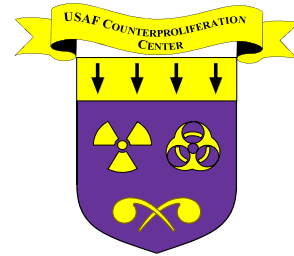


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11 Oct 2001

USAF COUNTERPROLIFERATION CENTER

CPC OUTREACH JOURNAL



Air University

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Maxwell AFB, Alabama

Welcome to the CPC Outreach Journal. As part of USAF Counterproliferation Center's mission to counter weapons of mass destruction through education and research, we're providing our government and civilian community a source for timely counterproliferation information. This information includes articles, papers and other documents addressing issues pertinent to US military response options for dealing with nuclear, biological and chemical threats and attacks. It's our hope this information resource will help enhance your counterproliferation issue awareness.

Established here at the Air War College in 1998, the USAF/CPC provides education and research to present and future leaders of the Air Force, as well as to members of other branches of the armed services and Department of Defense. Our purpose is to help those agencies better prepare to counter the threat from weapons of mass destruction. Please feel free to visit our web site at www.au.af.mil/au/awc/awcgate/awc-cps.htm for in-depth information and specific points of contact. Please direct any questions or comments on CPC Outreach Journal to Lt. Col. Michael W. Ritz, CPC Intelligence/Public Affairs or JoAnn Eddy, CPC Outreach Editor, at (334) 953-7538 or DSN 493-7538.

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Bioterrorism: Federal Activities

by Janet Heinrich, director, health care-public health issues, before the Subcommittee on Government Efficiency, Financial Management, and Intergovernmental Relations, House Committee on Government Reform. GAO-02-129T, October 5.

<http://www.gao.gov/cgi-bin/getrpt?gao-02-129t>

Bioterrorism: Public Health and Medical Preparedness

by Janet Heinrich, director, health care-public health issues, before the Subcommittee on Public Health, Senate Committee on Health, Education, Labor, and Pensions. GAO-02-141T, October 9.

<http://www.gao.gov/cgi-bin/getrpt?gao-02-141t>

Bioterrorism: Review of Public Health Preparedness Programs

by Janet Heinrich, director, health care - public health issues, before the Subcommittee on Oversight and Investigations, House Committee on Energy and Commerce. GAO-02-149T, October 10.

<http://www.gao.gov/cgi-bin/getrpt?gao-02-149t>

U.S. Newswire
9 Oct 10:08

Mayors To Hold Chemical Terrorism Briefing Oct. 11

To: Assignment Desk, Daybook Editor

Contact: Lina Garcia of the U.S. Conference of Mayors, 202-861-6719

News Advisory:

The U.S. Conference of Mayors will hold a briefing for Mayors across the country on the threat of chemical terrorism and what can be done by cities to deal with this threat, Conference President and New Orleans Mayor Marc Morial announced today.

The briefing will feature James Genovese from the U.S. Army Soldier Biological Chemical Command. An internationally recognized expert on terrorism, Genovese headed the Army's Chemical/Biological Counter-Terrorism Team and is currently an advisor to the Army's Homeland Defense Unit and the New York Terrorism Task Force.

Baltimore Mayor Martin O'Malley will moderate the briefing, which will also feature Conference Executive Director Tom Cochran.

What: Briefing for Mayors on Chemical Terrorism

When: Thursday, Oct. 11, 2001, 2:30 p.m.

Where: 1620 Eye St., N.W., 4th floor or online at www.usmayors.org

Who:

-- Chemical terrorism expert James Genovese

-- Baltimore Mayor Martin O'Malley

-- U.S. Conference of Mayors Executive Director Tom Cochran

-- Mayors from across the country will participate via then Internet

The video conference, accessible to the public on the Web at www.usmayors.org, is the second in a series designed to help keep Mayors informed about emergency management preparedness, terrorism, public safety, and public health issues.

Mayors across the country have been on the frontlines responding to this month's terrorist attacks, directing emergency response and preparedness efforts, beefing up local security, organizing blood drives and financial contributions, and urging tolerance.

Over the past several years, the conference has worked with the U.S. Department of Justice and Texas A&M University to sponsor regional training sessions to help Mayors deal with the threat of biological and chemical attacks.

--- The U. S. Conference of Mayors is the official non-partisan organization of cities with populations of 30,000 or more. There are about 1,200 such cities in the country today. Each city is represented in the conference by its chief elected official, the Mayor.

KEYWORDS:

ADVISORY, TERRORISM, SCIENCE, HEALTH

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http://www.usnewswire.com/topnews/Current_Releases/1009-106.html

Senators offer many bills on bioterrorism

By JESSICA WEHRMAN, Scripps Howard News Service

WASHINGTON - Even as investigators in Florida examined two cases of anthrax, a leading health official Tuesday told U.S. senators the public health system is ill-prepared for a biological or chemical attack.

Mohammad Akhter, executive director of the American Public Health Association, said only half of the states have so-called "disease detectives" - experts trained to prevent or detect bioterrorism. Thirty-two states have public health veterinarians who would identify diseases transmitted from animals to humans.

And only 10 percent of the nation's 3,000 local health departments have e-mail - making it difficult to see a trend of diseases that could be indicative of a bioterrorist attack.

Such an attack, Akhter said, would likely take weeks or months to notice. It takes seven to 19 days for smallpox to appear. Anthrax can lie undetected for up to 60 days.

Last November, Congress enacted a law aimed at improving hospital response capabilities, upgrading the Centers for Disease Control and Prevention's rapid identification and early warning systems, and giving more money to staff and train health professionals to diagnose and care for victims of chemical or biological weapons.

Sens. Bill Frist, R-Tenn., and Edward Kennedy, D-Mass., who spearheaded that bill, now want an additional \$1.4 billion to back up the law. It is one of many bills being pushed as fears of bioterrorism grow in the wake of the Sept. 11 attacks:

- Sen. Evan Bayh, D-Ind., is launching an effort to give states grants totaling \$450 million per year to better prepare for biological and chemical attacks. That plan would require each state to submit a plan to the secretary of health and human services detailing methods of improving disease detection as well as emergency response capabilities.

- Sen. Jon Corzine, D-N.J., has introduced a bill requiring states to develop and implement a public health disaster plan to respond to a chemical or biological attack.

- Sens. Chuck Hagel, R-Neb., and John Edwards, D-N.C., introduced a bill allowing the government to spend \$1.6 billion to strengthen defenses against biological and chemical weapons. One third of that money would be given to states and local governments as block grants.

- Sen. Hillary Clinton, D-N.Y., plans to introduce a bill aimed at getting the government to study and prepare for the effects of bioterrorism on children.

Federal spending designed to counter bioterrorism has increased 310 percent since fiscal year 1998, according to the congressional General Accounting Office.

Akhter also recommended the federal government reconsider its long-held policy of not vaccinating against smallpox - another disease that public health officials say could be used as a biological weapon. A particular pressing need: vaccinating the emergency and medical workers who would be the first to respond to such an attack. "These people must be protected," he said.

The only known biological assault on Americans occurred in 1984, when a cult in Oregon laced salad bars with bacteria. More than 750 became ill with salmonella. No one died.

(Reach Jessica Wehrman at wehrmanj@shns.com)

<http://www.cincypost.com/2001/oct/10/bioter101001.html>

America At War: Bioterrorism: Anthrax & Smallpox

With Jonathan B. Tucker, Ph.D.

Monterey Institute of International Studies

Tuesday, Oct. 9, 2001; 10 a.m. EDT

U.S. and British forces began a series of strikes in Afghanistan targeting al Qaeda training centers and the country's ruling Taliban on Sunday, Oct. 7. President Bush described the strikes as a "sustained, comprehensive and relentless" campaign against terrorism.

Jonathan B. Tucker, Ph.D., an expert on chemical and biological weapons in the Washington, D.C. office of the Monterey Institute of International Studies and the author of "Scourge: The Once and Future Threat of Smallpox," was online **Tuesday, Oct. 9 at 10 a.m. EDT** to talk about bioterrorism.

Tucker directs the Chemical and Biological Weapons Nonproliferation Program at the Center for Nonproliferation Studies (CNS) of the Monterey Institute of International Studies, a private graduate school in Monterey, California. Before joining CNS, Tucker worked as an arms control fellow at the Department of State, an analyst in the international security program at the Congressional Office of Technology Assessment, and a foreign affairs specialist in the office of chemical/biological policy at the Arms Control and Disarmament Agency. He also served as senior policy analyst on the staff of the Presidential Advisory Committee on Gulf War Veterans' Illnesses. In February 1995, he was a biological weapons inspector in Iraq under the auspices of the United Nations Special Commission.

Tucker has published numerous articles and reports on chemical and biological weapons issues. He edited the volume *Toxic Terror: Assessing Terrorist Use of Chemical and Biological Weapons* (MIT Press, 2000). He holds a B.S. in biology from Yale University, an M.A. in international relations from the University of Pennsylvania, and a Ph.D. in political science (with a concentration in defense and arms control studies) from the Massachusetts Institute of Technology.

A transcript follows.

Editor's Note: *Washingtonpost.com* moderators retain editorial control over Live Online discussions and choose the most relevant questions for guests and hosts; guests and hosts can decline to answer questions.

Atlanta, Ga.: Can anthrax be contracted by eating fresh produce from Florida, Georgia and California?

Jonathan B. Tucker, Ph.D.: No, the gastrointestinal form of anthrax can only be contracted by consuming insufficiently cooked meat from anthrax-infected animals, such as sheep, goats, or cattle.

Alexandria, Va.: Someone once told me that lethal biological agents can be placed in aerosol cans. Is that a practical way to deliver these agents?

Jonathan B. Tucker, Ph.D.: An aerosol can would not be an efficient way of disseminating a biological agent because it would generate droplets that would be too large to remain suspended in the air for a long enough period to infect the intended victims through the lungs. Thus, the area affected would be extremely limited.

Phoenix, Ariz.: Dr. Tucker, my questions are about smallpox, specifically.

First, why is smallpox being regarded with such fear? This disease lasted well into the twentieth century. Please correct me if I am mistaken, but I believe it can be fatal, and can cause blindness, but the mortality rate is far from 100 percent.

Second, the WHO declared it eradicated some time in the 1990s, I believe. Would it be easy for terrorists to get part of the small existing laboratory stock of the virus, and grow it until they have enough to make a significant impact on use?

Third, there is a vaccine, I remember being vaccinated against smallpox when I was a child. Would it not be feasible to build up these vaccines, and immunize the population as a preventive measure? It would take time - six months, a year, maybe longer - but after that time there would be one less thing to worry about.

Jonathan B. Tucker, Ph.D.: The reason smallpox is considered the "worst-case" bioterrorist agent is that, unlike anthrax, it is contagious from person to person. Thus, although the mortality of the most virulent strains of smallpox is only about 30 percent, the disease could spread rapidly through the population unless it were contained by vaccination.

Smallpox was eradicated from the human population in 1977, the first -- and thus far only -- infectious disease to have been deliberately eliminated by vaccination. The global eradication campaign was carried out under the auspices of the World Health Organization (WHO) and is considered one of the greatest achievements of 20th century medicine. Because the smallpox virus infects only humans and has no animal reservoirs, it is unlikely to return from natural sources. But laboratory stocks of the virus still exist. There are two WHO-approved repositories of the smallpox virus stored in high-security laboratories at the Centers for Disease Control in Atlanta and a similar facility called Vector near Novosibirsk, Russia. Circumstantial evidence suggests, however, that undeclared stocks of the virus may exist in countries known to have biological warfare programs, such as Iraq and North Korea. The possible existence of these illicit stocks is the main reason why the U.S. government is so concerned that smallpox virus could fall into the hands of terrorists.

Although no drug treatment for smallpox is available, the smallpox vaccine is extremely effective -- generating protective immunity in about 10 days -- and also has a therapeutic effect if administered within 3 or 4 days of infection, preventing the disease entirely or rendering it less severe. Immunity declines over time, however, so that people vaccinated once in childhood may no longer have an adequate level of protection. The United States currently has roughly 7.5 million doses of smallpox vaccine on hand, far from enough to contain even a medium-sized outbreak. But 40 million additional doses are on order, and the delivery date was recently moved up from 2005 to 2002. Because the vaccine is not entirely safe and involves a small but significant risk of complications, it does not make sense to vaccinate the U.S. population prophylactically but rather to keep the vaccine on the shelf and administer it only when actual cases of smallpox are diagnosed.

Fairfax, Va.: For older adults, will a smallpox immunization received as a child still be effective?

Jonathan B. Tucker, Ph.D.: Until 1972, children in the U.S. were required to be vaccinated against smallpox before school entry. In 1972, however, the U.S. government decided that the risk of contracting natural smallpox in the United States was lower than the risk of complications associated with the vaccine. Thus, it was decided to limit vaccination to troops, scientists working with poxviruses, and travelers to countries where smallpox was still endemic. Because the immunity generated by the vaccine declines gradually over time, people vaccinated once as children probably have little residual immunity today. Those who received at least one revaccination, or booster shot, probably have a higher level of immunity.

Princeton, N.J.: Before Sept. 11, experts were split over the prospects for WMD terrorism. Some felt it would be the wave of the future and were very afraid, others felt terrorists would stick with conventional methods and that the threat was overblown. The recent attack seems to have split the difference--it achieved the "MD" with an improvised conventional "W." Where does/should the expert debate on the threat go from here?

Jonathan B. Tucker, Ph.D.: The events of September 11 have increased the assessed threat of bioterrorism for two reasons. First, although acquiring the capability to inflict mass casualties with a biological or chemical agent would require overcoming a series of complex technical hurdles, the extremely systematic, methodical approach taken by the terrorists (including obtaining flight training for their operatives) suggests that if they were to apply the same methodical approach to acquiring and delivering a biological or chemical agent, they might eventually be able to overcome the technical hurdles. Second, if terrorists were to obtain assistance from a state-sponsor with a biological weapons program, they might be able to find short-cuts around the technical hurdles. The (still unproven) possibility of state sponsorship in the case of the al-Qaeda group therefore increases the potential threat.

Mobile, Ala.: I am a 30 year old female who has never been vaccinated for smallpox. Should I be concerned with getting one now?

Jonathan B. Tucker, Ph.D.: Smallpox vaccine was taken off the market in 1983 and is no longer available to civilians. The U.S. government is in the process of acquiring a large reserve stockpile (40 million doses) along with a "warm" production line capable of producing more if needed. In the event one or more cases of smallpox were diagnosed, the U.S. Centers for Disease Control would distribute the vaccine in order to contain the outbreak. It does not make sense to vaccinate people prophylactically at this time, because the threat of bioterrorism with smallpox is still considered low and the vaccine entails a small but significant risk of serious complications (including death or brain damage) in about 1 of every 300,000 people vaccinated.

Montreal, Quebec: It is clear from Ken Alibek's (former Deputy Director of the Soviet Biopreparat) book "Biohazard" that the Russians had weaponized small pox into a compact, missile-deliverable packages. Are the Russians and Americans taking seriously the possibility that these pre-packaged, weaponized systems could fall in to (i.e. be bought/stole by) the wrong hands? Given the extreme technical challenges in making bioweapons viable (witness multiple failed attempts by Aum Shinrikyo), isn't acquiring an Soviet-era weaponized system by far the greatest threat?

Jonathan B. Tucker, Ph.D.: Dr. Alibek contends that the huge Soviet stockpiles of liquid smallpox virus suspension (up to 20 metric tons) were destroyed in the late 1980s. Moreover, the stockpile had a shelf-life of only six months to a year and hence would have deteriorated unless it was continually replenished. Concern remains, however, that some seed cultures of the virus, which could potentially be used to grow large quantities, remain unaccounted for and could have been smuggled out of the Soviet Union by former biological weapons scientists. No concrete proof exists for this scenario, but the possibility is troubling.

Washington, D.C. : Washington, seems to be the no. 1 bioterrorist target, apart from other US cities. Is there any plan for self protection? Any prevention measures taken by any organization including government? How could we all in the city be able to deal with it?

Jonathan B. Tucker, Ph.D.: The best defense against a bioterrorist attack is to strengthen the ability of local, state, and federal public health authorities to detect an unusual outbreak of disease at an early stage, when the disease is still treatable, so that appropriate drugs and vaccines can be rushed to the affected population. At the moment, major gaps remain in the U.S. public health system, the result of years of complacency about infectious disease. Strengthening the system will require training doctors to recognize unusual diseases such as anthrax and smallpox, and will also require better staffing and communications infrastructure for public health departments so that they can respond to doctors' reports 24 hours a day, seven days a week.

Rome, Italy: Dear Mr. Tucker, I would like to know which chemical or biological agents are easiest to produce for terrorists and what can be done against their proliferation.

Jonathan B. Tucker, Ph.D.: The biological agent that would probably be easiest for terrorists to acquire, produce, and "weaponize" (convert into a form suitable for delivery as a weapon) is anthrax. This is because pulmonary anthrax is a highly lethal disease (more than 90 percent fatal if untreated) and the anthrax bacterium can be induced to form a "spore," which has a tough outer coating that protects it from environmental stresses. Still, would-be bioterrorists would have to overcome a number of technical hurdles: (1) acquiring a virulent strain of anthrax, as not all naturally occurring strains will cause disease; (2) producing the agent in sufficient quantities and inducing it to sporulate; and (3) delivering the spores as a fine-particle aerosol that will remain suspended in the air for long periods and can be retained in the victims' lungs.

Arlington, Va.: I was wondering why there has yet to be any real discussion on the positive steps which need to be taken by the average citizen when notified of a threat. I recognize the need to not become an alarmist, however shouldn't some form of planning be delineated to the general public?

Jonathan B. Tucker, Ph.D.: There is relatively little that the average citizen can do to prevent bioterrorism other than remaining vigilant and reporting suspicious behavior -- such as someone spraying a fine mist from a vehicle or rooftop -- to the police. Because a bioterrorism attack would probably be covert, the first indication of the attack would come when the affected individuals began developing a non-specific illness after an incubation period of days or even weeks. By that time, the exposed population could have dispersed widely. Thus, doctors would need to recognize the symptoms as unusual and report them to the local public health department, which would then analyze the data and determine that a suspicious outbreak was occurring. The agent would then have to be identified and the appropriate drugs and vaccines made available. This challenge requires strengthening the public health system. Bioterrorism is not a problem that individuals can address on their own, but that we as a nation needs to address

together. The best thing that citizens can do is to pressure their members of Congress to support additional funding to strengthen U.S. public health capabilities.

Pittsburgh, Pa.: Since it seems rather clear that the anthrax attacks in Fla. involved human intervention, is the DNA of the anthrax being tested to determine if multiple strains were present?

It seems that markers can also be used to determine the origin or the organism. I believe that a lab in AZ has defined 93 genotypes using 495 anthrax isolates, which can be used to track the bug(s).

Jonathan B. Tucker, Ph.D.: Yes, epidemiologists at the Centers for Disease Control plan to do "DNA fingerprinting" of the Florida anthrax strain so as to determine its geographical origin by comparing it with a computer library of DNA sequences of known strains from around the world. Determining where the strain originated could provide important clues as to the possible perpetrators.

Mount Pleasant, S.C.: What is the risk of terrorists striking through use of a "suicide patient," who purposely infects himself with a deadly, infectious disease with the intent of communicating it as much as possible before death? It seems that if the terrorists can get so many people to plunge to death on an airliner, they could line up plenty to wipe their germs around public places. What could we do to protect ourselves? Does the government consider the suicide patient to be a credible threat?

Jonathan B. Tucker, Ph.D.: The scenario of the "suicide patient" is possible, but would involve a number of constraints. First, this method of delivery would be limited to contagious agents, such as pneumonic plague or smallpox. Second, the individual would only become contagious after the appearance of high fever and severe weakness, and in the case of smallpox, a facial rash. Although the smallpox rash would initially consist of small red spots that could be concealed with make-up, the lesions would soon swell with fluid and then pus, making the facial rash impossible to hide. Finally, although fanatical terrorists might be willing to die instantly in a blaze of glory, they might be less willing to suffer the excruciating pain and disfiguring effects of plague or smallpox.

Washington, D.C.: Can we get any vaccine against anthrax here in D.C.?

Jonathan B. Tucker, Ph.D.: Anthrax vaccine is currently unavailable to civilians, and is in short supply even for members of the U.S. military. The sole manufacturer of the vaccine, BioPort, has had persistent problems with quality control, production capacity, and obtaining FDA approval. Moreover, the current vaccine requires six doses over a period of 18 months, making it poorly suited to vaccinating the civilian population. Developing a new anthrax vaccine that requires fewer shots should be a top U.S. government priority.

Columbia, Md.: My 13 year old and I try to keep the topics light these days. However, his concern is that these terrorist will resort to biowarfare without hesitation. Perhaps they are reluctant to use such weapons that would decrease their own numbers.

My son argues that 'they didn't think twice about suicide bombings, Mom'.

Do you think these anthrax incidents are related or is the media only heightening the definition of 'terror'.

Jonathan B. Tucker, Ph.D.: It is important to keep the threat of bioterrorism in perspective, an aspect that tends to get lost in media accounts. Although public awareness of the threat has increased dramatically in recent weeks, the risk of bioterrorism remains relatively small. Any given individual is still in greater danger of injury or death when driving on the highway than from being exposed to anthrax or smallpox. Because the potential consequences of bioterrorism could be serious for our country, however, it is appropriate to take measures now to reduce our vulnerability.

Vandalia, Ill.: While Anthrax is known to be non-contagious, smallpox and other made-made diseases are out there. It is known they are highly contagious.

How many of these strains are known and do we have an antidote that is universal for these diseases, and is it available to all areas of the country?

Jonathan B. Tucker, Ph.D.: The two contagious biological agents of greatest concern are the plague bacterium and the smallpox virus. No universal antidote for these infections exists, although plague can be treated effectively with antibiotics if diagnosed at an early stage. Smallpox, being a viral agent, cannot be treated with antibiotics, and no effective anti-smallpox drugs are currently available. In the (unlikely) event smallpox were used as a weapon, its spread would have to be contained with vaccination.

Arlington, Va.: I think like most people I want to know what precautions I can take to prevent infection by a lethal agent in the event of a biological attack. I have read the new Anthrax vaccine won't be ready until December and I

was among the first generation not to be immunized for smallpox. Should I be getting immunized, and what are the risks?

Jonathan B. Tucker, Ph.D.: Vaccines against anthrax or smallpox are not currently available for the civilian population. Even if they were, prophylactic vaccination of the general population would not be recommended because of the small but significant risk of complications, particularly from the smallpox vaccine. The current U.S. government plan is to produce a large reserve stockpile of smallpox vaccine, which in the event of an outbreak would be used to vaccinate those likely to have been exposed so as to prevent the disease from spreading. Pulmonary anthrax can be treated effectively with antibiotics if detected before the appearance of severe symptoms.

San Jose, Costa Rica: Exist outbreak risk of Anthrax in Florida as consequence two cases recently reported? We have our boy studying in FIU and we are very worried. Please some recomendation.
Gonzalez family

Jonathan B. Tucker, Ph.D.: Because anthrax is not contagious from person to person, the current outbreak does not appear to pose a risk to the general population, but only to those who were in the contaminated building (American Media, Inc.).

Purcellville, Va.: It seems to me that, in the event of a release of a biological weapon, that the area of release should be isolated immediately, and that all traffic into or out of the area should be halted. The access restrictions should remain in effect until the situation can be assessed, the people in the area identified for testing and treatment, and the potential spread of a contagious organism halted or at least controlled. This approach makes scientific, military and medical sense, but it apparently does not make political or PR sense yet. I think that the people of the most likely target cities (New York, DC and LA at this point) need to be aware that their city or portions thereof might be closed off at some point due to a real or potential bioweapons threat, and that they should take some common sense measures ahead of time, in the event that they be restricted to their office building for a day or two or three while a threat is assessed. Preparedness might include having some non-perishible food and bottled water at work, some extra prescription medications, a toothbrush, a change of clothes, and possibly a blanket in one's office. -After all, we are at war.] Preparedness might also include beefing up your own health as much as possible by getting better nutrition, quitting smoking, and taking some standard vitamins. Does this type of approach make sense to you, or do you forsee a different scenario, and do you recommend different--or additional--measures to prepare?

Jonathan B. Tucker, Ph.D.: The question of quarantine is a thorny legal issue, but it is likely that in the event of an outbreak of a contagious disease such as plague or smallpox, all individuals in the active phase of the disease would have to be isolated in a hotel or armory to prevent further spread. Health workers and anyone who had come into close contact with the first "wave" of cases would also have to be vaccinated, with the aim of building a "firebreak" of immunity around the outbeak so it would burn itself out.

Victor, N.Y.: Biological and chemical weapons seem to have many properties that are advantageous to terrorist, e.g. does not require suicide, rather broadspread, high mortality rates, and a scare factor beyond convectional bombs. Given all this, why haven't we seen more of it to date?

Jonathan B. Tucker, Ph.D.: There appear to be three aspects to this question: motivational, organizational, and technical. In the past, few terrorist groups have been motivated to inflict mass, indiscriminate casualties. Those few groups that have been motivated to do so, such as the Aum Shinrikyo cult in Japan, have either lacked the organizational structure needed to resist penetration by law enforcement, or the technical know-how to acquire virulent strains, produce them in quantity, convert them into a weaponized form such as a slurry or powder, and deliver them efficiently. The Aum Shinrikyo group, for example, tried unsuccessfully at least 10 times in 1990 and 1993 to release anthrax bacteria or botulinum toxin in downtown Tokyo with the intent of inflicting mass casualties, but failed to produce any known casualties. Those few groups that have used biological agents successfully, such as the Rajneeshee cult in Oregon in 1984, have used extremely crude methods of delivery (in this case, contamination of restaurant salad bars), resulting in relatively few casualties. In the case of the al-Qaeda terrorists, the motivation to inflict mass death is clearly present, as is the desire to acquire unconventional weapons. What is less clear is the technical capability of the group in the biological area. But clearly there is no room for complacency, and the U.S. government should take urgent steps to reduce the country's vulnerability to biological attack.

Washington, D.C.: How long can anthrax survive on objects, such as a keyboard, doorknob or money? Can it penetrate latex gloves?

Jonathan B. Tucker, Ph.D.: Anthrax spores can survive for at most 24 hours in the air when dissiminated as an airborne aerosol. If released outdoors, the spores would be killed off by exposure to ultraviolet radiation (sunlight),

although they could persist for many years if buried in soil. Moreover, although anthrax spores could contaminate building surfaces for several hours, they would adhere to the surfaces and would be unlikely to be re-aerosolized to cause pulmonary infection. Indoors, anthrax spores would be able to persist for significantly longer periods and might be re-aerosolized by vigorous activity, such as typing on a keyboard.

Peaks Island, Maine: I'm thinking of arboviral encephalitis diseases, perhaps intentionally introduced through mosquito larva coming in with live tropical plant imports; or any other import which could be used to introduce toxic bacteria or viruses into our environment. Is it remotely possible that West Nile Virus, Mad Cow, red tide, Lyme disease, or other long-term direct or indirect threats might be (or might have been) intentionally introduced? If so, are we guarding against that? Thanks for your comments (and p.s: home remedies for relieving paranoia might be helpful too!

Jonathan B. Tucker, Ph.D.: It is extremely unlikely that West Nile virus, mad cow disease, Lyme disease, or AIDS were deliberately introduced as bioterrorist agents. These diseases either have a very low mortality rate (West Nile kills about 5 to 10 percent of those infected, mainly children, the elderly, and those with a weak immune system), cause disease extremely slowly (HIV/AIDS virus takes about a decade to cause significant illness, and mad cow takes even longer), or require an insect vector such as mosquitoes that would be a highly inefficient means of delivery.

Arlington, Va.:

Other experts have suggested that it is impractical to think about vaccinating the entire U.S. population against every conceivable pathogen (even if we had the capability)--that, due to genetic manipulation, there simply are too many strains out there, and a person couldn't survive multiple vaccinations.

Taken this as a given, reputable scientists

(esp. Dr. Kanatjan Alibekov) have stressed the need to develop--ASAP!--so-called non-specific immune boosting agents.

Do you, Dr. Tucker, agree that this is where our focus needs to be at this point? And do you concur w/ Dr. Alibekov's assessment that the generation of such boosting agents would be relatively straightforward, given the appropriate resources (funding and expertise)?

Please refer to the following URL:

[Frontline interview with Dr. Kanatjan Alibekov](#)

Jonathan B. Tucker, Ph.D.: I believe that Dr. Alibek's concept of non-specific immune-system boosters is a promising approach to defense against biological warfare, but one that is rather "blue sky" given the current state of knowledge and hence should not be pursued exclusively. Manipulating the human immune system is an extremely complex undertaking that will require many years of research to master. In the meantime, we should pursue a range of more conventional approaches to reduce our vulnerability to bioterrorism, such as the development of improved vaccines against the most likely threat agents, as well as broad-spectrum antibiotics and antiviral agents.

Atlanta, Ga.: From a practical standpoint, how difficult would it be to grow anthrax spores in a small private lab, convert them into a medium that could be sprayed or disbursed, and release them in a large quantity (say from a small plane). Is it really very feasible for a small group of terrorists in this country to do that? If the spores were released in that manner, would people on the ground be likely to inhale them in large enough amounts to become infected?

Jonathan B. Tucker, Ph.D.: The most challenging step in your scenario would probably be delivery of anthrax spores from an aircraft. Not only would delivery of the agent as a fine-particle aerosol require special equipment, but wind and weather conditions (such as thermal convection currents) could easily disperse the agent cloud and prevent it from remaining close enough to the ground to be inhaled by the targeted population. All of these variables would be challenging to terrorists, particularly those lacking assistance from a state sponsor.

Jonathan B. Tucker, Ph.D.: Thank you very much for your excellent questions, and I'm sorry I didn't have time to answer all of them. In general, my view is that bioterrorism is an emerging threat that we as a society must address, but it is not a cause for panic. Instead of seeking out individual fixes such as gas masks or self-administered antibiotics, which are unlikely to be effective, will probably provide false confidence, and may even do more harm than good, we need to be vigilant and to support collective efforts to address the threat, such as strengthening the U.S. public health system.

washingtonpost.com:

That wraps up today's show. Thanks to everyone who joined the discussion.
http://discuss.washingtonpost.com/wp-srv/zforum/01/attack_tucker1009.htm

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U.S. steps up defenses against smallpox attack

THREAT FROM DEADLY DISEASE UNLIKELY BUT POSSIBLE

BY WILLIAM J. BROAD

Mercury News

Among biological weapons, smallpox is in a class by itself.

Even as a team of investigators descends on Florida in response to a death from anthrax, it is smallpox that has many experts losing sleep.

Ancient and vicious, the virus killed more people over the ages than any other infectious disease, up to 500 million in the 20th century alone. Unlike anthrax, it is highly contagious, able to spread like fire through a dry forest. And unlike anthrax, which must be prepared to very strict specifications to do its lethal work, striking the initial spark with smallpox requires no special tricks or knowledge.

Preparing for threat

Experts say the chances of terrorists' laying hands on a stock of the virus are very low, so low that some do not even list smallpox on their roster of terrorist threats. But given the potential consequences, the government is taking a number of steps to counter an attack with the virus.

It has quietly embarked on new studies to see if existing stocks of old smallpox vaccine -- an estimated 7 million to 15 million doses -- can be diluted to stretch the stockpile. It also just announced plans to speed production of a new vaccine, to make 40 million doses available next year. The ultimate goal is to have enough vaccine for all Americans. Meanwhile, researchers are looking into new anti-viral drugs to fight the disease in unvaccinated people. Eradicated two decades ago, smallpox no longer exists in nature or human populations. Officially, only the United States and Russia have stocks of the virus, under tight security.

But federal experts suspect that clandestine supplies of the virus exist and are taking no chances.

"When you see two wonderful cities with buildings going down, that heightens the urgency," Dr. Anthony S. Fauci, the government's top infectious disease expert, said in an interview. "This is simply the prudent thing to do, to be prepared for anything."

Fauci and Health and Human Services Secretary Tommy G. Thompson, who last week announced the vaccine production speedup, say they have no reason to believe a bioterrorism attack is pending.

Smallpox is a disease of high fevers, deep rashes, bloody sores and oozing pustules that extend from head to foot. It spreads from person to person in the air, and people exposed to it show symptoms in about two weeks. Roughly one in three victims dies. Once people begin experiencing symptoms, they can spread the virus to others. Death occurs from blood loss, cardiovascular collapse and secondary infections.

Most Americans are considered vulnerable. The United States stopped routine vaccinations of civilians against smallpox in 1972, nearly a decade ahead of much of the world. People born since then are unprotected. For vaccinated people, the degree of security is unclear because scientists never systematically measured the length of immunity.

Today, family doctors have no access to the existing vaccine stockpile, which the government keeps for emergencies. Its size is inexact because the number of doses depends partly on the skill of the vaccinators, who don't give a shot but instead must lightly puncture the skin.

Vaccination, invented in 1796, let doctors infect patients with a kindred but usually benign virus (cowpox at first, vaccinia later) that gave smallpox immunity. In countries with good medical care, the disease slowly ebbed, making its occasional returns all the more frightening.

Supplies of virus

Eventually, a global campaign of vaccination cornered the virus, and public health authorities in 1980 declared it extinct in humans, its only natural reservoir. All samples of the virus were to be destroyed or sent to central

repositories. But eradication leaders had no powers of inspection. They had only diplomatic assurances when, one by one, nations said the virus was gone.

After the Cold War, evidence mounted that smallpox endured beyond the two official repositories. Russian defectors told how Moscow had built secret factories to make up to 100 tons of the virus annually for weapons. As the Soviet empire collapsed, Western experts feared that stolen germs might fall into unfriendly hands.

By 1998, a secret U.S. intelligence report concluded that Iraq, North Korea and Russia were probably concealing the smallpox virus for possible military use.

While drawing up plans for a new smallpox vaccine, Washington quietly investigated whether the nation's existing supply of up to 15 million doses could be diluted to one-hundredth of its original strength in an emergency.

The research began in early 2000 at Saint Louis University. Fauci, director of the National Institute of Allergy and Infectious Diseases, said last week that the success rate of highly diluted vaccine was found to be "very low," but that the tenfold dilution was about 70 percent effective.

In response to the Sept. 11 attacks, he added, his institute is now embarking on a new round of dilution studies with a total of 650 volunteers. The studies are to be done at Saint Louis University, the University of Rochester, the University of Maryland and Baylor College of Medicine.

<http://www0.mercurycenter.com/premium/scitech/docs/smallpox09.htm>

Tuesday, October 9, 2001

FDA rules stand in way of vaccines

Producers struggle in the war against biological weapons

By Elizabeth Neus / Gannett News Service

WASHINGTON -- The federal government has ordered the company making new smallpox vaccine to protect civilians against bioterrorism to have the first of the 40 million doses requested ready by summer.

But the vaccine won't have Food and Drug Administration approval when it comes off the assembly line.

At the same time, the anthrax vaccine remains out of reach even for the military because the sole U.S. maker has been struggling since 1998 to meet FDA standards and hasn't made new vaccine in three years.

These regulatory issues point out how difficult it may be to rely on vaccines to protect the civilian population against diseases that could act as biological weapons. Few of the diseases considered the most serious threats can be prevented by readily available vaccines.

The accelerated schedule for the first vaccine against smallpox made in the United States in nearly 30 years means that the vaccine will be ready two to three years ahead of schedule.

But "the vaccine will not have gained FDA approval" by the end of 2002, according to a research report released last week by Goldman, Sachs & Co. The company was analyzing the financial prospects of smallpox vaccine maker Acambis.

Federal health officials say they need to use the new smallpox vaccine on civilians before final FDA approval. They could get clearance to use it as an "investigational" drug, much like an experimental cancer treatment that does not have full FDA approval but is still used on patients.

Goldman-Sachs believes that accelerated FDA approval of the smallpox vaccine is "more likely than not" but does not speculate on a time frame.

For some diseases, no one thought vaccination was even necessary anymore: Smallpox was eradicated in 1977. U.S. civilians haven't been vaccinated since 1972, and vaccine hasn't been made here since the 1970s.

The government has 15 million doses of the original smallpox vaccine reserved for emergencies.

However, that vaccine was made in a way that would not meet FDA approval today, has serious side effects in some people (including death) and is thought by some experts to be of dubious quality because of its age.

Even the military can't get its hands on anthrax vaccine. The Defense Department has been trying to vaccinate its 1.4 million personnel plus another 1 million National Guardsmen and reservists since 1998.

The sole U.S. maker of the vaccine hasn't produced any new vaccine since 1998 because its manufacturing procedures didn't mesh with FDA rules.

The government says vaccination is not necessary at this point.

"We're not recommending it to the population," said Dr. Scott Lillibridge, the top bioterrorism adviser to Health and Human Services Secretary Tommy Thompson.

"The risks for civilians are different. (Soldiers) are in high-risk areas. We don't vaccinate for illnesses not moving through the (civilian) population."

<http://www.detnews.com/2001/health/0110/09/a05-314326.htm>

Defense Week
October 9, 2001
Pg. 10

Missile Defense Not Compromised In Anti-Terror Push: Official

By Christian Lowe

Russia's recent decision to cooperate militarily with the United States in its war on terrorism exemplifies the reshaping of relations between the Cold War rivals, said a top Pentagon official.

"The United States has been engaged now since May in a dialogue with Russia ... aimed at the creation of a new strategic relationship between the United States and Russia, ..." said Deputy Undersecretary of Defense for Policy Stephen Cambone at a briefing Tuesday. "In fact, the current events underscore what lays at the heart of that approach."

Russia has pledged to allow U.S. forces access to air bases in its former republics of Uzbekistan and Tajikistan for potential air operations in Afghanistan. Russia has been largely responsible for securing the restive borders of its former Central Asian republics.

Allowing the United States, its former Cold War foe, to use these countries as a staging ground for attacks against long-time rival Afghanistan is unprecedented. Russian President Vladimir Putin has also said Moscow will accelerate arms shipments to the anti-Taliban resistance, the Northern Alliance, which holds land in the northern reaches of Afghanistan.

Russia's cooperation contrasts sharply with U.S.-Russian relations before the Sept. 11 attacks in the World Trade Center and Pentagon. Moscow and Washington were at loggerheads over national missile defense and potential changes to the 1972 ABM Treaty, which bans them. Russia wanted to preserve the treaty, limiting America's ability to build a missile shield, while the Bush administration wanted to build them and abandon the treaty if necessary. Many speculate that the administration must have given up its dogged pursuit of national missile defenses in exchange for Russia's cooperation in the battle against terrorists.

But Cambone said NMD and the war on terrorism are moving on parallel tracks.

"The notion that there should be any reason that the United States should reduce its interest in and pursuit of its missile defense capabilities given the threats we have so far, at the same time that it is engaged with Russia in a cooperative endeavor against terrorism, I don't see a contradiction there," Cambone said. "And I don't see that they [the Russians] do."

Cambone made his comments at the Center of Strategic and International Studies, a Washington, D.C.-based think tank.

For months, the administration has said that changing the framework within which the United States and Russia conduct their foreign policies is a top priority. Pentagon policy chief Douglas Feith, Cambone's boss, has said the administration wants to get away from the Cold War relationship that put a premium on the balance of nuclear and conventional forces bound by intricate treaty arrangements.

The new relationship is "intended to allow each of us to be better able to look after the security concerns that we have separately and to be able to discuss them in a reasonable fashion together, and, where possible, to cooperate in meeting those common interests and threats," Cambone said.

New York Times
October 10, 2001

Signs Of Fear, But Not More Anthrax, At Florida Tabloid Offices

By Dana Canedy with Lawrence K. Altman

WEST PALM BEACH, Fla., Oct. 9 — Health officials and federal investigators said today that they had found no new signs of anthrax at a building where two men had been exposed to the disease, but the announcement did little to allay the fears of hundreds of workers at the building and others who live or work nearby.

So far, officials have not determined the source of the anthrax, which caused the death last week of Bob Stevens, who worked in the American Media building in Boca Raton. Federal officials in Washington say they have found no evidence of a criminal or terrorist act, but they also say they have no reason to believe that there was a natural cause of the exposure.

With health officials still awaiting test results of Mr. Stevens's co-workers and other American Media employees, fears continued to spread. Many people rushed to drugstores for antibiotics used to treat anthrax exposure. Others reported dust from office construction projects to health authorities. Some worried that a stuffy nose or upset stomach might indicate anthrax exposure.

"I'm actually terrified to find out who has what now," said Joanie Cox, 23, an American Media employee who was tested on Monday and began taking antibiotics today as a precaution.

Fears extended to the Palm Beach County Health Department building in nearby Delray Beach, where health workers are conducting the tests and handing out packets of antibiotics. There, workers noticed suspicious footprints and dust in an envelope and reported it to the Delray Fire and Rescue Department. A department spokesman said that the substance was dust from a construction project in the building but that it was being tested as a precaution. "So many people are calling things in at one time," said Russ Accardi, a division chief. "Because of the local situation, everybody's on edge."

About a dozen businesses and government offices around the state, including a post office in Deerfield Beach, a bank and law firm in Naples, and The St. Petersburg Times newspaper, received envelopes of white powder that the authorities said were being tested but were almost certainly sent as a hoax.

The bacteria can be easily stored as dry powder, and powders have been used in earlier anthrax hoaxes, according to the Federal Bureau of Investigation.

"It's pretty well known that these pranks are going to happen often," said Frank Penela, a spokesman for the State Health Department. "We're investigating it in the most thorough way possible."

Even as the authorities urge calm, South Florida residents have grown tense since Friday, when Mr. Stevens, 63, a layout editor for The Sun supermarket tabloid, died of anthrax. Days later, spores were detected in the nasal cavity of Ernesto Blanco, a 73-year-old mail supervisor at The Sun, which is owned by American Media Inc., publisher of The National Enquirer, The Globe and The Star supermarket tabloids.

Health authorities also found anthrax on Mr. Stevens's computer keyboard, prompting them to evacuate the offices on Monday and conduct tests on all employees and others who have been in the building over the last several weeks. Results will not be available for several days, said Dr. Jeffrey P. Koplan, the director of the Centers for Disease Control and Prevention in Atlanta.

The findings are needed to help officials of the United States Public Health Service and the Federal Bureau of Investigation determine how the two men were exposed to the bacteria. The second man has been ill, but the cause has not been determined. Anthrax has not been ruled out, Dr. Koplan said today.

American Media executives said today that the possibility of anthrax contamination had caused some to speculate whether terrorists had chosen the company for attack because it is called American Media, like American Airlines or United Airlines. They also worried that customers would be reluctant to buy copies of their papers for fear that they might be laced with anthrax.

The concern prompted David Pecker, the chief executive of American Media, to request that the disease control centers issue a statement advising consumers that contamination from a newspaper or magazine would be impossible. The company's tabloids are printed at six plants around the country. None are in Florida.

The mood among the American Media staff was one of confusion and, some employees said, paranoia.

An e-mail message was sent to some staff members saying the chairman of the company had anthrax symptoms. But Mr. Pecker said he was fine. Steve Coz, the editor of The National Enquirer, said no one had reported being ill today, but reporters and editors were skeptical.

"We're working out of our houses today and so we're not hearing much," one reporter said. "But there is crime-scene tape around the building. And we feel generally paranoid, like, What does the F.B.I. really know? And it's employees turning on employees and pointing fingers." Around South Florida, a weary public was trying to cope with fears that largely did not exist a week ago.

At the Community Pharmacy in Boca Raton, "people are panicking," said Ira Protas, the store manager.

Mr. Protas said his store typically dispensed about 200 Ciproflaxocin antibiotic pills a week but had dispensed 600 today alone.

"I had one lady come in today wanting to fill a prescription she had just filled at another pharmacy," Mr. Protas said. "She wanted to get another 100 Cipro pills for herself and her husband."

Mr. Protas said his customers were nervous and had a lot of questions. "They don't understand the communicability of the disease," he said. "I think the problem is semi- uneducated panic."

Dr. Koplan of the disease control centers said his agency had sent 15 epidemiologists and specialists in environmental health and laboratory medicine to help Florida officials test the workers and samples from the building.

He said the disease control agency and the F.B.I. were conducting parallel investigations, with the centers' role limited to the epidemiologic and laboratory studies.

Investigators have taken swabs from the building — near ventilation ducts, soil from the grounds, dust, office equipment — and if any test positive for anthrax they will build a three-dimensional map to try to recreate the possible routes of transmission, Dr. Koplan said.

Miami Herald
October 10, 2001

Possible Anthrax Match Found

Fatal strain may be tied to source from 1950s

By David Kidwell, Manny Garcia and Larry Lebowitz

Federal investigators believe they have traced "unique characteristics" of the anthrax that killed a Lantana man to a strain harvested at an Iowa facility in the 1950s, according to law enforcement sources.

But the sources caution that final results of tests to confirm the match are not yet finished.

"That's where we are headed, but the tests are not conclusive. We want to be sure," said a federal law enforcement official involved in the investigation.

Meanwhile, investigators confirmed that two hijackers who died in the Sept. 11 terrorist attacks had subscriptions to tabloid newspapers published in the Boca Raton headquarters of American Media Inc., where photo editor Robert Stevens is believed to have contracted the fatal disease.

"We're not sure what to make of that yet," a source close to the inquiry said. "It may mean absolutely nothing."

At a high-level briefing Monday, investigators were told that the anthrax strand taken from Stevens had "certain configurations" that matched a specific strain among a series of strains on file at a national anthrax repository in Arizona.

Stevens, 63, who worked at The Sun, died Friday from inhalation anthrax, a rare form of infection that claimed a total of 18 lives in the 20th Century. Federal investigators have quarantined the building and begun anthrax tests on employees.

Can Be Traced

Investigators say the anthrax strain can be traced to the Iowa facility, but that the specific version of the bacteria may have been widely distributed to researchers. They declined to identify the facility.

Investigators are conducting tests to compare the anthrax strand to those kept at a Centers for Disease Control and Prevention lab in Arizona.

If the match is confirmed, any hope that the deadly anthrax was contracted by accident would be lost.

"It's like a ballistics test," said a law enforcement investigator familiar with the case. "We know a manufacturer samples every barrel of a weapon sold and you can eventually trace it back to the manufacturer."

Experts on bioterrorism confirmed that molecular biology specialists can tell whether a particular strain of anthrax resembles strains recovered elsewhere, such as from dead livestock or soil or those stored in laboratories or strain "libraries" in the country.

Collections

Raymond Zilinskas, senior scientist at the Monterey Institute of International Studies, said Northern Arizona University in Flagstaff, Ariz., and Los Alamos National Laboratory in Los Alamos, N.M., have collections of anthrax "sequences" from around the world.

Specialists can determine the precise genetic sequence of anthrax strains and compare them to anthrax types stored in the libraries, Zilinskas said.

Anthrax bacteria, like all living things, show different features related to different strains, and biology detectives can track those characteristics in a given strain's DNA.

As a result, some of the experts said, scientists can tell whether a strain, for example, came from a specific region where a sample from a dead cow or soil was found.

"What the investigators are probably doing is trying to match the genetic makeup of the strain recovered from Stevens with one in the collections," Zilinskas said.

In other developments Tuesday, the investigation's focus sharpened on a possible workplace incident at the offices of American Media, which publishes The Sun, The National Enquirer and several other tabloids, after no signs of anthrax turned up in environmental tests performed at Stevens' home.

Family In Clear

Stevens' family is no longer receiving antibiotics and appears to be in the clear, said Tim O'Connor, spokesman for the Palm Beach County Health Department.

Officials are still awaiting further environmental tests from parks, stores, restaurants and other places that Stevens frequented, he said.

By Tuesday, a total of 770 employees and visitors to the American Media building in Boca Raton had been tested for anthrax exposure and treated with antibiotics.

A Health Department official said of the roughly 300 employees, 70 still had not reported for testing. The department is contacting those employees.

Results of the nasal swabs taken from the 770 people should be available in the next two to three days, said state epidemiologist Steven Wiersma.

Follow-Up Tests

Meanwhile, the group is being scheduled for follow-up blood tests within the next week, Wiersma said. Nasal swabs will give health officials evidence of anthrax exposure while the blood test will tell them whether antibodies are developing -- suggesting that spores were present at some point, perhaps before antibiotics were administered.

The blood results may take two to three weeks to come back, a delay caused primarily by the large volume of materials being tested in the public health and criminal investigations, Wiersma said.

No New Cases

Palm Beach County Health Department Director Jean Malecki said there are no known new cases of exposure.

She said authorities are still awaiting results of a second round of testing on American Media librarian Martha Moffett, who was hospitalized for chronic bronchitis last week and cleared during an initial test for anthrax. "She's well, she's fine," Malecki said.

Malecki said that the Health Department still has plenty of antibiotics -- tetracycline, amoxicillin and ciprofloxacin - for the AMI employees and visitors.

The drugs were flown into Palm Beach County from federal stockpiles.

Many who showed up at the Palm Beach County health clinic in Delray Beach for testing Tuesday appeared to be people who visited the AMI building but did not work there.

"I was working there before the cutoff period [for testing]," said Andrea Rollin, a former freelance writer for The Star, "but I just wanted to make sure."

Others were more irked than concerned.

"The whole situation makes me kind of angry," said Erica Franzen, who visited the building once after Aug. 1, the cutoff point for testing, to work on a college project.

As investigators worked to solve the medical mystery, nationwide hoaxes kept emergency officials busy. One false alarm even struck the Palm Beach County health center.

Crews from Delray Beach Fire-Rescue responded to the center shortly after 2 p.m. after employees called 911 and reported that an envelope containing white powder was found on a back stairwell.

No Threat

A preliminary investigation determined the powder was sheetrock dust from ongoing construction.

"We really need everyone to not get oversensitive to these issues," said Delray Beach Fire-Rescue Division Chief Russ Accardi.

Investigators hope to complete their investigation of the American Media building today and possibly begin dismantling parts of the makeshift city of investigative structures at the site.

But it was unclear when employees will return to the building at 5401 Broken Sound Blvd. NW, which has been shuttered since Monday.

Herald staff writers Alfonso Chardy and David Green contributed to this report.

Orlando Sentinel
October 10, 2001

Anthrax Gives Nation The Jitters

By Robyn Suriano and Sean Mussenden, Sentinel Staff Writers

President Bush, seeking to calm public fears about anthrax, said Tuesday that the death of one South Florida man and the exposure of another to the bacteria appeared to be isolated incidents.

Meanwhile, health experts tested about 700 people who had been inside the men's Boca Raton office building, offering them antibiotics as a precaution.

Bush praised federal and state public health officials for their quick response to the emergency.

"There is a system in place to notify our government . . . in the case of some kind of a potential biological incident or chemical incident," Bush said. "And the system worked."

Despite the president's reassuring words, however, the public remains jittery as health experts across the country agree that someone released the anthrax intentionally.

Firefighters descended on the office of the St. Petersburg Times to collect an envelope with a powdery substance that had been mailed to a columnist.

In Central Florida, police took samples of a powdery substance found on a large stack of envelopes delivered to the Orlando Sentinel on Tuesday. Orlando police and the FBI were investigating.

Health officials said they were not treating any of the concerns as frivolous.

"We've been getting a lot of calls and everything is being checked out," said Frank Penela, a spokesman for the Florida Department of Health in Tallahassee. "We want to make sure we don't miss anything."

While no one is saying the South Florida anthrax case is related to the Sept. 11 terrorist attacks, many experts think the incident had to have been caused intentionally.

Those investigating the case, however, are being more cautious. The FBI and Centers for Disease Control and Prevention said they weren't ready to draw any conclusions and may not know what happened for weeks.

Bob Stevens, 63, photo editor for the supermarket tabloid The Sun, died last week from a rare anthrax infection in his lungs. Health officials closed down the office building Sunday after bacteria was found on Stevens' computer keyboard and in the nasal passage of a co-worker.

The co-worker, Ernesto Blanco, is receiving antibiotics as a precaution, but he is not ill. .

Anthrax occurs naturally in grazing animals such as cows, deer and sheep. People can get the bacteria if they have contact with an infected animal, its hide or contaminated soil. Those cases are normally skin infections that are not deadly.

But if the bacteria become airborne in a sufficient quantity, a person might inhale the spores and develop a dangerous lung infection. Experts not directly involved in the investigation say they cannot think of any scenario in which the South Florida situation arose naturally.

"Somebody definitely had to introduce it into the office; it couldn't walk in by itself," said Jeanne Kwik, a fellow at the Johns Hopkins University Center for Civilian Biodefense Studies.

Nor could Stevens spread the bacteria around the office after acquiring an infection in the environment somehow, she said. The bacterial spores cannot be passed from one person to another, triggering additional exposures.

What's more likely is that the bacteria was released intentionally within the building. Some employees are suggesting that it came in through a letter received before the Sept. 11 attacks that contained a "soapy white powder."

If handled by Stevens and Blanco, a mailroom employee, officials say it could be a means to infection. But only under very rigid circumstances.

The anthrax would have to be fashioned in the perfect-sized particles -- spores that come to life only after being inhaled into the warm, conducive world of the human body.

Experts say there's a very narrow range in which these spores will cause an infection -- neither too small to be absorbed by the body nor too big to get as deep into lung tissue as needed.

Even if someone could produce the right sized particles, it would be hard to package them inside a letter in such a way that they would fly into the air upon opening the letter in a sufficient quantity to cause an infection. The American Medical Association estimates that it would take anywhere from 2,500 to 55,000 spores to trigger the disease. Experts say it would be difficult for an anthrax-bearing letter to arrive with such potency. "I think just putting the spores in an envelope would subject them to the normal heat and humidity that the mail goes through, all of which might alter the shape of the particles," said Michael Allswede, an associate professor of emergency medicine and medical toxicology at the University of Pittsburgh.

In addition to the mail theory, others wonder whether the bacteria might have been released into the building's ventilation system, but experts say this suggestion has problems, too. If subjected to a building-wide release, more people should have become sick by now and more bacteria should have been found on surfaces within the building, Kwik said. If those don't turn up, it seems more likely that the release was more fine-tuned.

Allswede said using anthrax would be the "perfect murder" in some respects, because "all the blame is going to go to Osama bin Laden" these days.

In Washington, officials testifying before Congress praised Florida for its handling of the anthrax scare but warned that more must be done to prepare the nation's public-health system for the possibility of bio-terrorism. They said an attack of any magnitude would tax current resources to the breaking point, sending the country into a panicky tailspin that could allow any released disease or bacteria to spread unchecked.

"Without a comprehensive and timely response we will realize both an increase in deaths and the potential for previously unseen panic and fear," said Dr. Michael Osterholm, director of the Center for Infectious Disease Research and Policy in Minnesota.

Donald Henderson, director of the Johns Hopkins Center for Civilian Biodefense Studies, said most hospitals lack the beds, doctors and, most importantly, the drugs to control an outbreak. Research from his center indicates that even 500 patients affected by a noncontagious disease such as anthrax -- and fewer with a contagious disease -- would bring most hospitals to their knees.

"This problem . . . has no simple solutions," he said.

Last week, Sens. Ted Kennedy, D-Mass., and Bill Frist, D-Tenn., the chairman and ranking member respectively of the health subcommittee, introduced legislation to deal with some of these problems. Their proposal calls for \$1.4 billion to help head off and deal with a bio-terrorist attack -- more than three times the amount the federal government currently spends. Osterholm said the price tag for biological preparations is closer to \$2 billion.

Washington Post
October 10, 2001
Pg. 23

Bioterrorism: How Unready We Are

By Mohammad N. Akhter

The disclosure that terrorists may have been interested in using crop-dusting planes to spread any number of deadly diseases shows just how close we may be to getting our first real dose of bioterrorism. The only thing scarier than an outbreak of the Black Death is knowing our public health system is woefully unprepared to do much about it. Imagine if the plane that crashed into the Pentagon had been carrying anthrax spores or the smallpox virus. To understand the seriousness of this threat, multiply the number of deaths in the Sept. 11 attack by 10 or 20, maybe more. A cloud of anthrax spores drifting over from Arlington could kill tens of thousands of Washingtonians within days. Anthrax is so insidious that some 80 percent of those infected would die by the time they realized their flu-like symptoms were far more lethal. One billionth of a gram, smaller than a speck of dust, can kill.

As public health commissioner for the District of Columbia in the early 1990s, I knew the nation's capital was totally unprepared to deal with any form of bioterrorism. I barely had the budget to deal adequately with a severe outbreak of the flu, let alone contain a smallpox epidemic.

After my tenure, Washington had its first taste of bioterrorism. Two packages reportedly containing anthrax were left at the B'nai B'rith building. Though it was found to be a hoax, the incident proved that area health care providers and the government were not properly trained to treat potential victims, and that the city did not have a plan to deal with the situation.

Public health systems nationwide are no better prepared today. Unlike the recent crisis, in which there were far more dead than injured victims, a bioterrorist attack would flood hospitals with tens of thousands of patients requiring extended stays. Unfortunately, due in part to the privatization movement to downsize hospitals, there is a greatly reduced number of beds in these facilities.

We have too few beds and a grossly inadequate supply of vaccines and antibiotics to treat these scourges. The Centers for Disease Control (CDC) maintain limited supplies of these drugs and have no way to rush them to areas in need, particularly if planes are grounded. In fact, CDC's ability to act in emergencies is so stretched that even responding to some 60 cases of West Nile virus in New York City overwhelmed it.

The antidotes are effective but costly. First, we need better intelligence -- officials on the ground in laboratories worldwide to monitor activities. We need to train emergency workers, medical personnel and our communities about how to prevent, contain and respond to potential outbreaks.

We need more beds in hospitals, greater supplies of vaccines that are stored locally, and local distribution networks to speed these medicines to victims.

Finally, with no price tag attached, we need the public to be diligent and report immediately any suspicious behavior to public officials.

The \$300 million budgeted for a Clinton administration initiative to develop technologies to combat bioterrorism is - to say the least -- inadequate. At a recent meeting of public health leaders, we estimated it would cost \$1 billion to put a public health infrastructure in place to safeguard our communities. The CDC will need another \$500 million to increase its capacity to respond to fast-breaking crises.

Upgrading our public health infrastructure will not only help combat terrorism but will pay additional dividends by enhancing our public health departments' ability to deal with the natural outbreak of disease. Along with nuclear war, a pandemic sparked by an act of terrorism that kills hundreds of thousands of people is the ultimate public health crisis. As difficult as it is to think about such a nightmare scenario, we must begin preparing now for the unthinkable.

The writer is executive director of the American Public Health Association and former commissioner of public health for the District of Columbia.

Fortune

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Pg. 151

Bioterror Is In The Air

The U.S. has failed thus far to fully address the most insidious threat.

By David Stipp

For Tim and Barb Steier, the owners of a crop-dusting business in Blue Earth, Minn., the first aftershock of the World Trade Center and Pentagon attacks came on the following Saturday. While watching television, they were dismayed to hear a reporter suggest that terrorists might use crop-dusters to release killer substances.

"The next morning," says Barb, "we were shut down"--a federal order temporarily grounded all U.S. crop-dusters. Tim, who is vice president of the National Agricultural Aviation Association, faced more media attention during the following week than a FORTUNE 500 CEO typically gets in a year. Dozens of reporters called to ask about crop-dusting and terror. Steier also spent hours on the phone discussing crop-dusting with the FBI.

The agency's nervous fascination with crop-dusters became understandable once it emerged that terrorists linked to the World Trade Center attacks had sought access to crop-dusters in Florida. It suggested that plans were in the offing--and perhaps still are--for an airborne release of something lethal over an American city. Maybe a deadly chemical like sarin, the nerve gas released in a Tokyo subway in 1995 by the Aum Shinrikyo cult. Or maybe something even worse: a lethal germ like anthrax that could kill not just thousands, as a one-shot chemical attack might, but hundreds of thousands.

Some experts contend that the risk of bioterrorism is very low, citing the rarity of germ assaults and the fact that deadly bugs are tricky to handle and disperse. They may be right, but it is dismayingly easy to make a case for the bioterror possibility. At least one of the World Trade Center hijackers is thought to have had connections with Iraq, a nation known to have produced large quantities of biological weapons, including anthrax. A 1993 federal study reported that spraying about 250 pounds of "aerosolized" anthrax over Washington, D.C., could kill up to three

million people--just the kind of vastly more horrible attack the terrorist organization that destroyed the World Trade Center might plan as a follow-up.

Despite a steady media drumbeat in recent years about the specter of terrorist germ attacks--and lots of lip service by policymakers--the U.S. remains distressingly ill prepared to beat back such an assault. The nation doesn't have enough smallpox vaccine to cope with a major release of the fast-spreading disease. Production at the country's only supplier of anthrax vaccines has been stymied for more than a year by quality-control problems. Hospitals, where budgets have been cut to the bone by managed-care practices, have no spare resources to handle the staggering demands of a bioterrorist attack.

To be sure, anti-bioterrorism spending at the Department of Health and Human Services, the key agency for quelling epidemics, has risen in the past few years--\$297 million was appropriated for fiscal year 2001. But so far the federal effort has been "like trying to fill Lake Superior with a garden hose," asserts Michael Osterholm, director of the University of Minnesota's Center for Infectious Disease Research and Policy. That may change because of the recent attack. But it hasn't yet. After Congress appropriated \$40 billion in September for disaster relief and antiterrorist measures, an initial installment of \$5 billion was quickly earmarked for various projects. Only one, accounting for a fraction of the \$126 million allocated to Health and Human Services, was biodefense-related: Security will be beefed up at federal facilities housing germs that might be used for biowarfare.

"People at the top in Washington are worried about bioweapons, but they tend to lump them with other weapons of mass destruction," says Tara O'Toole, deputy director of the Johns Hopkins Center for Civilian Biodefense Studies. The insidious ability of germs to spread before telltale symptoms appear makes bioterrorism fundamentally different from explosions or chemical attacks. The initial outbreak would be only the start; the spread of infection would unleash ongoing waves of panic.

Many top policymakers wrongly presume that gearing up to deal with explosions and chemical threats will also adequately equip the nation to deal with bioterrorism, asserts O'Toole, who served as Assistant Secretary of Energy for Environment, Safety and Health before joining the university center. Police and firefighters won't be the first line of defense in a biological attack. The horrible burden will fall on hospitals and public health agencies that are hard-pressed even to handle their everyday workloads. "What we need," O'Toole says bluntly, "is a bio-Apollo program." A mock bioterrorist attack in Denver last year highlighted weak links likely to break after a germ assault. Organized by the Department of Justice, the Topoff exercise called on top officials at government agencies to respond the way they would during a real attack as the drill's planners confronted them with a series of likely unfolding events.

On day one, coping mechanisms were activated much as hoped. As a rash of patients with cough and fever flocked to city hospitals, and hours later began dying, state and federal labs quickly identified an outbreak of plague--the simulated attack had begun when a terrorist covertly released aerosolized plague bacteria at the city's performing arts center. A crack team was summoned from the National Centers for Disease Control and Prevention, state authorities restricted travel around Denver to contain the outbreak, and antibiotics from a national stockpile were rushed to the city.

On day two, things started spinning out of control. Hospitals ran out of beds, antibiotics, and morgue space. Simulated gridlock ensued as panicked masses sought doctors, antibiotics, food, and a way out of town. Precious hours were lost as scores of local, state, and federal officials scrambled to connect and make tough decisions about quarantining patients, allocating scarce antibiotics, and telling the public what to do. At one point a single beleaguered worker found herself assigned to pick up and deal with a mock shipment of antibiotics arriving at the airport from the federal stockpile. Before she could start counting out pills one by one for thousands of people, she needed to obtain plastic bags for the individualized doses. That led to a six-hour delay as she negotiated the hypothetical gridlock to fetch baggies from Safeway.

By day four, when the drill ended, the simulated situation was dire. Denver had run short on food, rioting had begun, and the disease had spread to other states despite quarantine attempts. Ominously, a sense of hopelessness had set in among many participating officials--even though it was only a drill.

Topoff and similar drills suggest four things should be at the top of the biodefense to-do list:

- Develop and widely deploy cutting-edge diagnostic tools, such as compact systems that in minutes can identify anthrax, smallpox, and other probable biowarfare agents in blood or sputum samples. For example, Cepheid in Sunnyvale, Calif., is perfecting a breadbox-sized unit for the U.S. Army that will be able to identify anthrax and other biowarfare agents in less than 30 minutes.
- Rapidly beef up the federal government's pharmaceuticals stockpile so that it has enough vaccines and antibiotics to contain simultaneous outbreaks in multiple cities.
- Organize fire-brigade-like teams of hospital staffers and other workers throughout the country who are trained and equipped to mount fast, coordinated responses to bioterrorism. A recent survey indicated only 20% of U.S. hospitals had plans for dealing with biological and chemical attacks.

- Put in place master plans to coordinate government agencies during bioterror crises, spelling out who will be responsible for what. The plans must address tough social and legal issues, says Kenneth Bloem, a senior fellow at the Johns Hopkins biodefense center. Who will get life-saving doses of scarce antibiotics? What will shield doctors from malpractice suits if they let patients die in a triage situation? Should hospital workers be kept from their families after being exposed to patients with communicable germs?

Fortunately, this biodefense starter kit is on government drawing boards, and elements are already being implemented. But erecting sturdy bioterror shields will require far more funding and political will than have existed to date. The price tag would doubtless be in the billions of dollars--hospital planning alone could well cost over \$2 billion, estimates Bloem.

As bioterror priorities are sorted out, smallpox and anthrax are likely to get the most attention--they appear to pose the greatest risk.

The bad news on smallpox: The virus may have fallen into terrorists' hands as the former Soviet Union's biowarfare program disintegrated. It is hardy, highly infectious, and fatal in about 30% of untreated cases. Routine vaccination for it ended worldwide after 1980--perhaps 20% of Americans have residual immunity from childhood inoculations. In its first few days, a smallpox infection mimics flu; telltale skin lesions typically don't appear for a week or more--plenty of time for an unsuspecting carrier to infect many others.

The somewhat good news: Smallpox vaccinations before exposure confer immunity, and they can attenuate illness in susceptible people if given within four days of infection. Thus, an outbreak might be contained by rapidly vaccinating people in and around the affected area and quarantining those already infected. Currently the CDC has a stockpile of about 12 million usable doses of vaccine--not nearly enough.

Last year the CDC contracted with a British firm, Acambis, to add 40 million doses of a new smallpox vaccine to the U.S. stockpile beginning in 2004. Acambis and the CDC declined to comment on whether the project would be accelerated. "I'd be very surprised if it isn't," says George Washington University microbiologist Peter Hotez, who last year co-authored an article in the Washington Post arguing that at least 100 million doses would be needed to cope with a multi-city outbreak. Lance Gordon, a former Acambis executive who is now CEO at VaxGen, a Brisbane, Calif., vaccine developer, says that as soon as initial clinical tests are completed--they're needed to show whether Acambis' manufacturing process yields a consistent product--the project could be speeded up.

Anthrax, unlike smallpox, doesn't spread from one infected person to another. Once inside the body, its rugged bacterial spores can act like time bombs, bursting into fatal action after many weeks of dormancy. Some 90% of those who inhale spores during an attack would probably die if not started immediately on lengthy courses of antibiotics. Early symptoms, typically fever and cough, resemble a cold. After symptoms appear, it's too late--death usually follows within three days regardless of treatment.

As with smallpox, vaccination is the best defense against anthrax. After reports that Iraq and other nations had "weaponized" the bug, the Department of Defense in 1998 launched a program to vaccinate all U.S. military personnel. But vaccine supplies soon dwindled, effectively putting the campaign on hold, after the FDA required that the Defense Department's sole supplier, BioPort in Lansing, Mich., renovate its plant. The improvements are now in place, and BioPort plans to seek FDA permission this month to start production, said a company spokeswoman. The review process, which ordinarily takes months, could move much faster.

Even after BioPort gets its act together, the threat won't recede quickly. There are currently no plans to create a national stockpile of anthrax vaccine for civilian use. Whether a stockpile would help much is unclear anyway--anthrax immunization requires six doses of vaccine given over 18 months, followed by yearly boosters.

Better biodefense technologies are on the way. For several years, the U.S. Defense Advanced Research Project Agency has sponsored R&D at commercial and university labs on a wide array of cutting-edge diagnostics and therapies. In DARPA-funded studies at the University of Michigan, for example, an experimental medicine called BCTP was able to protect mice against injections of anthrax-like bacteria. Made of soybean oil and other inexpensive ingredients, the product reportedly can destroy both bacterial and viral biowarfare agents.

It isn't yet clear whether the U.S. will accelerate work on this new wave of biodefenses. But, says a university researcher, "our negotiations [to do research on biowarfare antidotes for the U.S. army] were moving like molasses before Sept. 11. Now they're moving forward at quite a respectable pace." Still, most technology fixes will take at least several years to perfect and widely deploy, says Stephen S. Morse, a Columbia University professor who helped DARPA organize its biodefense initiative.

Meanwhile, let's hope the good guys don't lose track of any crop-dusters.

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The Terror Next Time?

Just how difficult would it be for terrorists to get hold of weapons of mass destruction?

IN THE aftermath of the terrorist attacks on New York and Washington, those whose job it is to think the unthinkable were conscious that, for all the carnage, it could have been far worse. Fuel-laden aircraft slamming into buildings was bad enough. But the sight of some among the rescue workers picking over the debris with test tubes, followed by the sudden decision to ground all of America's crop-spraying aircraft for several days, pointed to an even more horrible possibility. Were terrorists with so little calculation of restraint to get their hands on weapons of mass destruction—whether chemical, biological or even nuclear—they would surely use them. How real is that threat?

It is certainly not new. Among one of many warnings from American think-tanks and government agencies in recent years, a report released last December by the CIA's National Intelligence Council concluded baldly that, when it came to chemical and biological weapons in particular, "some terrorists or insurgents will attempt to use [these] against United States interests, against the United States itself, its forces or facilities overseas, or its allies."

Governments in America and Europe worry that Osama bin Laden, the head of al-Qaeda, the terrorist network thought to be behind the September 11th attacks, may already have access to such weapons, and be planning to use them in response to any American military strikes. The World Health Organisation has called on governments around the world to be better prepared for such an eventuality.

For groups prepared to engage in the kamikaze tactics seen on September 11th, the easiest way to spread poisonous or radioactive materials might simply be to fly into repositories of them, or to use lorries full of them as suicide bombs. As Amy Smithson of the Stimson Centre in Washington, DC, observed in a report released last year, there are some 850,000 sites in the United States alone at which hazardous chemicals are produced, consumed or stored. The arrest in America last week of a number of people who were found to have fraudulently obtained permits to drive trucks that carry such hazardous loads looks like a worrying confirmation of such fears.

It is, nevertheless, likely that terrorist groups around the world are working on more sophisticated approaches to mass destruction than merely blowing up existing storage facilities, or hijacking lorry-loads of noxious substances. Mr bin Laden himself has, in the past, called it a "religious duty" to acquire such weapons. He is reported to have helped his former protectors in Sudan to develop chemical weapons for use in that country's civil war, and has since boasted of buying "a lot of dangerous weapons, maybe chemical weapons" for the Taliban regime in Afghanistan that now harbours him.

It's harder than you think

Even for determined terrorists, however, merely getting hold of chemical, biological or nuclear materials is not enough. Do-it-yourself mass destruction—whether of a nuclear, chemical or biological variety—is far from easy (see article). First, you have to acquire or manufacture sufficient quantities of the lethal agent. Second, you have to deliver it to the target. And third, you have either to detonate it, or to spread it around in a way that will actually harm a lot of people.

The difficulties in doing all these things are illustrated by an attack carried out in 1995 on Tokyo's underground railway. Aum Shinrikyo, a Japanese cult, released a potent nerve agent called sarin on five trains. The intention was to kill thousands. In fact, only 12 people died, and some 40 were seriously injured—bad enough, but no worse than the casualty list from a well-placed conventional bomb.

The cult's researchers had spent more than \$30m attempting to develop sarin-based weapons, yet they failed to leap any of the three hurdles satisfactorily. They could not produce the chemical in the purity required. Their delivery mechanism was no more sophisticated than carrying it on to the trains in person in plastic bags. And their idea of a distribution system was to pierce those bags with umbrella tips to release the liquid, which would then evaporate. The attack, in other words, was not a great success. Yet, of the three classes of weapon of mass destruction, those based on chemicals should be the easiest to make. Their ingredients are often commercially available (see table). Their manufacturing techniques are well known. And they have been used from time to time in real warfare, so their deployment is also understood.

Biological weapons are trickier; and nuclear weapons trickier still. Germs need to be coddled, and are hard to spread satisfactorily. (Aum Shinrikyo attempted to develop biological weapons, in the form of anthrax spores, but failed to produce the intended lethal effects.) Making atomic bombs is an even greater technological tour-de-force.

Manufacturing weapons-grade nuclear explosives ("enriched" uranium, or the appropriate isotopic mix of plutonium) requires a lot of expensive plant. Detonating those explosives—by rapidly assembling the "critical mass" needed to sustain a chain reaction—is also notoriously difficult.

Joint ventures

Terrorist groups working from first principles are thus likely to run into formidable obstacles if they want to get into the mass-destruction business. Nevertheless, there may be ways round these. One quick fix would be to buy in the services of otherwise unemployed or ill-paid weapons specialists from the former Soviet nuclear-, biological- and chemical-weapons establishments. At least some of these people are known to have washed up as far afield as Iran, Iraq, China and North Korea, but none has yet been directly associated with any terrorist group.

In an attempt to reduce the risk of this happening, the United States has, over the past ten years, spent more than \$3 billion dismantling former Soviet nuclear weapons, improving security at Russia's nuclear storage sites, and keeping former weaponeers busy on useful civilian work. But, as Ms Smithson points out, only a tiny fraction of this money—itsself a drop in a bucket when measured against the scale of Russia's sprawling weapons complex—goes towards safeguarding chemical and biological secrets. And even the nuclear side of things has sprung the odd leak. Over the past ten years there have been numerous attempts to smuggle nuclear materials out of the former Soviet Union. There have been unconfirmed suspicions that Iran, for one, may have got its hands on a tactical nuclear warhead from Russia. So far, though, police and customs officers have seized mostly low-grade nuclear waste. This could not be turned into a proper atomic bomb, but with enough of it, a terrorist group might hope to build a "radiological" device, to spread radioactive contamination around (see article). Fortunately, the occasional amounts of weapons-grade stuff that have been found so far fall short of the 9-15kg of explosive needed for a crude but workable bomb.

Theories of deterrence

Yet even if a group got hold of enough such explosives, it would still face the hurdle of turning them into a weapon. Hence the most effective way for a terrorist group to obtain one would be to find a sponsoring government that is willing to allow access to its laboratories or its arsenal.

After the Gulf war, UN special inspectors discovered that Iraq had been pursuing not one but several ways to produce weapons-grade material, and had come within months of building an atomic bomb. The effort, however, is thought to have taken a decade and to have cost Saddam Hussein upwards of \$10 billion. Much of this was spent on acquiring the bits and pieces needed from foreign companies—sometimes through bribery, sometimes through deception.

In similar ways, he amassed the materials and equipment, much of it with legitimate civilian uses in fermentation plants and vaccine laboratories, for his vast chemical- and biological-weapons programmes. Although most of Iraq's nuclear programme had been unearthed and destroyed, along with much of its missile and chemical arsenal, the inspectors were convinced, when they were thrown out of the country in 1998, that important parts of the biological effort remained hidden.

A glance at the list of state sponsors of international terrorism maintained by America's State Department makes troubling reading. Most of the seven countries included—Iraq, Syria, Libya, Cuba, North Korea and Sudan—have chemical weapons already. Five are suspected of dabbling illegally in the biological black arts, and several have covert nuclear-weapons programmes, too. America's Department of Defence estimated earlier this year that more than two dozen countries have already built weapons of mass destruction, or else are trying to do so.

So far, there is no evidence that any of these governments has helped terrorist groups to acquire such deadly goods. That may, partly, be because of widespread moral revulsion against their use. But self-interest on the part of the states involved is also a significant factor. It is one thing to give terrorist groups financial and logistical support and a place to hide—a favoured tactic of governments on the State Department's list as a deniable way of furthering their own local or regional ends. It is quite another to share such awesome weapons with outfits like al-Qaeda, which no government can fully control.

On top of that, since the September 11th attacks, American officials, from the president down, have gone out of their way to emphasise that not only the terrorists involved in any future assaults, but also the states that shelter them, can expect to find themselves in the cross-hairs.

Iraq has been the worst offender when it comes to wielding any of these weapons. It used chemical weapons in its war with Iran and in attacks against its own Kurdish population. Yet Saddam Hussein's failure to use his chemical and biological-tipped missiles, or the radiological weapons he also had, against western-led coalition forces during the Gulf war showed that, even when morality plays little part, deterrence can still work. America had made clear that, if he had deployed these weapons, he would have brought down massive retribution on both his regime and his country.

The big distinction between the dangers of states obtaining such weapons and the danger of terrorists getting their hands on them, argues Gary Samore of the International Institute for Strategic Studies, in London, is precisely that, however hostile they may be, states are more "detractable". Mr bin Laden's network has shown that it will stop at nothing. But are states such as Iraq and North Korea, which operate in other ways largely outside international law, detactable enough to prevent them lending a secret helping hand to a group like Mr bin Laden's?

Of intelligence and imagination

America's defence secretary, Donald Rumsfeld, argued this week that it takes no "leap of the imagination" to expect countries harbouring terrorists to help them get access to weapons of mass destruction. Testimony from the trial of four bin Laden operatives convicted earlier this year for the August 1998 bombing of America's embassies in Kenya and Tanzania revealed that their past military interest in Sudan went beyond helping the regime make chemical weapons for its own war. In one case, Mr bin Laden was attempting to purchase uranium via intermediaries. Meanwhile, intelligence officials trying to assess the range of threats they now face worry that Iraq's past military links with Sudan may have been no coincidence either. In 1998 America bombed a Sudanese pharmaceutical plant which it said showed traces of a precursor chemical for VX, a highly potent nerve gas that inspectors believe Iraq had put into weapon form. Some observers speculate that, even if Sudan's denials that it was manufacturing any such stuff are true, the country may have served as a trans-shipment point for supplies to Iraq. Might some weapons assistance have flowed the other way, possibly reaching Mr bin Laden's network? Iraq denies it has had anything to do with Mr bin Laden, but there have been unconfirmed reports that one of the New York hijackers met a senior Iraqi intelligence official earlier this year in Europe.

Yet even if no direct link is ever proved between a reckless foreign government and last month's terrorist attacks on America, western officials have long fretted that groups such as Mr bin Laden's will be able to exploit emerging new patterns of proliferation to gain access to nuclear, chemical and bug bombs. Despite attempts by western-sponsored supplier cartels—the Missile-Technology Control Regime, the Nuclear Suppliers Group and the Australia group, which tries to track the trade in worrying chemicals or biological agents—the number of such suppliers has expanded over the past decade. Countries that were once entirely dependent on outside help for their covert weapons programmes, mostly from Russia and China, are now going into business themselves.

This is particularly disturbing in the context of the third obstacle to the use of these weapons: delivery. Working from original Russian Scud missile designs, North Korea has created a thriving missile- and technology-export business with Iran, Pakistan, Syria and others in the Middle East. Iran, in turn, has started to help Syria and possibly Libya (which had past weapons ties with Serbia and Iraq) to improve their missile technology. Egypt is still building on the expertise developed by a now-defunct missile co-operation programme with Argentina and Iraq.

It is unlikely that such ballistic-missile technology would find its way into terrorist hands any time soon. But two things are true of almost all technologies: as the years pass, they get cheaper, and they spread. Even if there is no immediate threat, it may eventually not be just hijacked aircraft that are flying into places that terrorists have taken a dislike to. And their "warheads" may consist of something even worse than aviation fuel.

Old scourges and new -- not easy to make, but not impossible either

The world's first experience of weapons of mass destruction came in 1915 on the western front, when German troops released liquid chlorine from thousands of pressurised cylinders, letting the resulting gas drift in clouds over enemy lines. Chemical weapons have since been outlawed, but there are lots of easily accessible chemicals—including pesticides and fertilisers—that can do harm. Among the various blister, blood, choking and nerve agents, the latter, which include sarin and VX, are the most lethal. Yet it needs lots of chemical agent to create lots of casualties. Depending on the weather, as much as 90% of the stuff that a terrorist might try to disperse in the open, either as droplets that can kill on skin contact or vapour that is lethal when inhaled, would have little effect.

Biological weapons go back at least to medieval times, when besieging armies tossed plague-infected corpses over city walls in an effort to spread disease. Modern biological agents are far more lethal than even the most toxic chemical agents, though their effects can take days to appear. This makes them ideal terror weapons against civilians. But they are harder to use effectively. A terrorist would need to find the right lethal strain of a bacterium, such as anthrax or plague, and maintain its purity and virulence through processing, loading into weapons and dispersal. Since such organisms need to penetrate deep into the lungs, they must be dispersed in a fine spray. An exploding warhead could do that, but would also destroy much of the agent. A crop-duster with the right modifications to its tanks might do better.

The most worrisome biological agent, however, is smallpox. This is a virus, rather than a bacterium, and there are only two official repositories of it, in America and Russia. But others may hold illicit stocks. Because the disease was eradicated 20 years ago, few people have immunity and it could spread quickly. The trouble for terrorists is that it is no respecter of borders either.

Poisons manufactured by bacteria, such as botulinum toxin, may be more suitable for terrorism. These are, in effect, chemical weapons of biological origin. That makes them easier to handle, and means they kill immediately, rather than by growing inside the victim.

The miniaturisation technology required to deliver a small nuclear bomb would be beyond most terrorist groups. Radiological weapons are not: by shrouding a core of conventional explosive in plenty of radioactive material, contamination could be spread over a wide area. Though it would need heavy lead shielding during transport, such a device could easily be stashed in a truck, or even a suitcase.

New York Times
October 10, 2001

Doctors Are Told To Watch For Symptoms Linked To Biological Attacks

By Mirta Ojito

Walking a fine line between informing the public and trying to avoid panic, state and local health officials have asked doctors throughout New York to be on the lookout for any unusual symptoms or clusters of diseases that could be linked to bioterrorism.

The instructions, in letters that are being mailed to doctors in the city and the state, are part of a plan that was set in high gear after the attacks on Sept. 11. The plan gained urgency once it was revealed this week that a South Florida man had died after inhaling anthrax spores, one of several biological agents that could become weapons in the hands of terrorists.

Dr. Neal L. Cohen, the city's health commissioner, said that New York had been prepared for such an emergency for years and that doctors are trained to recognize symptoms of bacterial diseases like anthrax.

Nevertheless, a 13-page advisory was faxed yesterday to all 65,000 licensed doctors in New York City detailing the symptoms of anthrax contamination and explaining how to treat it. Posters with information about bioterrorism will soon be shipped to hospitals, he said.

"We have strengthened our surveillance system in order to give us any early warning signs of an illness or a cluster of illnesses that would suggest exposure to a bioterrorist agent," Dr. Cohen said in a telephone interview.

Many of the symptoms doctors are looking for are similar to those of the flu: tiredness, aching body, fever, sore throat, and difficulty breathing, said Dr. Louis Kohl, chairman of emergency medicine at Long Island College Hospital in Brooklyn.

Dr. Kohl said that with the flu season coming, many people may think they have been contaminated with anthrax when, in fact, they may just have the flu.

"People should remember that these diseases are hard to disseminate," he said, adding that anthrax spores, for example, are a powderlike substance that is not contagious. "Picture yourself with a bottle of talcum trying to contaminate people, one, or two, at a time, in the subway. How do you do that? If it were easy, the many people who've hated us for years would have done it already."

So far, there is no evidence of anthrax or any other biological agent linked to terrorism in New York, the authorities said. But in a sign that health officials are not discarding the possibility of an attack, all city and state hospitals are being contacted daily to make sure no unusual symptoms go unreported, health officials said. That kind of constant checking will go on indefinitely, said Kristine Smith, a spokeswoman for New York's state health department.

In addition, the federal Centers for Disease Control and Prevention has shipped to New York City a large stockpile of antibiotics that are effective against the most likely bacterial bioterrorist agents, city health officials said. Those will be ready to the public in case of an attack, according to the letter sent to doctors by the city's Health Department.

The plan detailed by Dr. Cohen also calls for two epidemiologists from the Centers for Disease Control to be stationed at 12 hospitals in the five boroughs for 16 hours every day. Health officials declined to identify the hospitals. They are consulting with emergency room personnel and checking the charts of any patient admitted with respiratory or flulike complaints.

At the same time, the state's Health Department is working fast to set up conferences to train doctors on the particulars of bioterrorism. Many doctors today, for example, have never seen a case of smallpox, a possible bioterrorism weapon.

In its letter to New York City physicians, health officials urged doctors to stop prescribing antibiotics to their healthy patients and advised against buying gas masks.

New York Times
October 10, 2001

Official Urges New Response To Bioterror

By Sheryl Gay Stolberg

WASHINGTON, Oct. 9 — The chairman of a new federal advisory council on bioterrorism said today that while the public health system had worked well in identifying and containing a potential anthrax outbreak in Florida, the case was not a good test of the nation's ability to respond to a germ attack.

"If we got 500 cases, it would be a totally different story," the official, Dr. D. A. Henderson, told reporters after testifying before a Senate panel. "We would be overwhelmed."

Dr. Henderson, who led the global effort to wipe out smallpox in the 1970's and now directs the Center for Civilian Biodefense Studies at Johns Hopkins University, was asked last week by Tommy G. Thompson, the secretary of health and human services, to lead the new advisory panel. He told senators that the other members would be named within the next few days, and that he could not yet discuss the panel's precise functions.

But Dr. Henderson did say he believed that the government must create "a single, centralized medical and public health strategy for preparing the nation to respond" to bioterrorist attacks and that the effort should be managed by Mr. Thompson's agency, which oversees the federal public health system.

In the weeks since the Sept. 11 attacks on the World Trade Center and the Pentagon, a variety of experts, including Dr. Henderson, have told federal health officials and lawmakers that the nation's public health system, a patchwork of 50 state and 3,000 local public health agencies, is seriously underprepared to respond to a bioterrorist attack.

Today, Dr. Mohammad N. Akhter, executive director of the American Public Health Association, which represents 50,000 public health professionals around the world, told senators that only 25 of the 50 states had epidemic intelligence officers specializing in tracing outbreaks of infectious disease.

And only 32 states employ a public health veterinarian, which is a significant lapse, Dr. Akhter said, given that 17 of the 20 most common bioterrorism agents, including plague, can be transmitted to people from animals.

The Senate is considering legislation to add \$1.4 billion to \$1.6 billion to the \$350 million the federal government is already spending this year on bioterrorism, and Dr. Henderson urged lawmakers to get the money to the states quickly.

"It is difficult for me to exaggerate the deficiencies of our present public health capacities," he said.

As to the situation in Florida, where health officials say one man has died of anthrax and another has been exposed to the anthrax germ, Dr. Henderson said he was not yet convinced that the bacteria were deliberately released. He said some elements of the case did not "add up," noting that if terrorists were trying to sicken people with anthrax, they would probably not have chosen a strain susceptible to antibiotics.

"I've been in enough epidemics to know that you get all sorts of strange information," Dr. Henderson said. "If it doesn't quite fit together, you'd better get some more information."

New York Times
October 10, 2001

Obtaining Anthrax Is Hard, But Not Impossible

By William J. Broad

Just as growing a particularly exotic species of plant takes the right seed, growing an anthrax culture that is virulent enough to kill people requires just the right seed stock.

Experts said yesterday that the bacterial seeds for the anthrax spores that killed one man in Florida and infected another could have come — in decreasing order of likelihood — from nature, from a scientific germ bank or from one of the world's clandestine programs that make germ weapons.

The germ that causes anthrax, *Bacillus anthracis*, lives in the soil worldwide and sometimes infects animals and people. Weapons experts said such natural outbreaks are a main way that a terrorist might obtain starter germs, or seed stock. With luck and determination in getting the starter germ, it would be fairly easy to grow billions of offspring to make a crude weapon.

But anthrax can also be obtained from germ banks, scientific supply houses that supply tissue cultures and organisms to researchers and others.

More than 1,500 germ banks worldwide maintain a million or so strains of microorganisms, many deadly. Hospitals order them to check the accuracy of diagnostic procedures, and scientists and doctors use them to investigate new therapies.

In recent years, the United States has tightened up access to such banks and their hazardous germs, making it hard if not impossible for terrorists to obtain pathogens from establishments in this country.

Dr. Raymond H. Cypess, president of the American Type Culture Collection in Manassas, Va., the world's largest germ bank, said his company since 1997 had not shipped to scientists any human pathogens that could be made into weapons — including anthrax.

But American experts said the global network of germ banks was far less cautious, with credential checks and shipment rules uneven or rudimentary. The World Federation for Culture Collections, an organization of germ banks, has 472 members registered in 61 countries. Forty-six members offer anthrax free or for sale in exchange for other organisms.

Each country sets its own rules on what pathogens may be shipped, to whom and with what safety procedures.

"It all depends on the country," an American expert said on condition of anonymity. "There's little or no coordination" of rules and procedures meant to keep dangerous germs out of terrorist hands.

Experts said a final, if unlikely, source of a virulent strain of anthrax would be one of the world's clandestine programs that made germ weapons. Iraq, for instance, is known to have made anthrax weapons before the 1991 Persian Gulf war and is suspected of having them today.

At least 82 countries have reported anthrax in animals, and thousands of human cases occur each year, most in developing countries. The disease has plagued North America for centuries, infecting animals and people with decreasing frequency in recent years.

But a terrorist who sought to use germs from one of these outbreaks to kill people would have to find a virulent strain.

"There are many variations on the theme of anthrax," said William C. Patrick III, a maker of germ weapons for the United States before President Richard M. Nixon renounced them in 1969.

Over the ages, Mr. Patrick said, nature has evolved dozens of different anthrax strains, or subspecies. Some are deadlier than others.

"We went through 22 or 23 of them, a large number, before we got the right one," Mr. Patrick said of America's development of the best strain of anthrax for making lethal weapons.

In the early 1990's the Japanese cult Aum Shinrikyo repeatedly tried to make and use anthrax weapons, but it failed, in large part because it did not obtain a lethal strain. One of its tactics was to obtain the germs from nature.

Mr. Patrick said the drawback of that approach was that the terrorist would have to do extensive testing of the germs for virulence by infecting such animals as mice, hamsters, rabbits and dogs.

"The probability of going out in nature and getting a virulent strain on the first try would be about 50-50," he said.

Failure, he added, would require another round or two of disease finding, field collecting and virulence testing.

"You'd pick the one that killed the most species with the lowest dose," he said, "and that takes facilities" and hard work.

Mr. Patrick said that if the Florida anthrax turned out to be a professional strain — one that has been developed into a biological weapon — then the people who spread it "have connections to a much better source of material than if they were out in the field messing around."

Experts said fewer than a half dozen strains of highly virulent anthrax had been turned into professional weapons around the globe, and that scientific detectives might eventually be able to tell if clandestine programs or some other source accounted for the Florida death.

ProMED, a news service of the International Society for Infectious Diseases, reported on Monday that the disease recently struck in Canada, killing cattle last month in Saskatchewan's first anthrax outbreak since 1994.

Anthrax Found In Third Person

Probe Centers On Fla. Tabloid Offices Where 3 Worked

By Peter Slevin and Justin Blum, Washington Post Staff Writers

BOCA RATON, Fla., Oct. 10 -- Anthrax has been discovered in a third person who worked at the headquarters of a tabloid newspaper company here, federal authorities reported tonight. Prosecutors formally opened a criminal case but said they have no evidence linking the anthrax outbreak to the Sept. 11 terrorist hijackings.

Federal investigators said the third person to test positive for exposure to anthrax is a 35-year-old woman who worked in the office building that housed the editorial staffs of the National Enquirer and several other tabloids. The bacteria was discovered in her nasal passages, but she has not developed the disease. Her condition is similar to that of the second infected worker, a 73-year-old mailroom employee; in both cases, prompt treatment with antibiotics is expected to eliminate the infection.

The first person infected, photo editor Robert Stevens, 63, died of the disease Friday. Since his death, more than 750 newspaper employees, contract workers and their relatives have been tested for exposure, and most are still awaiting results.

In a late evening news conference, FBI Special Agent Hector M. Pesquera said there is no evidence that the anthrax was produced or spread by terrorist groups connected with the Sept. 11 suicide attacks on the Pentagon and the World Trade Center. But federal authorities also said they have not ruled out a connection and are continuing to investigate that possibility.

Acting U.S. Attorney Guy Lewis said investigators do not know how the offices became contaminated. "We're still looking at it," he said. "We've not developed what I'd characterize as conceivable theories about how it got into the building."

Authorities said anthrax has not been found outside the three-story American Media Inc. building, which has been evacuated and sealed. Anthrax also cannot be passed from one person to another.

Investigators working to track the variety of anthrax found in the tabloids' offices are testing a theory that it originated in the United States, perhaps in an Iowa laboratory in the 1950s. Dubbed the "Ames strain," scientists shipped it to countless laboratories across the country in past decades as a benchmark for identifying anthrax.

Because the strain found in Florida has responded to antibiotics, U.S. authorities suspect it was not engineered as a biological weapon but emerged from a medical research lab. The Atlanta-based U.S. Centers for Disease Control and Prevention are conducting sophisticated tests in an effort to identify it.

For decades, the Ames strain has been passed around freely because it grows well in culture dishes, said Norman Cheville, dean of Iowa State's college of veterinary medicine. Researchers at the Army Medical Research Institute of Infectious Diseases in Fort Detrick have studied it for years and have distributed it periodically to university researchers.

The strain is so widespread in laboratories around the world that confirming it was the variety that killed Stevens would tell little about where the Boca Raton spores came from, according to Ronald Atlas, dean of the University of Louisville graduate school and president-elect of the American Society for Microbiology.

As the investigation of the Florida outbreak continued today, fears about an anthrax threat reverberated around the country. Pharmacies reported an increase in requests for ciprofloxacin (brand name Cipro), an antibiotic usually effective against the disease, and the State Department ordered all U.S. embassies around the world to store precautionary supplies of the drug for their employees.

Hospitals and emergency rescue switchboards across the nation have received worried telephone calls from people complaining of the flu-like symptoms that often accompany anthrax in its early stages. Fire-rescue teams have rushed to examine powder and packages that callers found suspicious, but they have discovered no anthrax.

Part of the State Department was evacuated this afternoon after a woman in the mailroom opened an envelope that contained an unknown powder. She sounded an alarm when some of the powder fell on her shoes, said D.C. Fire Department spokesman Alan Etter. A city hazardous materials team and members of the FBI terrorism task force determined that the substance was not hazardous.

"We're walking a fine line between prudence and panic here," Etter said.

Working to calm jangled nerves, federal and state health authorities in Florida have expressed confidence that the bacteria responsible for the infection of Stevens, mailroom worker Ernesto Blanco and the 35-year-old woman, who has not been named, were confined to the three-story building where they worked. Tests of Stevens's home and garden, as well as of his favorite bicycle routes and fishing spots, revealed no anthrax spores.

Similarly, no anthrax cases, or suspected anthrax cases, have been identified anywhere else in the country.

The Centers for Disease Control and Prevention is advising people not to hoard antibiotics or take them without cause, and not to lay in supplies of gas masks. The government agency, which shipped antibiotics to Delray Beach for more than 700 people connected to the American Media Inc. building, controls a supply large enough to treat 2 million people. Drugs from the federal stockpile can be shipped quickly in case of an outbreak.

Health and Human Services Secretary Tommy G. Thompson urged the health care community to resist pressure to prescribe antibiotics such as Cipro. HHS spokesman Kevin Keane said, "People should not be hoarding medicine. If it is needed, there will be plenty."

Public health officials have notified doctors and hospitals to be alert to possible cases of anthrax. The disease typically responds to antibiotics taken before major symptoms develop, leaving doctors confident that any widespread attack could be thwarted.

Several Washington area pharmacies, however, have reported increased Cipro sales since Monday, when more than 300 staff members of American Media, which publishes supermarket tabloids including the National Enquirer, Globe and Star, were seen on national television lining up for an anthrax test.

Pharmacist Bola Adeolu, at a CVS store in downtown Bethesda, said Cipro prescriptions have climbed sharply over the last two days. People are buying the antibiotics in large quantities -- packages of 100 to 150 capsules. Others are asking what they need to do to get a prescription, he said.

"Cipro usually doesn't fly off the shelf. What we had on the shelf should have lasted us two weeks. It sold in two days," Adeolu said.

CVS spokesman Todd Andrews said the increase in Cipro sales has been most pronounced in the New York metropolitan area.

Bayer AG, the largest drugmaker in Germany, announced today that it will reopen a shuttered production plant to increase its output of Cipro by 25 percent after Nov. 1. The plan is a response to increased U.S. demand amid anthrax worries, said spokesperson Christian Sehnert.

At a congressional hearing today, Rep. Peter Deutsch (D-Fla.) accused Bush administration officials of being slow to release details of the investigation into the American Media case, particularly during a time of high anxiety.

"The press accounts look like something out of a bad movie," Deutsch said, waving a fistful of articles from local newspapers. "People are calling up the hazmat teams every time they see a packet of dust. . . . You're not clearing up an awful lot."

Staff writers Ceci Connolly, Terence Chea, Petula Dvorak, Sue Anne Pressley and Rick Weiss contributed to this report.

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Bioterror: A Very Real Threat

By Ken Alibek and Stephen Handelman

On the evening of March 30, 1979, an invisible cloud of anthrax spores drifted over Sverdlovsk, a large Russian industrial city in the foothills of the Ural Mountains. The anthrax release, which came from a secret germ-warfare plant in what was then the Soviet Union, was a Cold War accident. (A technician had forgotten to replace a clogged air filter.) But for today's terrorism-conscious world, the incident underlines the dangers posed by those willing to use biology as a tool for havoc, and the special difficulties faced by governments and medical authorities who must guess whether the unthinkable will ever happen and then figure out how to deal with it if it does.

Biological Chernobyl

Over the course of two months, at least 105 people died at Sverdlovsk (today renamed Yekaterinburg) of anthrax poisoning. It was the worst recorded anthrax outbreak in a century, the equivalent of a "biological Chernobyl." Not only did the incident lift the curtain on the Soviet Union's decades-long program to weaponize disease -- hundreds of tons of anthrax, and a few dozen tons of plague and smallpox, were stored around the country for potential

deployment in bombs and missiles -- but it brought home how vulnerable crowded urban areas are to biological warfare.

Most of those who fell sick in the first several days after inhaling the spores were workers at a ceramics manufacturing plant that was in the path of the prevailing wind from the Sverdlovsk military facility. However, the disease spread when local authorities began to hose down nearby buildings, streets and trees under the impression that they were dealing with a hazardous-materials spill. Many of the later victims died after exposure to the secondary aerosols circulated by that clean-up effort. As anxiety increased, authorities sealed off the city and began vaccinations and antibiotic treatments that finally contained the outbreak. No terrorist could have written a better scenario for sowing panic and fear.

Could we handle such an outbreak in a more sophisticated manner today? Perhaps. But Western policy makers have been no better than Soviet ones in thinking outside the box when it comes to unconventional threats. The Kremlin kept its disease stocks under tight military guard, considering them to be as much weapons of mass destruction as its nuclear arsenal. Soviet managers believed such weapons too sophisticated, and too horrible, to be deployed by freelancers acting outside state control, or in conditions that were not triggered by the outbreak of total war.

The same attitude prevailed among U.S. policy makers, who formally renounced germ warfare production and research in 1972. Even though there have been scattered attempts to use biological weapons since -- most of them unsuccessful -- analysts continue to believe there is a psychological and logistical "threshold" that prevents terrorists from using disease as an instrument of mass murder. While recent events have shaken that belief, the challenge of biological terrorism remains misunderstood.

A case in point: the current bioterror scare, triggered by two mysterious cases of anthrax in Florida and by reports that associates of the Sept. 11 hijackers investigated the use of crop dusters, possibly to spray anthrax spores. In response, some homeland defense partisans have called for stepped-up programs to stockpile anthrax and smallpox vaccines and tougher scrutiny of aerosol devices. Pharmacies have reported a run on Cipro, an antibiotic that can counter anthrax (but only before the first symptoms appear). There's nothing wrong with such remedies, but they are responses to specific threats that may never materialize.

The danger of mass bioterrorism lies precisely in its murderous flexibility. Dozens of biological agents, from plague to salmonella, are available to the determined bioterrorist. While certain engineering skills are required to deploy anthrax as an aerosol, other equally effective methods for spreading sickness are simpler. Less than 300 grams of dry anthrax, carried into the country as a harmless-looking brownish powder and poured into the ventilating system of a shopping mall, a public building or a traffic tunnel, could fell thousands. A mosquito infected with a virus or, worse, a lone individual willing to be infected, could become the carrier of a disease whose effects don't become obvious until days or weeks after first contact is made.

These examples may sound unduly frightening or surreal, but they have been part of the logic of biological warfare since the days when infected corpses and rodents were tossed into walled cities in the Middle Ages. If we are to think seriously about the threat, such scenarios must inform our defense strategies.

Similarly, the cultivation of biological agents in quantities useful for doing harm requires relatively little sophistication. Diseases can be cultivated in bottles or in live animals. Preparation requires a basic knowledge of microbiology, but this knowledge is more widespread than commonly assumed. Between 1960 and 1980, the Soviet Union offered courses in genetic engineering and molecular biology to 40 scientists a year from Eastern Europe, Cuba, Libya, India, Iran and Iraq, among others. Many of those young students have gone on to head biotech labs in their own countries. Dozens of poorly paid scientists who participated in Moscow's bioweapons program have gone abroad to market their skills since the collapse of the Soviet Union.

Understanding the bewildering variety of biological threats is a start toward crafting a rational response. Authorities have choices. They can of course treat the specific illness once it is identified, and contain an outbreak through fast medical response and quarantine. They can also develop and stockpile vaccines, but it would clearly be impossible to prepare vaccines for every member of the population and inoculate against every potential biological agent.

Certainly, once a hostile party was aware of a vaccination program against one disease, he could easily switch to a different one, or find ways to counter it.

Authorities can also protect public buildings by installing air filters, but that method offers no defense against pathogens that can be released inside a building or applied to transportable objects, like an envelope. Can we know we are under attack before it is too late? Current methods of detection are extremely cumbersome. Most are designed to detect only specific agents like anthrax. But research is underway on portable sensors that can be placed anywhere and that could detect the general presence of harmful agents in the air.

Prophylaxis and Treatment

Another method that deserves more attention than it has received so far is the development of medical prophylaxis and treatment, for use before or after exposure, that can boost the body's natural resistance to disease and thus

provide a first line of defense against a wide variety of pathogens. While hundreds of millions of dollars are currently being spent on vaccine development, too few resources are devoted to these and other promising directions of research.

No single method offers complete security. Nevertheless, without a clear-eyed assessment of the range of threats, it's impossible to determine how to defend ourselves. Biological terrorism poses a long-term threat to our entire health and emergency response system. The key lesson from Sverdlovsk is that a disaster can arrive with almost no warning.

Dr. Alibek, deputy chief of the Soviet Union's bioweapons program from 1988 to 1992, is president of Advanced Biosystems in Manassas, Va. Mr. Handelman is co-author with Dr. Alibek of "Biohazard" (Random House, 1999).

Florida Anthrax Is Linked to Lab

[Barry James](#)

International Herald Tribune

Thursday, October 11, 2001

Bayer Speeds Production of Drug

Amid concerns about possible anthrax attacks, the German pharmaceutical company Bayer AG said Wednesday that it would step up production of its Cipro anthrax treatment. In the United States, a law enforcement official said Wednesday that preliminary testing at federal laboratories on the anthrax that killed a Florida man had found a possible match with a strain connected to an Iowa lab. The official said further testing to make a definitive match could take several days. A Bayer spokeswoman in Dusseldorf said, "We see signs that demand is increasing" for Cipro, adding that a mothballed plant would be reopened to increase production of the drug by 25 percent. The German government said it would set up an office to review the threat of biological weapons. And the European Commission said it would urgently discuss possible measures against bioterrorism with member states this week. The Japanese government said on Wednesday that it would step up measures to prevent biological terrorism by protecting Japanese drinking water and public areas. Officials in Japan met at a newly established anti-terrorism headquarters Tuesday to discuss how to increase supplies of anthrax vaccines, which were still in short supply, even though the Japanese Aum Shinrikyo sect tried unsuccessfully to infect the population with anthrax germs before attacking the Tokyo metro system with nerve gas in 1995. "We will discuss ways to secure vaccines and to deal with biological terrorism in general in the future," a government spokesman said. FBI agents wearing white moon suits and gas masks scoured the newspaper offices in Boca Raton, Florida, of two men whose exposure to anthrax has prompted heightened fear of bioterrorism across the country. The search turned up no further sign of anthrax in Robert Stevens's office since traces were discovered on his computer keyboard. Mr. Stevens, 63, died. Ernesto Blanco, a 73 year-old mailroom employee, reportedly suffered flu-like symptoms and was found to have anthrax spores in his nostrils. Like everyone else in the building, he was being treated with antibiotics. A third employee was recently treated for respiratory symptoms but tested negative for anthrax. Nearly 800 employees and recent visitors to the building have been tested for anthrax -- including about 50 British journalists who work for the publications - but so far no further cases have shown up. Doctors said it could take at least a week to get results from the tests. In the meantime, rumors were verging on mild hysteria. South Floridians had every reason to be on edge. The terrorists who hijacked four aircraft and murdered more than 7,000 people in New York and Washington lived in the neighborhood and learned how to fly there. They snooped around to find out everything they could about crop-spraying aircraft, which would be one way of scattering anthrax spores to the wind - although there is doubt among experts whether such a weapon would work. The German authorities on Wednesday said tests on a suspicious envelope found in a Berlin parking garage showed no evidence of contamination with infectious agents. Anthrax is a stable and highly infectious germ that is a killer if it gets into a victim's lungs. In the past century, there have been only 28 reported cases in the United States, the last in 1978. Health officials said that if only one case of the disease occurred, it would be cause for alarm. Two cases, they said, could not be explained through natural causes. So far, however, anthrax has been found only in the American Media building, and investigators were trying to find out if anyone had a grudge against the media empire. FBI agents were sifting through e-mails and correspondence for clues. Suspicion briefly landed on a former student intern at the newspaper who left a "cute funny" e-mail message to say good-bye and thanks. "I will be remembered by all the little tricks and treats that I hid around the office," he said. But the FBI cleared the embarrassed 23-year-old after questioning him. He said he really had left candies and treats around the office. Could the building have been attacked because of its coverage of the terrorists? A recent

headline in the Globe read: "Bin Laden - Inside His Sick, Twisted World." In bigger type across a full cover photo of the alleged terrorist leader, it went on: "Wanted! Dead or Alive" -- with "Alive" crossed out. .If the disease seemed contained, the rumors were not. American Media was combating one baseless story that terrorists had put anthrax spores into newspapers for shipment around the world. A spokesman said the newspapers are not printed in Boca Raton, and added, "American Media has been assured by the Centers for Disease Control that it is impossible to transmit anthrax by paper." .After medical workers took samples from their nostrils with swabs, those tested were given a 15-day supply of antibiotics, which the health authorities told them would prevent any outbreak of the disease. .Investigators responded to numerous calls from residents reporting suspicious powders, packages and envelopes found in businesses throughout the area. The bomb squad and a rescue worker in full chemical-biological protection gear turned up when a letter from New Delhi turned up at a local bank with no return address. It contained a business plan. ."It's mass hysteria," said one fire department division chief. "So many people are calling things in at one time. Because of the local situation, everybody's on edge." .About a dozen businesses and government offices in various parts of Florida, including a branch of the St. Petersburg Times, reported having received suspicious envelopes containing white powder that the authorities said were being tested but were almost certainly sent as a hoax. An Internal Revenue Service tax processing center in Covington, Kentucky, was closed after an employee reported receiving a letter that contained a white powder.

<http://www.iht.com/articles/35297.html>