

Bio & Terror Bible

EXPOSING THE COMING BIO-TERROR PANDEMIC

BIOTERRORBIBLE.COM: The following propaganda was published within the calendar year of 2005. 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: Bioterrorism And Pandemic Flu Preparedness In 2005

Date: February 22, 2005

Source: [Recombinomics](#)

Abstract: If we are seriously concerned about the possibility that nefarious individuals or groups might make bioweapons using state-of-the-art genetic manipulations, the chain of events leading to recognition that such experiments were under way might look very much like what occurred with these Korean swine strains. The WHO would be under pressure--by international agreement under the Bioweapons Convention of 1972--to definitively prove, or disprove, allegations. Does WHO have sufficient funding, manpower, and clout to do this job at this time? No.

As more and more announcements on the looming flu pandemic hit the news services and the public realizes that pandemic preparedness in 2005 is not much better than it was in 1918, the issue of bioterrorism preparedness is again being raised. The bird / human flu situation in South Korea is being cited as a "[scary near miss](#)" to show how unprepared the US is for bioterrorism.

However, the characterization of the WSN/33 situation in pigs on farms in South Korea is clearly not in the "near miss" category at this time. The situation is unresolved and although several explanations have been offered, the likelihood of the explanations being correct is very close to zero.

The WSN/33 are clearly on deposit at [GenBank](#) and [Los Alamos](#) and publicly available. They were deposited at GenBank on Oct 24, 2004 and were publicly available at the end of November. WHO was notified in early December about potential public health issues, and the possibility of Bioterrorism was also publicly raised in early December.

It is now 2 1/2 months later and the location and existence of the viruses is unresolved. The Korean lab that isolated the viruses, and deposited the WSN/33 sequences, says the sequences are in many pigs on many farms in Korea.

The human portions of the Korean swine sequences at the databases are clearly WSN/33 related and [present](#) in reassortants, which have human and avian influenza genes as well as recombined genes.

South Korea is calling the sequences a lab error and claiming that the WSN/33 sequences exist only in cyberspace, and the sequences they generated point to yet another virus as the source of the human sequences.

Clearly someone is mistaken, but no one at this time can say who.

The South Korean official explanation certainly would fall into the "least likely" category. There were six sequences on eight genes that were deposited at GenBank last year. Of these 48 sequences, 30 are over 99% homologous to WSN/33 and virtually all are slightly different than WSN/33 and slightly different than each other. Moreover, these differences are not random sequencing errors. They are differences consistent with well defined rules of influenza evolution.

Since the Korean lab has indicated that it does not have WSN/33 growing in the lab, and the viruses were isolated in chicken eggs, it is hard to see how any WSN/33 would contaminate the viruses or the data. Thus, at this time there is no credible data refuting the presence of these combinations in pigs.

The existence and location of the sequences is not an academic exercise. WSN/33 is quite lethal in mice and two of the sequences are H1N1 which would be readily transmissible from human-to-human. Since these sequences are from 1933, most people would be immunologically naïve to these proteins, so infections in humans could have severe consequences. Moreover, the sequences indicate the isolates have reassorted and recombined genes. Recent data of 2003 isolates shows extreme [genetic instability](#) in South Korean isolates. Not only were H9N2, H3N2, and H6N1 subtypes identified, but some of these genes were also recombinants.

Since South Korea is saying that there are no WSN/33 sequences in pigs and the data are lab errors, the source of these swine sequences is not being investigated.

Thus, the existence of the sequences in swine has not been resolved for four months after they were placed on deposit at Genbank.

Bioterrorism and Pandemic Preparedness are interesting concepts, but avian influenza continues to evolve and gain [pandemic potential](#) as governments spin wheels, issue warnings, and hope for the best ([Recombinomics, 2005](#)).

Title: Interpol Sounds Bio-Terror Alarm

Date: February 23, 2005

Source: [BBC](#)

Abstract: The world is ill prepared for the looming threat of a biological terror attack, the head of Interpol has said.

Ronald Noble told the BBC the danger of an al-Qaeda attack had not diminished since the 9/11 strikes on the US.

The head of the global police body also denied governments had played up the risks for political gain.

"I don't think it is the sounding of false alarms," Mr Noble said, citing recent evidence. "I think the alarm is real and it is continuing to ring."

'Millions at Risk'

Recent attacks around the world; indications that al-Qaeda plans to use biological and chemical weapons; and its statements claiming "the right to kill up to 4 million people" are "enough evidence for me to be concerned", Mr Noble said.

In an exclusive interview with the BBC's Ten O'Clock News, he warned that the potential cost of a biological terror attack left no room for complacency.

"When you talk about bio-terrorism, that's one crime we can't try to solve after it happens because the harm will be too great."

"How could we ever forgive ourselves if millions or hundreds... or tens of thousands of people were killed simply because our priorities did not include bio-terrorism?"

Intelligence Sharing

Around 400 police officers and health officials from around the world are going to the French city of Lyons next month to attend a bio-terrorism conference - the biggest ever organised by Interpol.

Mr Noble acknowledged that governments and security agencies were better organised against the threat than ever before - but "none of us can let our guards down and assume that the problem has been addressed".

Were al-Qaeda to launch a "spectacular biological attack which could cause contagious disease to be spread, no entity in the world is prepared for it", he said. "Not the US, not Europe, not Asia, not Africa."

Interpol's bio-terrorism conference, due to start on 1 March, will seek to encourage intelligence agencies and police forces to share information and co-operate more closely against the biological terrorism threat ([BBC, 2005](#)).

Title: Stanford Researchers Join Protest Against U.S. Germ Research Policy

Date: March 2, 2005

Source: [Stanford Report](#)

Abstract: Ten Stanford researchers are among more than 700 signatories of an open letter to National Institutes of Health Director Elias Zerhouni criticizing the unintended consequences of the 2001-02 decision by the NIH National Institute for Allergy and Infectious Diseases to "prioritize research of high biodefense but low public-health significance." The letter, sent to Zerhouni on Monday, has been published online in *Science* magazine (<http://www.sciencemag.org/feature/misc/microbio/>).

The Stanford signatories include Arthur Kornberg, a Nobel Prize winner, and Charles Yanofsky, who will receive the National Medal of Science from President Bush this month, as well as Allan Campbell, Martha Cyert, Stanley Falkow, Sharon Long, Julie Parsonnet, David Relman, Lucy Shapiro and Lucy S. Tompkins.

"The diversion of research funds from projects of high public-health importance to projects of high biodefense but low public-health importance represents a misdirection of NIH priorities and a crisis for NIH-supported microbial research," asserted the signatories. "The diversion of research funds comes at a time when research on non-biodefense-related microbial physiology, genetics and pathogenesis is poised for significant breakthroughs, made possible by the application of genomics, proteomics and systems-biology methods."

Comparing grant periods 1996-2000 and 2001-2005, the letter cited a 1,500 percent increase in the number of grants awarded for work on prioritized bioweapons agents—tularemia, anthrax, plague, glanders, melioidosis and brucellosis—and a 41 percent decrease in grants to study non-biodefense-related model organisms and a 27 percent decrease in grants to study non-biodefense-related pathogenic organisms. This funding trend may drive research innovation outside the United States to the detriment of U.S. national interests, the scientists suggested.

"Support for bioterrorism research should not come at the expense of existing research," Yanofsky said in an e-mail interview. "Yes, it is an area that is in need of interest and support. But it should be considered an additional objective and not one that, by being supported, will sacrifice progress by well-established investigators who are contributing to our overall understanding that is benefiting mankind in medical as well as many other areas."

Margaret Kosal, a science fellow at Stanford's Center for International Security and Cooperation, was not a signatory but pointed out in an e-mail interview that investment in fundamental research may be more likely to provide breakthroughs and subsequent biodefense benefits. "One of the rationales for Project BioShield and other biodefense initiatives that inject large amounts of federal funding into private pharmaceutical and biotech companies is the suggestion that there may be secondary benefits for fighting other infectious disease and benefits to public health. Perhaps the arrow is in the wrong direction" ([Stanford Report, 2005](#)).

Title: Fighting Terror: It Takes A Village

Date: March 2, 2005

Source: [Stanford Report](#)

Abstract: Responding to a terrorist attack employing biological or chemical agents requires knowledge spanning many disciplines. Three Stanford researchers were among nearly 135 leading scientists and technical experts from industry, academia and government invited to participate in the Gordon Research Conference on Chemical and Biological Terrorism Jan. 30-Feb. 4 in Buellton, Calif. The conference brought together public and private sectors to discuss what has worked, where problems are now and may appear in the future, and what needs more attention in responding to and preventing terrorism. The goal was to move toward a better "systems approach" to defense.

The Stanford participants were Margaret E. Kosal, a science fellow at the Center for International Security and Cooperation (CISAC) with a doctorate in chemistry; Steven Block, a professor of applied physics and of biological sciences and senior fellow, by courtesy, at the Stanford Institute for International Studies; and Mark A. Musen, a professor of medicine (medical informatics) and, by courtesy, of computer science.

The conference included discussions of public health surveillance and response, food supply vulnerabilities and agricultural security, forensics of biological and chemical evidence, and the changing nature of the threat environment.

Both biological and chemical terrorist attacks have the potential to cause a large number of casualties and overwhelm medical capabilities, or "surge capacity." The nation's terrorism defense plans focus on mass-effect bioterrorism—events with the potential to infect tens of thousands and kill more than a thousand. But those plans may not effectively counter small-scale biological or chemical attacks, much less nuclear or radiological attacks, Kosal asserted.

Musen spoke about the computational problems of automating surveillance for possible bioterrorism using "prediagnostic" indicators that become available even before health-care workers can identify a specific epidemic.

"There is enormous enthusiasm—and enormous spending—for combining databases of over-the-counter drug sales, absenteeism records, 911 calls and admitting diagnoses to emergency rooms and clinics," he said. "There has been virtually no empirical evaluation of any of these efforts, despite all the excitement."

Musen discussed difficulties computers have making sense of high-volume, low-signal data streams, including basic problems with the way that the data typically are represented, difficulties of integrating disparate data sources and uncertainty in how to present the results of computational analyses to public-health officials in an optimal way.

"Although there is enormous political pressure to be 'doing something' to monitor for bioterrorism, it's also important to take a step back and to engage in the research needed to determine what we really should be doing," Musen said.

Chemical Threats are Underestimated

The focus on bioterror threats may miss a more frequent occurrence—chemical attacks. In a presentation

titled "The Shifting Face of Chemical Terrorism: Assessing an Emerging Threat," Kosal examined the growing trend of non-state actors to use improvised chemical devices (ICDs) that may include choking and blistering agents.

"The path from the 'street chemistry' of improvised explosive devices [IEDs] to ICDs incorporating commercial chemicals is very short, whereas the path from IEDs to transgenic biological agents effectively weaponized is a substantial leap for states and even more so for terrorists," Kosal said. "While U.S. policy is focused on defending against a mass-effect bioterrorism attack, we may be missing a lower-tech threat of much higher probability."

Half of the U.S. fatalities in Iraq have been due to IEDs, typically roadside bombs, Kosal said. "This strongly suggests there is a substantial tacit knowledge base and readily available materials for constructing these types of weapons—one guy has not been making them all in a Mosul garage." While incorporating chemicals into roadside bombs would not dramatically increase military casualties, incorporating them in devices employed in enclosed spaces could, Kosal said.

An analysis of terrorism between 1910 and 2003 from open-source information shows the lion's share of 265 terrorist attacks—76 percent—were chemical. Only 17 percent were biological, 0 percent nuclear (involving fissile material, such as that powering an atomic bomb) and 7 percent radiological (involving radioactive elements that cannot be used for fission or that contain less than a critical mass of fissionable material, such as those employed in "dirty bombs").

It used to be that the major threat of chemical weapons came from state-based programs. Chlorine and mustard gases were used extensively in World War I, for example. The United States and the former Soviet Union amassed stockpiles exceeding 40,000 tons, which are still being destroyed. International efforts to control the exchange of certain chemicals, such as precursors for nerve and blister agents, have been effective. Kosal cited the refusal in the 1980s during the Iran-Iraq war of the world community to sell Iraq the key precursor to mustard gas.

Nowadays, terrorists both foreign and domestic may disperse traditional chemical warfare agents using improvised methods. In 1995, for example, the Aum Shinrikyo group crudely dispersed a nerve agent in a Tokyo subway—killing 12 and panicking thousands—using umbrellas to puncture 11 garbage bags, each filled with a common solvent and about a pound of sarin. Today's chemical weapons may just as likely come from common commercial sources, such as agrochemicals. Radical Islamists have even attempted to weaponize a research chemical, osmium tetroxide, used to prepare biological specimens for electron microscopy.

In contrast with nuclear or mass-effect biological weapons, chemical weapons may not require sophisticated knowledge to produce. In 2003 at a rented storage space in Tyler, Texas, government agents seized half a million rounds of ammunition, more than 60 pipe bombs, remote-controlled bombs disguised as briefcases, pamphlets on how to make chemical weapons and improvised hydrogen cyanide dispersal devices hypothetically capable of killing thousands in a minute. The stockpiler, William J. Krar, described as a white supremacist and anti-government extremist, was sentenced to 11 years in federal prison. His specific objectives remain unknown to authorities.

Kosal said terrorists do not appear to be concocting new chemicals; they're co-opting existing ones. "Chemical terrorism is likely to be a crime of opportunity and familiarity with chemicals and chemistry," Kosal said. "Perhaps the basic knowledge and materials—commercial dual-use chemicals in this instance—are too globally widespread to justify efforts to control the capability of terrorists to co-opt them for malfeasance uses. ... The best threat-reduction policy may be to reduce the motivation.

"Much of the academic and policy dialogue segregates the folks discussing motivation from the folks discussing capacity and vulnerability. The former tend to be historians and social scientists and the latter, biologists, chemists and physicists. It may prove that decreasing terrorist motivation is unfeasible in the

near term, but here is an example where those with the technical knowledge and those with the social science knowledge need to be working cooperatively, the type of interaction that the CISAC Science Fellows program fosters," Kosal said.

Ten Thousand Fingers on the Bioterror 'Button'

Block's talk focused on the growing threat of bioterror. While chemicals have killed more people to date than have biological weapons, future biological attacks using infectious, untreatable pathogens have the potential to kill more people than chemicals. Block wryly called such biological attacks "the gift that keeps on giving."

Block said post-9/11 restrictions aimed at keeping pathogens out of the wrong hands have backfired. One is the Department of Health and Human Services' "Select Agent Rule," which establishes requirements regarding possession and use in the United States, receipt from outside the United States and transfer within the United States of a particular list of agents and toxins.

"We're shooting ourselves in the foot," Block said. "We've made it so hard to work on these pathogens that even our so-called 'A-Team' can't do research with them." World-renowned plague researcher Stanley Falkow of Stanford and famed anthrax expert John Collier of Harvard have stopped working on live pathogens because of restrictive effects of recent legislation, according to Block. They now confine their research to a handful of cloned genes. "It's almost impossible to hire grad students or postdocs to work on Select Agents. Such research has been driven underground or into our national labs, which historically have not had the biological expertise found in the top academic labs and biotech companies."

Much of our response to bioterror threats is based on how we've historically responded to nuclear terror threats, Block said. "With nuclear weapons, only two things can be made to go 'boom'—plutonium and highly enriched uranium," he said. That made it comparatively easy to track and control materials, and to get a handle on the problem. "We tried to keep nuclear secrets *secret*. Not everyone knows how to make an atomic bomb."

In contrast, the genie has long been out of the bottle when it comes to biological agents. Virtually all research is reported in the open literature. "Even if we were to stop publishing everything now, there'd be enough public information to keep bioterrorists busy for at least another 50 years," he said.

"Back in the nuclear age, only a few countries were nuclear powers, and only a few people were authorized to have their 'fingers on the button,'" Block said. "Like them or not, they were responsible people. Contrast that with a world where genetically engineered weapons can be produced by, say, 10,000 people. Someone is guaranteed to press that button. We can't stop [bioterror acts] at the source any more than we can stop a computer virus at the source."

Rather than futilely attempting to thwart biological threats at their sources, which are ubiquitous, Block advocated shoring up the public health system so it can respond nimbly once threat turns to reality. A new generation of antitoxin, antiviral and antibacterial agents may mitigate ill effects, and improved vaccines may prevent damage altogether. "We need to work the problem from the other direction," he said. "To confine our attention to Select Agents alone is essentially putting on blinders. The future threats we may face may bear little relation to the organisms on the current list" ([Stanford Report, 2005](#)).

Title: Bioterror CSIs Target Germs

Date: March 15, 2005

Source: [Wired](#)

Abstract: Back in 1346, it didn't take a CSI unit to uncover the culprits behind one of history's first cases of bioterrorism. Nobody could miss the plague-ridden corpses and heads catapulted over the walls of the ancient city of Kaffa, under siege by the Tartar army.

Nor could Kaffa residents ignore the [subsequent epidemic](#), which led to their surrender and may have set off the Black Death.

Nearly seven centuries later, it's easier to secretly spread deadly germs around and harder to figure out who did it. But pioneers in the emerging field of bioterrorism forensics hope to change that equation by exposing the secrets lurking in the DNA of bioweapons.

"It's not enough to detect (a bioagent). You have to be able to attribute who made it, how they made it, what materials have gone into it," said Barbara Seiders, manager of chemical and biological defense programs at the [Pacific Northwest National Laboratory](#) in Richland, Washington.

An anthrax germ, for example, might reveal signs of the laboratory where it was created. A plague bacterium could indicate the kind of solution used to raise it. And, at least in the dreams of scientists, the genetic makeup of [ricin](#) could help identify the single castor bean plant that produced it.

On Monday at the American Chemical Society's [annual meeting](#) in San Diego, scientists discussed a variety of forensic tools, from advanced [mass spectrometry](#), which identifies the components of a material, to the chemical analysis of water, which could identify the region of the country where a germ was grown by providing an aquatic fingerprint.

But there are plenty of limitations.

"We've got a lot of questions to answer, and we're fairly limited in what we can say right now," said Randall Murch, former deputy director of the [FBI Laboratory](#) and now associate director of research-program development at Virginia Tech, at the meeting.

After all, the field of American bioterrorism forensics is barely a decade old. It's a product of terrorism fears at the 1996 Olympics in Atlanta -- and a full 10 to 20 years behind the advanced world of civilian criminal forensics, said Murch in an interview. Obscure threats, like the disease [tularemia](#), remain largely unexamined, and researchers must poke through a bounty of potential germ clues to figure out which ones hold meaning.

Then there's the uninspiring matter of the ongoing investigation of the 2001 anthrax attacks. Scientists managed to identify the strain of anthrax used, but the case remains unsolved.

"It was clear that even though we knew what the strain was, we came to understand that scientists had been exchanging it all over the world," Seiders said. "Trying to track it only knowing the strain wasn't enough."

Finding a suspect with anthrax in his basement laboratory wouldn't have been sufficient either.

"The problem is that the agents that are used for bioterrorism are found in the environment," said forensics specialist Abigail A. Salyers, professor of microbiology at the University of Illinois at Urbana-Champaign. "The bacterium that causes anthrax is in the soil in many places, especially farming areas. If you have a suspect and you find spores in that person's apartment or house, how do you know that it's the strain that was used? If you're going to convict somebody of a crime, then (you can't) just say, 'I found this bacteria on his shoes or his hands.' The defense attorneys are going to take care of that pretty quickly."

Enter the microbiologists and the search for bioweapon "fingerprints."

"Bacteria don't have fingers, so how do you take a fingerprint of a bacteria? You look at its genome sequence," Salyers said.

Criminal forensics offers countless examples of successful investigations involving the analysis of the genetic makeup of germs. Doctors, for example, can track the AIDS virus from person to person by examining strains of the virus. They can also get a good idea about how recently a patient was infected by analyzing the level of mutation in a sample of the virus.

(Recently, the technique suggested that a New York City man infected by a so-called HIV superbug had developed AIDS within months of being infected, an unusual occurrence.)

In another promising precedent, medical forensics allowed doctors to track down a colleague who inadvertently spread a skin infection throughout a large Northeastern hospital, Salyers said. The germ strain had an unusual genetic mutation that researchers eventually linked to the doctor, who hadn't done a good job of scrubbing his hands.

According to Salyers, researchers are currently decoding the genome of 10 to 15 strains of anthrax. It's not clear if the results will be released publicly. At the same time, scientists are trying to figure out how quickly the germs mutate. According to Murch, researchers are also exploring the makeup of single anthrax spores, exploring the levels of elements like sulfur, fluorine, chlorine and phosphorus.

"Chemical signatures" are another hot topic. Bacteria are grown in solutions that Salyers calls "chicken soup" for germs. Just as human bodies show signs of what we eat, bacteria may indicate the levels of amino acids, sugars and vitamins in the test tubes where they were grown.

Even when scientists uncover chemical signatures, however, "we're still going to have trouble figuring out what that all means," said Karen Wahl, senior research scientist at Pacific Northwest National Laboratories. "There's a richness of signatures, and you don't know what constitutes evidence and what constitutes inconsequential stuff you have to sort through."

Considering the challenges, Murch is limiting his expectations.

"I'd like to someday get to the level of attribution that we see in other forensic analyses, like DNA fingerprints," he said. "But I don't know that we'll ever get there" ([Wired, 2005](#)).

Title: Bioterror Victims: Wait To Exhale

Date: March 30, 2005

Source: [Wired](#)

Abstract: When a Johns Hopkins University researcher called a pig farmer and asked to use some of his porkers in a research study, the farmer was happy to oblige. "We sell everything but the oink," he replied.

Actually, that's exactly what senior scientist Joany Jackman was looking for. "I told him I wanted to buy pig breath, and there was silence for a while," she said. But the farmer agreed to help by using a special mask to condense the water vapor from porcine breath.

Armed with an analysis of the pig breath, Jackman and her colleagues hope they're on the road to a breathalyzer-like device that will instantly detect infection by bioterrorism agents like anthrax. In a related project, Harvard University researchers are looking at ways to identify and treat "superspreaders" -- Typhoid Marys who unknowingly spread more germs than anyone else by simply breathing.

Conceivably, one breath test could identify victims of a bioterror attack, and another could confirm who is the most contagious.

Both projects have gotten exposure recently. The pig-breath research was spotlighted at the American Society for Microbiology's [Biodefense Research Meeting](#) in Baltimore last week, while new findings about superspreaders made a splash after a medical journal published them in December.

Plenty of unanswered questions remain: Will breath tests be effective or practical when someone releases a cloud of dangerous microbes over, say, Washington, D.C.? Even if the tests identify the infected and the dangerous, what will happen next?

The stakes are high, however, since early detection of infection is crucial for treatment -- and difficult. For example, it's impossible to detect anthrax infection immediately, said Steven M. Block, a bioterrorism specialist and professor of biological sciences at Stanford University.

One kind of test can pick up small numbers of anthrax spores in the nasal passages, but it takes an overnight bacterial culture, he said. Quicker tests can pick up larger numbers of spores, but people must first suspect they've been infected. As the 2001 anthrax attacks in the United States showed, the symptoms of the disease often mimic those of other illnesses.

But in a major attack, potential victims may know something is wrong. Blood tests are perhaps the most effective way to get a quick picture of someone's health, but not in the chaos of mass panic. "I could not imagine drawing blood from 1,000 people in the field and analyzing it quickly," said Jackman, who has worked as an emergency medical technician. "And it's a lot more pleasant and easy to take a breath sample than a urine sample."

So Jackman and colleagues turned to breath. It helps that it isn't just made up of the gases we inhale. We also exhale droplets of the fluid that lines our lungs, potentially telling doctors how sick we are.

Scientists have already found [evidence](#) that molecules in the breath can reveal whether people have asthma, lung cancer or breast cancer.

Jackman wants to detect proteins known as [cytokines](#). Part of the immune system's signal troops, they raise red flags when an intruder enters the body. "They're essentially a help signal," Jackman said, leading the soldiers of the immune system to the site of trouble.

The research in pigs showed that the scientists could detect cytokines expelled by the lungs by using [mass spectrometry](#) to analyze breath samples. Meanwhile, research in the laboratory suggests that researchers can track the progress of infection by diseases like anthrax and bacterial influenza via checking cytokine levels.

The next step is to meld the two types of research together so scientists can figure out what the cytokines in the breath actually mean. Jackman and her team plan to ask emergency-room patients to puff into breath meters so researchers can try to link cytokines to their illnesses.

The research is still in its early stages, however, and Jackman said it may take five to 10 years before a breathalyzer-type device is ready for prime time.

Block, the Stanford professor, is skeptical. Plenty of research projects aim to detect disease before symptoms appear, he said. But the tests are, "for the most part, imprecise, costly, difficult to score -- and their discriminatory power is not all that great."

In the other breath-related study, a group of researchers is working to identify and treat superspreaders who fling extra-large numbers of germs into the world when they breathe. While not every potential bioterrorism threat is contagious -- anthrax isn't -- some, including influenza, are transmitted through the air. The transmission of SARS, another biothreat, has been largely blamed on [superspreaders](#).

In a small study published in the [Proceedings of the National Academy of Sciences](#) in December, Harvard biomedical engineering professor David Edwards and colleagues found that saltwater solution -- the same stuff people use to spray their dry noses and rinse their contact lenses -- keeps highly contagious patients from spreading germs from their lungs.

Among the 11 volunteers studied, "everybody who inhaled saline expired 75 percent less (germs) for several hours," Edwards said. (Don't rush for your medicine cabinet the next time you get a sniffle: The saline droplets used in the study were much smaller than those in over-the-counter products.)

The saline solution appears to work by changing the [surface tension](#) of fluid in the lungs, disrupting its ability to turn into droplets.

Under one hopeful scenario, officials could treat a stadium full of potentially infected terrorism victims with a mist of saline solution, said Edwards, who has formed a commercial company to investigate the saline treatment's prospects. "Obviously, that's really provocative."

An alternative would be to reduce the spread of disease by giving saline inhalers to infected people, he said.

Stanford's Block isn't sure if detection of superspreaders will help doctors prevent the spread of infection. While doctors could have limited the spread of some diseases by finding highly contagious people like the infamous and still-controversial Typhoid Mary, potential bioterror weapons "like smallpox and the flu probably require that *all* infected people be prevented from spreading the disease," Block said. "So I don't think this will turn out to be generally useful in combating bioterror."

But, he added, "never say never" ([Wired, 2005](#)).

Title: Bioterror Plans Inadequate, GAO Says

Date: April 5, 2005

Source: [Washington Post](#)

Abstract: Despite the nation's deadly 2001 experience with anthrax in the mail, federal scientists have not agreed on a method to determine whether workplaces, postal facilities or other sites that might have been exposed are free of contamination, according to a congressional study.

The lack of certified anthrax sampling procedures means "there can be little confidence in negative results," the Government Accountability Office reported. Nor can U.S. environmental and health experts answer with confidence what GAO investigators called the basic question: "Is this building contaminated?"

The report is the latest in a series of government reviews that have questioned the effectiveness of the country's bioterrorism response plans.

The Washington area has experienced several false alarms prompted by new biological agent detection systems. They include last month's incident at two Pentagon-related mail facilities; a February 2004 report of the toxin ricin in a Senate office building; and a November 2003 alarm at a Navy mail processing center in Anacostia.

A separate draft report that examined the response by local governments to March 14 incidents at two Defense Department mail facilities concluded that uncertainty over testing "muddled the communications flow" and confused the public. During the incidents, defense officials shut down Pentagon mail delivery and placed 900 workers on preventive antibiotics. Authorities later blamed "quality control problems" at a contract testing laboratory for contaminating a key sample.

Rep. Christopher Shays (R-Conn.), chairman of the House Government Reform subcommittee on national security, which requested the GAO study, said its findings expose a risk to homeland security.

"Every false positive brings multiple federal agencies stumbling to the scene with no real plan, and every false negative risks complacency in the face of a lethal threat," Shays said. "Without validated detection protocols, we risk terrorizing ourselves with false positives that put people on antibiotics needlessly and false negatives that breed a false sense of security."

In its report, the GAO recommends that Homeland Security Secretary Michael Chertoff coordinate anthrax response and testing.

Julie L. Gerberding, director of the Centers for Disease Control and Prevention, agreed in a written response to the GAO that coordinated, improved testing methods are needed. But she noted that scientifically "validated" standards were not available in 2001.

Gerberding said developing a testing protocol that would cover "every possible scenario" is impractical given the technical challenges, time and cost involved. She said "scientific judgment and evaluation" should be relied upon instead.

A CDC representative will testify at a hearing today before Shay's panel, along with officials from Virginia, the defense department, Environmental Protection Agency, U.S. Postal Service, American Postal Workers Union and the Association of Public Health Laboratories.

The GAO report says that 23 of 286 facilities tested by federal agencies in 2001 returned positive results for anthrax bacteria.

But at two of the 23 facilities, test results were initially negative, and at one facility -- in Wallingford, Conn. -- it was not until the fourth testing that a positive hit was recorded.

The U.S. Postal Service reported in August that no further testing was warranted, and no additional postal workers have reported anthrax disease.

The GAO agreed that postal workers were at little risk but added, "We cannot rely on the argument that no one has become sick to answer the question of whether facilities are contaminated."

The Department of Homeland Security and EPA have been ordered by Congress to reach agreement by August on crisis management responsibilities, the report says ([Washington Post, 2005](#)).

Title: Study: Doctors Not Ready For Bioterrorism

Date: September 26, 2005

Source: [PHYSORG](#)

Abstract: The researchers said more than one-half of 631 physicians tested were unable to correctly diagnose diseases caused by agents most likely to be used by bioterrorists -- smallpox, anthrax, botulism and plague.

However, test scores improved dramatically for the same physicians after they completed an online training course in diagnosing and managing diseases caused by bioterrorism agents.

"Most American physicians in practice today have never seen any cases of these diseases in their practice," explained Dr. Sara Cosgrove, a faculty member in Hopkins' Division of Infectious Diseases. "Preparation will be key to dealing with a major catastrophe, such as a major bioterrorist attack."

In the study, physicians at 30 internal medicine residency programs in 16 states and Washington, D.C. were tested on how to recognize and treat bioterrorism-related diseases before and after taking an online course in bioterrorism disease. Correct management of such diseases in the pretest averaged 25.4 percent. Upon completion of the course, correct management averaged 79 percent.

The study is detailed in the Sept. 26 issue of Archives of Internal Medicine ([PHYSORG, 2005](#)).

Title: U.S. Unprepared For A Pandemic Plague

Date: November, 2005

Source: [CBS](#)

Abstract: The flu flavor of the year may be the Asian Bird Flu, but whether or not the next widespread outbreak of disease is this deadly bug, another yet to be found, or even man-made by terrorists, officials at all levels of government maintain that the United States remains woefully unprepared.

The H5N1 strain of bird flu that is currently in the news has killed more than 60 people in South East Asia since 2003, which is just over a 50% fatality rate for those infected. Migrating birds carrying the disease have been confirmed now in Turkey, Greece, Romania, and Russia. The concern is that the virus will mutate into a version that easily passes from human to human, like the common flu. If it does and remains so deadly, many people will perish.

President Bush recently warned the public, "at some point we are likely to face another pandemic." He revealed a \$7.1 billion dollar plan to get the country prepared for such an outbreak, including having 20 million doses of bird flu vaccine ready. He also stressed the need to offer pharmaceutical companies liability protection for the drugs they produce so they are not dissuaded from making vaccines and other drugs.

Senator Hillary R. Clinton (D-NY) has introduced legislation with Sen. Pat Roberts (R-KS) to ensure there are adequate supplies of flu vaccine, to help prevent recurring shortages of vaccine and strengthen the vaccine delivery infrastructure to be able to respond to a crisis. The legislation, S.1828, would establish market guarantees, enabling the federal government to purchase, stockpile and buy back stores of vaccine, and increase research into vaccine development alternatives.

"Before we can be prepared to handle a response to a pandemic or avian flu outbreak, we need to make fundamental fixes to our flu vaccine infrastructure--and the clock is ticking," she said. "We need to ensure an adequate and consistent vaccine supply by encouraging more vaccine manufacturers to enter and stay in the United State market."

Besides the pandemics produced by nature, there is also the need to be vigilant against man made pestilence, such as from terrorists. To that end, New York State Senator Michael Balboni, Chairman of the Veterans, Homeland Security, and Military Affairs Committee has cited a need to increase our readiness to handle a biological attack for several years. "Unlike conventional weapons, agents of mass destruction including Smallpox, Anthrax, Sarin, Ricin, and Ebola are relatively easy to transport and deploy. In even the smallest amounts they can wreak incalculable havoc and death," he says.

In a January 2004, the committee issued a report entitled "New York After September 11th- Shaken, but Not Stirred" which opened with the following major finding:

"New York's health care system, like the rest of the nation's, is unprepared to respond and continue to provide services in the event of a large-scale bio-terrorism attack involving an infectious pathogen. Several important programs have been developed which have significantly enhanced detection, inter-hospital communication, mass inoculation and decontamination response plans by New York State, New York City, and some hospital systems. Though we are better prepared than almost every other state in

the nation, response capabilities vary from hospital to hospital and critical programs such as surge capacity, hospital security, and long term mass care are still largely theoretical concepts."

Senator Balboni returned our call to answer some questions regarding New York's state of preparedness to handle a widespread outbreak. Asked what it would take for us to be 'ready', he answered, "Oh, a lot more than we've done today. There's a question as to can we can truly prepare a nation. We've taken steps. Information is absolutely crucial. ER's, doctor offices, schools, major transportation hubs ... There are studies on how they transmit, not just person to person, but also from population to population. To understand that school absentee rates and sales at pharmacies give warning signs.... There is a fancy title, 'syndromic surveillance'-watching the syndrome of the diseased state. A society-wide monitoring in attempt to determine when a disease state has taken a hold on a population."

According to N.Y. State Wildlife Pathologist Dr. Ward Stone, if the bird flu migrates here, "We're ready to identify it. If it does come to N. America, it's going to be a big killer of birds."

The World Health Organization said the spread of the virus to Europe's fringes had increased the chances of human to human cases developing.

"It represents a call to arms on human health," Mike Ryan, director of WHO's alert and response operations, told Reuters. "It's not a time for panic, it is a time for action."

Historical Plague Notes:

1. Plague of Justinian (541 AD)--First recorded outbreak of bubonic plague, which was spread by fleas on rats. It is estimated that at it's height, 10,000 people died per day.
2. The Black Death (1300's)--Killed over 20 million in six years, a quarter of Europe's population at the time.
3. Cholera (1816-1826)--Caused by ingesting bacteria from improperly sanitized water or fish. Killed millions, especially in Russia.
4. Spanish Flu (1918-1919)--A especially lethal strain of influenza estimated to have killed over 20 million worldwide.
5. Asian Flu (1957-1958)--Believed responsible for 70,000 deaths in the United States alone.
6. Hong Kong Flu (1968-1969)--Believed to have killed 34,000 in the United States.

Other Potential Pandemics:

Ebola virus, Bolivian haemorrhagic fever, HIV, Marburg virus, Lassa fever, and Rift Valley fever

Did you know?

It is believe this children's nursery rhyme is really about the bubonic plague, alluding to the rashes victims displayed, flowers used to hide the smell of the disease, and burning the bodies of the dead.

"Ring around the rosey Pocket full of posies Ashes, ashes They all fall down" ([CBS, 2005](#)).

Title: Bio-Terror Strike 'Is Inevitable'

Date: November 21, 2005

Source: [BBC](#)

Abstract: The world must face the inevitability of a bio-terror attack by al-Qaeda, the head of Interpol has warned.

Police and health authorities around the world were underprepared for such an attack, Ron Noble told a bio-terror conference in Cape Town, South Africa.

An attack could see smallpox, anthrax, botulism or Ebola-style viruses released into Western cities.

The Cape Town event is the first of three sessions to train medics and police how to deal with attacks.

Further sessions will be held in Chile and Singapore during 2006.

Patient but Deadly

Addressing delegates from 41 African nations, Mr Noble said al-Qaeda's track record of deadly, unexpected terror attacks put the threat into focus.

Evidence collected from sympathetic websites also pointed to an avowed intention to stage bio-terror attacks if operatives gained the capability, he added.

"Al-Qaeda has openly claimed the right to kill four million people using biological and chemical weapons," he said.

"Al-Qaeda is willing, able and patient enough to plan and prepare to execute terrorists acts that [once] would have been considered unrealistic or fantasy."

Interpol says several pathogens and viruses most likely to be used in any bio-terror attack, Mr Noble told delegates.

'Suicide Bio-Weapon'

Tactics could vary - as well as a traditional detonation, attackers could turn themselves into a "suicide bio-weapon", Mr Noble said, travelling around while highly infectious.

Postal services could also be used to spread disease as shown by anthrax attacks in the US in 2001.

"The potential consequences of such an attack could be so far-reaching that a lack of action in preventing bio-terrorism poses an unacceptable risk to the safety of societies around the world," he said.

The Cape Town meeting follows a conference in Lyons, France, in March, in which Interpol urged governments to back a drive against bio-terror ([BBC, 2005](#)).