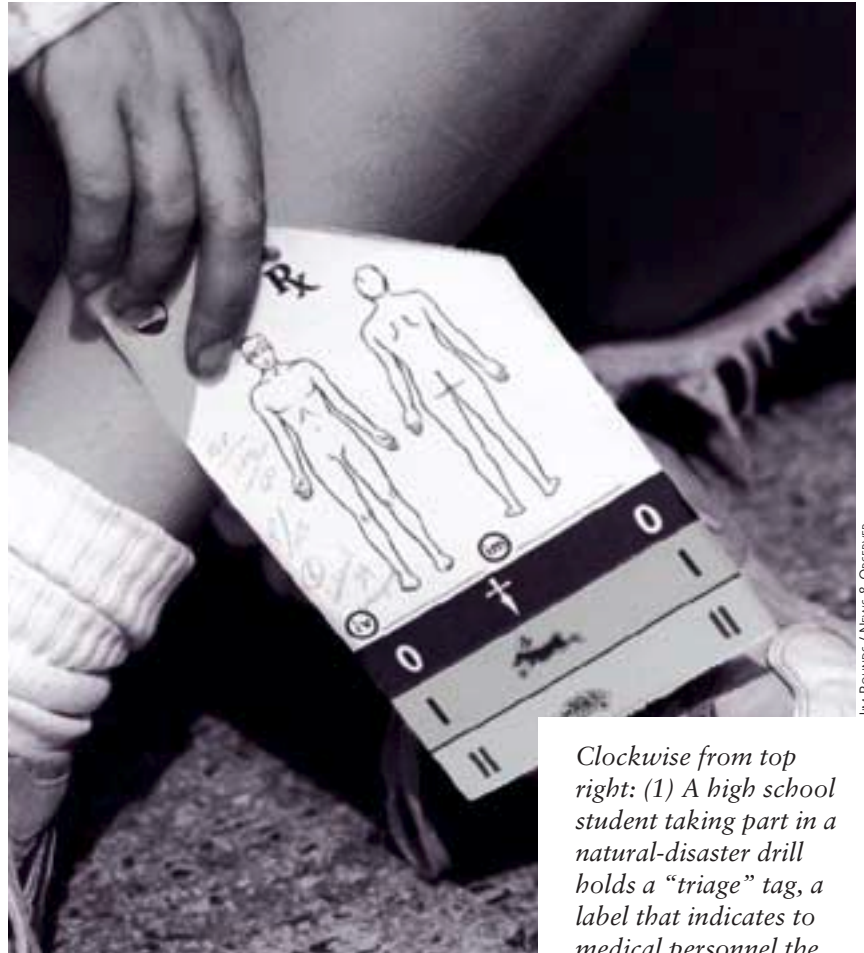


Unnatural Disasters:

Dip arrows in matter of smallpox, and twang them at the American rebels. . . . This would sooner disband these stubborn, ignorant, enthusiastic savages, than any other compulsive measures. Such is their dread and fear of that disorder!

—British Major Robert Donkin, advocating the use of disease as a weapon during the American Revolution (1777)

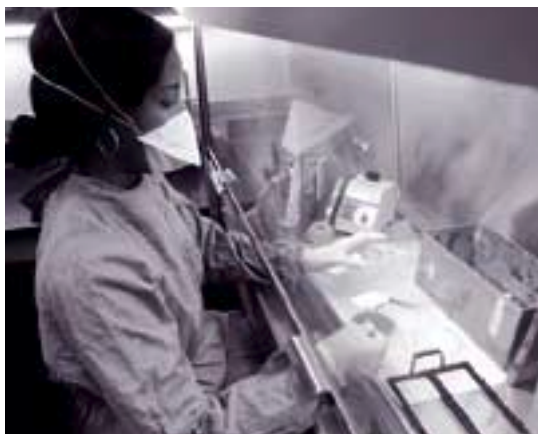


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Clockwise from top right: (1) A high school student taking part in a natural-disaster drill holds a “triage” tag, a label that indicates to medical personnel the nature of her injury and the priority she is to be given. (2) Scenes like this became uncomfortably familiar last fall as some federal offices were tested for anthrax. (3) A laboratory worker demonstrates the procedure used to determine whether a mysterious substance contains anthrax spores. (4) During the anthrax-letter attacks of fall 2001, physicians used antibiotics to protect exposed workers.



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Bioterrorism and the Role of Government

Jill D. Moore

The anthrax-letter attacks of fall 2001 claimed five lives and brought new attention to bioterrorism in the United States. Bioterrorism itself is not new, however. The use of disease as a weapon and agent of terror has a long history in this country:

- British troops, who were more likely to have immunity against smallpox than late-eighteenth-century Americans, used infected soldiers and slaves to spread the disease during the Revolutionary War.¹
- In the years immediately following World War II, the United States vigorously pursued a biological weapons development program. At the time some political and military leaders believed that a war waged with disease might be more humane than one using conventional weapons. The program eventually was scrapped, and the United States signed the international Biological and Toxin Weapons Convention in 1975.²
- In 1984, in Wasco County, Oregon, a religious cult called the Rajneeshees poisoned salad bars at ten popular restaurants with salmonella, a bacterium that causes violent gastrointestinal illness. At the time, there was a lot of tension in the county between the newly arrived Rajneeshees and longer-term residents, which ultimately led to attempts by the cult to elect sympathetic candidates to

county government positions. The salmonella poisonings were reportedly part of a scheme to make voters who opposed Rajneeshee-backed candidates too sick to go to the polls on election day.³

- In the late 1990s, anthrax-hoax letters appeared in women's health clinics throughout the country, including at least one clinic in North Carolina. A typical hoax letter contained a powdery substance and a note claiming that the substance was anthrax. The hoaxes proved that the mere threat of a frightening disease could effectively disrupt communities, strain local government resources, and induce terror among citizens.⁴
- In fall 2001, anthrax was sent through the U.S. mail to various news media outlets and the U.S. Congress. Twenty-two people contracted the disease, half becoming ill with the highly lethal inhalation form of anthrax, the other half with cutaneous (skin) anthrax. Tens of thousands more underwent preventive antibiotic treatments. Five of the inhalation anthrax victims died.⁵

Although the idea behind the 2001 anthrax letters was not new, the impact of the attack was unprecedented in the United States. By the time it was over, it had forced members of Congress and justices of the Supreme Court to vacate their offices temporarily. State and federal public health officials had worked

around the clock to identify possible new cases of illness and provide information to a frightened public. Local governments had been severely taxed by responding to citizens' concerns about suspicious packages and substances. The need for government at all levels to develop plans for responding to bioterrorism had never been more clear.

State and federal government agencies are significant players in ensuring that any community can respond quickly and effectively to a bioterrorist attack. However, the initial impact of an attack, and the response to it, are most likely to occur at the local level. This article identifies some of the key issues facing local governments in planning for bioterrorism and offers some basic information about the biological and chemical agents of particular concern. It also identifies individuals and agencies that should be involved in developing a local plan for responding to bioterrorism and describes some of the key elements that a local plan should address. Finally, the article describes bioterrorism preparedness activities at the state level in North Carolina and identifies some key federal resources for bioterrorism response.

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POSSIBLE BIOLOGICAL AND CHEMICAL AGENTS IN A BIOTERRORIST ATTACK

Despite the prefix “bio,” in common usage the word “bioterrorism” extends to the use of chemical as well as biological agents. The federal Centers for Disease Control and Prevention (CDC) defines “biological terrorism” as “an intentional release of viruses, bacteria, or their toxins for the purpose of harming or killing American citizens.”¹ Chemical terrorism also has the purpose of harming or killing but involves the release of chemicals that can cause injury, illness, or death. These may be chemical weapons designed for war, or ordinary industrial chemicals.

The CDC has designated certain biological and chemical agents as “high priority” for purposes of bioterrorism response planning because they have characteristics that may make them particularly attractive to terrorists.²

Biological Agents

The CDC categorizes high-priority biological agents according to the risk they pose to national security. Category A agents pose a particularly high risk because they can be easily disseminated or transmitted from person to person, have a strong potential to cause death and to have a major public health impact, and might cause public panic and social disruption. The illnesses caused by Category A organisms, and the organisms themselves, are as follows:

- Anthrax—*Bacillus anthracis*
- Botulism—*Clostridium botulinum* toxin
- Plague—*Yersinia pestis*
- Smallpox—variola major
- Tularemia—*Francisella tularensis*
- Viral hemorrhagic fevers—for example, the Ebola virus

The biological agents of next-highest priority are designated Category B. These agents are moderately easy to disseminate, have a moderate-to-low likelihood of causing death, and may be difficult to diagnose or detect. Following are Category B illnesses and/or agents:

- Brucellosis—*Brucella* species
- Epsilon toxin of *Clostridium perfringens*
- Glanders—*Burkholderia mallei*
- Q fever—*Coxiella burnetii*
- Ricin toxin from *Ricinus communis* (castor beans)
- *Staphylococcus* enterotoxin B

Category C biological agents have a lower priority but could be engineered for mass dissemination in the future because they are readily available, easy to produce or disseminate, and have the potential to cause high death rates or to have major public health impact. The Category C illnesses and/or agents are as follows:

- Hantaviruses
- Multi-drug-resistant tuberculosis
- Nipah virus
- Tickborne encephalitis viruses
- Tickborne hemorrhagic fever viruses
- Yellow fever

Information about these illnesses—including details about symptoms, severity, and communicability—is available on the CDC’s bioterrorism Web site, www.bt.cdc.gov.

Chemical Agents

Priority chemical agents are categorized by the type of effect they produce, rather than by their degree of priority. A chemical may be included on the priority list if it meets one or more of the following criteria:

- It is already known to be used as a weapon.
- It is likely to be available to potential terrorists.
- It is likely to cause “major morbidity” (serious or widespread illness) or mortality.
- It has high potential for causing public panic and social disruption.
- It requires special action for public health preparedness.

The following list identifies the primary categories of priority chemical agents and gives some examples:

- Agents that induce vomiting
- Blister agents (“vesicants”) (such as mustard gases)
- Blood agents (such as hydrogen cyanide)
- Choking agents, or agents that damage the lungs or the pulmonary system (such as chlorine or nitrogen oxide)
- Incapacitating agents (such as LSD)
- Nerve agents (such as sarin)
- Riot control/tear gases or agents (such as chloroform)
- Industrial chemicals

Notes

1. U.S. DEP’T OF HEALTH AND HUMAN SERVS., CENTERS FOR DISEASE CONTROL AND PREVENTION, THE PUBLIC HEALTH RESPONSE TO BIOLOGICAL AND CHEMICAL TERRORISM: INTERIM PLANNING GUIDANCE FOR STATE PUBLIC HEALTH OFFICIALS 43 (Atlanta: CDC, July 2001).

2. The information in this sidebar is drawn from the CDC’s Web page on bioterrorism, at www.bt.cdc.gov/Agent/Agentlist.asp#categorybdiseases.

Local Governments’ Role

Local response is the key to stopping this demon in its tracks.

—Samara Adrian, bioterrorism planner, North Carolina Division of Public Health⁶

When an act of bioterrorism occurs, its first impact is felt locally, and the front-line responders are local people and agencies. Even the anthrax-letter attacks, which involved several states, the District

of Columbia, and the U.S. postal system, initially presented themselves locally, in the form of ill patients diagnosed in local hospitals, or suspicious letters and substances requiring a local response. Local governments must prepare for the possibility of a bioterrorist attack in their jurisdiction.

Planning to be able to respond efficiently and effectively to a bioterrorist attack is a tremendous and complex undertaking. The goals are clear enough:

- To *detect* when an act of bioterrorism has occurred
- To *respond* effectively to contain the threat and protect the public
- To help the community *recover* when the emergency has passed

However, a number of variables make it impossible to develop a one-size-fits-all plan that will accomplish those goals in every situation. Instead, a plan must be flexible enough to



A security officer patrols in front of a Raleigh post office that was closed after an envelope containing a white powder was found in the building.

anthrax, cannot be spread from one person to another. A person must have direct contact with anthrax spores to become ill. A community faced with anthrax therefore would probably focus its efforts on locating and eliminating the source of the spores. It would not need to isolate or quarantine ill or exposed people. Other agents, such as smallpox, are highly contagious. A community dealing with smallpox would have to ensure that health care providers had appropriate facilities and equipment to care for ill patients without spreading the disease further. It might have to impose quarantines.⁷

Disease-causing agents can be disseminated in a variety of ways—for example, introduced into food or water sources, released into the air, or sent through the mail. The impact on a community and the appropriate community response will be different in each case.

For example, in the anthrax-letter attacks, there was a focus on suspicious letters, packages, and substances. Local governments throughout North Carolina had to develop plans for responding efficiently when citizens reported suspicious items or sought information about the safety of their mail. When diseases are spread through another source, such as a salad bar (as in Oregon), the local focus will be quite different. For example, restaurants or water sources might be investigated or even temporarily closed down.

Therefore, at the outset, officials involved in developing bioterrorism response plans should have a general understanding of the different biological and chemical agents that terrorists might employ, the illnesses those agents might cause, and the different effects those agents might have on communities. The federal Centers for Disease Control and Prevention (CDC) has identified a number of agents likely to be used in bioterrorist attacks (for more information, see the sidebar on page 6).

account for differences in the following factors:

- The *agents*—the various disease-causing organisms, toxins, or chemicals that a bioterrorist might employ
- The *impact on the community*, which will vary depending on which agent is used and how it is disseminated
- The *players*—the various public and private agencies and individuals that might be involved in a response

Understanding the Variables

A potential bioterrorist has many choices: a number of disease-causing organisms or chemicals to choose from, and multiple ways to disseminate them. Different agents produce illnesses of various types and degrees of severity, which in turn produce variations in the types of health care and other resources that a community needs to heal the sick and protect itself.

For example, some agents, such as

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CLUES TO A POSSIBLE BIOTERRORIST ATTACK

- A large number of ill people with a similar disease or syndrome
- A large number of unexplained diseases, syndromes, or deaths
- Higher rates of illness or mortality than expected with a common disease or syndrome
- The failure of a common disease to respond to usual therapy
- A single case of a disease caused by an uncommon agent
- Multiple unusual or unexplained diseases coexisting in a patient without other explanation
- A disease that appears outside its usual geographic location or off its usual seasonal occurrence
- Multiple atypical presentations of disease agents
- A similar genetic type among biological agents isolated from temporally or spatially distinct sources
- An unusual, atypical, genetically engineered, or antiquated strain of an agent
- An unexplained increase in the incidence of an “endemic” disease (that is, a disease that occurs naturally in a particular location or within a particular population)
- Simultaneous clusters of a similar illness in noncontiguous areas
- Death or illness among animals that precedes or accompanies death or illness in humans
- Illness among those in proximity to common ventilation systems

Source: Adapted from U.S. DEP’T OF HEALTH AND HUMAN SERVS., CENTERS FOR DISEASE CONTROL AND PREVENTION, THE PUBLIC HEALTH RESPONSE TO BIOLOGICAL AND CHEMICAL TERRORISM: INTERIM PLANNING GUIDANCE FOR STATE PUBLIC HEALTH OFFICIALS 17 (Atlanta: CDC, July 2001).

Meeting the Goals

Step 1: Detecting the Problem

If a bioterrorist attack occurred in North Carolina, the first challenge probably would be to recognize that something causing a threat to public safety had happened. Most emergencies begin with a definite, identifiable act: a fire, an explosion, a plane crash. Such events, easily detected, are likely to set in motion immediate action by traditional “first-responders,” such as firefighters or police.

By contrast, an act of bioterrorism may be covert, and health care providers, rather than traditional first-responders, may detect the early critical information.⁸ For example, when the Rajneeshees poisoned the salad bars in Oregon, no one knew that anything had happened until large numbers of county residents became ill.⁹ Also, although some of the anthrax letters in the 2001 attacks contained threatening notes and suspicious substances, the source of the

initial fatal case of anthrax—also believed to be a letter or a package—apparently went unnoticed.¹⁰

Early detection of bioterrorism can mean the difference between life and death for ill and exposed people, as the anthrax-letter attacks demonstrated.¹¹ Early detection also is necessary to avoid significant delays in investigating the nature and the source of the attack.

The critical players in early detection are health care providers and public health officials. By law, physicians in North Carolina must make a report to local public health officials when they know or suspect that a patient has a “reportable” communicable disease or condition. The list of reportable diseases and conditions includes most of the biological agents designated by the CDC as high priority.¹² Health care providers also should be alert for unusual events, such as increased numbers of patients seeking care for particular symptoms or illnesses, or unusual

groupings of symptoms that are difficult to diagnose but possibly related to a biological or chemical agent. Those events should be reported to public health officials as well.¹³ Public health agencies must have the capacity to compare information received from health care providers with baseline information about residents’ health status, so that they can detect unusual changes. They must be able to recognize when changes in health status indicate that a bioterrorist attack might have occurred, and know how to activate local, state, and federal resources to respond. (For a list of clues that an attack might be in progress, see the sidebar on this page.)

Step 2: Activating the Response

Once information indicating the possibility of a bioterrorist attack has been detected, rapid response is essential. A good response plan must include measures to protect public health and safety during the emergency, ensure that essential government services are available for the duration, and provide emergency relief to public and private entities and individuals affected by the terrorism.¹⁴

Designing those measures presents a number of challenges. First, the measures must address the likely impact on the community of an attack, but, as explained earlier, that may vary dramatically, depending on the biological or chemical agent used and the manner in which it has been disseminated.

Second, any response is likely to involve a number of individuals and agencies. Planning for interagency communication and coordination is therefore critical but complicated—in large part because the specific agencies and individuals required for an effective response will depend on the community impact of the particular event. Not every event will involve every potential responder or strain every potential responder’s resources equally.

For example, in the anthrax-letter attacks, large numbers of people referred suspicious letters to a variety of local agencies, usually the local police department, the local fire department, a regional hazardous-materials team, or the local health department. In North

INTERNET RESOURCES

Readers, especially those involved in developing local response plans, are encouraged to consult the following Internet sources for additional information:

Centers for Disease Control and Prevention

www.bt.cdc.gov (English)

www.cdc.gov/spanish/bt/ (Spanish)

Comprehensive information for health professionals and the public about biological and chemical agents, preparedness planning, and resources for bioterrorism response.

Food and Drug Administration

www.fda.gov/oc/opa.com/hottopics/bioterrorism.html

Bioterrorism information with a focus on protecting the food supply.

Johns Hopkins University, Center for Biocivilian Defense Strategies

www.hopkins-biodefense.org

Information about agents, preparedness and response, and the "Dark Winter" bioterrorism preparedness exercise.

North Carolina Division of Public Health

www.epi.state.nc.us/epi/anthrax.html

Information on public health emergency preparedness and response and the North Carolina Biological Agents Registry.

North Carolina Safety and Security

www.ncgov.com/asp/subpages/safety_security.asp

Information on North Carolina's security efforts, including answers to frequently asked questions and up-to-date information about current safety issues.

The University of North Carolina at Chapel Hill, School of Public Health

www.sph.unc.edu/bioterrorism/

News articles, answers to frequently asked questions, resources and links, and information about educational programs on bioterrorism

Carolina some local governments were nearly overwhelmed. Most had to grapple with quickly developing and implementing plans to respond in a coordinated fashion. Fortunately, no one in North Carolina became ill, so local governments did not have to tap the resources that might have been required if there had been mass casualties.

In the event of mass casualties, an entirely different set of individuals and agencies might be critical to the response. Hospitals might have to cancel or delay routine services to make beds available. Social services agencies might have to arrange for the care of children orphaned by the attack. Emergency shelters might have to be opened.

Because so many public and private individuals and agencies might be involved in responding to an attack, the CDC recommends forming a response planning team, including representatives of some or all of the following areas:¹⁵

- Law enforcement
- Fire and rescue
- Dispatch/911 call center
- Emergency medical services
- Emergency management office
- Public health department
- Hospitals
- Private health care providers
- Medical examiner/coroner
- Mental health
- Social services
- Local officials or managers
- Public information officer
- Volunteer organizations
- Legal counsel

Following are some issues for teams to consider in developing a response plan:¹⁶

- **Intra-agency preparedness and communication:** All agencies that are likely to be involved in responding to an event should clearly identify their own resources, capabilities, and limitations. They also should identify primary and alternate contacts within the agency, provide for round-the-clock access to staff members who would participate in the initial

In the event of a bioterrorist attack, an accurate medical diagnosis is critical to an effective response.



Perpetrators of the anthrax-letter attacks in fall 2001 used the U.S. mail as their delivery mechanism.

response, develop policies and procedures for access to and use of agency resources in an emergency, and train appropriate staff members in those procedures.

- **Interagency preparedness and communication:** Local response teams also should consider how agencies will work together in responding to an event. They should identify the agencies that may need to be involved in a response and determine the resources, the capabilities, and the limitations of each. Different agencies are likely to have different goals and organizational cultures, and these may conflict. For example, both public health and law enforcement agencies would be involved in investigating a bioterrorist attack, and they would share the primary goal of protecting the public. However, the techniques and the goals of epidemiologic and criminal investigations are not identical. Agencies also may have different ideas about chain of command, or who is (or should be) in charge of the response. These issues should be worked out before an event actually occurs. The response planning team also should identify primary and alternate contacts for each agency, define inter-agency relationships, provide for standard means of communication, and arrange for alternative means if ordinary channels are unavailable.
- **Communication with the public:** Accurately identifying risks and concerns without inducing public panic can be a delicate task. The response plan should designate a primary and an alternate spokesperson and identify which responders will provide what types of information to the spokesperson. The plan also should address the various ways in which information will be communicated, such as through press conferences, Internet sites, or recorded call-in lines.
- **Marshalling of resources:** The plan should identify public and private local, regional, state, and federal



resources that might be available in an event, and develop procedures for drawing on those resources in an emergency.

Once teams have developed response plans, they should test the plans by conducting intra- and inter-agency drills.

Step 3: Helping the Community Recover

A good bioterrorism preparedness plan will take account of a community's need to recover from the impact of an attack and the steps that the community must take to do so. There are two aspects to a full community recovery: (1) containing

or eliminating the health risks and removing any restrictions on normal community activities, and (2) supporting individuals, businesses, government, and other entities within the community as they attempt to return to normal.¹⁷

Although conceptually the ideas of response and recovery are separate, efforts to begin recovering are likely to overlap with response efforts. Therefore the same team that develops the local response plan should consider the kinds of actions that local government agencies can take to assist and hasten recovery. The agencies and the actions that may be required will vary according to the

Anthrax victim visited N.C.; bioterrorism connection uncertain

By SARAH AVERY
STAFF WRITER

A 63-year-old Florida man who traveled to North Carolina last week has been diagnosed with an extremely rare and lethal form of anthrax that has been associated with bioterrorism. U.S. officials said there was no evidence of terrorism but promised "a very intense investigation."

"There is no need for people to fear they are at risk," said Dr. Jeffrey F. Koplan, director of the Centers for Disease Control and Prevention in Atlanta. He and others emphasized that the disease is not contagious and that there is no evidence yet of other people infected.

North Carolina health officials held a news conference Thursday night to allay public fears about the bacteria, and officials in Florida indicated that the victim probably contracted the disease there. He left Florida last Thursday on a driving trip to Charlotte, Chimney Rock and Durham.

"The incubation time is variable," said Dr. Kelly McKee, an epidemiologist for the state of North Carolina. "It can be as short as one day or several days to a couple of weeks."

The man, Bob Stevens, began to feel sick Sunday while visiting Duke University and returned home. He checked into JFK Medical Center in Atlantic, Fla., on Tuesday with a high fever and confusion. Meningitis was initially suspected, but the blood test showed

the anthrax bacilli.

The CDC confirmed the diagnosis Thursday morning and dispatched investigative teams to Florida and North Carolina to help public health officials pull information from area hospitals about any other similar cases. McKee said no other North Carolina hospitals reported anything suspicious.

Anthrax is typically transmitted through contact with infected cows, goats, sheep and other animals, most often by eating diseased meat or handling diseased hides. But it is extremely rare in the United States, and acquiring it through the lungs is even more rare.

The last known case of inhalation anthrax in the United States was in 1970, and researchers reported in a 1999 Journal of the American Medical Association article that a single incident of inhalation anthrax was "cause for alarm" because anthrax has been developed by some countries as a possible biological weapon.

The Sept. 11 terrorist attacks have put public health officials on high alert for incidents of biological warfare, but they said Thursday that the isolated case was not evidence of a deliberate release of the germ by terrorists.

Still, they acknowledged it is one of several possibilities under investigation.

"It's certainly a concern," McKee said. "It's naive to think that the current situation in the world isn't a part of the equation in our evaluation

of this. But it's not fair to jump to conclusions that this is bioterrorist event. I'm not saying that it isn't, I'm not saying that it is."

McKee and other state officials said they did not know Stevens' connection to the state or why he had taken the driving trip to North Carolina. Stevens is a photo editor at the supermarket tabloid The Sun and has been described as an avid outdoorsman.

The most recent U.S. case of anthrax was earlier this year in Texas. But it was the more common skin form that is usually curable. Inhalation anthrax is up to 90 percent lethal, because the symptoms start out mimicking flu — fever,

chest congestion, fatigue. Unless treated promptly with antibiotics, the disease leads a deadly course in as few as three days.

There is a vaccine to prevent the spread of the disease, but it is available only to the military.

Fears that terrorists may have been planning an airborne chemical or biological attack were raised last month when it was learned that a group of men, including one of the hijackers in the attack on the World Trade Center, had been asking a lot of questions about a crop-duster at an airfield in Belle Glade, Fla.

Because of those fears, the government grounded all crop-dusters across the country for a few days

after the Sept. 11 terrorist attacks.

The men who visited the airfield had asked employees of a fertilizer company about the range of the airplane, how much it could haul in chemicals, how difficult it was to fly and how much fuel it could carry.

In North Carolina, Debbie Crane, spokeswoman for the state Department of Health and Human Services, said, "Anthrax occurred before Sept. 11. And it will occur in the future. The presence of a case of anthrax does not necessarily mean that some evildoer has done something horrible."

Koplan, the Atlanta CDC chief, said the disease actually may be more common than people think

but goes undetected. The latest case may have come to health officials' attention only because of heightened concern about the use of anthrax as a possible weapon of mass destruction, he said.

"What might have been tossed off as an undetermined bacterium was sent on to a state lab, where people recently received training in detecting anthrax," he said. "It is a possible answer, which is an improved detection system."

The Associated Press contributed to this report.

Staff writer Sarah Avery can be reached at 828-4862 or savery@newsobserver.com.

The Florida man who was diagnosed with inhalation anthrax in October 2001 was traveling in North Carolina when he first became ill, so officials initially thought he might have been exposed to the deadly bacteria while he was here. Later they linked the man's exposure to his Florida workplace.

nature of the event. Following are some possible scenarios involving different recovery needs:

- If a bioterrorist contaminated a local water supply, cleanup of the supply would be essential for community recovery.
- If the attack involved a contagious disease, people may have been quarantined. Recovery might begin with the lifting of the quarantine, but it may not be complete until unintended consequences of the quarantine have been addressed as well. For example, some quarantined people may have suffered economically as a result of being unable to work.
- A community as a whole might suffer economically if it became known as the place where a highly feared disease broke out. Community recovery might include efforts to rehabilitate the community's image and promote it as a safe and desirable place to visit, work, or live.
- Public schools might have been shut down. Community recovery would require reopening schools, making up lost school time for students, and assisting students in readjusting to normal school operations.

- Relationships within the community may need to be repaired if they were strained or fractured during the response to an event. For example, during the anthrax-letter attacks, differences between the treatment of potentially exposed congressional workers and that of potentially exposed postal workers created a lot of tension in the District of Columbia.¹⁸
- Finally, virtually any type of bioterrorist attack has the potential to produce widespread anxiety, depression, and other mental health problems. Therefore, in most instances, community mental health resources would play a vital role in overall community recovery.

The State Government's Role

The terrorist attacks of September 11, 2001, and the anthrax letters that closely followed drew national attention to the need for bioterrorism preparedness efforts and bioterrorism response plans. But in North Carolina, work was well under way before those events. It began in 1999, when the state Division of Public Health received funding from the CDC to develop a statewide response plan, conduct bioterrorism training for local governments, and provide technical assistance to local governments developing their own response plans.

The work accelerated after September 11. The General Assembly passed a

law authorizing the governor to use up to \$30 million of the state's savings reserve account to implement measures to defend against terrorism.¹⁹ The governor subsequently allocated \$5 million to the Division of Public Health to be used to strengthen public health infrastructure and the capacity to respond to bioterrorist attacks. The money funded four initiatives:

- **Formation of regional teams to conduct public health surveillance.** The teams will be based at seven locations around the state.²⁰ They will gather and analyze information continually, in order to detect public health problems early.
- **Purchase of information technology linking every local health department in North Carolina to the CDC's Health Alert Network.** This connection will allow rapid communication in the event of a bioterrorist attack or another public health emergency.
- **Expansion of the state's public health laboratory.** The state's capacity to process specimens rapidly will be increased, and new regional laboratories will be developed.²¹ During the anthrax-letter attacks, the laboratory was overwhelmed with specimens requiring testing.²²
- **Creation of a state bioterrorism team.** A state position of bioterrorism coordinator has been created, and a state-level bioterrorism team organized. The team is responsible for

Some people responded to the September 11 and anthrax-letter attacks by purchasing protective gear such as gas masks, but public health officials have warned that gas masks are likely to be useless in most bioterrorist attacks. A mask can protect the user only from agents that are inhaled, and even then only if the person happens to be wearing the mask when the agent is released.



planning and response activities, including development of statewide plans and policies, implementation of a new registry of biological agents, and provision of technical assistance to local governments.²³

Congress responded to the anthrax-letter attacks by appropriating nearly \$3 billion to the federal Department of Health and Human Services (DHHS) for bioterrorism preparedness, of which more than \$1 billion was earmarked for distribution to the states.²⁴ In January 2002, DHHS announced the amount of money that would be available to each state and required all the states to submit detailed plans for how they would use the funds to develop preparedness plans and upgrade key elements of public health infrastructure, including laboratories and disease surveillance systems. The amount earmarked for North Carolina's state and local health departments was \$22.9 million, which must be expended by August 2003. DHHS allocated an additional \$3.4 million to North Carolina specifically for hospitals to improve their ability to respond to bioterrorism.

In June 2002, North Carolina received its full share of federal funding, which will be used to implement two plans (one for each funding source). Among other activities, the plans call for implementing a hospital bioterrorism preparedness program, continuing to develop and expand critical public health infrastructure, reviewing state laws to determine whether they provide for adequate public health response to bioterrorism, and conducting planning and training efforts. The federal funds also will provide additional support for

the four initiatives funded by the governor's allocation.

The Federal Government's Role

The federal government could play an important role in responding to a bioterrorist event, even one that was confined to a local area.

The Federal Response Plan (FRP) provides for federal assistance in disasters of any type. The FRP is activated when a governor requests federal support and the president responds with a declaration of an emergency in the requesting state. Federal support to local and state governments can include provision of personnel, technical expertise and assistance, equipment, or other resources. The Federal Emergency Management Agency (FEMA) takes the lead in implementing the FRP, but resources and support may be drawn from any of twenty-six federal departments and agencies.²⁵

Whether or not the FRP has been activated, the CDC has resources and support that are available in bioterrorist events. The CDC operates the Epidemiology Program Office, which can assist investigation and surveillance efforts in disease outbreaks or other

public health threats. It also manages the Laboratory Response Network, which provides overflow laboratory sites for processing specimens in an emergency. Further, the CDC maintains a laboratory that is classified as Biosafety Level IV, meaning that it is equipped to manage even the most dangerous pathogens safely.²⁶

The CDC also operates the National Pharmaceutical Stockpile (NPS), a national repository of pharmaceuticals (for example, antibiotics and antidotes) and medical supplies that state and local public health agencies can draw on in a bioterrorist event. The NPS maintains prepared packages that can address a number of health problems caused by biological or chemical agents. The packages are stored in secure warehouses in regional locations, allowing them to be delivered anywhere in the continental United States within twelve hours. To receive the packages, a state must ask the director of the CDC to deploy the NPS. The director must consult with the surgeon general, the secretary of DHHS, FEMA, and the Federal Bureau of Investigation before deployment.²⁷

Finally, the CDC offers public information about bioterrorism. The two primary sources of this information

are the agency's bioterrorism Web site, www.bt.cdc.gov, and a telephone hotline, (999) 246-2675 (English) or (888) 246-2857 (Spanish).

If an attack by a terrorist is confirmed, a federal crisis plan will take effect. The FBI is the lead agency for managing the plan. The CDC, FEMA, and other federal agencies will work with the FBI to plan and implement the response.²⁸

Conclusion

A bioterrorist attack is a unique kind of disaster: a criminal act with a public health impact, a threat to national security that is played out at the local level. It is unpredictable in a number of unsettling ways: people probably will not see it coming, they may not realize that it has happened, and they may not be able to say for certain if or when it is over. Nevertheless, they must recognize that it could happen and prepare to respond appropriately.

This article is not a comprehensive guide to preparing a local response plan and should not be used as such. Comprehensive guidance and a model local plan are available from the North Carolina Division of Public Health (see the sidebar on page 9).

Notes

1. Elizabeth A. Fenn, *Biological Warfare, circa 1750*, NEW YORK TIMES, Apr. 11, 1998, at A11. The quotation on page 4 is from Elizabeth A. Fenn, *Biological Warfare in Eighteenth-Century North America: Beyond Jeffery Amherst*, 86 JOURNAL OF AMERICAN HISTORY 1, 50 (Mar. 2000).

2. JUDITH MILLER ET AL., GERMS: BIOLOGICAL WEAPONS AND AMERICA'S SECRET WAR 34-71 (New York: Simon & Schuster, 2001).

3. *Id.* at 15-33.

4. Testimony of George Bond, Buncombe County Health Director, to the North Carolina Public Health Study Comm'n, Raleigh, Jan. 2001 (author's personal notes); see also Centers for Disease Control and Prevention, *Bioterrorism Alleging Use of Anthrax and Interim Guidelines for Management—United States*, 1998, 48 MORBIDITY & MORTALITY WEEKLY REPORT 69 (Feb. 5, 1999).

5. Julie Louise Gerberding et al., *Bioterrorism Preparedness and Response: Clinicians and Public Health Agencies as Essential Partners*, 287 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION 898, 898

(2002); see also Centers for Disease Control and Prevention, *Update: Investigation of Bioterrorism-Related Anthrax—Connecticut*, 2001, 50 MORBIDITY & MORTALITY WEEKLY REPORT 1077 (Dec. 7, 2001). An additional cutaneous anthrax victim was identified in early March 2002—a laboratory worker who had examined specimens during the anthrax-letter attacks. CDC investigators concluded that the worker had contracted the disease in the laboratory. Centers for Disease Control and Prevention, *Suspected Cutaneous Anthrax in a Laboratory Worker—Texas*, 2002, 51 MORBIDITY & MORTALITY WEEKLY REPORT 279 (Apr. 5, 2002).

6. Quintin Ellison, *WNC Leaders Meet to Unify Agencies' Emergency Plans*, ASHEVILLE CITIZEN-TIMES, Feb. 23, 2002, at B1.

7. See CONTROL OF COMMUNICABLE DISEASES MANUAL 23, 455-57 (James Chin ed., 17th ed., Washington, D.C.: American Public Health Ass'n, 2000).

8. Centers for Disease Control and Prevention, *Biological and Chemical Terrorism: Strategic Plan for Preparedness and Response* (Recommendations of the CDC Strategic Planning Work Group), 49 MORBIDITY & MORTALITY WEEKLY REPORT No. RR-4, at 3 (Apr. 21, 2001).

9. MILLER ET AL., GERMS, at 23-25. Even then, the fact that the illness was caused deliberately was not uncovered until months later.

10. Centers for Disease Control and Prevention, *Update: Investigation of Bioterrorism-Related Anthrax and Interim Guidelines for Exposure Management and Antimicrobial Therapy, October 2001*, 50 MORBIDITY & MORTALITY WEEKLY REPORT 909, 909 (Oct. 26, 2001).

11. See Rebecca Voelker, *Bioweapons Preparedness Chief Discusses Priorities in World of 21st-Century Biology*, 287 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION 573 (2002).

12. N.C. GEN. STAT. § 130A-135.

13. Such reports would likely involve the disclosure of confidential patient information. Legislation that would specifically authorize health care providers to disclose the information in order to make the types of reports described has been proposed in North Carolina but not yet enacted (H. 1508, S. 1166, 2001 N.C. General Assembly, 2002 Sess.). Even in the absence of legislation, health care providers may make the reports without fear of breaching confidentiality. The federal medical privacy regulation (also known as the HIPAA privacy rule) specifically authorizes health care providers to disclose confidential patient information to public health authorities for purposes of public health surveillance, investigation, or intervention, 45 C.F.R. § 164.512(b), or when necessary to avert a serious threat to public health or safety, 45 C.F.R. § 164.512(j).

14. U.S. DEP'T OF HEALTH AND HUMAN SERVS., CENTERS FOR DISEASE CONTROL AND

PREVENTION, THE PUBLIC HEALTH RESPONSE TO BIOLOGICAL AND CHEMICAL TERRORISM: INTERIM PLANNING GUIDANCE FOR STATE PUBLIC HEALTH OFFICIALS 27 (Atlanta: CDC, July 2001) (available on the Internet at www.bt.cdc.gov).

15. See *id.* at 14.

16. Adapted from North Carolina Div. of Public Health, *Local Response Plan Checklist* (Raleigh: DPH, 2001) (on file with author), and DHHS, THE PUBLIC HEALTH RESPONSE.

17. DHHS, THE PUBLIC HEALTH RESPONSE, at 8.

18. Eric Lipton & Kirk Johnson, *Tracking Bioterror's Tangled Course*, NEW YORK TIMES, Dec. 26, 2001, at A1 ("The folks on the Hill got swabbed, now you're not swabbing us. . . . The white folks got Cipro—we're getting doxy. . . . They got the expensive drug—you're trying to save money with us.")—Dr. Ivan C. A. Walks, District of Columbia health commissioner, relaying remarks made to him by postal workers).

19. SL 2001-457.

20. The seven counties in which the teams will be based are Buncombe, Mecklenburg, Guilford, Durham, Cumberland, Pitt, and New Hanover. Although each team will be housed and supported by the local health department in which it is administratively located, it will serve a multicounty region.

21. The new regional laboratories will be located in Buncombe, Mecklenburg, and Pitt counties.

22. Lawrence K. Altman & Gina Kolata, *Anthrax Missteps Offer Guide to Fight Next Bioterror Battle*, NEW YORK TIMES, Jan. 6, 2002, at 1.1.

23. SL 2001-469 required the North Carolina Department of Health and Human Services to establish a biological agents registry. The purpose of the registry is to identify the biological agents possessed and maintained by any person in North Carolina and to provide other information that may be important in the event of a communicable disease or law enforcement investigation. The term "biological agents" was defined to include all the bacteria and viruses on the CDC's Category A (highest-priority) list of agents likely to be used by bioterrorists.

24. An Act Making Appropriations for the Department of Defense for the Fiscal Year Ending September 30, 2002, and for Other Purposes, Pub. L. No. 107-117, 115 Stat. 2229 (2002).

25. NORTH CAROLINA DIV. OF PUBLIC HEALTH, BIOTERRORISM EXERCISE, APP. B (Raleigh: DPH, 2001; limited distribution, on file with author).

26. DHHS, THE PUBLIC HEALTH RESPONSE, at 24.

27. *Id.* at 86.

28. CDC, *Biological and Chemical Terrorism*, at 9.