And Swine Flu (H1N1)

**Date:** August 31, 2011

**Source:** [Replikins](#)

**Abstract:** The possible combination of influenza strains H1N1 (high infectivity) and H5N1 (high lethality) is a matter of global concern (1, 2). Bioradar UK Ltd announced today (3) first, that the Replikin Counts of the two virus strains have risen simultaneously, not seen previously. Additionally, the rise is to their highest levels in 50 years (H1N1, 16.7; H5N1, 23.3), and that clinical outbreaks of each strain are now occurring. These simultaneous conditions may increase the risk that the two virus strains might come into contact with each other more frequently, facilitating transfer of genomic material to form a hybrid ([Replikins, 2011](#)).

**Title:** Five Easy Mutations To Make Bird Flu A Lethal Pandemic

**Date:** September 16, 2011

**Source:** [New Scientist](#)

**Abstract:** H5N1 bird flu can kill humans, but has not gone pandemic because it cannot spread easily among us. That might change: five mutations in just two genes have allowed the virus to spread between mammals in the lab. What's more, the virus is just as lethal despite the mutations.

"The virus is transmitted as efficiently as seasonal flu," says Ron Fouchier of the Erasmus Medical Centre in Rotterdam, the Netherlands, who reported the work at a [scientific meeting on flu](#) last week in Malta.

"This shows clearly that H5 can change in a way that allows transmission and still cause severe disease in humans. It's scary," says [Peter Doherty](#), a 1996 Nobel prizewinner for work in viral immunology.

H5N1 evolved in poultry in east Asia and has [spread across Eurasia since 2004](#). In that time 565 people are known to have caught it; 331 died. No strain that spreads readily among mammals has emerged in that time, despite millions of infected birds, and infections in people, [cats](#) and [pigs](#). Efforts to create such a virus in the lab have failed, and some virologists think H5N1 simply cannot do it.

The work by Fouchier's team suggests otherwise. They first gave H5N1 three mutations known to adapt bird flu to mammals. This version of the virus killed ferrets, which react to flu viruses in a similar way to humans. The virus did not transmit between them, though.

Then the researchers gave the virus from the sick ferrets to more ferrets - a standard technique for making pathogens adapt to an animal. They repeated this 10 times, using stringent containment. The tenth round of ferrets shed an H5N1 strain that spread to ferrets in separate cages - and killed them.



The process yielded viruses with many new mutations, but two were in all of them. Those plus the three added deliberately "suggest that as few as five are required to make the virus airborne", says Fouchier. He will now test H5N1 made with only those five.

All the mutations have been seen separately in H5N1 from birds. "If they occur separately, they can occur together," says Fouchier. Malik Peiris of the University of Hong Kong, a flu virologist, says this means H5N1 transmissible between humans can evolve in birds, where it is [circulating](#) already, without needing to spend time in mammals such as pigs.

[Peter Palese](#), a flu specialist at Mount Sinai Medical Center in New York City who has expressed doubts that H5N1 can adapt to mammals, is not convinced.

"Ferrets are not humans," he says. "H5N1 has been around for a long time" and failed to mutate into a form that can jump between people.

"That it has not adapted doesn't mean it cannot," replies Jeffery Taubenberger of the US National Institutes of Health in Bethesda, Maryland, who studies how a [bird flu became the deadly pandemic of 1918 \(New Scientist, 2011\)](#).

**Title:** Making Viruses The Natural Way

**Date:** December 2, 2011

**Source:** [Discovery](#)

**Abstract:** When it comes to [viruses](#), we humans like to pretend we know much more than we really do. It's understandable. The influenza virus, for example, has only ten genes. It is just a shell that delivers genes and proteins into a host cell, where it hacks the biochemistry to manufacture more viruses. It seems like such an easy biological problem to solve.

Yet the flu and other viruses hide a complexity which virologists have only partly uncovered. The idea that someone could intentionally design a super-lethal virus from scratch—as plausible as it may seem—is, for now, a delusion.

If you've been following the news this past week, you may think I've just been proven wrong. Reports have surfaced about two teams of scientists producing flu viruses that could potentially kill millions if they escaped from the labs. The scientists have the viruses locked up tight for now, and government officials are debating whether they can publish their results. ([New Scientist](#) and [Science](#) have excellent reports.)

So is this evidence that scientists have become viral Franksteins, who can engineer pathogens at will? Hardly.

The new research is part of a long-running struggle to understand how new flu strains arise. It's clear that all flu viruses that infect humans ultimately evolved from viruses that infect birds. From time to time, people can pick up these viruses, which infect their airway. Depending on the strain, bird flu may be harmless or lethal to humans. But for the most part, it can't get from one human to another. It's too well adapted for life in birds.

On rare occasion, a bird flu does manage to adapt to humans. It may experience natural selection, it may pick up some genes from human flu viruses, or both. Scientists are still trying to figure out what it takes for a flu virus to make this transition. It's an important question, not just as a matter of fundamental biology but as a matter of global health. When new bird flus jump to humans, we lack immune defenses against them, and they can thus cause worldwide pandemics.



Flu experts have had their eye on one strain of bird flu in particular for a while now: [H5N1](#). It's proven extraordinarily lethal, and yet, since it first came to light in 1997, it hasn't managed to make the big leap and start spreading from person to person. If you get H5N1, you're in big trouble. But not many people get it. Yet.

Does this mean that H5N1 just doesn't have what it takes to become the next great pandemic? Or does it mean the virus simply hasn't evolved the right recipe yet?

Scientists have tried to answer this question by tinkering with the virus. Instead of trying to make a virus that spreads among people, they infected ferrets, which turn out to have much the same experience with the flu as we humans do. In April, CDC scientists published the [latest](#) of these studies. They focused their attention on a protein called hemagglutinin, which flu viruses use to get into host cells. Based on earlier experiments, the CDC scientists reasoned that the right tweak to the structure of hemagglutinin in H5N1 could switch it from binding strongly to bird cells to mammal cells.

But their rational tweaks failed. They concluded that there was a lot more to becoming a human flu that we don't yet understand.

The studies that have now hit the news have succeeded where other experiments have failed. The difference is that instead of trying rational tweaks, the scientists sat back and let evolution do the tweaking.

According to the news reports, the scientists used a tried-and-true method known as serial passage. You infect an animal. It gets sick. You wait for the virus to replicate inside its animal host—as new mutants arise and natural selection favors some mutants over others—and then take some viruses from the sick animal and infect a healthy one. You repeat this, moving the virus from host to host.

Interesting things can happen when you let viruses evolve under these conditions. Natural selection can produce viruses with many new mutations, which together let them reproduce faster in the lab than their ancestors. And those viruses, in some cases, can be a lot more dangerous than their ancestors.

Back in 2007, for example, a virologist named Kanta Subbarao and her colleagues [transformed the SARS virus this way](#). SARS evolved from a bat virus, crossing over into humans in 2003. It killed over 900 people before it mysteriously disappeared. Subbarao wanted to find a way to study SARS in lab animals, such as mice. Mice normally don't get sick from human SARS viruses, though, even though the virus can replicate at a low rate inside them. Even when mice are genetically engineered so that they can't develop an immune system, SARS can't harm them.

So Subbarao and her colleagues that instead of changing the mice, they'd change the virus. They inoculated mice with the SARS virus, gave it a chance to replicate inside them, and then isolated the new viruses to infect new mice.

Over the course of just 15 passages, it changed from a harmless virus into a fatal one. One sniff of SARS was now enough to kill a mouse.

As Martin Enserink [reports](#) in *Science*, the new experiments on bird flu were similarly effective. They turned H5N1 into a ferret flu in just 10 generations. By the time the scientists were done, they no longer had to ferry the flu from one ferret to the next. A healthy ferret just had to be placed near a sick one; the virus could travel through the air. When they examined the new strain, they discovered five mutations in two genes. All five mutations have been found in natural H5N1 viruses—just not all in one virus.

A mammal-ready flu virus was beyond human reason, in other words, but it was fairly easy for evolution to find, given the right conditions. That suggests that H5N1 may not have far to evolve to make us its host.

Of course, a serial passage experiment is not identical to the flu's natural world, where it circulates among millions of birds and sometimes encounters people. But it's disturbingly close.

And if it's so easy for mutations to turn H5N1 into a human flu, the experimental viruses have [a lot to tell us](#) about what we may be facing in the future. There's no point in condemning the scientists for tampering with nature. They were watching nature do what it does disturbingly well ([Discovery, 2011](#)).

**Title:** The Polio Genome

**Date:** 2012

**Source:** [NMAH](#)

**Abstract:**

It's now possible to go from data printed on a piece of paper or stored in a compute and, without the organism itself, re-construct a life form.

John LaMontagne, National Institute of Allergy and Infectious Diseases, 2002

A [genome](#) is the genetic material of an organism. In 1981, two different research groups, Vincent Racaniello and David Baltimore at Massachusetts Institute of Technology and Eckard Wimmer's team at State University of New York, Stony Brook, published the [poliovirus](#) genome. They used an [enzyme](#) to switch the single strands of viral ribonucleic acid—[RNA](#)—to double strands of deoxyribonucleic acid—[DNA](#)—and then determined the sequence of adenine, thymine, guanine, and cytosine encoding the five molecules that are the substance of the virus's existence.

Poliovirus lacks the ability to correct its mutations, so its genome evolves at one to two nucleotide substitutions per week. It is always changing.

In 2002, investigators at the State University of New York in Stony Brook used the published genetic sequence to synthesize a DNA version of poliovirus. Then they used an enzyme to convert the DNA to RNA and grew the virus in a cell-free extract. Animal tests showed that the synthesized poliovirus caused [paralysis](#).

"I did not use any machine for sequencing the poliovirus genome. It was all done by hand—my hands! I used what was known as the 'Maxam-Gilbert' method, in which four different chemical reactions are carried out on the DNA. The products are then fractionated on thin polyacrylamide gels, which were poured manually, run, and then carefully removed from the plates, dried, and exposed to X-ray film. The sequencing 'ladders' were then read by myself on a light box and entered manually into a computer. But we didn't have individual computers back then, so I used a terminal hooked up to an MIT central computer."

—Vincent Racaniello, 1981 ([NMAH, 2012](#)).

**Title:** Bird Flu Mutation Study Stopped In Fear Of Deadly Global Outbreak

**Date:** January 21, 2012

**Source:** [Russia Today](#)

**Abstract:** Under pressure to put their research on hold due to fear of a biological disaster, an international team of scientists have voluntarily suspended their study on an advanced, incredibly deadly mutation of the H5N1 bird flu.

In an effort to better understand the deadly bird flu virus, Ron Fouchier of Erasmus Medical College in the Netherlands, Adolfo Garcia-Sastre of Mount Sinai School of Medicine in New York and Yoshihiro Kawaoka of the University of Wisconsin, Madison have been slaving over their study of the avian influenza. In conducting their own research, the team of scientists was able to mutate the original H5N1 virus into a much more lethal form to see how the outbreak could increase in intensity if not controlled outside of the lab. As word came around late last year that their research had returned a variation able to

induce an international outbreak, however, the scientific community urged them to abandon their study in fear that the mutated strain would escape the lab and cause a deadly, worldwide outbreak.

With the fear failing to subside weeks later, the team of scientists has temporarily halted their research.

In its natural form, the bird flu virus has led to nearly 600 known cases and 340 deaths since it was discovered in 2003. That year there were only four outbreaks, all in East Asia, although in the years since an outbreak has claimed lives as far west as Egypt. The scientists were studying what damage a mutated strain of the virus could bring, but the US National Science Advisory Board for Biosecurity cautioned them to refrain from publishing the results of their finding, fearful that it would influence budding bioterrorists to use the study to create their own strain and launch an epidemic.

Despite the Board's urging, others in the science community were skeptical. *"In the end, is the likelihood of misuse outweighed by the danger of beginning a Big Brother society?"* Professor Wendy Barclay of Imperial College London asked the Daily Mail last month.

The researchers say in a letter published in the journals Nature and Science on Friday that they will take a two-month break from their efforts. Since news of their study caught wind, the US government, the World Health Organization and other international bodies have been evaluating a way to go about publishing the findings in periodicals eventually, taking into account their research but avoiding the publishing of a how-go guide for biological warfare.

*"We realize that organizations and governments around the world need time to find the best solutions for opportunities and challenges that stem from the work,"* the scientists write.

*"We hope that by having a calm and reasoned discussion of the facts, scientists and biosecurity experts can reach a better understanding and find ways to enable the research to go forward while minimizing risks,"* adds Kawaoka ([Russia Today, 2012](#)).

**Title:** Big Pharma Creates Resistant "White Plague" Through Mass Drugging

**Date:** March 21, 2012

**Source:** [Natural Society](#)

**Abstract:** Thanks to widespread and unnecessary usage of antibiotics throughout the modern world, a heavily drug-resistant form of tuberculosis is now striking fear into the hearts of scientists and doctors alike. Affecting both poor and rich, those affected with the disease are put into quarantine and injected with a large number of super drugs. If the disease were to spread and develop, tuberculosis experts are worried that medical professionals would be helpless to stop it — at least when it comes to more of big pharma's drugs. Natural solutions do exist, and they don't involve the very drugs that *spawned* the 'white plague' in the first place.

India is receiving the bulk of the blame for spurring on the drug-resistant killer, as the country is known for its massive overuse of antibiotics. In fact, India has the most cases of multi-drug resistant tuberculosis in the world, with more than 100,000 cases of the disease. While multi-drug resistant tuberculosis is still quite deadly, it is the 'extensively drug-resistant' and '*totally* drug-resistant' tuberculosis that worries many health organizations and officials.

### **'Totally a Man Made Disease'**

Make no mistake that this is not a 'natural' evolution of disease, but a result of excessive drug use made possible by big pharma and mainstream health officials. Even members of the World Health Organization's 'Stop TB Partnership' are outraged over the man-made disease progression, with member Lucica Ditiu [stating that](#) the drug-resistant TB "is a totally man-made disease". Dr. Zarir Udwadia, also a TB specialist from India, had similar statements, explaining that that resistant strains were "an accident waiting to happen."

Dr. Udwardia published a report in the journal *Clinical Infectious Diseases* last year documenting four cases of totally drug-resistant tuberculosis. Currently, he has about twelve cases of the resistant disease with no treatment options left, and three have already died. Each medicine the doctor used to combat the mutated bacteria failed, with the bacteria immune to 12 drugs total. Dr. Udwardia explains that to even get to the point of developing such a drug resistant strain, it requires severe misuse of antibiotic drugs:

“To get to this stage, you have to have amplified resistance over years, with loads of misuse of (antibiotic) drugs. And no other country throws around second-line drugs as freely as India has been doing.”

### **Real Solutions**

It is clear that the resistant strain is a real threat to public health, with many experts concerned about a potential pandemic. Unfortunately these very same individuals who blow the whistle over the new resistant ‘white plague’ being a man-made disease are turning to even more pharmaceuticals to ‘treat’ the condition. This is a serious web of drug use, with drugs creating problems that require even *more* drug usage. There’s simply no room for a cure within this drug paradigm, because even if they make a drug powerful enough to wipe out the resistant tuberculosis bacteria, it comes with an onslaught of symptoms that ‘require’ more drugs.

In one case of treatment, for example, Anna Watterson was given so many drug injections in an attempt to treat the resistant disease that she was heavily bruised, constantly nauseous, and *unable to go out into the sun*.

Instead of subjecting yourself to this ‘drug web’, you can utilize natural solutions that will also serve to enhance other biological aspects of your life as well. Vitamin D3, for example, can not only boost your overall immunity and resistance to tuberculosis, but it can also help fight the disease once you’ve been infected. Scientists [have even found](#) that [vitamin D](#) intake can significantly reduce tuberculosis associated mortality on a global scale. But what if you’re infected with the totally resistant mega bacteria?

Garlic [has been found](#) to outpace drugs in the treatment of resistant tuberculosis, putting pharmaceuticals to shame and of course boosting your overall health in the process. This has been proven by more than one piece of peer-viewed research, with scientists finding garlic to be one of many natural solutions that should be considered by all medical professionals. Amazingly, there are [43 other](#) natural substances documented as powerful solutions to tuberculosis, virtually all of which most doctors ignore. In the [abstract](#) of the study from the University of Health Sciences in Pakistan, scientists state:

“Alternate medicine practices with plant extracts including garlic should be considered to decrease the burden of drug resistance and cost in the management of diseases. “ Big pharma’s drugs spawned this new plague, so why take them to fight it? Empower your health naturally through nutrient-dense foods, supplements, and pure water. In particular, stock up on vitamin D and [turmeric](#) — they will be highly beneficial in the event of a pandemic or disease outbreak ([Natural Society, 2012](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** In the aftermath of man-made bio-terror generated pandemic, the government and media will be feeding the public any number of different scapegoats allegedly responsible for the pandemic that will likely kill millions.

While some scapegoats (see below) are indeed plausible, it is much more likely that the live pathogens or agents responsible for the pandemic will likely be dispersed via A) [chemtrails](#) by government [airplanes or drones](#), B) by the [U.S. Postal Service](#) via [Tide detergent samples](#), C) by the government and medical establishment via [tainted vaccines](#), or by D) the portable petri dish commonly known as the [Trojan condom](#).

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**Title:** New Madrid Seismic Zone

**Date:** 2012

**Source:** [Wikipedia](#)

**Abstract:** The New Madrid Seismic Zone (pronounced [/nju: 'mædrɪd/](#)), sometimes called the New Madrid Fault Line, is a major [seismic](#) zone and a prolific source of [intraplate earthquakes](#) (earthquakes within a [tectonic plate](#)) in the [southern](#) and [midwestern United States](#), stretching to the southwest from [New Madrid](#), [Missouri](#).

The New Madrid fault system was responsible for the 1811–1812 [New Madrid earthquakes](#) and may have the potential to produce large [earthquakes](#) in the future. Since 1812 frequent smaller earthquakes were recorded in the area.

Earthquakes that occur in the New Madrid Seismic Zone potentially threaten parts of seven American states: [Illinois](#), [Indiana](#), [Missouri](#), [Arkansas](#), [Kentucky](#), [Tennessee](#) and [Mississippi](#) ([Wikipedia, 2012](#)).

**Title:** New Madrid Seismic Zone

**Date:** 2012

**Source:** [Wikipedia](#)

**Abstract:** Tornado Alley is a colloquial and [popular media](#) term that most often refers to the area of the [United States](#) where [tornadoes](#) are most frequent. Although an official location is not defined, the area between the [Rocky Mountains](#) and [Appalachian Mountains](#) is usually associated with it. The areas shaded in the middle of the map shows the associated area. Although no [U.S. state](#) is entirely free of tornadoes, they are most frequent in the [Great Plains](#) states between the Rocky and Appalachian Mountains. According to the storm events database of the [National Climatic Data Center](#), [Texas](#) reports more tornadoes than any other state, though this state's relatively large land area should be taken into account. [Kansas](#) and [Oklahoma](#) are second and third, respectively, for sheer number of tornadoes reported, but report more of them per unit of land area than does Texas. However, the density of tornado occurrences in northern Texas is comparable to that of Oklahoma and Kansas. [Florida](#) also reports a high number and density of tornado occurrences, though only

rarely do tornadoes there approach the strength of those that sometimes strike the southern plains ([Wikipedia, 2012](#)).

**Title:** Department Of Homeland Security Revises Kansas Biosafety Lab Assessment

**Date:** March 6, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** The U.S. Department of Homeland Security has revised an assessment of the proposed high-level animal biosafety lab in Kansas, dramatically lowering the assessed likelihood that Foot and Mouth Disease would escape.

In a 923 page risk assessment released on Friday, the DHS estimated that the risk that FMD would escape from the National Bio and Agro-Defense Facility during the facility's 50 year lifespan was less than 0.11 percent. When excluding catastrophic events such as tornadoes and earthquakes, the risk drops below 0.008 percent, [Nature](#) reports.

The previous risk assessment in 2010 estimated the risk of such an event was 70 percent. The National Academies concluded that the 2010 assessment had multiple major shortcomings. The academies will evaluate the new risk assessment later this spring.

“(The new risk assessment) reaffirms that we can build a safe and secure facility to meet this important mission,” Tara O’Toole, the DHS under secretary for science and technology, said, according to [Nature](#).

Bill Dorsett, a member of the group No NBAF in Kansas, questioned the validity of the new assessment.

“There’s no way that an analysis can get it down that precisely,” Dorsett said, according to [Nature](#). “Because a big portion of the risk has to do with people and people’s behavior. That starts with congressional funding for the lab — and continued congressional funding for its maintenance. We’re trying to predict what Congress will do ten years down the line.”

Congress provided the lab with \$50 million in funding in 2012 on the condition of the new risk assessment and its appraisal by the National Academies. President Obama’s 2013 budget proposal did not request any money for the construction of the lab. The proposal also impels the National Academies to evaluate whether present disease threats justify the potential \$1 billion costs of the facility ([Bio Prep Watch, 2012](#)).



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**Title:** FDA Acts To Speed Bioterror Medicines

**Date:** March 31, 2002

**Source:** [UCLA](#)

**Abstract:** Responding to the threat of anthrax and other forms of chemical and biological terrorism, the Food and Drug Administration adopted new rules yesterday that will speed the approval of drugs that could protect people from attacks.

In a major change from past practice, the agency said that in some unusual circumstances it would allow companies to base their new drug applications on animal testing alone when assessing whether a drug is effective. Previously, a drug's effectiveness had to be tested on humans before the FDA would give its approval and allow it onto the market.

"The terrorist attacks of last fall underscored the acute need for this new regulation," said Lester M. Crawford, the FDA's deputy commissioner. "Today's action will help make certain essential new pharmaceutical products available much sooner -- those products that because of the very nature of what they are designed to treat cannot be safely or ethically tested for effectiveness in humans."

The new rule, which was first proposed in 1999 and took on a new urgency last fall, was likened yesterday to the FDA's landmark decision a decade ago to approve new HIV and AIDS drugs that had not been fully tested by previous standards. At that time, the FDA concluded that its standard review process was standing in the way of making potentially lifesaving drugs available to infected people.

Some consumer advocates said yesterday that they are wary of the animal-testing rule, contending that its use could expand to other less pressing concerns -- just as the FDA's "fast track" approval process for AIDS drugs was later used for many other medications.



But Janet Woodcock, director of the FDA's Center for Drug Evaluation and Research, said use of the new rule, which the agency considers "urgently needed," would be limited.

Woodcock said the FDA has "been struggling in a number of cases to persuade applicants to go forward" with drugs to treat biological, chemical and nuclear attacks. "When they couldn't ethically do human trials, it has been very difficult to move forward," she said. "This rule addresses that obstacle."

She said that it would still take a year or more for companies to design, undertake and complete their animal studies, and that she "would not expect a flood of products based on the rule. But it does provide a path, and some companies will respond."

The new standard will only be allowed when tests of a drug's effectiveness on humans would be unethical. Some vaccines have been approved without full human testing, but traditionally, drugmakers conduct human trials to determine whether a medication is more effective than a placebo by giving some patients the medicine and some an inactive pill.

It is considered unethical to expose a test subject to a potentially lethal or permanently disabling agent, making it impossible to test a drug's effectiveness against biological, chemical and radiological threats.

Woodcock called the new rule "narrowly drawn," saying that it would usually require two or more animal tests, and that it could be invoked only when all other FDA testing standards are inappropriate. In the text of the new rule, the agency estimates that it will be applied infrequently, probably less than once a year.

Woodcock said that in most cases, drugmakers would still have to prove that their products were safe in humans. That determination, she said, can generally be done without exposing patients to unethical risk.

The FDA has already approved one drug for use against bioterror attacks, the antibiotic Ciprofloxacin, which was widely used among victims of a series of [anthrax attacks](#) last fall. That drug, also used to treat a variety of other infections, received accelerated approval for use against inhaled anthrax in 2000 based on both animal tests and human studies of how it behaved in the bloodstream.

Sidney Wolfe, of the consumer advocacy group Public Citizen, questioned why the new rule is needed if Cipro could be approved without it, and voiced concern that it could be abused by the FDA and industry. "There's been a lot of slipping and sliding in the past on this kind of speeding up the review process," he said.

Drug and biotechnology industry spokesmen welcomed the new rule yesterday, calling it an important advance.

"This is a very important and valuable development because it offers some consistent rules for how products will be evaluated," said Michael Friedman, a former acting FDA administrator who now helps coordinate the drug industry's bioterrorism efforts for the Pharmaceutical Research and Manufacturers of America.

"That's been the big difficulty for years: You have diseases that are untestable in humans," he said. "There are medicines out there that we have every expectation would be effective against anthrax, for example, but there's been no consistent way to test them."

Friedman said that the new rule did not, however, mean that testing would speed ahead. He said another pressing problem is the limited number of [rhesus monkeys](#) available to test for the bioterror drugs. While the new rule allows testing in a range of laboratory animals, monkeys are most like humans in the ways they respond to drugs and have traditionally been the standard for assessing the effects of a new medication.

According to Steve Lawton, chief lawyer for the Biotechnology Industry Organization, the new rule is an "absolutely appropriate and necessary tool to combat terrorism." He said that a recent BIO conference on bioterrorism was "packed with an extraordinary number of young companies working in the lab to find products against anthrax and other biological agents."

He predicted that the ability to avoid the costly and time-consuming process of conducting human clinical trials would likely make the drugs more attractive to venture capital companies. "It's a terrific combination of patriotism and opportunity," he said, "and there are a lot of people out there ready to respond" ([UCLA, 2002](#)).

**Title:** In Search Of Antiterror Drugs

**Date:** June 3, 2002

**Source:** [New York Times](#)

**Abstract:** In an effort to come up with drugs and vaccines to protect people against biological, chemical or nuclear attacks, the Food and Drug Administration adopted new rules last week that will allow it to approve some medicines without requiring clinical trials to determine their efficacy in humans. The agency will rely instead on animal tests and other measures to determine if the substance is likely to be effective.

That could leave the American public in an uncomfortable position. Should a devastating attack occur or be imminent, people could be betting their lives on unproven remedies, with no assurance that they will really work in humans. Even so, the new policy seems the best way to proceed in an age of terrorism. There is simply no ethical way to conduct the clinical trials that are traditionally required to prove a drug's efficacy.

The problem is not that the drugs or vaccines themselves cannot be taken. They can be and will be given to human volunteers in the traditional tests that are designed to demonstrate that a substance is safe for human consumption. Rather, the problem arises at the next step, when the effectiveness of the medicines would have to be tested by exposing human volunteers to lethal agents like smallpox, nerve gas or intense radiation.

In a practical sense, it would be hard to find many volunteers eager to test an experimental vaccine against, say, the Ebola virus, by potentially subjecting themselves to a gruesome death should the vaccine fail. But practicalities aside, the F.D.A. has concluded that it would be unethical and unsafe to conduct such trials. The risks to the volunteer would be very high, and the possible benefit, in the absence of a terrorist attack, would be nonexistent.

The agency will rely instead on animal testing buttressed by whatever supporting data is available. The agency expects that potential drugs and vaccines would be tested in more than one animal species unless there is a single species deemed especially good for predicting human effectiveness.

The agency's carefully drawn rules also require that the pathways by which a drug and a germ operate in the body are understood well enough that reasonable predictions can be made. But none of this is foolproof. As the F.D.A. acknowledges, "There are countless examples of treatments with favorable effects in animals that did not prove effective in humans."

Even consumer advocates who serve as watchdogs over the F.D.A. agree that the new rules make sense. They simply urged that the rules be sparingly applied and not become a loophole to weaken the drug approval process. The F.D.A. swears it will move cautiously and estimates that the new rules might be invoked only once every three years. If that proves the case, the real problem might not be too many approvals, but too few new medicines to cope with terrorist attacks ([New York Times, 2002](#)).

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**Title:** Postal Service Reports New Anthrax Scare In D.C

**Date:** January 15, 2003

**Source:** [UCLA](#)

**Abstract:** The Federal Reserve on Tuesday reported a positive initial test for the deadly anthrax bacteria at the center that checks incoming mail for such threats, the U.S. Postal Service said.

"We have a single test result from one sample out of many that are done over at the Federal Reserve," Tom Day, vice president of engineering for the U.S. Postal Service, told a news conference.

"This appears to be a very isolated incident and it is not clear at all specifically what, if any, piece of mail this came from," Day said.

"The Federal Reserve routinely tests mail delivered to its headquarters in Washington in a secure facility," he said, adding that the suspect item did not enter the headquarters building.

A spokesman for the Federal Reserve confirmed that a letter addressed to Fed Vice Chairman Roger Ferguson tested positive for the deadly anthrax bacteria in three preliminary tests and said it was being sent on Wednesday to the Centers for Disease Control in Atlanta for further examination.

In the weeks following the Sept. 11 attacks on America in 2001, several letters containing [anthrax spores](#) were mailed through a New Jersey postal center to news media offices in Washington, New York and Florida.

Five people, including two Postal workers who worked at Brentwood mail facility in Washington, died and 23 others were made ill.

[Anthrax-laced letters](#) were also sent to the offices of Senate Minority Leader Tom Daschle and Vermont Sen. Patrick Leahy, both Democrats.

No arrests have been made despite a \$2.5 million reward. Law enforcement agencies said they suspected the anthrax mailings were the work of a disaffected individual, and not of a network like al Qaeda, accused of carrying out the Sept. 11 attacks.

**First Test On January 3, 2003**

The Federal Reserve spokesman, who asked not to be identified, said the Fed alerted the U.S. Postal Service to the test results on Tuesday afternoon.

He said initial tests on the suspect letter conducted on Jan 3. and again on Jan. 6 indicated the possibility of the presence of anthrax. As a result, the mail was sent to a laboratory for further testing which found a "presumptive indication" of anthrax.

"We have a single test result from one sample out of many that are done over at the Federal Reserve," said Day, the U.S. postal official.

"The Federal Reserve routinely tests mail delivered to its headquarters in Washington in a secure facility," he said, adding that the suspect item did not enter the headquarters building.

All mail sent to Federal Reserve is tested for the possibility of anthrax in two trailers located near the Fed.

Twice since Sept. 11, 2001, the Fed has reported a positive initial test result for anthrax, though later tests have proved negative.

"There have been false positives," Day said on Tuesday. "Unfortunately, I believe the Federal Reserve has experienced some of that. But when you get a lab result that gives you a preliminary positive, you've got to take that seriously."

Day said the Postal Service was now performing precautionary tests for anthrax at the Washington mail facility which handles mail going to the Federal Reserve.

He said there was no evidence of broad contamination or of risk to employees at the mail facility. "There's absolutely nothing that indicates we have a contamination problem here," he said.

The Postal Service said it expected results of the tests at its facility early on Wednesday ([UCLA, 2002](#)).

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**Title:** Officials Admit Doubts Over Chemical Plot

**Date:** June 5, 2006

**Source:** [Guardian](#)

**Abstract:** Counter-terrorism officials conceded yesterday that lethal chemical devices they feared had been stored at an east London house raided on Friday may never have existed.

Confidence among officials appeared to be waning as searches at the address continued to yield no evidence of a plot for an attack with cyanide or other chemicals. A man was shot during the raid, adding to pressure on the authorities for answers about the accuracy of the intelligence that led them to send 250 officers to storm the man's family home at dawn.

Officials are not yet prepared to admit the intelligence was wrong. But there is diminishing optimism that it will be shown to wholly or even partially correct. Speaking of the feared chemical devices, one official said: "They might be elsewhere or never existed."

The raid, at 4am on Friday, was launched after MI5 received intelligence from an informant of the existence of a viable chemical device at the property, which was to be used in an attack in Britain with the potential for substantial loss of life.

During the raid a 23-year-old Muslim man was shot, and he and his brother were arrested on suspicion of terrorism.

Scotland Yard said yesterday that searches at the property would continue for several days. Sources with responsibility for the security of the transport system, one of the most likely targets of a chemical device, say they have not been made aware the searches have produced any trace of a chemical device, either at the address in east London or elsewhere. "So far nothing from the search bears out the intelligence," said one source.

The Guardian has learned that over the weekend police intensified their planning for dealing with community anger if it turns out the intelligence was wrong.

Security and intelligence officials yesterday defended the decision to raid the house: "We have a duty of care to the general public, we can't do [police anti-terrorist] operations by halves," said one official.

A senior police source explained the police's dilemma: "In other crime you can take a risk to firm up the intelligence. The trouble with this new world of terrorism is you don't have the time, you can't firm up the intelligence to the point you like."

"The public may have to get used to this sort of incident, with the police having to be safe rather than sorry."

Anti-terrorism police yesterday began questioning the man shot in the raid, after his release from hospital. His lawyer named him as Mohammed Abdul Kahar, 23, who with his brother Abul Koyair, 20, protest their innocence and deny any link to Islamist extremism.

Mr Koyair's solicitor, Julian Young, denied media reports that his client had any criminal convictions. Lawyers for the men also denied a report that Mr Kahar had been shot by his brother after grappling with an armed police officer for his gun.

Mr Kahar's solicitor, Kate Roxburgh, said the 23-year-old Royal Mail worker had been shot in the upper right hand side of his chest, with the bullet exiting through his shoulder on an upwards trajectory. She said his brother had been standing behind Mr Kahar at the time.

Both solicitors said there had been no struggle before the shot was fired without warning, but Ms Roxburgh said Mr Kahar had grabbed the gun after he was shot fearing it would be fired again, leaving him with a burn to his hand from the hot barrel ([Guardian, 2006](#)).

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**Title:** Suspicious Envelopes Sent To U.N. Missions Apparently Contained Flour

**Date:** November 11, 2009

**Source:** [Bio Prep Watch](#)

**Abstract:** Looks like flour was the suspicious powder inside those envelopes sent to several United Nations missions.

A fifth foreign mission received an envelope with a suspicious white powder inside on Tuesday, WABC reported.

New York City police say the mission to the United Kingdom was the last to receive a letter. The German mission to the U.N. got a similar package earlier Tuesday.

Three other envelopes arrived Monday at the missions of France, Austria and Uzbekistan.

New York Police Department spokesman Paul Browne says tests revealed the substance contained in those three letters was flour. Test results are pending on the other two letters.

"I was scared," Lindsey Morrone, who works in the Manhattan office building that contains the British mission, told The Associated Press. "There were people in the office walking around with napkins over their faces, in fear that the spores could be spread through the ventilation system."

No one was hospitalized Monday night, but 43 people were decontaminated, officials said.

"Nobody's sick as far as we know," a high-ranking police source said. "This is a precautionary measure."

"The New York police did their work and did it well," said French U.N. Ambassador Gerard Araud. "There is a 99.9 percent chance that we are talking about a bad joke, but you have to be careful."

Several of the notes in the envelopes were reported to contain a single-line message of "al-Qaeda FBI in America," the *New York Post* reported. At least four of the envelopes had Dallas postmarks. The incident is being looked into by the Joint Terrorism Task Force, which intends to determine if the envelopes contain any DNA, United Press International reported.

FBI spokesman Richard Kolko says his office is trying to locate the sender ([Bio Prep Watch, 2009](#)).





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**Title:** Investigation Launched Into “Black Death” Scare At UC-Irvine

**Date:** January 6, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** An investigation has been launched by authorities into a series of suspicious envelopes containing white powder sent to University of California – Irvine.

Initial field tests done by the FBI showed that the powder was not a biological hazard – like anthrax – but a crime laboratory will perform further testing, FBI spokeswoman Laura Eimiller told NBC Los Angeles.

A total of three envelopes were discovered, two on Monday and a third Tuesday morning, UC Irvine spokesman Tom Vasich said. Campus buildings were evacuated after the envelopes were found and HAZMAT was called to the scene.

The return address on the envelopes was Idaho and each contained the words “Black Death,” Vasich said. Any motive, including terrorism, has yet to be ruled out by UC Irvine police or the FBI.

The letters were received by two faculty members – Nancy Da Silva, a professor of chemical engineering and materials science and sociologist Cynthia Feliciano, a race and immigration expert. Both were quarantined briefly but neither showed any negative symptoms.

The OC Register reported that Feliciano stated on her Facebook page on Monday that she was, “quarantined after opening an envelope containing some white powder and the words ‘Black Death.’ Not a great start to the quarter” ([Bio Prep Watch, 2010](#)).

**Title:** Anthrax Scare Leads To Evacuation Of Two Texas Schools

**Date:** April 7, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Hundreds of students in two of Texas’ Garland district elementary schools had to be evacuated on Tuesday following the discovery of envelopes containing white powder that had been mailed to the schools’ offices.

FBI officials have said that the powder contained in the envelopes, which were discovered at Ethridge Elementary in Garland, Texas, and Armstrong Elementary in Sachse, Texas, was not harmful. The

officials have also said that they do not believe that the envelopes were part of a prank meant to delay standardized testing currently occurring at the schools.

"I don't believe that's going to be the motive," FBI spokesman Mark White told DallasNews.com.

As a precaution, an office worker at Ethridge was taken to a hospital after she experienced itching and trouble breathing, officials said.

An alert was issued to the entire school district following the discovery of the Ethridge envelope. The second envelope was found by a police officer stationed at Armstrong. The officer did not open that envelope.

"He saw the specific return address and took it to his office and secured it," Reavis Wortham, a spokesman for the school district, told DallasNews.com.

A return address was written on both envelopes, which was found to be that of the Children's Medical Center Dallas. Additionally, a piece of paper was contained in each envelope though officials have not revealed if anything was written on it.

An investigation into the letters has been launched by the FBI and the U.S. Postal Inspection Service ([Bio Prep Watch, 2010](#)).

**Title:** Anthrax Scare At Hawaii High School

**Date:** June 24, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Classes at Waiakea High School, in Hilo, Hawaii, were disrupted this week after school officials found an envelope that contained a suspicious white powdery substance.

The Hilo police and fire departments were dispatched to the school and the building was cleared after the alarm, according to a KPUA.net report.

School principal Patricia Nekoba told KPUA.net that the envelope was discovered by school officials in the administration building.

Civil Defense Chief Wendell Hatada reported that no one was ever in any danger during the disruption. Hatada also told KPUA.com that the fire department tested the suspect material and that all tests have come back negative for anthrax or any other harmful substance.

In related news, officials with the Hawaii Civil Defense and the Federal Fire Department took part in the third Makaala Drill at the U.S postal service processing and distribution center near the airport, according to a HawaiiNewsNow news report.

Postal workers evacuated the building while Honolulu and Federal firefighters, wearing Hazmat suits, went through a mock decontamination process. Firefighters also underwent decontamination via a liquid wash, according to the report.

Doug Aton, Director of Oahu Civil Defense, said he was pleased with the drill.

"As you can see by the response, it takes a lot of resources and a lot of man power so we want to make sure that we don't tax the fire department and the police department, and the emergency medical department people," Aton told HawaiiNewsNow. "We do this at least once every three years so it takes

care of the changes in command, administration personnel and to make sure that we integrate our plan with theirs" ([Bio Prep Watch, 2010](#)).

**Title:** FBI Investigating Powder-Filled Letters In Texas

**Date:** August 9, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Officials with the FBI and U.S. Postal Inspectors reported that they are investigating the the delivery of 13 suspicious letters containing white powder in north Texas.

The first of the letters were discovered on August 5, when six letters filled with white powder were delivered to locations across the north Texas metro area.

Five additional letters were received in the area on the morning of August 6, CBS11TV.com reports, with that number rising to a total of 13 letters received by the end of the day.

Letters were sent to a company in Arlington, to Raytheon in Garland, to an aerospace company in Grand Prairie, to a Raytheon plant on the property of Texas Instruments in Dallas and to Rocket Air Supply company in Arlington.

Suspicious letters were also discovered at St. Joseph's Catholic Church in Richardson, the mail room at Microsoft's offices in Irving, the Dallas Love Field Airport and Spenro Industrial Supply Company in Grand Prairie.

It was later discovered that that two letters were also found at a Raytheon office in the Boston area, CBS11TV.com reports.

Ramona Layne, a spokesperson with the Raytheon Company, issued a statement regarding the incidents.

"The safety and security of our employees is paramount," Layne told CBS11TV.com. "Raytheon contacted Dallas emergency services immediately upon discovery of unknown powder substance at two sites, North Dallas and Garland facilities. Employees at both sites are safe and were unharmed."

The powder in all of the letters found tested as non-hazardous. Officials said, however, that the powder would be further tested.

Investigators reported that the powder found in some of the letters on Thursday was corn starch.

Investigators have not clarified whether the letters were all sent from one person or location, but said they are investigating the possibility, according to the CBS11TV.com report ([Bio Prep Watch, 2010](#)).

**Title:** Mass. Co. Receives Anthrax Hoax Letters

**Date:** August 16, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Raytheon last week joined a growing list of companies to receive threatening envelopes in the mail that contained a suspicious white powder and a note mentioning the terror group Al-Qaeda.

Although the Raytheon office is located in Waltham, Massachusetts, the two envelopes are believed to be connected to a series of 25 similar bioterror hoaxes that have occurred predominantly in North Texas over the last ten days, according to NECN. In the Dallas area cases, two Raytheon offices were targeted.

Other victims of the hoaxes include elementary schools, churches, mosques, and aeronautics and technology companies like Raytheon. In all of the cases, the white powder was tested by the FBI and found to be innocuous. In at least some of the cases, the powder was identified as cornstarch.

The envelopes have all had a postmark from North Texas, a similar return address and contained a single typed sentence. An FBI official told NECN that the letters, containing a single sentence, make no sense, but that they match up with over 200 letters that were sent to governor's offices and U.S. embassies in 2008.

The FBI said that the letters mentioned the terror group Al-Qaeda, but noted that they were not well-articulated, so their meaning remains undetermined.

Postal officials say that since the 2001 anthrax scare, all mail is scanned for biohazards. Suspicious packages, however, still require precautions and cause disruptions ([Bio Prep Watch, 2010](#)).

**Title:** Texas Anthrax Hoax Letters Rise To 30

**Date:** August 17, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Whoever sent 30 letters containing a cryptic message and suspicious white powder to churches, mosques and businesses in three states since August 5 is believed to be the same person or persons who sent white powder to government buildings in 2008.

Officials from the FBI say their suspect has sent a total of more than 250 letters since December 2008, when he targeted U.S. embassies and governors' offices, according to Time.

In recent weeks, 25 of the letters were sent to addresses in the Dallas area and a further five were sent to Lubbock and Austin, Texas, Chicago and Waltham, Mass. The FBI and the U.S. Postal Inspection Service recently confirmed that the white powder inside the letters was harmless and that all of the letters shared postmarks from North Texas.

"The letters all have the same postmarks, the same content and similar return addresses that lead us to believe they are coming from the same person or persons," Special Agent Mark White told the Associated Press.

White did not elaborate on the contents of the message, but said it was typed, one line long and mentioned the terror group Al-Qaeda.

"Nobody understands what they're trying to say," White said, according to the AP. "The message itself is unclear. But by taking that extra step and putting that white powdery substance in there, yes it's considered a threat."

There is now a reward of up to \$100,000 for information that leads to the arrest and prosecution of those responsible ([Bio Prep Watch, 2010](#)).

**Title:** Anthrax Scare In Spokane Causes Legal Furor

**Date:** August 18, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** An anthrax scare that closed the Spokane, Wash., City Hall may have caused a city council meeting being held there to be illegal under state law.

The city council of Spokane, Wash., met on Monday after the city hall was closed to the public due to an anthrax scare. Spokane City Council meetings must be open to the public, according to state law, the Spokane Spokesman-Review reports.

Police and firefighters were called to Spokane City Hall after an employee found a white powdery substance in a package of office supplies in the city's planning department. City employees in the area, including the mayor and city administrator, were told to stay away until the all clear was given.

Others were told to keep working, but the public were asked to leave and kept out of the building, ostensibly to control traffic flow, according to the Spokane Spokesman-Review.

Firefighters entered the building in hazmat suits and tested the material, which turned out to be 93 percent cornstarch, Battalion Chief Bob Green of the Spokane Fire Department told the Spokane Spokesman-Review. Cornstarch is often used to prevent envelopes from sticking together, he said.

City spokeswoman Marlene Feist sent out a news release five minutes before the meeting was scheduled to begin. It stated that the meeting would go on despite the closure. The meeting ended around the same time firefighters gave the all clear, about an hour later.

City Councilman Steve Corker told the Spokesman-Review that he was advised by the city's legal staff that the meeting could continue as long as the vote on routine items was postponed until the council's evening session.

"We weren't sure if people were allowed in or not," Assistant City Attorney Mike Piccolo told the Spokesman-Review, claiming it was unclear how responders were dealing with the situation right before the meeting began.

Feist noted that the city cable station carried the meeting live and that there was no public testimony scheduled.

Greg Overstreet, a private lawyer and former open government ombudsman in the state attorney general's office., told the Statesman-Review that state law only prohibits public attendance during an executive session or in cases of disorderly conduct. Even if no votes are held, the meetings are required to be open.

"It would be a terrible precedent if local governments could lock the doors and tell people to just watch it on TV," Overstreet told the Spokane Spokesman-Review ([Bio Prep Watch, 2010](#)).

**Title:** Powder Filled Envelope Delivered To Penn. Home

**Date:** August 19, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Officials with the FBI said that they are investigating a suspicious package delivered to a Blue Mountain Lake Estates home in Stroud Township, Penn.

Stroud Area Regional Police were dispatched to 22 Witness Tree Circle shortly after 2 p.m. Wednesday after an envelope containing white powder was opened by a woman at the home, police told PoconoRecord.com.

A one-block area was cordoned off by police and officials. The area volunteer fire department were on scene along with the Monroe County Office of Emergency Management. A special infectious disease room was also prepared at Pocono Medical Center, officials said.

Scranton Postal Inspector Dave Conklin told PoconoRecord.com that the material was tested using a mobile spectrometer with a built-in database of hazardous substances.

Bruce Henry, deputy director of the Monroe County Office of Emergency Management, told PoconoRecord.com that the material has been declared non-hazardous. He did not, however, specify exactly what the substance was.

According to Henry this was the first “white powder” incident he has responded to in the past four or five years. In the wake of the September 11 terrorist attacks, his department fielded approximately 83 calls in a matter of a few weeks.

“Anyone who spilled Coffee-mate in the office, we were called in,” Henry told PoconoRecord.com.

Henry said it was not known what the substance was, but the response followed the county’s standard operating procedure. The substance has been sent away for further testing ([Bio Prep Watch, 2010](#)).

**Title:** Norwegian Embassy In Israel Receives Anthrax Hoax Letter

**Date:** September 24, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** The Norwegian Embassy in Tel Aviv, Israel, received a suspicious envelope containing an unidentified white powder and a threatening letter.

According to MiddleEastMonitor.org.UK, this is the fifth embassy in Tel Aviv where such an incident has occurred in the last two weeks. The Turkish embassy received a similar envelope earlier this week. Last week, suspicious envelopes were sent to the U.S., Swiss and Spanish embassies in Tel Aviv.

Reports indicated that the some of the letters have contained threats against a number of high ranking officials and have contained the Nazi swastika, according to MiddleEastMonitor.org.UK.

Officials said the envelope and its contents were sent by the Israeli police to a biological lab for testing and identification. So far, no injuries have been reported. In the previous Tel Aviv cases, the white powder was deemed to be harmless.

Anti-Turkish sentiment has been on the rise in Israel and ties have deteriorated between the two countries after the government in Ankara launched criticism of Israel over the deadly 22 day offensive on Gaza that ended in January 2009. This was further aggravated when Israeli commandos killed nine Turkish activists during a May 31 raid.

Letters containing a white powder have been considered a potential deadly threat since five people were killed in the U.S. when anthrax spores were mailed to news media offices and U.S. senators in the weeks following the September 11, 2001 terrorist attacks ([Bio Prep Watch, 2010](#)).

**Title:** Spate Of Anthrax Hoax Letters In Alabama

**Date:** October 19, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** Five cities in Alabama recently witnessed anthrax scares when the offices of several Republican congressmen received envelopes in the mail containing a suspicious white powder.

Representative Joseph Bonner of Alabama’s first congressional district received powder laced envelopes at both his Foley and Mobile offices, according to ThatHappened.net. A spokesman for Bonner said that both envelopes contained small bags of powder that were not opened.



Bonner was in his Mobile office when the letter arrived and was quarantined while the substance inside was tested. Officials have determined that the bags did not contain anthrax, but they have yet to say what they were actually filled with.

U.S. Representative Mike Rogers and Senator Jeff Sessions each received envelopes containing white powder at their offices in east Montgomery, ThatHappened.com reports. Senator Richard Shelby also received one of the powder filled bags at his office in downtown Birmingham.

Officials from the FBI have said that the letters most likely originated from the same source. The U.S. Postal Inspectors have since offered a \$100,000 reward for information concerning the attacks.

Although there have been no reported injuries or illnesses related to the anthrax hoaxes, five people who came into contact with the substance in the envelope have been treated with antibiotics as a precaution ([Bio Prep Watch, 2010](#)).

**Title:** NAACP Receives Anthrax Hoax Letter

**Date:** October 19, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A suspicious powder that was sent to the Washington, D.C., office of the NAACP on October 18 has turned out to be nothing more than harmless tea.

The powder's arrival had prompted the NAACP's evacuation from the premises. NAACP Washington Bureau Director Hilary Sheldon told the Washington Post that the powder arrived in a business-size envelope addressed to the organization's Washington office. The envelope did not have a return address and contained typewritten note and a plastic bag that held a powder.

The NAACP's employees were immediately evacuated and law enforcement was called to the scene. After examining the powder, they determined it was simply tea. It was not reported as to whether anyone was treated for injuries relating to the case.

This incident occurred within a week of a string of white powder incidents in Alabama, where four Republican congressmen received envelopes containing suspicious powder. In all of the cases, the powder turned out to be innocuous.

The Alabama cases are believed to be related to one another. Officials from the Federal Bureau of Investigation have commented that the letters most likely originated from the same source. The U.S. Postal Inspectors have since offered a \$100,000 reward for information concerning the attacks ([Bio Prep Watch, 2010](#)).

**Title:** Anthrax Scare At Oklahoma City Charity Headquarters

**Date:** October 27, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** White powder fell out of an envelope at the Feed the Children headquarters in Oklahoma City last week, prompting fears of anthrax.

Tests on the substance determined that it was nonhazardous and that it may have been corn starch, according to Oklahoma City Deputy Fire Chief Cecil Clay, NewsOK.com reports.

The powder fell onto the hands, shirt and pants of one employee. Security officers at the charity turned off the air conditioner, secured the mail room and called the police immediately after the powder was discovered, according to NewsOK.com.

There have been many suspected powder and other bioterror threats since the 2001 anthrax attacks that occurred shortly after the September 11, 2001, terror attacks. In response, the U.S. Postal Service started a new Biological Detection System with units in 270 postal distribution and processing center. This system can screen the air around the sorting machines for potentially dangerous biological substances, Medillnsj.org reports.

“Since 2001 Postal Inspectors have responded to over 38,000 (suspected bioterror) incidents,” Peter Rendina, assistant inspector of the Washington Division of the Postal Inspection Service, said, according to Medillnsj.org, “Most of the time the substances/items were caused by customers wrapping food products incorrectly or forgetting their briefcase or backpack in the Post Office lobby.”

Weekly training is administered to postal employees, which includes security and safety related to reporting and detecting suspicious mail ([Bio Prep Watch, 2010](#)).

**Title:** Anthrax Hoax Near Georgia Capitol

**Date:** November 5, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A white powder feared to be anthrax that was discovered in an envelope sent to a state office building near the Georgia Capitol has been confirmed to not be hazardous.

The envelope was sent on Tuesday to the James H. Sloppy Floyd Building, AJC.com reports. Upon discovery, authorities evacuated part of the complex. Four people who were exposed to the substance who had minor complaints were later treated..

Authorities at the scene said that the powder did not appear to be related to a chemical or biological threat.

As there was not enough of the substance for an immediate identification, the sample was sent to the FBI crime lab for analysis, AJC.com reports. Gordy Wright, a spokesman for the Georgia State Patrol, said that the investigation of the package will continue.

According to a recent Medill National Security Journalism Initiative report, there have been over 38,000 hazardous postal-related situations since the 2001 anthrax attacks. Even if the powder is a hoax and is comprised of flour or talcum powder, postal inspectors investigate the issue. Those who send the misleading package are subject to prison time or fines. Since 2001, 300 postal inspectors have been trained as hazard specialists.

“Historically, it’s been the Postal Inspectors’ mission to protect postal services, its employees and to secure the nation’s mail,” Peter Rendina, assistant inspector of the Washington Division of the Postal Inspection Service, said, Medillnsj.org reports. “We’re continuing to do what’s needed” ([Bio Prep Watch, 2010](#)).

**Title:** White Powder Scare In New York

**Date:** November 11, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** A white powder sent to the corporate office of the firm that operates and owns New York Sports Clubs in Greenburgh, New York, was not a biological weapon, according to police.

The powder was sent in a suspicious envelope from somewhere in New York state, according to LoHud.com.

The first floor of the office building of Town Sports International, located at 399 Executive Blvd., was forced to evacuate on Tuesday morning after receiving the envelope.

The address on the white, business-sized envelope did not indicate a particular recipient, police Capt. Christopher McNerney told LoHud.com. He said that the suspicious envelope was mailed from outside of Westchester County and did not offer additional details pending the results of an ongoing investigation.

The envelope came into contact with four employees after its 10 a.m. delivery, including a woman who touched the unknown white powdery substance on the folding ridge line of the letter, LoHud.com reports. Afterward, the woman reported itching and skin irritation.

The evacuation included over 70 people from the first floor of the building while a mobile decontamination station was set up to treat the postal worker and the four employees, LoHud.com reports.

The evacuation and decontamination included a team effort of multiple local and federal departments throughout Greenburgh and Westchester County ([Bio Prep Watch, 2010](#)).

**Title:** Anthrax Scare At Florida Police Station

**Date:** November 11, 2010

**Source:** [Bio Prep Watch](#)

**Abstract:** The police department in Clermont, Florida, was evacuated at 2 p.m. on November 9 after a man carrying an envelope of white powder entered the building.

Although the powder turned out to be a substance that was used to keep the two sides of envelopes from sticking together, it managed to disrupt the department for at least an hour, according to DailyCommercial.com.

According to Clermont Captain John Johnson, the man, Kenneth Harrison, had just come from the post office after checking his mail. Before pulling his retirement check out of the envelope, Harrison noticed that there was powder falling from it.

"It was just something I saw that seemed important enough to report," Harrison, a Minneola, Florida, resident, said, according to DailyCommercial.com.

After noticing the powder, Harrison immediately placed the envelope into a plastic bag and drove it to the police department out of caution. Johnson told DailyCommercial.com that once the envelope came into the department, the entire area had to be considered contaminated.

The Clermont Fire Department was called to the scene immediately and, at that point, all of the calls coming to the department were routed to the nearby Lake County Sheriff's Department. Officers on patrol were told not to return to the department and the streets nearby were closed off.

Fire personnel followed standard protocol in dealing with the situation and personnel were seen in full hazmat gear walking in and around the building. The city's Special Operations Unit was fully utilized ([Bio Prep Watch, 2010](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following bio-terror scares occurred within the calendar year of 2011. While some of the following reports may have been legitimate cases, most if not all of them appear to be generated man-made scares with the overall goal of convincing American and the world that it is on the precipice of a major pandemic. The fact that these bio-terror scares exist in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and military control of society.

**Title:** Anthrax Hoax Scare In Utah

**Date:** January 20, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** A quarter to a half-cup of a mysterious white substance on a table inside a post office in Ephraim, Utah, recently led to the closing of a post office and the adjacent street while Hazmat investigated.

The powder was found to not be anthrax or any other life-threatening substance after it was tested by Hazmat volunteers. Another local scare was present on a performing stage at nearby Snow College. It too was found to be non-threatening, the Sanpete Messenger reports.

"We never did find out what it was, except that it wasn't life threatening," Ron Rasmussen, Ephraim Police Chief said, according to the Sanpete Messenger. "We were taking no chances."

Rasmussen evacuated the office at 55 E. College Ave. and partially closed College Ave. between 100 East and Main St. for five hours. Local officers blocked access to the front of the post office and only allowed drivers to traverse College Ave. if they had legitimate business.

Both sets of powder were sent for testing and the police department is awaiting further results.

"We appreciate the cooperation of the public," Rasmussen and Brian Nielsen, Sanpete's County Sheriff, said in a joint statement, according to the Sanpete Messenger. "This was also a great exercise for our response teams and we are better prepared for the future because of it."

The image of white powder appearing suddenly on a table evoked fears of the anthrax scare of 2001, in which 17 people were infected and five died. One U.S. Senate office was shut down for decontamination for several months ([Bio Prep Watch, 2011](#)).

**Title:** Anthrax Scare At Swedish Post Office

**Date:** February 3, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Dalarna County police in central Sweden have determined that a fire at the Borlange post terminal was caused by a fire extinguisher, but that when the fire initially occurred it was feared that anthrax may have been involved.

The explosion caused the post office to fill with smoke and covered workers in a fine white powder. About 30 employees were treated immediately for anthrax, but it turned out to be a false alarm caused by a power extinguisher, according to TheLocal.se.

"The best thing is that it all turned out for the good," police spokesman Sven Ake Petters said, TheLocal.se reports.

Police received the alarm at approximately 8:20 a.m. on February 2 and found the premises filled with smoke and white powder, according to Petters.

"There were eight people in the premises to begin with, but before the police arrived and the location was sealed off there were several more who had arrived, including emergency personnel," deputy county medical officer Astrid Danielsson said, according to TheLocal.se.

Police led the investigation into the explosion, but Security Service personnel were on hand after they had been informed of the incident.

The Borlange post office is operated by Posten, formerly Sweden's postal monopoly. The terminal was evacuated immediately after the incident occurred ([Bio Prep Watch, 2011](#)).

**Title:** White Powder Found At ABC's New York Office

**Date:** March 4, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** ABC announced recently that a suspicious pile of white powder that had been found in their New York office was actually instant soup.

ABC spokesman Jeffrey Schneider said that employees were back at their desks in the building located on Manhattan's Upper West Side and that the all clear had been given, according to Reuters.

Authorities have been on the alert for mail laced with white powder since the anthrax attacks of 2001. During the attacks, envelopes containing anthrax were sent to the offices of lawmakers and media outlets. Five people died as a result.

In 2009, the Federal Bureau of Investigation released its findings, which have not gone over well with some in congress.

The FBI believes a sole individual is responsible for the mailings – Bruce Ivins, a U.S. Army scientist that worked at the Army's biodefense lab in Fort Detrick Maryland. Ivins committed suicide as authorities closed in on him as their suspect.

To some on Capitol Hill, the question remains whether or not Ivins worked alone on the anthrax mailings. Some believe Ivins must have had help in handling the deadly contagion.

"Were there people who at the very least were accessories after the fact? I think there were," Patrick Leahy, who was targeted during that time, said, according to the Washington Post.

"It is mystifying. Given the limited number of people who have experience with anthrax, you just wouldn't think it would be this hard," an official familiar with the investigation said, according to the Washington Post ([Bio Prep Watch, 2011](#)).

**Title:** Anthrax Hoax Letter Sent To Florida Congressman

**Date:** April 11, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** A white powdery substance that was mailed to Representative Allen West, a Florida congressman, on Friday was determined to not be a dangerous material by local emergency officials in Boca Raton, Florida.

The envelope that contained the white powder also included a letter that made derogatory statements toward West, CNN.com reports. The letter also mentioned anthrax by name.

"It came back as a non-biological threat," Frank Correggio of Boca Raton Fire-Rescue, the team that responded to the report, said, according to CNN.com. "We don't know what it is yet, but we know it's not hazardous."

The FBI will lead an investigation to find out the origin of the substance along with the Joint Terrorism task force for South Florida. The letter was picked up from the Post Office in Deerfield Beach, Florida, before it reached West's campaign office for Boca Raton.

West has two congressional offices in Florida.

"I thoroughly condemn this act," West said, according to CNN.com. "I am deeply disturbed at this incident which threatened a member of our campaign staff. (We are) taking the necessary precautions with regard to incoming mail."

No one was harmed during the incident.

According to the Palm Beach Post, West rode in on a tide of Tea Party support in November, taking the U.S. House District 22 seat from incumbent Ron Klein ([Bio Prep Watch, 2011](#)).

**Title:** Anthrax Hoax Letters Sent To Washington D.C. Schools

**Date:** May 6, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Approximately 30 letters filled with a white powdery substance were delivered to District of Columbia schools on May 5.

The Federal Bureau of Investigation has said that letters are similar to those mailed to schools elsewhere in the United States over the past several weeks, according to MercuryNews.com.

Testing by hazardous materials teams has found that the white powder in the letters was not harmful, according to the Associated Press.

One official, under the condition of anonymity, told the AP that the substance had the look and consistency of corn starch. The letters contained references to al-Qaeda and the FBI and were sent from out of state to 29 different schools in the district.

An image of one of the letters obtained by WRC-TV in Washington showed a Dallas postmark. The stamp appeared to be canceled on May 2, the day after the killing of Osama bin Laden in Pakistan by U.S. forces was announced to the nation.

James McJunkin, head of the FBI's Washington D.C. field office, would not comment on what other schools in the nation received similar letters. He noted that the letters were addressed to the schools themselves and not to individuals.

"I think it's a dastardly act," Washington, D.C. Mayor Vincent Gray said, according to MercuryNews.com. "It alarms people unnecessarily."

District schools began receiving the letters around 1 p.m. on Thursday. Some of the district's schools operated normally throughout the day, but others evacuated to be safe ([Bio Prep Watch, 2012](#)).

**Title:** Powder Grounds Alaska Airlines Flight

**Date:** May 19, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** The flight crew of an Alaska Airlines flight departing Seattle, Washington, and headed to Santa Ana, California, this week notified authorities of an unknown white powder in the back lavatory that turned out to be toilet paper.

After the 1,000-mile flight landed, law enforcement officers, fire department crews and hazardous materials experts circled the plane after it touched down at John Wayne Airport on April 22 at 4 p.m., KTVU reports.

The 151 passengers and six crew members deplaned as authorities climbed aboard. Members of the county's sheriff department along with members of the Orange County Fire Authority tested the suspicious substance.

Upon further investigation, Capt. Greg McKeown, the fire department's spokesperson, told KTVU that the white dust was determined to be a "cellulose paper material" or, in simpler terms, what appeared to be toilet paper.

After the powder was determined to be nonhazardous, the aircraft went back into service.

According to the Centers for Disease Control and Prevention, anthrax is caused by *Bacillus anthracis*, a spore-forming bacterium. Anthrax was used as a weapon in 2001 as it was deliberately spread through the postal system, causing 22 cases of anthrax infection.

Anthrax is classified as a category A bioterrorism agent that may pose the greatest possible threat for a bad effect on public health, needs a great deal of planning to protect the public's health and may spread across a large area or require public awareness ([Bio Prep Watch, 2011](#)).

**Title:** Anthrax Hoax Reported In Calif.

**Date:** June 2, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** An anthrax scare that caused six people to be examined on Wednesday at Dole Food Co. in Westlake Village, Calif., was determined to be a false alarm by a hazardous materials response team.

Emergency personnel responded to a report of a suspicious package at the Dole corporate offices at 9:24 a.m., according to Inspector Matt Levesque, a Los Angeles County Fire Department spokesperson, the Ventura County Star reports.

Six employees opened the package, which was addressed in Spanish, before learning some of the writing on it said it contained anthrax. A hazardous materials response team, personnel from the



Department of Homeland Security and personnel from the Los Angeles County Sheriff's Department arrived on scene after the report.

The teams determined the package was not harmful and the incident was a false alarm, according to the Ventura County Star. The six employees were examined and showed no sign of exposure to a harmful substance. The building was not evacuated during the ordeal.

Anthrax was used as a weapon in the United States in 2001 when it was deliberately spread through the postal system by sending letters containing an anthrax powder. This led to 22 cases of anthrax infection.

According to the Centers for Disease Control and Prevention, anthrax is caused by *Bacillus anthracis* and, if inhaled, can lead to cold- or flu-like symptoms at first that can become deadly if not treated ([Bio Prep Watch, 2011](#)).

**Title:** Anthrax Hoax Mailed To Colorado Department Of Revenue

**Date:** June 3, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** A Kremmling, Colo., man who mailed white powder to a state Department of Revenue employee on Wednesday, May 25, included dozens of pages in protest of paying state taxes.

Matthew O'Neill was arrested by the FBI on Tuesday without incident for allegedly providing false information and for perpetrating hoaxes related to a terrorism offense. After an evacuation of over 500 employees, the powder was found to be benign sodium bicarbonate, not the chemical or biological agent officials had feared, the Denver Post reports.

O'Neill faces up to five years in prison and up to a \$250,000 fine.

The documents included in the manila envelope showed that O'Neill owed \$15,427 in back taxes from 2006 and 2007 and that the state intended to file a lien to collect \$8,694 of the amount due, which O'Neill disputed.

"O'Neill has sent several documents that express his views as a sovereign citizen, and he believes that he does not have to pay state or federal taxes," James Colyer, FBI Joint Terrorism Task Force officer wrote after interviewing revenue department employee Jennifer Tate, according to the Denver Post.

Tate had been assigned O'Neill's dispute and was the one who received the package on May 25. The envelope also included a mailing address that FBI agents tracked back to O'Neill's home address, copies of documents the state had previously sent to him and a signature that authorities say matches the one on his driver's license.

To diffuse the situation on May 25, the Colorado State Patrol, the Denver police, the Denver fire hazmat and a terrorism task force were called to the scene.

O'Neill was scheduled to be advised of the charge on Wednesday in Denver ([Bio Prep Watch, 2011](#)).

**Title:** White Powder Sent To St. Petersburg Times

**Date:** July 6, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Firefighters in St. Petersburg, Fla., responded to white powder found in an envelope at the downtown office of the St. Petersburg Times on Tuesday.

The powder was found on the sixth floor in the customer service department. A section of the floor was isolated and those on the sixth and seventh floors were asked to not move around while firefighters removed the envelope. This is the third time since 2001 that the office has received an envelope with white powder, the St. Petersburg Times reports.

Fire crews in hazardous materials gear arrived at 490 First Ave. S. after receiving a call at 10:48 a.m. While the contents of the envelope will be sent to a lab to be analyzed, preliminary tests found no protein, which rules out active biological substances like anthrax, Lt. Joel Granata, a St. Petersburg Fire Rescue spokesman, said, according to the St. Petersburg Times.

The hazmat crew washed its equipment outside after leaving the building according to procedure. The newsroom and the rest of the building operated normally during the investigation.

In the previous two instances that white powder was discovered at the office, the powder was found to be harmless.

Anthrax was used as a weapon in the United States in 2001 when it was deliberately spread through the postal system when letters containing anthrax-laced powder caused 22 cases of infection ([Bio Prep Watch, 2011](#)).

**Title:** FBI Investigating Link Between Ferguson, Letterman Threats

**Date:** August 25, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** The Federal Bureau of Investigation is searching for any possible links between a threatening letter and white powder sent to Craig Ferguson and an internet threat to David Letterman.

Officials stressed that while they are looking into a connection, there is no evidence of such a link, the Chicago Tribune reports. Both men host late-night CBS talk shows. Earlier this month, an internet jihadist threatened that he would cut out Letterman's tongue.

"It's something we are going to look into," Laura Eimiller, an FBI spokeswoman said, according to the Chicago Tribune. "It will be part of our investigation if there is a link."

On Tuesday, two employees opened the letter at the CBS-TV studios in the 7800 block of Beverly Boulevard, Los Angeles, before the taping of Ferguson's "The Late Late Show," the Los Angeles Police Department said.

Detectives from the Major Crimes Division of the LAPD were investigating with the FBI and authorities in Europe, where the letter may have originated, officer Karen Rayner said, Reuters reports.

The threat was posted by a contributor on a website using the name Umar al-Basrawi. The threat was in response to Letterman's comments about the early June death-by-airstrike of Ilyas Kashmiri, al-Qaeda's alleged new leader, after U.S. Special Forces killed Osama bin Laden in Pakistan earlier this year ([Bio Prep Watch, 2011](#)).

**Title:** Anthrax Scare In Italy

**Date:** September 15, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** According to Italian officials, a blue powder that was found in a central post office in Via Romoli in Turin, Italy, contains no anthrax.

The suspicious powder was found on Tuesday at approximately 6:30 p.m., AGI News. Employees

remained for hours in the post office waiting for test results as required by security procedures.

Tests found that there was no anthrax or similar substances in the powder and that the powder appeared to be detergent or residue from a fire extinguisher.

According to the Centers for Disease Control and Prevention, anthrax is a serious disease caused by *Bacillus anthracis*, which is a spore-forming bacterium. There are three types of anthrax – cutaneous, inhalation and gastrointestinal.

Humans can become infected with anthrax by handling products from infected animals, breathing in spores from infected animal products or from eating undercooked meat from infected animals. Anthrax can also be used as a weapon, which occurred in the United States in 2001 when it was deliberately spread through the postal system using letters containing powdered anthrax. The attacks caused 22 cases of anthrax infection and five deaths.

Anthrax is treated differently depending on if symptoms have begun to arise. After potential exposure, treatment includes antibiotics combined with the anthrax vaccine. Treatment after symptoms have begun is typically a 60 day course of antibiotics ([Bio Prep Watch, 2011](#)).

**Title:** Anthrax Hoax Letter Hits Wash. Courthouse

**Date:** September 16, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** Local officials in Bellingham, Wash., say that a suspicious white powder prompting the evacuation of the Whatcom County courthouse turned out to be harmless.

A suspicious substance was delivered to the Superior Court clerk's office on Wednesday at approximately 1:20 p.m., KGMI reports. The courthouse was then emptied and the local sheriff's office responded along with the Bellingham fire department and hazmat team.

County Executive Pete Kremen said that the mysterious white powder in the envelope turned out to be aspirin. Twenty-two people were held in the building during the testing of the envelope, according to KGMI.

According to the Centers for Disease Control and Prevention, anthrax is a serious disease caused by the spore-forming bacterium *Bacillus anthracis*. Anthrax was used as a weapon in the 2001 postal system attacks in the United States. Powder containing the bacterium was deliberately spread through letters, causing 22 cases of anthrax infection in total and five deaths.

The CDC classifies anthrax as a Category A bioterrorism agent, which means that it may require a great deal of planning to protect the public's health, may spread across a large area or need public awareness, and it may pose the greatest possible threat for bad effects on public health. In most cases, early treatment with antibiotics will cure cutaneous anthrax. Even if untreated, 80 percent of people who become infected with cutaneous anthrax do not die ([Bio Prep Watch, 2011](#)).

**Title:** West Virginia Post Office Evacuated After Reported Package Explosion

**Date:** November 4, 2011

**Source:** [NBC News](#)

**Abstract:** Authorities say a report of an exploding package and white powder at a West Virginia post office turned out to be just a malfunctioning fluorescent light bulb.

Firefighter and incident spokesman Ronald Fletcher says the ``pop" heard by postal workers in the town of Ranson was the bulb exploding. He said the reported white powder was likely smoke from the broken light.

And a suspicious package in a storage locker turned out to contain only cookies.

The scare Friday morning triggered the evacuation and temporary quarantine of 15 people.

Fletcher says a robot sent into the building found no chemical agents in the air. Authorities then X-rayed the package in question.

Despite the six-hour disruption in operations, postal authorities said the mail would still be delivered Friday ([NBC News, 2011](#)).

**Title:** Jogger Triggers Anthrax Scare In California

**Date:** December 1, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** According to police in San Jose, California, a man who was wearing what looked like a gas mask and body armor who dropped a package into a post office box, causing fears of an anthrax attack, was just exercising in strange workout gear.

A post office customer saw the man in the mask and vest and called the police. The Tuesday incident launched a full-scale police response, including a bomb squad and a robot. The post office was on lockdown until 4:30 p.m., with 150 employees and customers tucked in the back of the building, Mercury News reports.

"The guy said he was wearing a cardio mask," Sgt. Jason Dwyer said, according to Mercury News. "It was his cardio day and he was trying to lose weight."

The San Jose police bomb squad, the fire department's hazardous materials unit and the postal inspector responded to the call. A robot detonated the package, which turned out to be several calendars.

Long Hoang, a student at Cal State East Bay in Hayward, was taking part in a CrossFit exercise routine in which a mask is worn to simulate high-altitude training, according to Mercury News. Hoang said he mistakenly received a package of calendars at his home and he went to the post office to mail them back to the proper recipient while on an exercise run. After realizing his actions had caused a commotion, Hoang called police to say he was the suspicious man- a nursing student trying to get into shape.

"It was like straight out of a movie," Hoang said, according to Mercury News. "Some of my friends are telling me, 'Hello? 9/11? Anthrax? Blah. Blah. Blah.' And I'm just thinking about my finals and staying in my own little zone" ([Bio Prep Watch, 2011](#)).

**Title:** Anthrax Scare Closes Tennessee Courthouse

**Date:** December 8, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** An anthrax scare recently forced the closure of the Bradley County Courthouse in Cleveland, Tennessee, after a court clerk opened an envelope containing a white powder.

Local authorities, including a hazardous materials team, the Bradley County Sheriff's Department and Cleveland Police, responded to the scene and cordoned off the block surrounding the courthouse, according to TimesFreePress.com.

Employees who may have been exposed to the powder in the circuit court clerk's office were taken to a medical van and then to a local hospital. They returned after the courthouse was reopened later in the day, WDEF.com reports.

"The postal service has a piece of equipment that allowed them to actually field test this substance to see if it was a hazardous substance or not," Bob Gault, a spokesman for the Bradley County Sheriff's Office, said, according to WDEF.com. "The person manning that piece of equipment suited up in an air-tight suit and went into the courthouse office...did the field test and showed it was not hazardous..and that it was, actually, talcum powder."

The envelope containing the powder had the words "state penitentiary" written on one side. The Federal Bureau of Investigation was notified and is currently evaluating the envelope and the powder it contained ([Bio Prep Watch, 2011](#)).

**Title:** Anthrax Hoax To Cost Tennessee Town \$15,000

**Date:** December 21, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** A recent anthrax hoax involving a letter containing white powder sent to the Bradley County Courthouse in Knoxville, Tennessee, may prove to cost at least \$15,000 locally as a federal investigation continues.

The incident occurred when a clerk in the Circuit Court Clerk's office opened the envelope containing the powder on December 7 at 1 p.m. Authorities were notified and the courthouse was closed down for approximately four hours. Investigators from the U.S. Postal Service identified the substance inside as talcum powder, Cleveland Daily Banner reports.

The potential anthrax scare required emergency response and containment by the Bradley County Sheriff's Office Court Security and the Cleveland Fire Department. Six people went through a decontamination process by the fire department and were later transported to SkyRidge Medical Center. The department then guarded the perimeter of the courthouse.

An estimate by BCSO officials put the costs for its initial involvement at \$2,700, with a final figure including follow-up investigation ranging between \$6,000 and \$8,000. The Cleveland Fire Department estimated approximately \$1,400 in labor and \$1,600 in equipment costs. The Bradley County Fire Rescue Department estimated that his department's involvement cost was approximately \$400.

Aside from the costs, the teams involved learned valuable information about how to deal with a real situation in the future.

"We train regularly for these type situations," Troy Spence, the director of the Cleveland-Bradley County Emergency Management Agency, said, according to Cleveland Daily Banner. "Of course with each exercise or actual incident, we learn how to handle situations differently and this ... hoax will also yield how we do things in the future" ([Bio Prep Watch, 2011](#)).

**Title:** White Powder Scare Hits West Virginia Insurance Agency

**Date:** December 30, 2011

**Source:** [Bio Prep Watch](#)

**Abstract:** A Charleston, West Virginia, insurance agency was recently evacuated after an employee noticed a suspicious white powder inside an envelope mailed to the building.

An employee of the Travelers Insurance Agency called first responders at 9 a.m. on Thursday morning after touching a white powder that came from an unknown envelope. The building was immediately evacuated and local police blocked off the street in front, according to WVGazette.com.

The Charleston Fire Department arrived with a hazardous materials testing kit and checked both the envelope and the surrounding area.

Charleston Fire Department Assistant Fire Chief Owen Hawk said the firefighters did not see the actual powder because the employee washed it off her hands immediately.

Hawk said the tests came back negative for all hazardous substances, including anthrax, WVGazette.com reports. The testing revealed the residue to be non-organic, which means it was most likely a by-product of the sorting or mailing process.

The scene was cleared in approximately one hour and employees returned for work when the firefighters finished, according to WOWKTV.com.

"We don't get those calls near as much as we use to," Hawk said, WVGazette.com reports. "But we take all these calls seriously and luckily this it wasn't anything to be serious about."

The employee who reported the powder will be monitored in the days ahead to see if she develops any health-related complications ([Bio Prep Watch, 2011](#)).

# Bio Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** The following bio-terror scares occurred within the calendar year of 2012. While some of the following reports may have been legitimate cases, most if not all of them appear to be generated man-made scares with the overall goal of convincing American and the world that it is on the precipice of a major pandemic. The fact that these bio-terror scares exist in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and military control of society.

**Title:** White Powder Sent To Florida Government Office Sickens 4

**Date:** January 3, 2012

**Source:** [CBS News](#)

**Abstract:** Part of the Florida state attorney's office was evacuated Tuesday an envelope containing white powder that sent several workers and a responding firefighter to the hospital.

According to [CBS affiliate WPEC in West Palm Beach, Fla.](#), police got a call around 9 a.m. from the office in West Palm Beach saying an envelope in the mail room was found with a white powder. Three people in the mail room complained of headaches after the envelope "poofed" the substance when opened.

The two women and a man who were affected were decontaminated at the scene. They were sent to a local hospital for treatment, along with a firefighter who suffered from cardiac symptoms. The workers are said to be in good condition, but are being kept under observation as a precaution. There was no status report on the firefighter.

No other workers complained of symptoms, but the second floor of the building was evacuated due to the fact that many air ducts connect to the mail room.

According to the [Palm Beach Post](#), initial testing of the white powder was "inconclusive." WPEC mentioned that there can be psychological and physical effects or psychosomatic symptoms even if the substance is not hazardous due to the panic caused by the situation, but Emergency Manager for the City of West Palm Beach Allan Ortman told the Palm Beach Post that when tested the powder didn't change colors, which is raising some concern. The powder has been sent to a FBI lab for further testing, and results are expected within 24 hours.

Police have not announced where the envelope was from nor who it was addressed to ([CBS News, 2012](#)).

**Title:** Homemade Acid Bombs Found On College Campus In Florida

**Date:** January 29, 2012

**Source:** [Fox News](#)

**Abstract:** Police are investigating after several homemade acid bombs were planted on the Valencia College campus in Orlando, Fla., [cfnews13.com](#) reports.

A total of seven bottles were found in parking lots along walkways near buildings, the station reports. Two of the bottles exploded Friday night, about 100 yards apart.



The bombs are made using soda bottles and household chemicals, according to cfnews13.com.

Earlier, three acid bombs were found in an alley behind a student building and a parking lot as students were returning from winter break. Two of those bombs exploded.

No one has been hurt in the incidents ([Fox News, 2012](#)).

**Title:** Pakistan Says Prime Minister Was Mailed Anthrax Spores

**Date:** February 1, 2012

**Source:** [New York Times](#)

**Abstract:** Pakistan's prime minister, [Yousaf Raza Gilani](#), received a postal package containing [anthrax](#) spores four months ago, his spokesman said Wednesday, adding a new dimension to the security threats faced by the country's political and military leadership.

The package was intercepted by the prime minister's security staff in October, according to the spokesman, Akram Shaheedi. The Pakistan Council of Scientific and Industrial Research, a government laboratory, established that the suspicious white powder it contained was anthrax spores, he said. A criminal case was filed on Tuesday, according to an Islamabad police officer, The Associated Press reported.

Government officials gave contradictory accounts of the identity of the sender, and they offered little sense of motive. While Islamist militants have repeatedly targeted senior government officials in suicide and bomb attacks, an assassination attempt using biological weapons would be an anomaly.

Mr. Shaheedi said that law enforcement authorities had identified the sender as an associate professor at Jamshoro University in the southern province of Sindh. But he could not say whether the professor, a Ms. Zulekha, had been arrested or detained.

A senior police officer in charge of presidential security, Hakim Khan, gave a different account. He denied any knowledge of the suspect Mr. Shaheedi named, but he confirmed that a police team had been sent to Jamshoro to investigate. The packet had been sent from a small post office on the Jamshoro University campus, he said.

Mr. Khan said the case had been registered under a provision of Pakistan's penal code that deals with the act of sending poison with the intention of causing harm.

In November 2001, suspicious letters containing anthrax spores were sent to three private businesses, including the country's largest Urdu-language daily, Jang, in the southern port city of Karachi. No motive was ever determined ([New York Times, 2012](#)).

**Title:** Pakistani Officials Send Mixed Signals On Identity Of Anthrax Mailer

**Date:** February 2, 2012

**Source:** [NTI](#)

**Abstract:** Pakistani officials have issued conflicting statements on the identity of the individual who mailed anthrax spores to Prime Minister Yousuf Raza Gilani in October, the *New York Times* reported on Wednesday (see [GSN](#), Feb. 1).

Government spokesman Akram Shaheedi said security officials have singled out a Jamshoro University associate professor, identified only as Ms. Zulekha, as the culprit. He was not able to answer whether she had been taken into custody.

Hakim Khan, a high-ranking law enforcement officer who heads presidential protection, however, rejected the assertion that Zulekha had been identified as the culprit; he did verify that investigators had been dispatched to Jamshoro to probe the matter. The anthrax package was mailed from a university postal site in the Sindh province city, Khan said.

Gilani was never exposed to the deadly bacteria as the packet containing the spores was headed off by his protective team. The package was sent to the Pakistan Council of Scientific and Industrial Research, which tested the contents and verified the substance was anthrax.

Though assassination plots against government personnel are not unusual in Pakistan, the country does not have a history of attempted targeted killings using anthrax or other weaponized pathogens. A leading newspaper and two other Pakistani companies received anthrax spores in November 2001, but the reason for the mailings remains unknown (Salman Masood, [New York Times](#), Feb. 1).

The lethality of the spores is not yet known, along with how the mailer would have been able to acquire the material, Agence France-Presse reported.

Anthrax occurs naturally in animals and is particularly common in regions of Asia, the Middle East and Africa, according to the [U.S. Centers for Disease Control and Prevention](#).

"After the laboratory test confirmed that the parcel contained anthrax, we registered a case against unknown people" on Tuesday, Khan said.

Authorities provided no reason on why a criminal case was opened months after the incident. Gilani's office first intercepted the package -- comprised of an envelope containing a smaller envelope that held the anthrax powder -- on Oct. 18, according to the police report.

Authorities declined reporter requests to view the laboratory results conforming the authenticity of the anthrax ([NTI, 2012](#)).

**Title:** Teacher Accused Of Spraying Febreze On "Fishy" Student

**Date:** February 9, 2012

**Source:** [NBC](#)

**Abstract:** This time the teacher got a time out.

An elementary school teacher in Newfoundland, Canada has reportedly been put on paid leave as district officials investigate a claim she sprayed a student with an odor eliminator to mask his fishy-smelling lunch.

Patti Rideout told [CBC News](#) she was "very hurt and very angry" after learning the teacher of her 10-year-old son, Christian Roberts, had put him in the hallway then sprayed him with Febreze last week.

Other kids at Twillingate Island Elementary School had teased him over the fried capelin meal she'd made him, she said.

"I feel like he's been embarrassed, bullied, and I think what she [did] was very disgraceful," Rideout told CBC News. "I think my son was treated not like a human being — I think he was treated like a dog, or a cat ... I'm very hurt and very angry over this."

Rideout told CBC that when she first called her son's teacher for an apology she hung up.

After taking her concerns to the school board, Rideout received a written apology from the school's principal and vice principal, St. John's newspaper [The Telegram](#) reported.

"The teacher has offered to make an apology to your son in front of the class," the letter said ([NBC, 2012](#)).

**Title:** Indianapolis Man Jailed For Anthrax Threat

**Date:** February 14, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** An Indianapolis man was recently taken to Marion County Jail in Marion, Ohio, after threatening to mail a letter to the jail filled with anthrax powder.

Jason Fancher first called the Marion County Sheriff's office and said that they would soon receive an envelope filled with anthrax, according to [WishTV.com](#).

Deputies called the number back and spoke with Fancher, who admitted that he had made several calls. He then hung the phone up. Investigators traced the number and found Fancher outside the apartment where the calls originated from.

Fancher admitted to making the calls, but denied that he had possession of any anthrax powder. He told deputies he was known to have a problem with his temper.

Deputies took Fancher into custody after he refused to allow them to search his apartment. He faces a charge of intimidation, [WishTV.com](#) reports.

Anthrax is an infectious disease caused by the bacteria *Bacillus anthracis*. It most commonly affects hoofed animals, but can be extremely dangerous when in contracted by humans.

Anthrax is considered a major potential weapon of bioterrorism. In 2001, a series of anthrax filled letters were sent through the U.S. Postal Service. In those attacks, 22 people were infected, five of whom died ([Bio Prep Watch, 2012](#)).

**Title:** Colorado Man Faces Prison Over Anthrax Hoax

**Date:** February 22, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A Colorado man faces up to five years in prison and a \$250,000 fine for lying to federal investigators about mailing threatening letters to tax collectors in the state that contained a white powder.

Matthew O'Neill pled guilty to the charges, which stem from an incident in 2011 in which a mail room employee received a legal-sized manila envelope that contained an unidentified white powder. The letter was mailed to the Colorado Department of Revenue and included post marks for Kremmling, Colo., [Government Security News](#) reports.

The employee and a co-worker contacted the Colorado State Patrol and 911 and waited for the Hazmat and Denver Fire Department teams to arrive. The teams evacuated the building and tested the substance, finding it to be harmless baking soda.

According to the letter's intended recipient, O'Neill had previously sent documents expressing beliefs that he doesn't have to pay federal or state taxes as a sovereign citizen. Postal inspectors and the FBI determined that O'Neill had visited the Kremmling post office several days before the envelope arrived.

"Those who mail a threat, especially one containing material simulating a biological or chemical agent, will face felony criminal consequences," John Walsh, the U.S. attorney, said, according to [Government Security News](#).

While the powder was not harmful, threatening mailings count as a federal crime.

"All threatening communications are taken seriously, the recipient of these types of threats cannot determine the true nature of the implied, or stated danger," James Yacone, the FBI Denver special agent in charge, said, according to [Government Security News](#). "The FBI wants to remind everyone that mailing a threatening communication that contains a hoax of any kind in a parcel will be aggressively investigated. We will continue to respond to such threats, along with our federal, state, and local law enforcement partners, through the combined resources of the Joint Terrorism Task Force" ([Bio Prep Watch, 2012](#)).

**Title:** Texas Nurse's Bleach Injection Deaths Trial Begins

**Date:** March 5, 2012

**Source:** [Fox News](#)

**Abstract:** An East Texas nurse violated the trust of a noble profession when she injected kidney dialysis patients with toxic bleach, killing five of them and injuring five others, a prosecutor said as the woman's murder trial began Monday.

Kimberly Saenz, 38, faces a possible death sentence if convicted of capital murder in the April 2008 deaths.

Saenz stood in court holding her hands behind her back as Angelina County District Attorney Clyde Herrington read the six-count indictment against her. Her lawyer, Ryan Deaton, answered "Not guilty, your honor," on her behalf when the judge asked for a plea after each count.

Herrington told jurors in his opening remarks that evidence would show there was bleach in the IV dialysis lines of victims who were being treated at a DaVita dialysis clinic in Lufkin, about 125 miles northeast of Houston.

"The defendant in this case is the one that put it there," he said.

He said investigators also found Internet searches on Saenz's computer about bleach poisoning in blood and whether bleach could be detected in dialysis lines.

"The profession of nursing is one of the most respected," Herrington told jurors. "Health care providers devote their career to those who are sick and ill ... But involves a great deal of trust. And if that trust is violated, very serious things can happen."

Saenz was charged a year after the Lufkin clinic closed for about two months following a rash of illnesses and deaths.

Emergency crews had been called to the clinic many as 30 times that April, including seven for cardiac problems, and made at least 19 runs. Four people had died.

There had been only two calls during the previous 15 months, according to the Texas Department of Health Services.

Denver-based health care giant DaVita Inc. investigated along with local, state and federal agencies.

Inspectors were present on April 28, 2008, when two dialysis patients said they suddenly didn't feel well and two others reported that they saw Saenz inject bleach into tubing used by two fellow patients.

Saenz, who had held her entry-level position as a licensed vocational nurse for eight months, was sent home. Police were summoned. The next day she was fired.

In his opening defense statement, Deaton said the stories told by the two patients who complained about Saenz varied widely and said DaVita officials waited eight hours before calling police.

"DaVita Inc. is the puppet master in this case," he said, drawing an immediate objection from Herrington that was upheld by the judge.

But he continued to blame the company, insisting DaVita "has manipulated the evidence ... and the science in this case."

Deaton said he would present evidence to contradict the charges. For example, a syringe patients saw Saenz using was being used to measure bleach for a cleaning solution so Saenz could get the precise amount and adhere to clinic rules, he said.

"When Kim supposedly is doing this, there's a monitor watching her, there's people in the clinic," Deaton said. "Patients are watching what's going on."

"Everybody's freaking out," he continued. "People were dying. Everybody's on edge. This whole thing is just a firecracker."

Federal investigators examined blood tubing, IV bags and syringes used by the DaVita patients, who spent up to three days a week tethered for hours to a machine that filtered their blood — a job their kidneys could no longer do.

Joel Sprott, an attorney for clinic operator DaVita Inc., has said the Denver-based company turned over more than 10,000 pages of records in the case. Through 2011, DaVita operated or provided services to 1,809 dialysis facilities in the U.S., serving some 142,000 patients and employing more than 41,000 people.

Citing a gag order imposed by the judge, DaVita spokesman Vince Hancock would only say last week only that the company looks forward "to continuing our steadfast commitment to the Lufkin community."

A [Food and Drug Administration](#) report found some samples linked to some victims tested positive for bleach while others showed bleach "may have been present at one time."

Clinic policy calls for bleach to be used in various concentrations for cleaning and then chemical reactive agents are used to confirm bleach residue was removed and the cleaned areas are safe.

"The point is, bleach is used in every aspect of dialysis," Deaton said ([Fox News, 2012](#)).

**Title:** Canadian Sentenced For Planned Bio-Terrorist Attacks

**Date:** March 8, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Adel Mohamed Nagi Arnaout, nicknamed the Vendetta bomber, was sentenced to an indefinite prison term on Wednesday in Ontario, Canada, for planned terrorist acts, including attempted poisonings, letter bombings and exploding packages.

Ontario Superior Court Judge Todd Ducharme pronounced Arnaout to be a dangerous offender with little hope for rehabilitation. Arnaout was arrested in 2007 as police found evidence that he had searched for tips on purchasing detonators, grenades, and biological and chemical weapons such as anthrax and sarin, the [Globe and Mail](#) reports.

"I found that his intent was to kill his targets," Ducharme said, according to the [Globe and Mail](#). "Judged from the perspective of his intent, his actions closely resemble acts of terrorism but for the non-political, utterly banal nature of his cause. If Mr. Arnaout had been more competent, the results of his actions could have been truly horrific."

Arnaout created a list of 452 targets that included jails, courthouses, Jewish schools and government officials.

"Mr. Arnaout has a greatly magnified sense of his own victimhood," Ducharme said, according to the [Globe and Mail](#). "He blames others for problems that either do not exist or that he has brought on himself. This is accompanied by a sense that he is entitled to avenge himself no matter how minor the original slight."

Police were convinced that Arnaout was serious about his plans and had tested some of his explosives on stuffed animals and dolls. Ducharme convicted Arnaout of 11 counts of attempted murder, three counts of delivering an explosive device and one count of possessing an explosive device.

"He lacks any remorse or guilt for his actions," Ducharme said, according to the [Globe and Mail](#). "Indeed, he seems to believe that his actions were justified. Such a stunning lack of insight raises a very real concern about Mr. Arnaout engaging in similar activities in future" ([Bio Prep Watch, 2012](#)).

**Title:** Man Arrested Over White Powder Hoax Letters

**Date:** March 12, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A man was arrested on Friday in connection with the mailing of threatening letters that contained suspicious white powder to members of Congress and multiple media organizations.

Christopher Lee Carlson was indicted on two criminal counts after an investigation into approximately 100 envelopes that were mailed that contained white powder. All of the letters, which were postmarked Portland, Ore., tested negative for anthrax or any other toxic substances, [Associated Press](#) reports.

Carlson was charged on Friday by a federal grand jury after being arrested at his home in the Portland area. Carlson allegedly mailed a threatening communication to House Speaker John Boehner (R-Ohio) and mailed a letter that threatened to use a biological weapon to U.S. Sen. Barbara Mikulski (D-Md.).

Carlson will be arraigned on Monday.

More than 100 letters were sent in total that were addressed to U.S. representatives and senators.

"Threatening letters – whether hoax or real – are serious concerns that federal law enforcement agencies will aggressively pursue," Greg Fowler, the special agent in charge of the FBI in Oregon, said, according to [Associated Press](#).

The sender said that he wanted to end corporate personhood, end corporate lobbying and money, and start a new constitutional convention. The letters had a fake return address from a sender calling himself "the MIB" ([Bio Prep Watch, 2012](#)).

**Title:** Canadian Man Given Indefinite Prison Term Over Ricin-Laced Water

**Date:** March 13, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A Lebanese-born man who was convicted of 11 counts of attempted murder for sending poisoned water and letter bombs to multiple targets has been labeled a dangerous offender in Canada, receiving an indefinite prison term.

Arnaout was an aspiring actor. In July 2004, he sent water tainted with ricin to two talent agencies he felt weren't advancing his career. He also sent the tainted water to a judge and the CIBC. He dropped off a homemade bomb at the home of a one-time roommate that left his former roommate with cuts to his feet and arms. He also sent a bomb to his former lawyer and to a former landlord, the [Record](#) reports.

"I reject the suggestion that Mr. Arnaout is willing to change, or has developed any insight into his condition," Ducharme said, according to the [Record](#). "Sadly, he has not."

According to Superior Court Justice Todd Ducharme, Adel Arnaout has major problems with revenge-oriented thinking and controlling his anger along with a "greatly magnified sense of his own victimhood." In addition to 11 attempted murder charges in Guelph and Toronto, Arnaout also possessed three explosive devices in the trunk of his car.

Ducharme said that effective therapeutic supervision would be difficult and that Arnaout continued to scribble notes about making bombs while in custody waiting to be arrested.

"The fact that he engaged in this behavior and so resolutely maintains that he was justified in so doing, underscores how difficult it will be to control his risk through supervision and therapeutic intervention," Ducharme said, according to the [Record](#).

Arnaout will be able to apply for parole after seven years, though a very low percentage of dangerous offenders ever get released ([Bio Prep Watch, 2012](#)).

**Title:** Former University Of Texas Student Arrested With Ricin Strains

**Date:** March 13, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A former student at the University of Texas allegedly stole multiple vials and plastic droppers from a UT laboratory, including a harmless strain of the bioterrorism agent ricin.

Karl Jasheway was charged with driving while intoxicated on December 21. While searching the car, the arresting officer found a box addressed to the university containing 13 vials, 12 plastic droppers and a notebook. The discovery led to the seizure of 44 measuring tubes from Jasheway's apartment in North Austin, [Statesman.com](#) reports.

Despite concerns that the materials stolen were related to terrorism, Austin campus officials said that the searches revealed no dangerous materials in Jasheway's apartment or car. Two of the vials contained ricin A-chain DNA, which is a harmless substance. While the potent toxin ricin is a bioterrorism concern, the non-toxic A-chain component is used by the lab to search for possible antidotes to ricin. Jasheway was the lead author of a scientific paper on the ricin antidote subject.

The lab has not used the toxic form of ricin in research for 25 years. The lab materials theft led to tightened lab safety and security rules.



Jasheway allowed police to search his apartment without a warrant. The FBI would neither confirm nor deny that an investigation was underway and Jasheway was not available for comment, according to [Statesman.com](#) ([Bio Prep Watch, 2012](#)).

**Title:** Anthrax Tip From Hoaxer's Wife Led To Arrest

**Date:** March 15, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A Vancouver, Wash., man who allegedly sent letters containing a white powder to Congress members came under FBI scrutiny after his wife told an officer he laced the envelopes with corn starch and celery salt.

Christopher Lee Carlson was focused on after a Vancouver police officer told the FBI about a March 4 interview he had with Carlson's wife about the recent turmoil Carlson was going through. A federal grand jury indicted Carlson on March 9 on charges that he mailed threatening letters to Democratic Sen. Barbara Mikulski of Maryland and Republican House Speaker John Boehner of Ohio, [Associated Press](#) reports.

The counts arose after an investigation into 100 envelopes that were mailed containing white powder. The letters, which were postmarked in Portland, Ore., have tested negative for toxic substances.

"Adrienne (Carlson) told me that a few months ago, Chris had talked about sending letters to members of the Senate and the media to express his frustration with certain things," Leah Supriano, a Vancouver police officer, said, according to [Associated Press](#). "About two weeks ago, they were driving in Portland ... and when they passed a post office somewhere off Stark (Street), he pointed at the post office and told her that he was worried and wondered if they had surveillance cameras."

When Adrienne Carlson asked her husband if he sent the letters, Christopher Carlson acknowledged that he had. Adrienne Carlson said her husband planned to send a second round of letters that would contain the highly corrosive chemical lye.

Christopher Carlson is expected to be arraigned this week ([Bio Prep Watch, 2012](#)).

**Title:** Suspects In Monroe Drano Bomb Case Go To Court Today

**Date:** March 20, 2012

**Source:** [CBS 12 News](#)

**Abstract:** The suspects accused of making home-made chemical bombs and leaving them scattered in a Butler County neighborhood are due in court. Three men and a woman are accused with making the devices, some of which blew up.

Police and explosives experts say the bomb-makers could have really hurt someone or even themselves had they been nearby when the bombs went off. The Butler County Sheriff's Department and explosives experts displayed what they confiscated earlier this week from the Lemon Township neighborhood.

Monroe police say nine of the Drano bombs were found by neighbors on Hickory Street. Eight of the bombs blew up. Some of the neighbors say it sounded like gunshots. No one was hurt.

Four people are due to be arraigned today charged with making the explosive devices. Michael Akers, Steven Bolin, Claire Garrett and William Carr, who are all 19 years old, are set to go before a judge. Akers and Carr are both said to be residents of Hickory Street, where the bombs were found, according to our partners at the Hamilton Journal News ([CBS 12 News, 2012](#)).

**Title:** Indonesian Man Faces Seven Years In Prison Over Ricin Plot

**Date:** March 22, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Indonesian prosecutors recently announced that a man accused of plotting to poison police officers with ricin faces seven years in jail.

Ali Miftah, an herbal medicine seller whose real name is Amri Firmansyah, allegedly planned to help a group of six other suspects ship water bottles tainted with ricin to several regional police headquarters throughout Indonesia, according to [TheJakartaGlobe.com](#).

"He was involved in an evil conspiracy," prosecutor Ricky Rommy said, [TheJakartaGlobe.com](#) reports. "[He attempted] to help or commit a premeditated act of terrorism."

Ricky said Ali has also been charged with two other crimes under Indonesia's 2003 Law on Terrorism.

"We declare that Ali Miftah is [also] guilty for helping hide [then] terrorist fugitive Umar Patek and for his possession of pen guns," Ricky said as he read the indictment, [TheJakartaGlobe.com](#) reports.

The alleged mastermind behind the conspiracy, as well as the group's chemist, face six years in prison for their roles in the plot.

The group appears to be only loosely affiliated with other known terrorist groups. Ali was linked to a terrorist training camp in Aceh, according to [AsiaNewsNet.com](#).

Most of the members of the cell had stable jobs and appear to have been inspired, in part, by the 2002 Bali nightclub bombings that killed 202 people, mostly foreign tourists. They said they decided to attack the police for their efforts in arresting mujahedeen, or holy warriors ([Bio Prep Watch, 2012](#)).

**Title:** Inmate To Plead Guilty To Anthrax Hoax Letters

**Date:** March 23, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A former inmate at a federal prison near Terre Haute, Indiana, will plead guilty to mailing a death threat and anthrax hoax to a federal judge in 2009.

Michael Disch will face a sentence of up to eight years as part of a plea agreement. Disch has been charged with mailing threatening communications, [USA Today](#) reports.

The 2009 letter, which was addressed to Judge Larry McKinney, was opened at the Terre Haute courthouse before reaching the judge. The powdery substance inside was later found to be benign.

Investigators do not yet know why Disch targeted McKinney, but Disch had complained about the conditions at the prison and had previously sent letters to the judge. Disch is currently an inmate at the federal prison in Lewisburg, Pa.

The letter contained both powder and instructions along with a threat to smell the contents of the package and die. The letter also threatened to find out where McKinney lived and to have his family killed, the [Tribune-Star](#) reports.

"Our message is a consistent and strong one," Joseph H. Hogsett, the U.S. attorney for the Southern District of Indiana, said, according to the [Tribune-Star](#). "We are committed to protecting the inmates from

each other, and the safety of those who work there, and we take seriously threats made against authorities” ([Bio Prep Watch, 2012](#)).

**Title:** Suspect In Congress Mail Threats Pleads Not Guilty To Added Charges

**Date:** April 6, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A registered nurse from Portland, Oregon, entered a not guilty plea on Thursday to additional charges relating to more than 100 threatening letters he allegedly mailed to members of Congress in February.

Christopher Carlson has been jailed without bond since his March 9 arrest for allegedly mass mailing envelopes from Portland that contained a suspicious white powder. The powder, later found to be harmless, triggered security alerts on Capitol Hill and among several media outlets, [Reuters](#) reports.

The 10 additional felony counts against Carlson were contained in an expanded indictment returned on March 28 by a federal grand jury. The charges came after Carlson entered not guilty pleas to two earlier charges. He pleaded not guilty to 12 charges – six counts of mailing a threat to use a biological weapon and six counts of mailing a threatening communication to a member of Congress.

If Carlson is convicted, he could face a maximum penalty of 90 years in prison. More than 100 threatening letters were received by various media offices and lawmakers, including National Public Radio and House of Representatives Speaker John Boehner. Authorities have yet to offer a possible motive, according to [Reuters](#).

A trial date is currently set for June 5. The security alert in February was the largest postal scare in Washington, D.C. since deadly anthrax-containing letters were sent to several Senate offices and news organizations in 2001. Seventeen people were sickened by the letters and five were killed ([Bio Prep Watch, 2012](#)).

**Title:** Russia Confirms Discovery Of Sarin Capsule

**Date:** April 10, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** Security services in Russia confirmed on Monday that a capsule believed to contain sarin, an extremely toxic nerve agent, has been discovered in the county's Bryansk region.

Reports over the weekend quoted local ecological organizations as saying that residents of Bryansk brought a capsule, containing the inscription of the word sarin, to a local scrap metal recycling shop on Saturday. The capsule was then put into a sealed box, [Pan Armenian](#) reports.

“The item has been seized by police, the situation is under control,” a spokesman for the Bryansk regional security services, said, according to [Pan Armenian](#).

Tests have begun to determine whether the capsule actually contains the toxic chemical. The spokesman would not speculate on where the capsule came from. A chemical weapons destruction facility is located in the Bryansk region near the town of Pochepa. The facility stores aviation chemical bombs filled with organophosphorus chemicals, including sarin.

Sarin is an odorless, colorless liquid that is more than 500 times more poisonous than cyanide. The chemical was outlawed by the Chemical Weapons Convention of 1993. The United States, Iraq, Russia and Libya are known to have possessed stockpiles of sarin.

The Japanese cult Aum Shinrikyo used sarin during a terrorist attack in 1995 on the Tokyo subway. Ten people were killed during the attack and thousands were injured ([Bio Prep Watch, 2012](#)).

**Title:** Iowa Man Sent To Federal Prison After Violating Release In White Powder Case

**Date:** April 11, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** An Iowa man who spent time in a federal prison for sending a police officer a threatening letter containing a white powder is going back to prison for violating the terms of his supervised release.

America Yegile Haileselassie of Bettendorf, Iowa, was recently sentenced to 14 months in a federal prison at a hearing held in Davenport by U.S. District Judge John Jarvey, according to [QCTimes](#).

In September 2010, Haileselassie pleaded guilty to sending a Bettendorf detective an envelope containing a white powder and a letter saying, in part, "enjoy the anthrax spores!" The powder was tested and proved to be nothing more than a mixture of baby powder and carpet cleaner.

At the time, Haileselassie was sentenced to 21 months in federal prison, but was credited for time served since his arrest. He was ordered to serve three years on supervised release after completing his prison term.

Haileselassie violated the terms of his release in several ways before being sent back to prison, including calling the Bettendorf detective he had threatened and hanging up. He was also expelled from Scott Community College for violating the school's internet usage policy.

In addition, Haileselassie was required to secure employment, which he did not do. He also attempted to deposit a Social Security check from 2010. He later attempted to use his ATM card to withdraw funds from a bank account after fraudulently making a deposit, [QCTimes](#) reports ([Bio Prep Watch, 2012](#)).

**Title:** Elderly Georgian Militiamen Plead Guilty To Weapons, Explosives Charges

**Date:** April 13, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A group of elderly Georgia militiamen recently plead guilty to conspiring to obtain explosives and a silencer as part of a terror plot uncovered in November.

The U.S. Attorney's Office for the Northern District of Georgia said that Frank Thomas of Cleveland, Georgia, and Dan Roberts of Toccoa, Georgia, entered their pleas in federal court on April 10, according to [GSNMagazine.com](#).

Thomas, the suspected ringleader, was arrested on charges that the self-styled militia group planned to make the biotoxin ricin and use it to kill American citizens and government employees. Authorities arrested two other Toccoa men, both over the age of 65, in the alleged conspiracy.

The U.S. Federal Bureau of Investigation said that Thomas and Roberts could face five years in prison if convicted of the weapons and explosives charges.

The case is being used in Washington as an example that potential terror threats are possible from groups other than radicalized Muslims. Roberts' attorney said the plot was a fantasy concocted by a group of grumpy old men, [GSNMagazine.com](#) reports.

The four men were arrested after their group was infiltrated by a government informant who recorded their conversations about overthrowing the U.S. government by killing government officials and creating chaos throughout the country.

"Civilian government operatives is who we're going to be shooting at: IRS, ATF, FBI, and the cops," Thomas said, [GSNMagazine.com](http://GSNMagazine.com) reports ([Bio Prep Watch, 2012](#)).

**Title:** Neil Heywood 'Poisoned By Cyanide Drops' In China

**Date:** April 15, 2012

**Source:** [Telegraph](#)

**Abstract:** Neil Heywood was murdered on the orders of a fallen Communist Party chief, according to the reports.

The Mail on Sunday quoted "respected Mandarin-language websites" saying Mr Heywood, 41, died from cyanide poisoning after allegedly having an affair with lawyer Gu Kailai, wife of Bo Xilai, seen until recently as a future leader of China.

Mr Heywood was found dead on November 15 in Chongqing, in central China.

Britain asked China to investigate his death and it emerged last week that Mrs Gu was being probed for "intentional homicide".

The newspaper said it was alleged that Mr Heywood was murdered after helping Mrs Gu to siphon nearly £800 million of assets overseas.

A city official has allegedly confessed that he prepared the poison and handed it to an employee of Mr Bo, who administered it to Mr Heywood on the party chief's instructions.

Mr Heywood was a friend of the family of Mr Bo, a former rising star in Chinese politics who served as local party chief in Chongqing.

At the time, Chinese officials said the British expat died of "excessive alcohol consumption".

But friends questioned this, saying the businessman was not a heavy drinker.

In February, Mr Bo's former Police Chief Wang Lijun sought refuge in the US consulate in China.

It is thought he made a number of claims against the politician and Mrs Gu, including her alleged role in Mr Heywood's death.

State media reported on Tuesday that Mrs Gu and Zhang Xiaojun, an orderly at Mr Bo's home, had been arrested.

Meanwhile Mr Bo has been suspended from the Communist Party's 25-member Politburo amid allegations of "serious discipline violations".

A Foreign Office (FCO) spokeswoman said yesterday: "We are aware of the latest media reports. As there is an ongoing Chinese police investigation into this case it wouldn't be appropriate to comment further. We remain in close touch with the Chinese authorities and Mr Heywood's family."

It was reported on Saturday that the Foreign Office was facing increasing questions over delays in its intervention.

Reports said it had emerged that a British diplomat and two Chinese policemen attended Mr Heywood's cremation in Chongqing shortly after he was killed.

But the British did not raise questions with the Chinese until three months later, despite locally based British businessmen urging the Foreign Office to intervene, the newspaper said.

An FCO spokesman said: "As we became more concerned about this case, including following suggestions from the business community, we took the decision to ask the Chinese authorities to launch an investigation.

"We acted as soon as we thought concerns about the case justified it.

"We are pleased that the Chinese have now launched that investigation. We were in constant contact with the family throughout and kept them informed of our actions."

Prime Minister David Cameron said on Wednesday during a Far East tour that he was pleased the Chinese authorities were taking action over the murder.

He said: "We did ask the Chinese to hold an investigation and we are pleased that they are now doing that.

"It is very important we get to the truth of what happened in this very disturbing case, this very tragic case."

Mr Heywood had lived in China for 10 years and was fluent in Mandarin. He had two children with his Chinese wife ([Telegraph, 2012](#)).

**Title:** Oregon Man Sentenced For Anthrax Hoax

**Date:** April 19, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** The perpetrator of an anthrax hoax was recently sentenced to prison for threatening a postal carrier in Oregon with the deadly biological agent.

Kelsey Van Hook was sent to federal prison for one year and one day for placing a white powder in a mailbox and claiming it was anthrax, according to [OregonLive.com](#).

In 2009, a U.S. postal carrier in Oregon City, Oregon, pulled a stack of envelopes out of a mailbox and noticed that his hands were covered in white powder. Among the envelopes was one with a message that read, "anthrax what now mr mailman(?)"

The postal worker immediately contacted his supervisor. A postal inspector soon arrived to conduct field tests on the substance. The testing determined that the substance was harmless. Later, it was identified as cream of tartar.

Van Hook recently stood before U.S. District Judge Anna J. Brown in a Portland courtroom where he apologized for committing the act along with a friend. He also said he was sorry for failing out of a diversion program that would have eliminated his felony record.

"I screwed up and I'm sorry for doing it," Van Hook said, [OregonLive.com](#) reports.

In addition to prison time, Brown also sentenced Van Hook to three years of post-prison supervision and 50 hours of community service. Brown told Van Hook that he should earn his GED while behind bars and grow up ([Bio Prep Watch, 2012](#)).

**Title:** Fla. Man Charged With Mailing Powder And Threats

**Date:** April 23, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A Miami Gardens, Florida, man charged with mailing threatening letters that contained powder to the Broward County Courthouse and the Broward Sheriff's office was ordered held without bail on Friday.

Tarvess David Taylor was arrested after investigators found forensic evidence that connected him to the hoax letters. He was held without bail because he may still pose a threat to the community. Five envelopes he allegedly sent contained a powder, later found to be the cleaning substance Ajax, the [Sun Sentinel](#) reports.

Taylor also allegedly sent four expletive-filled anonymous letters that threatened himself and his family in October.

One employee who came into contact with the powder suffered a burning sensation on their hands and in the eyes, and the sheriff's office headquarters and the main county courthouse closed for a short period of time after the envelopes were found.

Taylor pleaded not guilty to five counts of making a hoax threat on Friday. Taylor was already facing multiple felony charges in state court due to an incident in December 2008 when he allegedly tried to run over a Pembroke Pines police office.

"Although the powder contained in the envelopes mailed by the defendant contained non-biohazardous materials, they nonetheless caused anxiety and emotional distress to the recipients and incurred a disruption of government operations," Michael Walleisa, a prosecutor on the case, said, according to the [Sun Sentinel](#) ([Bio Prep Watch, 2012](#)).

**Title:** London Siege Ends As Man With Gas Canisters Arrested

**Date:** April 27, 2012

**Source:** [Independent](#)

**Abstract:** More than 1,000 office workers were evacuated from Tottenham Court Road in London today after a man wearing gas canisters took office workers hostage and threatened to blow himself up.

Tube stations were closed, businesses evacuated and the capital's busiest shopping street shut as armed police laid siege to the central London office just weeks before the Olympics take place.

The suspect, thought to be enraged after failing a HGV training course, was removed from Shropshire House in Tottenham Court Road by police officers who then began searching the building.

The [Metropolitan Police](#) said: "We have arrested a man at Tottenham Court Road. A search of the building is under way.

"We are not aware of any hostages at this stage. Search of the building continues on Tottenham Court Road."

The central London street was closed after police received emergency calls at midday.



[Scotland Yard](#) sent a hostage negotiator to the scene amid reports that the man was holding people captive inside the building several floors up.

Pictures emerged of computer and office equipment being thrown through one of the office windows.

Abby Baafi, 27, the head of training and operations at Advantage, a company which offers HGV courses, said the man targeted her offices and held four men hostage.

In a [YouTube](#) video Ms Baafi said the man, calling himself [Michael Green](#), entered her office.

"I recognised him because he was one of our previous customers but he is not quite stable - mentally stable," she said.

"He turned up, strapped up with gasoline cylinders, and threatened to blow up the office.

"He said he doesn't care about his life.

"He doesn't care about anything, he is going to blow up everybody.

"He was specifically looking for me but I said 'My name's not Abby' and he let me go."

Ms Baafi said the man failed the HGV training course and wanted his money back.

The man was named at the scene as Michael Green, 49.

Sarah O'Meara, who also works for the [Huffington Post](#), said they evacuated their offices in nearby Capper Street after being alerted by a woman who ran into the building.

"A woman ran in off the street saying 'There is a guy with a bomb and he is threatening to blow himself up' and that we needed to evacuate," she said.

"Everyone got out."

John Lillis, a consultant at furniture shop Designer Sofas, witnessed the incident unfold from the back of his showroom.

He said: "The buses had been stopped and there was an ambulance crew there, as well as police cars. The road was then cordoned off.

"The police asked us to move to the back of the showroom.

"I looked across the road to an office block opposite our showroom, and I saw computer screens and computers come out of the window, and then a filing cabinet.

"About half an hour after it all started, we were asked to move behind the cordon on Goodge Street, and it has moved back further since then."

Asked if he could see who was throwing the items out on to the street, he said: "All I saw was someone in a shirt, I couldn't see him or her."

Rajesh Kalia, of Goodge Law solicitors, who works two floors below where the incident was unfolding in Shropshire House, said: "We were in the office and suddenly we were told by the police that there was some problem in the building and asked to evacuate immediately.

"The police were very clear about the instructions. There was no panic or anything but they were very firm and got everybody out of the building very, very quickly.

"I overheard someone say that there was a man in there with some wires coming out of his jacket.

"Now, I don't know how much of that is true but that's the impression they gave us.

"They mentioned something about a flame-thrower, the jacket and wires coming out of it, and that's about it.

"We're two floors below where this was happening.

"We heard some shouting in the stairwell and then were asked to leave by the police so I think the police got there pretty quick."

It is not known how the suspect arrived at the scene, whether by vehicle or on foot ([Independent, 2012](#)).

**Title:** Milwaukee Man In Custody For Mailing Suspicious Envelope

**Date:** April 30, 2012

**Source:** [Bio Prep Watch](#)

**Abstract:** A man has been taken into custody after he filmed himself mailing a suspicious package on Milwaukee's lower east side and notified multiple media outlets on Saturday.

The man said that the envelope, addressed to the Department of Workforce Development, was laced with anthrax. Milwaukee police shut down streets near the mailbox and investigated the package, which turned out to be a hoax, [FOX 6 News](#) reports.

The incident occurred at the corner of Knapp St. and Astor and forced the closure of the two streets from 5:30 p.m. to 8:30 p.m. No businesses were closed and no evacuations took place during the incident.

The man, who has not yet been named or charged, recorded a video of himself mailing the letter with a woman by his side. He spoke nonsense during the recording, mailed the letter and sent an email to multiple news outlets in Milwaukee stating that a letter laced with anthrax could be located at East Knapp St. The emails contained a link to the video, according to [Fox 6 News](#).

The person who allegedly made the threat used to work at Accurate Metal Products, where he used computers to draw up designs. After getting the job in February, he was fired in early April following a conflict that took place between the man and a co-worker. One video showed the man making threats against his former employee. He was arrested after the incident on Saturday evening ([Bio Prep Watch, 2012](#)).

**Title:** Woman Accused Of Putting Bleach In Daughter's Eyes

**Date:** May 1, 2012

**Source:** [Fox 8 News](#)

**Abstract:** Prosecutors have accused a Washington state woman of repeatedly putting bleach into her daughter's eyes, causing permanent vision loss in the toddler's right eye.

Jennifer Mothershead was arrested Friday and was charged with assault after a lengthy investigation.

Authorities say her daughter was airlifted to Harborview Medical Center in Seattle in May 2011 after sustaining a serious head injury. The girl, who was 14 months old at the time, also had an eye infection. Doctors called the Pierce County Sheriff's Department because they suspected the head injury was a result of abuse.

Mothershead told a detective her daughter started to have an eye issue in March 2011 after playing in a barn. She said the girl received antibiotics and eye drops, but Mothershead didn't provide an explanation for the head injury and, according to the detective, didn't show any emotion about her daughter's injuries.

The detectives placed the girl in state protective custody.

Mothershead had brought the eye drops to the hospital, and a staff member later opened the drops and noticed a foul odor.

Investigators sent the drops to the Food and Drug Administration's Forensic Chemistry Lab for analysis. The lab determined the drops contained bleach.

"The staff at Harborview determined that the damage to the child's eyes was consistent with repeated exposure to bleach, and ruled out any possibility that the eye dropper had been merely cleaned with bleach," prosecutors said in a statement.

The girl's condition improved in the hospital, but doctors noted she'd lost vision in her right eye. The girl now lives with her father.

Mothershead, 29, of Buckley pleaded not guilty to first-degree assault of a child Monday. Mothershead was ordered held in lieu of \$150,000 bail ([Fox 8 News, 2012](#)).

**Title:** Minnesota Authorities See First Case Of Chemical Suicide

**Date:** May 2, 2012

**Source:** [Fox News](#)

**Abstract:** Authorities in eastern Minnesota say first responders are dealing with a new and dangerous phenomenon -- chemical suicide.

Washington County Sheriff's Cmdr. Brian Mueller says his department dealt with its first case over the weekend. A person had committed suicide by mixing household chemicals in a bucket, creating a deadly gas. The body of a man from Prescott, Wis., was found in a car in Point Douglas Park.

Mueller says when first responders arrived they detected a faint smell of chemicals and called St. Paul hazardous materials squad. He says more training is needed for first responders because they "may not know what they're walking into when they open the car door."

Mueller tells the St. Paul Pioneer Press the haz-mat squad has dealt with similar incidents in the Twin Cities metro area ([Fox News, 2012](#)).