

# 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](#) 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](#)).

**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 inoculate-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](#)).