Lessons from the Anthrax Attacks

Implications for U.S. Bioterrorism Preparedness

A Report on a National Forum on Biodefense

Author
David Heyman

Research Assistants
Jerusha Achterberg
Joelle Laszlo

Organized by the
Center for Strategic and International Studies and the
Defense Threat Reduction Agency
DTRA

April 2002

Contract Number DTRA01-02-C-0013

CSIS

For Official Use Only

About CSIS

For four decades, the Center for Strategic and International Studies (CSIS) has been dedicated to providing world leaders with strategic insights on—and policy solutions to—current and emerging global issues

CSIS is led by John J Hamre, former U S deputy secretary of defense It is guided by a board of trustees chaired by former U S senator Sam Nunn and consisting of prominent individuals from both the public and private sectors

The CSIS staff of 190 researchers and support staff focus primarily on three subject areas First, CSIS addresses the full spectrum of new challenges to national and international security Second, it maintains resident experts on all of the world's major geographical regions Third, it is committed to helping to develop new methods of governance for the global age, to this end, CSIS has programs on technology and public policy, international trade and finance, and energy

Headquartered in Washington, D.C , CSIS is private, bipartisan, and tax-exempt CSIS does not take specific policy positions, accordingly, all views expressed herein should be understood to be solely those of the author

Sponsor. Defense Threat Reduction Agency
Stephen Younger, director

Advanced Systems and Concepts Office
Charles A Gallaway, director

Background: The Defense Threat Reduction Agency (DTRA) was founded in 1998 to integrate and focus the capabilities of the U S Department of Defense (DOD) that address the weapons of mass destruction (WMD) threat To assist the agency in its primary mission, the Advanced Systems and Concepts Office (ASCO) develops and maintains an evolving analytical vision of necessary and sufficient capabilities to protect the United States and Allied forces and citizens from WMD attack. ASCO is charged by DOD and by the U S government generally to identify gaps in these capabilities and initiate programs to fill them. It also provides support to the Threat Reduction Advisory Committee (TRAC) and its panels with timely high-quality research

ASCO Analytical Support. This work was performed for DTRA under contract DTRA01-02-C-0013

Supervising Project Officer: R Scott Moore (703-767-5707)

Center for Strategic and International Studies
1800 K Street, N W , Washington, D C. 20006
Telephone (202) 887-0200

Project Director: David Heyman

Preface

To address growing concerns about domestic preparedness for a bioterrorist attack against the United States, the Center for Strategic and International Studies (CSIS) hosted a forum to assess the U S response to the fall 2001 anthrax attacks The forum, held in December 2001, was made possible through funding provided by the Advanced Systems and Concepts Office of the U S Defense Threat Reduction Agency (DTRA)

By most accounts, the recent anthrax attacks revealed gaps in all levels of U S preparedness These gaps exposed weaknesses in emergency care surge capacity, state laboratory resources, medical diagnostic and law enforcement forensic capabilities, and intra- and inter-agency communications. Coordination and cooperation among all elements of the public health and law enforcement communities must be improved. Existing management and information-sharing strategies are inadequate for [redacted] Strategies for communicating with the media and the public must be established, clear management structures and operating plans must be agreed upon in advance.

In an effort to close these gaps, DTRA and CSIS convened a daylong forum on December 19, 2001, composed of senior officials with first-hand knowledge of the anthrax attacks The purpose of this forum was to examine, from a strategic perspective, the U S response to and recovery from a bioterrorism crisis, focusing on the anthrax attacks in Florida and Washington, D.C., as a model. The forum would also serve as a foundation for further development of detailed national, regional, state, and local operational plans and procedures.

The forum was divided into three panel discussions. "Medical and Public Health," "Law Enforcement and National Security," and "Integration and Synthesis." Panelists offered opening remarks representing their particular experiences on what worked best and what did not. The chair of each panel then facilitated a discussion among all of those who attended the forum (approximately 50 people, including panelists—see list of participants in appendix A).

This report—the product of these panel discussions and subsequent interviews—is intended to assist government officials in identifying and resolving some of the challenges facing the United States in biodefense It should not be viewed as a consensus document or as an exhaustive compendium of lessons learned, but rather as a compilation of the many views expressed during the proceedings

The report is divided into three chapters Chapter 1—"The Attacks"—describes key events that triggered the crisis and set the response in motion. Chapter 2—"The Response"—describes elements of the response that followed and the plans that were in place Chapter 3—"Lessons Learned"—elaborates on key issues of concern raised by participants during the forum and offers proposals for strengthening U.S biodefense in the future.

Contents

Executive Summary

In response to the recent anthrax attacks, the Advanced Systems and Concepts Office of the Defense Threat Reduction Agency (DTRA) and the Center for Strategic and International Studies (CSIS) convened a forum on December 19, 2001, composed of senior officials with first-hand knowledge of the anthrax attacks The purpose of the forum was to examine, from a strategic perspective, the U.S. response to and recovery from a bioterrorism crisis, focusing on the anthrax attacks in Florida and Washington, D C , as a model. This report is a product of these discussions and of subsequent interviews and research. It is intended to assist government officials in identifying and resolving some of the challenges facing the United States in biodefense The report should not be viewed as a consensus document or as an exhaustive compendium of lessons learned, but rather as a compilation of the many views expressed during the proceedings, which together form an agenda for further consideration

1. **The first significant acts of bioterrorism against the United States took place in the fall of 2001 and consisted of as few as four or five letters containing bacteria that causes anthrax (*Bacillus anthracis*), mailed in the U.S. postal system.**

2. **As simple as these attacks were, their impact was far-reaching.**
   - Two branches of the federal government—parts of the U.S Congress and the Supreme Court—were shut down temporarily, as were postal operations around the country
   - Eighteen individuals contracted anthrax (11 inhalational, 7 cutaneous) in five states (Florida, New York, the District of Columbia, New Jersey, and Connecticut) Five of the individuals who contracted anthrax died.
   - More than 33,000 people required post-exposure prophylaxis
   - Direct costs to the U S Postal Service may approach as much as $3 billion
   - The American Media Inc (AMI) building in Florida and the Brentwood postal facilities in the nation's capital were shut down and are still closed Cleanup costs at the U S Congress are expected to exceed $24 million.

3. **The response from the medical, public health, and law enforcement communities was massive.**
   - More than 1,000 physicians, epidemiologists, public health officials and medical practitioners from the private and public sectors and from all levels of government had to investigate the index case and each additional case, establish or expand surveillance, confirm additional cases, find the source of

the attacks, define exposure, and recommend treatment They also had to assist with clinical evaluations of patients, counseling, the provision of antibiotics, data collection, and environmental sampling

- The District of Columbia initiated the largest ever mass-medication program in the United States, dispensing medication to more than 17,000 individuals, perhaps saving numerous lives
- From law enforcement, thousands of police officers, FBI agents, and government officials have contributed to the ongoing criminal investigation In calendar year 2000, the FBI responded to 257 cases potentially involving weapons of mass destruction (WMD), of which 200 were anthrax matters (all turned out to be hoaxes). By comparison, between October and December 2001, the FBI launched more than 8,000 WMD investigations.
- The U S Army Medical Research Institute of Infectious Diseases (USAMRIID) performed more than 30,000 individual assays on more than 10,000 samples from the U S Capitol At its peak, USAMRIID was receiving more than 700 samples a day, a number that far exceeded its normal operating diagnostic capacity.
- More than 400 contractors plus as many as 400 local and federal government liaisons were deployed to the U S. Capitol over a period of six months to clean up and reopen the contaminated site

4. **And yet, the fall 2001 anthrax attacks may turn out to be [redacted] to confront.**

Bacillus anthracis is the most studied pathogen of possible biological agents, the use of mailed letters as a delivery mechanism provided a readily identifiable, overt means of attack; and the areas attacked were for the most part easy to isolate

5. **Despite this, the anthrax attacks revealed weaknesses in almost every aspect of U.S. biopreparedness and response.**
   - The attacks exposed deficiencies in our public health infrastructure and in our laboratory, forensic, and diagnostic capabilities
   - They uncovered gaps in our scientific base and demonstrated that [redacted]
   - They highlighted the vital importance of establishing a clear chain of command for incident response, as well as comprehensive communications strategies to implement during a crisis
   - They showed the need for better plans for the local distribution of medication and the provision of treatment in the event of mass casualties.
   - They demonstrated how challenging it can be to clean up large-scale contaminated biohazard sites.

- They showed how a biological attack may [redacted]

6. Many activities must be undertaken to better respond to future attacks.

Several proposals should be considered to ensure adequate preparedness, to strengthen response, and to speed recovery They include the following considerations

7. The United States must ensure adequate preparedness.

Biological weapons have the potential to cause casualties equal to, or far greater than, nuclear weapons. Thus, U S preparations for a bio-attack should be of at least the same magnitude as those developed for responding to potential nuclear attacks. As such, policymakers must take the time now—between attacks—to better understand the threat, the technologies, and the policy issues needed to ensure that the nation is fully prepared to thwart, defend against, and respond to bioterrorism in the future Medical and health capabilities—including forensics, diagnostics, mass-casualty treatment, medical knowledge and core scientific understanding—must be strengthened Further, training and public awareness should be expanded to better prepare citizens to effectively respond to future crises Proposals to consider to ensure preparedness include the following.

- Recapitalize the U S public and private health infrastructure.
- [redacted]
- Expand local and regional surge capacities for mass-casualty care
- Develop multidisciplinary, biodefense laboratory capabilities
- Improve forensic and diagnostic capabilities
- Establish a comprehensive and balanced national research agenda
- Create an inventory of national assets and capabilities
- Strengthen civil defense.
- Engage first responders in training and exercises

8. The United States must strengthen its response capabilities.

Bioterrorism crisis and consequence management begins with a trigger event the detection and confirmation of a bioterrorist attack Early detection and the initial steps taken once an incident has been identified can mean the difference between saving lives and facing more casualties The trigger event initiates a broad range of response activities beginning with local first-responders, and expanding to include state and federal medical, public health, law enforcement and national security officials. Activities include the collection and analysis of information; monitoring of the attack, and coordination of prophylaxis, investigation and decontamination

efforts In all of these activities, strong communications systems and effective management are essential for ensuring a rapid sharing of information among the various actors, a clear message to the public, and a well-coordinated response

Despite the significant progress that has been made over the past couple of years to strengthen national laboratory capabilities and heighten physician awareness of bioterrorist-related illnesses, [redacted] United States must expand its human endowment of trained medical practitioners and epidemiologists, bolster plans for treating mass-casualties, and eliminate bureaucratic barriers to managing a response Moreover, communications strategies must be adopted within agencies, among institutions, as well as across local, state and federal governments to improve information sharing and communication with the public

The failure to communicate a clear message to the public was one of the greatest problems observed during the anthrax attacks. Government officials (on all levels) were unsuccessful in mounting an effective public relations campaign because of failures in two key areas: (1) failure to provide timely and accurate information, and (2) failure to disseminate unified, coordinated messages to the public through consistent official spokespersons Proposals to consider to strengthen response capabilities include the following:

- [redacted]
- Increase training on bioterrorism and select biological agents for current and future medical practitioners.
- Increase public health staff trained in epidemiology and communicable disease control.
- Develop a comprehensive checklist of key first steps
- Establish a clear chain of command for incidents.
- Exchange liaisons and increase the use of joint exercises
- Develop mass-medication and treatment delivery strategies in advance
- Incorporate mental health needs into response plans.
- Develop a coordinated media strategy.
- [redacted]
- Prepare public messages in advance of an attack.
- Expand cooperation between medical, public health and law enforcement communities
- [redacted]

- [redacted]

9. The United States must speed its recovery time.

Decontamination of the Hart, Brentwood, and AMI buildings was unprecedented, costly, and greatly underestimated prior to the anthrax attacks. In general, it may [redacted]

Proposals to consider to speed recovery include the following

- Expand research into decontaminating hot zones.
- Identify criteria for ensuring that remediation efforts have been successful.

10. The United States must address additional policy and legal issues that came to light during the attacks.

Questions that should be addressed include the following.

- Are there alternatives to invoking the Stafford Act to obtain federal disaster assistance during bioterrorist attacks?
- Are there provisions that can be invoked or should be established to protect from discrimination those exposed during an attack?
- How can indemnification for contractors and responders be ensured?
- Who should have the authority to close and/or reopen facilities? What protocols need to be established?
- How can citizen privacy be ensured when conducting medical biosurveillance? What is the appropriate and fair use of data collected for biosurveillance?
- Given the breadth of biodefense investment priorities, what steps must be taken to ensure a balanced investment portfolio?
- Who should have the authority to direct, mandate and enforce quarantines?
- What are the elements of international cooperation needed to preserve trade activities and share resources during an attack?

11. What is alarming about the anthrax attacks is that they [redacted]

12. The time has come to make dramatic improvements in all areas of preparedness.

The primary lesson from the first significant bioterrorist attacks in this country is that to mitigate the spread of disease, the loss of life, and disruptions to daily lives, we must organize to maximize the effectiveness and the speed of our response. This effort will require [redacted] strengthening medical capabilities, improving planning and coordination among law enforcement, medical, and public health officials at all levels of government, bolstering research, expanding training and exercises, developing and implementing public communication strategies; and addressing policies that may be creating bureaucratic barriers and inhibiting rapid response

CHAPTER 1

The Attacks

On October 2, 2001, a 63-year-old photo editor employed by America Media Inc (AMI) in Florida was admitted to a Palm Beach community hospital emergency department with fever, vomiting, muscle aches, and confusion. He was initially treated for bacterial meningitis On the basis of preliminary tests, a diagnosis of anthrax was considered within six hours, and penicillin was added to the treatment regime Upon suspicion of anthrax, the case was reported to local public health authorities At this point, however, new treatment could not reverse the course of the disease, and the man died. His autopsy on October 6 confirmed that he had died of anthrax. The progression of disease from the onset of symptoms to death took only six days [1] Until this case, there had been only 18 incidents of human inhalation anthrax in the United States since 1900—the most recent case in 1976.

Within a week after this case, a 38-year-old woman employed by NBC in New York was diagnosed with cutaneous anthrax. She had presented symptoms at the end of September, but it was not clear until after the first case was publicized that anthrax might be indicated It was subsequently determined that she had handled a letter that contained a suspicious powder.

On October 15, the offices of Senate Majority Leader Tom Daschle (D-S.D) received a letter containing a powder that tested positive for the bacteria that causes anthrax. The letter was opened, and the powder was released into the air. As a result, initially one corner of the Hart Senate Office Building in the U.S Capitol was closed; eventually the whole building had to be shut down. Individuals who were exposed or possibly exposed to the powder were given a course of antibiotics as prophylaxis

On October 21, a postal worker employed at the mail facility that serviced the Senate offices was diagnosed with inhalation anthrax. He and one of his colleagues both died from inhalation anthrax the following day. Two other postal employees from the same facility were also treated for inhalational anthrax, and survived A fifth individual in the Washington, D C., region—a U.S State Department mailroom employee—was hospitalized with inhalation anthrax and also survived The Brentwood postal facility and other downstream mail-handling facilities were subsequently shutdown

Small amounts of *Bacillus anthracis* were also later found in numerous buildings in the Washington, D.C , area—the Supreme Court, the Walter Reed Army

---

1 Larry M Bush, Barry H Abrams, Anne Beall, and Caroline C Johnson, "Index Case of Fatal Inhalational Anthrax Due to Bioterrorism in the United States," *New England Journal of Medicine*, November 29, 2001

Institute of Research, the Department of Health and Human Services, and the main State Department building. These buildings were believed to have been contaminated from letters that came in direct contact with the Daschle letter or passed through sorting equipment at the postal facility that sorted the Daschle letter A letter addressed to Senator Patrick Leahy (D-Vt), found by hazardous materials experts sorting through 250 barrels of mail quarantined after the discovery of the Daschle letter, also tested positive for anthrax on November 16.

Two other states—New Jersey and Connecticut—were affected through probable cross-contamination of mail routed through the postal system In total, 18 individuals contracted anthrax (11 inhalational, 7 cutaneous) in five states (Florida, New York, the District of Columbia, New Jersey, and Connecticut) [2] More than 33,000 people required post-exposure prophylaxis Five of the individuals who contracted anthrax died All of the anthrax associated with these attacks was found to have come from the same strain of *Bacillus anthracis* bacteria.

These attacks were the first significant acts of
the United States.[3]

2 For a summary of anthrax cases, see appendix D For more details, see John A Jernigan et al , "Bioterrorism-Related Inhalational Anthrax The First 10 Cases Reported in the United States," *Emerging Infectious Diseases* 7, no 6 (November-December 2001) See also, Centers for Disease Control and Prevention, "Update Investigation of Bioterrorism-Related Inhalational Anthrax—Connecticut, 2001," *Morbidity and Mortality Weekly Report (MMWR)* 50, no 47 (November 31, 2001) 1049–1051

3 For a detailed chronology of the anthrax attacks, see appendix C

CHAPTER 2

The Response

THE ANTHRAX ATTACKS OF FALL 2001 were, in total, relatively small, consisting of as few as four or five letters mailed in the U.S postal system In contrast, the consequences of these attacks were far-reaching, including the temporary shutdown of parts of the U S Congress, the Supreme Court, and postal operations around the country Compared to the size of the attack, the response and recovery activities were massive, involving numerous medical practitioners and law enforcement and public health officials from the private sector and from across local, state, and national governments The cost of recovery will exceed several billion dollars.

The Actual Response

From the medical and public health communities, the direct response to these attacks involved more than 1,000 physicians, epidemiologists, public health officials, and clinicians. These officials and medical practitioners came from both the private and public sectors and from all levels of government—local, state, and federal The Centers for Disease Control and Prevention (CDC) and local public health communities had to investigate the index case and each additional case, establish or expand surveillance, confirm additional cases, find the source of the attacks, define exposure, and recommend treatment They also assisted with clinical evaluations of patients, counseling, the provision of antibiotics, data collection, and environmental sampling. The CDC ran 200 sorties to deploy antibiotics from the National Pharmaceutical Stockpile and responded to 280 requests for advice from foreign countries The District of Columbia initiated the largest ever mass-medication program in the United States, dispensing medication to more than 17,000 individuals When the number of hoaxes plus the scared but healthy individuals (the "worried well") who required medical attention are considered, the number of medical and public health professionals involved in the response was much higher.

From law enforcement, thousands of police officers, FBI agents, and government officials have contributed to the ongoing investigation In calendar year 2000, the FBI responded to 257 cases potentially involving weapons of mass destruction (WMD), of which 200 were anthrax matters (all turned out to be hoaxes) By comparison, between October and December 2001, the FBI launched more than 8,000 WMD investigations. Previously, hoaxes were considered relatively harmless, requiring limited resources for response After October 15, this changed, and law enforcement officials in New York City, for example, chose to close off three square blocks to respond to their first anthrax threat

To date, 47 people have been indicted in anthrax-related cases (though none of these individuals has been linked to the anthrax attacks in the District of Columbia, Florida, New York, New Jersey, or Connecticut) More than 10,000 samples have been provided to the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) from the U S Capitol complex for testing, and more than 30,000 individual assays have been performed on these samples. At its peak, USAMRIID was receiving more than 700 samples a day. Each of the samples had to be treated with appropriate evidentiary procedures to maintain proper chain of custody to ensure its viability in court For every sample, a 25-page document must be prepared. The overall level of activity at USAMRIID during the peak of the response far exceeded normal operating diagnostic capacity.

The specific response at the U S Capitol required establishing an incident command system and overseeing logistics support (e.g , establishing and maintaining trailers and tents, sealing buildings, and dispensing meals), security, public affairs, environmental sampling and agent characterization, and remediation More than 400 contractors were brought in to support these operations, and approximately 400 additional federal and local liaisons were also credentialed for on-site activities Total costs for the operation will exceed $24 million.[4]

Beyond the public health and law enforcement efforts, local, state, and national elected officials, civil servants, postal workers, contractors, and private citizens have been pulled into the crisis in one way or another, whether as part of the overall response, as part of the recovery process, or, more likely, as unintended casualties. As a direct result of the terrorist attacks, for example, the U S. Postal Service estimates it will incur costs of more than $3 billion.[5] The U S. Postal Service also had to reassign the vast majority of its 1,900 inspectors and 1,400 postal police officers to respond to the anthrax threat.

The Planned Response

Depending on the severity of the attack, the response to a bioterrorist event may require the coordinated efforts of a local community, as well as resources from state and federal governments.

---

4 This estimate does not include costs incurred by and paid for by federal agencies under existing authorities

5 The U S Postal Service costs owing to the terrorists attacks include the purchase of equipment to sanitize mail, implementation of new security procedures, medical testing and emergency treatment of employees exposed to anthrax, protective equipment for employees, environmental testing and cleanup of postal facilities, education of employees, dissemination of postcards on how to identify and respond to suspicious mail to more than 135 million U.S homes and businesses, disruption of operations and mail services, as well as damage to facilities and equipment loss in New York See statement of Postmaster General/CEO John E Potter before the Subcommittee on Treasury and General Government Committee on Appropriations in the United States Senate on November 8, 2001

Local Response Plans

Because a bioterrorist attack may only manifest itself in the symptoms of disease or in the release of suspicious materials, local responders (including emergency medical technicians, police officers, and firefighters, as well as medical practitioners from the public and private health care communities) will inevitably be the first to attend to the critical needs of victims of an attack—probably without even knowing that an attack has occurred. Once an act of bioterrorism has been detected or confirmed, public health officials will need to perform numerous other activities including establishing a perimeter, isolating the biological agent, decontaminating victims, taking case and contact histories, diagnosing patients, establishing prophylaxis and treatment regimes, implementing surveillance strategies, confirming subsequent cases, and providing mortuary facilities for the dead All of these tasks must be coordinated in conjunction with complementary activities undertaken by state and local public health and law enforcement officials

State Response Plans

States maintain resources that can assist local jurisdictions in emergencies, and they provide assistance to local governments as requested. They manage regional responses within their borders and assist with coordinating the delivery of federal assistance to local areas In general, if an act of terrorism produces consequences that overwhelm the capabilities of local and state governments, the state governor may request federal assistance [6]

Federal Response Plans

The Federal Response Plan (FRP) is the nation's blueprint for responding to national disasters It provides a national disaster framework for responding to natural and man-made disasters and a mechanism for coordinating the delivery of federal assistance and resources to augment efforts of state and local governments overwhelmed by a major disaster or emergency [7] In 1999, a "Terrorism Incident Annex" was added to the FRP to include provisions for responding to terrorist attacks and, in particular, to support incidents involving weapons of mass destruction [8] The terrorism annex "builds upon the process and structure of the FRP by addressing unique policies, situations, operating concepts, responsibilities, and funding guidelines required for response to the consequences of terrorism."[9] In the event that an emergency is declared, federal assets can be deployed—including the

6 The exception to this is in major metropolitan regions where federal assets may be integrated into initial local response plans prior to regions being overwhelmed

7 According to the Federal Response Plan, "State and local governments exercise primary authority to respond to the consequences of terrorism, the Federal Government provides assistance as required" See Federal Emergency Management Agency, *Federal Response Plan* (9230 1PL), Terrorism Incident Annex, April 1999, p TI-1

8 Ibid The annex is based on the 1995 Presidential Decision Directive 39 (PDD-39), which establishes policy "to reduce the nation's vulnerability to terrorism, deter and respond to terrorism, and strengthen capabilities to detect, prevent, defeat, and manage the consequences of terrorist use of weapons of mass destruction" (p TI-1)

9 Ibid., p TI-3.

provision of funds—under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (hereafter, the Stafford Act),[10] as directed by the Federal Response Plan

The FRP Terrorism Incident Annex describes the relationship between two integrated phases of a response, crisis management and consequence management. Crisis management refers to measures to prevent and/or resolve a threat or act of terrorism; consequence management refers to measures to protect public health and safety, restore essential government services, and provide emergency relief to governments, businesses, and individuals affected by the consequences of terrorism

Presidential Decision Directive 39 (PDD-39) designates the Department of Justice as the lead agency for crisis management, with the FBI taking on the lead role for operational response as the "on-scene manager" for the federal government Acts of bioterrorism differ from natural disasters in that law enforcement must be involved to prevent further attacks, terminate ongoing attacks, and apprehend and prosecute the perpetrators.

PDD-39 designates the Federal Emergency Management Agency (FEMA) as the lead federal agency for consequence management FEMA is responsible for coordinating federal emergency preparedness, planning, management, and disaster assistance functions and is primarily responsible for establishing federal disaster assistance policy FEMA has a lead stewardship role in developing and maintaining the *Federal Response Plan*.

Other agencies provide leadership roles in various aspects of consequence management:

- The Department of Health and Human Services (HHS) has primary responsibility for medical and public health response. These responsibilities include triage, treatment, and transportation of victims, and evacuation of patients out of the disaster area, as needed, into a network of military services, veterans affairs, and pre-enrolled nonfederal hospitals, maintaining health surveillance; providing health/medical equipment and supplies; consulting on biological hazards, conveying public health information, establishing vector control, providing potable water/wastewater and disposing of solid waste, as well as providing victim identification/mortuary services and veterinary services. Under HHS, the CDC supports some of these functions in its capacity as the national clearinghouse for U S. public health monitoring and as the steward of the National Pharmaceutical Stockpile Program
- The Department of Defense (DOD) may provide resources following a Stafford Act declaration if a state requests support for which the federal civilian agencies have exceeded their capacity or in the case that the necessary support can only be found in the Department of Defense and is an eligible DOD mission In these circumstances, the secretary of defense designates the defense coordinat-

10 The Stafford Act was enacted "to provide an orderly and continuing means of assistance by the Federal Government to State and local governments in carrying out their responsibilities to alleviate the suffering and damage which result from such disasters" See 42 U S C , et seq

ing officer (DCO) as the lead entity to coordinate military support to civil authorities. If the DOD support required is extensive, DOD may deploy (or FEMA may request) the Joint Task Force for Civilian Support (JTF-CS) to provide command and control support for DOD forces [11]

- The Environmental Protection Agency (EPA) is designated as the nation's lead agency to prepare for and respond to any release (or threat of release) of oil, hazardous substances (including biological agents), pollutants, or contaminants into the environment that may present an imminent and substantial threat to public health or welfare and the environment In the event of bioterrorism, EPA's Environmental Response Teams can support activities to detect and identify agents. The EPA is also the lead agency responsible for post-incident bioremediation and facility decontamination.[12]

These lead agencies are only a few of the federal resources that may be utilized following an act of bioterrorism More than 40 agencies retain resources, capabilities, and expertise that may be required to ensure that the nation can detect, prevent, defend against, respond to, and recover from acts of bioterrorism

11 The JTF-CS was established in 1999 to support military and civil authorities in consequence management following a WMD incident. For more information about the JTF-CS, see http //www jfcom mil/About/com_jtfcs htm, accessed January 2002

12 PDD-39 directs the EPA to support bioremediation efforts through the National Oil and Hazardous Substances Pollution Contingency Plan (NCP)

CHAPTER 3

Lessons Learned

Ensuring Preparedness

Given increased proliferation concerns regarding weapons of mass destruction, as well as recent advances in biotechnology, bioterrorism has become a serious threat that the United States must be fully prepared to face It is a threat that requires a multilevel approach to support the broad resource needs, capabilities, knowledge base, infrastructure, and training requirements necessary for defending against and responding to future crises

The anthrax attacks against the United States were perhaps a tragic dry run, testing U S. preparedness for a major biological weapons attack in the future. Biological weapons have a potential to cause casualties equal to or far greater than nuclear weapons, preparations for a bio-attack should be of at least the same magnitude as those that have been developed for responding to potential nuclear attacks.

Therefore, policymakers and decisionmakers must take the time now—between attacks—to better understand the threat, technologies, and policy issues needed to ensure that the nation is fully prepared to thwart, defend against, and respond to bioterrorism in the future. They must develop the plans, policy options, and actions—in the form of clear, concise playbooks—for the president and for federal, state, and local officials.

Based on the challenges faced during the anthrax attacks, the following key issues must be addressed to improve biopreparedness across the country

Public Health Infrastructure

The U.S public health infrastructure is a complex web of public and private institutions and resources from all levels of government needed to assess public health, develop health policies, and provide essential health services to every community. Although generally effective at managing routine public health on a daily basis, this fragmented system has resulted in inefficiencies when confronting broader emergencies and has significant implications in terms of mounting a coordinated response to a multijurisdictional bio-attack.

A focused response to a bioterrorist attack will require that technical information and specialized resources and technology be shared, public information campaigns be coordinated, and preventative or post-exposure prophylaxis be delivered rapidly without any delay posed by jurisdictional issues. One of the central problems that has evolved out of fragmentation of public health is that there is great disparity among U.S state and local public health institutions in terms of knowledge, skills, resources, and capabilities. These institutions traditionally work

independently, with little communication or coordination outside of individual programs. During the anthrax attacks, numerous officials from various state, local, and federal agencies communicated with the public, resulting in conflicting and confusing messages that diminished public confidence and increased anxiety. Officials at the Centers for Disease Control and Prevention observed during the attacks that they were better able to respond to public health needs in communities with stronger local and state capabilities than those with weaker infrastructure (e.g., the CDC issued public health alerts or protocol updates via the Internet in most cases, but had to use faxes in some cases, and were unable to disseminate information by any means to some health care professionals).

In the 1990s, the United States invested very little in its public health infrastructure. As a consequence, public health organizations today maintain the minimum requisite workforce to get the maximum amount of work done. This situation is also true for private industry, which, during the same period, built a health care system based on efficient "just in time" delivery of services. The combination of these two developments [redacted] for example, where the need to provide rapid diagnosis, conduct case histories, take nasal swabs, and provide prophylaxis for approximately 33,000 people put enormous strain on public health resources and coffers. As the number of sites where cases of anthrax had been identified increased across the northeast (ultimately reaching six sites), the [redacted]

The strain on resources that communities faced during the anthrax attacks evolved partially out of the fact that no *local* state of emergency was ever invoked and no *national* state of emergency was ever declared. In general, there are two main reasons why an emergency might not be declared. First, because the progression of disease in a bio-attack may initially be slow (with long incubation periods), the full scale of the attack may not be apparent for days or weeks. Consequently, it may not be readily apparent whether a state of emergency is indeed necessary. Second, even if additional resources could provide much-needed financial relief to a region, localities may be reluctant to declare an emergency for economic reasons—namely, scaring off potential visitors and other commercial interests and harming their long-term economic viability. In any event, because no emergency was ever declared and because federal disaster funds are disbursed only when one is declared, localities ended up shouldering the financial burden of responding to the anthrax attacks.

With the promise of added investments in public health across the country, many states and localities may now be able to obtain the needed resources for responding to massive bioterrorist attacks. But procuring these additional resources is not a panacea. Obtaining new technologies without also coordinating with neighboring communities and addressing complementary needs (e.g., conducting

13 [redacted]

joint training exercises or ensuring interoperability with other jurisdictions) may unintentionally diminish the very preparedness communities seek to enhance

Proposals

- **Recapitalize the U.S. public and private health infrastructure** The U.S public health infrastructure is [redacted] Rapid detection and effective medical response requires well-trained public health professionals and well-equipped public health laboratories for surveillance, investigation, and diagnostics, as well as for health care provision At the same time, unless primary care facilities (which are mostly private) are also bolstered, the investments in the public health infrastructure will have limited utility
- [redacted] *In most jurisdictions across the country, all aspects of emergency response and consequence management are based upon a "local" incident command structure supported, when necessary, by state governments and/or the federal government. In cases of mass casualties or incidents that occur in multiple states, policymakers should reassess the risks and benefits of a distributed health care system and consider* [redacted]
- **Expand local and regional surge capacities for mass-casualty care.** Approaches to ensuring emergency surge capacity in all communities must be identified Alternative methods for deploying federal and state assets in the absence of a *declared emergency* [redacted]

Laboratory Capabilities, Forensics, and Diagnostics

The United States maintains a laboratory system that provides critical support in responding to disease outbreaks and plays an essential role in the effective response to a bioterrorist attack. More than 80 state and local public health and national security laboratories compose the national Laboratory Response Network (LRN) in a four-tiered system of laboratories based upon their analytical capabilities, capacity to respond, and biosafety levels.[14]

Numerous laboratories across the country contributed in the recent anthrax attacks by identifying the biological agent, confirming cases of anthrax, and analyzing the agent and its delivery vehicle in order to determine its origin and assign attribution These included various state laboratories, the CDC, the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), the U.S. Department of Energy's Los Alamos National Laboratory (LANL), and university laboratories. These laboratories vary in their capabilities, the types of tests they do,

and how quickly they can complete requisite tests Because of the variety of forensic tests required by law enforcement, samples often were sent along a circuitous route from, for example, USAMRIID to University of Arizona to LANL. With each passing day that law enforcement is unable to assign attribution, the risk increases that further attacks may be perpetrated. Inefficiencies in the laboratory system—whether because of the distributed nature of the laboratory system or because of how information is shared—may slow down the criminal investigation and consequently raise the possibility for greater loss of life.

Proposals

- **Develop a multidisciplinary, biodefense laboratory capability** The United States needs an expanded laboratory capability with the capacity for detailed comprehensive analyses (e.g , those providing materials science, genetics, disease pathology, and trace metal analysis) within a single level-2 or level-3 facility.
- **Improve forensics capabilities.** The United States needs to continue to develop and improve upon technologies and methodologies to answer the complex questions that arise when considering forensic analyses of microbiological samples To development the research agenda for such an effort will require active engagement of the forensic science community with microbiologists, molecular biologists, and experts in microbial population genetics and evolution Other disciplines should be engaged as needed to derive the best approaches for forensic analysis of microbiological evidence reuslting from a bioterrorist event.

Medical Knowledge and the U.S. Science and Technology Base

In responding to the anthrax cases, technical and medical experts learned [redacted]

14 The Laboratory Response Network, established by the CDC in 1999 in collaboration with the FBI and the Association of Public Health Laboratories, consists of four different levels of laboratories with different testing capabilities to detect and identify select biological agents (Level A labs are the front-line clinical microbiology labs found in clinics or hospitals These labs attempt to rule out whether an attack involves potential biological agents, and they forward samples that cannot be ruled out to a Level B laboratory This process continues (ruling out potential agents or passing samples to higher-level labs) up through Level D labs, which perform the highest-level procedures, maintain the most virulent reference specimens, and operate under the highest levels of security The USAMRIID and CDC maintain the only two Level D laboratories in the country.

Areas that require further study include understanding critical characteristics of the bacteria, details of the pathology of the disease, and various treatment protocols.

These findings illuminate a more fundamental problem, which is [redacted] Arguably, this inefficiency may be trivial in light of the anthrax attacks, but could have devastating consequences in the face of a full-scale biological assault.

Proposals

- **Establish a comprehensive and balanced national research agenda.** A comprehensive, balanced research agenda must be developed to improve understanding of the known biological agents that pose a threat to U.S. national security. [redacted] In addition, further research is needed to understand and respond to crisis-induced mental health needs (discussed further in this report under the section, "Prophylaxis, Treatment, and Mental Health"). The White House Office of Science and Technology Policy (OSTP), through the President's Committee of Advisors on Science and Technology (PCAST), could coordinate development of a research portfolio across the entire executive branch.[15]
- **Create an inventory of national assets and capabilities.** Decisionmakers need to identify scientific experts, technical resources, and bioterrorism response capabilities in advance of a crisis, rather than locating them following an incident. A

15 A precedent for this proposal is the 1997 PCAST Energy Panel. The Energy Panel, created under the auspices of the President's Committee of Advisors on Science and Technology, provided recommendations on how to ensure that the U.S. energy R&D program addresses the economic, environmental, and national security needs of the nation for the next century. The U.S. federal investments in energy and environmental R&D span multiple programs in multiple agencies and across several appropriation bills. As such, the development of this complex R&D portfolio might serve as a model for assessing the U.S. biodefense R&D portfolio.

[redacted]

Training and Civil Defense

There are three key elements for an effective response to a bioterrorist incident adequate resources, well-developed plans, and extensive training The last of these elements—training—includes conducting exercises for those who might be called upon to respond to bioterrorism As noted above, numerous federal, state, and local entities from public health and law enforcement communities must collaborate in all aspects of detecting, defending against, responding to, and recovering from an attack. If individuals do not train together, they will have great difficulty responding together

On the positive side, there were several instances in which specific training in advance of the anthrax attacks provided vital preparation for those involved in responding to the actual attacks These instances included joint crisis management training exercises between the U.S Capitol Police and New York law enforcement officials, training of the individual in the U S Senate who opened the Daschle letter on how to handle suspicious mail, and guidance to medical practitioners on how to identify anthrax and limit its spread

Proposals

- Strengthen civil defense A well-prepared citizenry is the best first line of defense. Public awareness can help reduce panic, diminish the spread of disease, and speed recovery. Training and public awareness should be expanded to include a more generalized understanding of bioterrorism, including what to do in the event of a bioterrorist attack, steps to take to minimize exposure, and steps to take after suspected or known exposure. Businesses and private citizens should continue to be trained to identify suspicious mail.
- Engage first responders in training and exercises There continues to be a critical need for first responders to be trained in coping with biological incidents This training must be practiced in collaboration across multiple jurisdictions, under a variety of circumstances

Strengthening Response

Bioterrorism crisis and consequence management begins with a trigger event. the detection and confirmation of a bioterrorist attack. This trigger event initiates a broad range of response and recovery activities beginning with local first-responders (firefighters, police, emergency medical technicians, hazardous materials crews, hospital staff, and health professionals) and expanding to include state and federal medical, public health, law enforcement, and national security officials These activities include the collection and analysis of information; monitoring of the attack, and coordination of prophylaxis, investigation, and decontamination efforts. In all of these activities, strong communications systems are essential for

ensuring both a rapid sharing of information among the various actors and a clear message to the public

Surveillance and Detection: Confirming an Incident

The current U.S system for surveillance and detection of bioterrorism attacks [redacted] as a result of increased vigilance on the part of medical practitioners This increased vigilance has resulted from efforts, undertaken by HHS over the past couple of years, to strengthen U.S. surveillance capabilities through educational programs to improve physician awareness of potential bioterrorist-related illnesses and through enhanced LRN laboratory capabilities

In Florida, where the first case of inhalation anthrax was detected, astute medical practitioners provided the first warning of a problem. Local health officials assumed the worst—namely, that the case represented the first evidence of a probable bioterrorist attack Neither the local health officials nor the private physicians involved waited for final CDC confirmation before acting. As a result, the medical community in Florida had a 36-hour jump on containing the crisis State officials notified all hospitals of the threat and directed anyone admitted to intensive care to be examined for possible anthrax. A "1-800" telephone number was established for people potentially exposed An informational Web site was set up and staffed around-the-clock by doctors available to answer direct questions. The AMI building, where the first victim was likely exposed, was closed. Every licensed doctor in Florida was faxed an informational letter, where possible. These immediate steps heightened public awareness, increased medical surveillance throughout the system, and consequently aided in discovering the second Florida anthrax case [redacted]

The most effective and fastest method of detection today relies on astute clinicians Alert practitioners have been the key for detecting recent unusual outbreaks, including anthrax, hanta virus, and West Nile virus Until adequate detection technology is available—and perhaps even after it is—medical and public health professionals and private citizens will play a critical role in bioterrorism detection and defense

Proposals

- Increase training on bioterrorism and select biological agents for current and future medical practitioners Bioterrorism has not been emphasized in medical schools or in medical training programs Practitioners must develop better awareness of signs, symptoms, and pathologies of biological agents that pose a threat to national security and their potential use in acts of bioterrorism
- Increase public health staff trained in epidemiology and communicable disease control. Identifying an outbreak may require interpreting data from various sources in light of past experience and may only be found if examined analytically Each outbreak is different and requires a unique plan for investigation and control Trained epidemiologists are needed at all levels of public health to perform these functions and to provide policymakers with the best scientific input possible in the face of potentially difficult decisions

Initial Steps and the First Response

Initial steps taken once a bioterrorist incident has been identified can mean the difference between saving lives and facing more casualties Taking prudent, decisive action at the earliest opportunity can also diminish socioeconomic disruptions

Numerous steps were taken in Florida and Washington, D C., that helped save lives They included·

Notifying all hospitals and medical professionals of the possible anthrax threat (Florida and D.C.),

- Directing anyone admitted to intensive care to be examined for possible anthrax (Florida),
- Establishing a "1-800" number/emergency call center and a Web site for answering questions (Florida and D C),
- Shutting down the physical site of the attack (Florida and D C);
- Isolating the source of attack (e g., the Daschle letter in D C.),
- Shutting down the HVAC systems to curtail the spread of the anthrax (D C.),
- Collecting all the mail (vector of attack) that was previously distributed in the Hart Building to prevent further similar attacks (this stopped dissemination of the Leahy letter and reduced the possibility of additional exposures in D C),[16]
- Establishing an incident command infrastructure to coordinate response and recovery efforts (the Federal Emergency Management Agency, or FEMA, provided valuable technical assistance at the U.S. Capitol in D.C.); and
- Initiating large-scale post-exposure prophylaxis programs (Florida and D C).

Proposal

- Develop a comprehensive checklist of key first steps. Developing and maintaining a checklist of best practices and first steps to take during a bioterrorism attack can reduce response time and thus minimize loss of life, casualties, and disruptions. It can also serve as a basis for future training exercises

Management and Organization of the Response

In all of the anthrax cases, from Florida to Connecticut, no request was made for an emergency or major disaster declaration under the Stafford Act. Consequently, FEMA was not permitted to use authorities granted by the Stafford Act to engage federal agencies in consequence management activities Although local authorities succeeded in preventing mass casualties, the decision not to request assistance under the Stafford Act had implications for the management of response and recovery functions and moreover for the assumption of the cost of the response. Further, without federal assistance, local response depended on local preparedness, which varies greatly from city to city across the country.

Out of all the cases of anthrax, the incident in the nation's capital region provided the most urgent need for federal response, because of the breadth of exposure in the region In this case, CDC, at the request of the local D C. government, succeeded in mobilizing a large team and placed them on the scene within 6 hours. The

16 Note that these steps were not taken at the Brentwood postal facility in the D C region

FBI set up a joint command center for crisis management at Fort Myers and arrived on the scene almost immediately after the attack The FBI maintained control over the site for as long as it took to collect and remove evidence (contaminated clothes, the envelope that had contained *B anthracis* spores, and a portion of the carpet where the envelope was dropped). The FBI then relinquished control over the crime scene and turned it over to public health and public safety officials, ending the crisis management phase of the response [17] Initially, responders were unaware of the important relationship between the Daschle letter, the Brentwood mail facility, and its downstream handling and distribution centers

Because no state of emergency had been declared, FEMA played only a support role, providing technical assistance in consequence management to the U S Capitol Police Although this support proved useful, it was insufficient for ensuring a well-coordinated response FEMA has years of experience and detailed protocols for ensuring effective interagency cooperation, establishing an incident command system, and managing a communications center to coordinate federal assets Without FEMA's formal coordinating authority, the U.S. Capitol Police used a more ad hoc approach in their response

For the first couple of days after the Daschle letter was discovered, the Senate crisis was managed by the U S. Capitol Police without an incident command structure. Once it became clear that more resources were required, the U S. Capitol Police Board took the unusual step of hiring an outside consultant as the incident commander to coordinate the large group of government agencies responding to the scene [18] Although all parties credit the consultant with successfully mounting an effective response, initial confusion prior to retaining the consultant about who was in charge and the roles, missions, and capabilities of each agency tended to slow the response [19] In fact, the Federal Response Plan was not consciously adhered to and participants in the response were generally unaware of its potential utility. To its credit, the U S Coast Guard, in consultation with FEMA and in support of the incident commander and EPA, set up and maintained an incident command structure that was essential to managing the response.

---

17 The exception to this is that the FBI maintained control over the mail and some areas of mail handling until the mail collected at the time of the incident had been investigated

18 The three-person U.S Capitol Police Board consists of the sergeants-at-arms from the House of Representatives and the Senate and the architect of the Capitol. It oversees safety and security matters at the U S Capitol The incident commander was hired and paid for by the House, but reported to the U S Capital Police Board

19 Agencies and organizations participating in the response effort included the U S Capitol Police, the Architect of the U.S Capitol, the Sergeant-at-Arms of the U S Senate, the Office of the Attending Physician of the U S Senate, the FBI, the Environmental Protection Agency (EPA), the Centers for Disease Control and Prevention (CDC), the Defense Advanced Research Projects Agency (DARPA), the U S Department of Health and Human Services (HHS), the National Institute of Occupational Safety and Health (NIOSH), the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), the Federal Emergency Management Agency (FEMA), the U S Coast Guard, the U S Marines Chemical and Biological Incident Response Force (CBIRF), the U S Army, the U S Air Force, the U S Navy, the District of Columbia Department of Health, and the Office of the Mayor for the District of Columbia

In reality, the National Contingency Plan (NCP) paid for most of the cleanup using the hazmat provision of the Superfund.[20] This provision allowed the federal government to go straight to the local incident without a request from a governor The implication here is that during a terrorist incident involving biological agents, a federal response through authorities other than the Stafford Act may fill the first 24 to 48 hours Local responders will still almost always be the first to respond, but from a federal perspective, agencies may provide assistance through the NCP or other authorities Once the FBI declares the incident an act of terrorism, the president, in consultation with the governor, may authorize the use of federal assistance *in support of the state, under the provisions of the Stafford Act*

Beyond the organizational challenges, at least two examples illustrate where bureaucracy served to encumber the response efforts In the first example, the use of chlorine dioxide as a decontaminant in the Hart Senate Office Building was unanticipated Consequently, while the Environmental Protection Agency had contractors ready and waiting to go into the Hart Building to begin decontamination, they lacked a contract vehicle to bring them in for several days. The delays were primarily caused by insufficient indemnification Contractors would be required to essentially provide remediation services with technology that had been untested in a place like the Hart Building, a facility worth far more than the insurance coverage held by any of the contractors involved

The second case where bureaucracy slowed the cleanup process was a result of the multiple sources available in the public and private sector to provide services to the incident commander. With many agencies able to perform the same job (e.g., down-range sampling of the environment, albeit with different technologies and levels of capability), with senators offering the services of their private sector constituents, and with no clear role for each agency, the incident command at the U.S. Capitol had in some cases up to 15 proposals to assess Narrowing down these proposals and selecting the best path forward took time

Proposals

- **Establish a clear chain of command for incidents.** In instances when an emergency is not declared, yet federal resources are required and deployed, a clear chain of command must be established from the start to oversee coordination of the federal response Only one person should be in charge of the response and must be allowed the autonomy to execute his or her responsibilities as the situation warrants
- **Exchange liaisons and increase the use of joint exercises.** Public health and law enforcement agencies must begin to work together and train together well in advance of a crisis Agency-to-agency liaisons responsible for coordinating the response to a bioterrorist attack should be exchanged today so they are in place

20 The National Oil and Hazardous Substances Pollution Contingency Plan, more commonly called the National Contingency Plan or NCP, is the federal government's blueprint for responding to both oil spills and hazardous substance releases including biological agents Following the passage of Superfund legislation in 1980, the NCP was broadened to cover releases at hazardous waste sites requiring emergency removal actions

for an emergency Once liaisons are in place, agencies should perform joint exercises to improve overall coordination

Prophylaxis, Treatment, and Mental Health

The medical challenges to managing the consequences of biological terrorism can be divided into three categories caring for the ill, preventing illness in those exposed during an attack, and controlling the original or ongoing source of exposure During the anthrax attacks, the greatest challenge to the public health community (in terms of resources utilized) was preventing illness in the exposed, or potentially exposed, through a program of mass medication.

The CDC received praise for effectively and rapidly mobilizing the National Pharmaceutical Stockpile [21] Distributing the pharmaceuticals to individuals once the drugs had been delivered to a community—a responsibility of state and local authorities—proceeded with mixed results The District of Columbia initiated the largest ever mass-medication program in the United States, dispensing medication to more than 17,000 individuals, approximately 4,000 of whom had been heavily exposed to *B. anthracis*. Both in Florida and Washington, D C., mass medication programs were characterized by long lines and mixed messages from professionals disseminating medication or providing advice to those seeking prophylaxis through the process. These discrepancies created confusion and anxiety among recipients. Even so, the reality is that medication was dispersed in a timely manner, preventing additional illnesses even in those heavily exposed.

Beyond those actually or possibly exposed to *B anthracis* who required medical treatment, there were others who required treatment to support mental health needs. In many cases, people required medical attention as a result of unsubstantiated fears that they might have been exposed or might have contracted anthrax (the so-called worried well). In some cases, individuals suffered acute anxiety when previous underlying psychiatric disorders were aggravated by the stress of terrorist attacks. Finally, in other cases, post-traumatic stress and other anxiety-induced disorders were experienced. Communities successfully mitigated some of these conditions by bringing in the American Red Cross to help with counseling

Proposals

- **Develop mass-medication and treatment delivery strategies in advance.** As part of planning activities, local governments must develop strategies for mass medication of their communities These strategies should also include plans for treating a large number of casualties and for isolation and quarantine, if necessary.

---

21 The National Pharmaceutical Stockpile was established to ensure the availability of life-saving pharmaceuticals, antibiotics, chemical interventions, as well as medical, surgical, and patient support supplies, and equipment for prompt delivery to the site of a disaster, including a possible biological or chemical terrorist event anywhere in the United States It is maintained and operated by the CDC

- Incorporate mental health needs into response plans. Governments need to include in their plans an early role for mental health care providers to help cope with the psychological trauma experienced by both victims and responders.

Communications: Public Affairs, the Media, and Educating the Public

The failure to communicate a clear message to the public was one of the greatest problems observed during the anthrax attacks. Public action in response to a bioterrorist attack can help mitigate casualties and speed recovery, or it can cause panic and speed the spread of disease. The role that private citizens play in supporting crisis response and recovery activities will largely be influenced by the information and messages they receive from their community leaders. These messages are shaped by the media and, in the absence of government information, sometimes created by the media. As such, public affairs strategies and media roles are vital to mounting an effective response.

[redacted]

TIMELY AND ACCURATE INFORMATION. By definition, terrorists intend to cause terror—that is, their goals are not likely to be limited to physical damage alone. Biological weapons are capable of conveying a quality of dread unique among the weapons of mass destruction. Although an individual may find it difficult to imagine what a nuclear blast would feel like, biological threats can be easily personalized from past illnesses or infections. Moreover, the historical memory—and graphic accounts—of natural infectious outbreaks, as for example the Black Death in Europe, remains disquieting centuries later. Therefore, in addition to dealing with medical victims, an important component of any response strategy must encompass means to minimize the panic and fear sure to arise in a biological attack. Establishing and managing a coordinated public affairs campaign is essential to achieving these ends.

There is a tension, however, between the news media, which seek to get information out quickly and frequently in support of a rapid news cycle, and government officials, who may or may not have accurate, complete, or new information at any given time. In a crisis, therefore, officials will need to communicate in a manner that does not mislead the public, despite having the disadvantage of incomplete information.

[redacted]

[redacted]

the media recruited different experts who often gave conflicting advice and information (and often used different terminology or jargon to discuss the same point)[22] As a result, and given the multijurisdictional nature of the anthrax attacks, the public received multiple, sometimes conflicting, messages regarding the nature of the disease and how to treat it This confusion created anxiety and led to counterproductive public actions, such as self-medication with Cipro, an antibiotic used to treat anthrax infections

Proposals

- Develop a coordinated media strategy An overall communications strategy should be developed for coordinating messages across multiple jurisdictions, multiple levels of government, and multiple agencies within government A communications strategy should include public education before an event and an authoritative spokesperson for providing information following an attack It should include a method for command and control by which messages to the public are crafted with all relevant government agencies (at all levels) present.
- [redacted] will greatly enhance the information flow and the public's confidence in the government response This cooperation would ensure that all appropri-

22 For example, numerous terms with very different meanings were used interchangeably in the media to describe the type of anthrax used in the attacks They included "man-made strain," "garden-variety strain," "genetically engineered," "not natural" (because it was found on a keyboard at AMI and in an envelope in Daschle's office, rather than in a pasture with livestock), "weapons grade," "aerosolized," and "highly energetic" Similarly, the terms "exposed" to anthrax (which means an individual may have been in an area where the bacteria that cause anthrax were released) and "contracted" anthrax (which means that an individual is infected with the disease) were often used interchangeably.

ate government affairs personnel have an opportunity for input and know what messages are being disseminated, so the statements of individual agencies are not in conflict Additionally, if the media knows that it will be provided with updated information [redacted]

- Prepare public messages in advance of an attack. Government officials need to develop an awareness *today* of the types of information needed for use in public messages during potential future bioterrorist events Public affairs officials should be prepared to provide basic information on several key topics as soon as an attack is detected, describing the pathogen (e g., whether contagious or noncontagious), the known areas of attack, the symptoms and progression of disease, the prophylaxis and treatment protocols, the available resources, the government's initial steps, and the requirements on the part of the public. In many cases, these elements of a public information campaign can be developed before an attack, which will reduce the time needed to respond to such a crisis.

Communications: Information Sharing

Information sharing plays a vital role in command, control, and coordination of a bioterrorism response As discussed above, local, state, and federal officials will initiate a variety of activities following a bioterrorist incident. Most of these activities will be launched simultaneously and transpire in parallel. In many instances, the results of activities of one group must inform the efforts of others For example, local and state health officials must work with federal health officials to identify and confirm the agent used in an attack In addition, officials from local and state law enforcement and the FBI must share information with each other in order to advance a criminal investigation

Two areas of concern were identified that require further consideration. improving communications among local, state, and federal law enforcement communities, and facilitating communications among medical, public health, and law enforcement officials (on all levels)

LOCAL, STATE, AND FEDERAL LAW ENFORCEMENT COMMUNITIES. Historically, the FBI has been reluctant to share information it has collected in pursuit of a criminal investigation, but is now more cognizant of the necessity of information sharing Bioterrorism incidents may be spread across jurisdictions Thus information about infractions or incidents in one jurisdiction must be shared with others. Intelligence that has been gathered from federal assets must be shared with local officials The historic culture and organization of the FBI has brought about an institution where information within the bureau is too compartmentalized. This culture and organization evolved partly out of the need to separate classified and unclassified information. [redacted] In the specific case of the FBI's cooperating with local authorities, clearances must be granted to senior officials in local law

enforcement and public health, and secure communications should be established so that sensitive information can be shared.[23]

MEDICAL, PUBLIC HEALTH, AND LAW ENFORCEMENT COMMUNITIES. The criminal and epidemiological investigations of bioterrorism are conducted separately, but search for answers to many of the same questions Law enforcement officials seek to develop specific leads and to identify suspects by accumulating data from a variety of sources (e g., personal interviews, forensics, and intelligence). Medical investigators seek to control outbreaks by aggregating and analyzing large quantities of data from a variety of sources (e g , personal interviews, contact studies, laboratory data and statistical analyses) In both efforts, law enforcement and medical/public health officials need to conduct interviews with many of the same individuals for the purpose of obtaining detailed information and personal histories. In many cases, the information sought is the same.

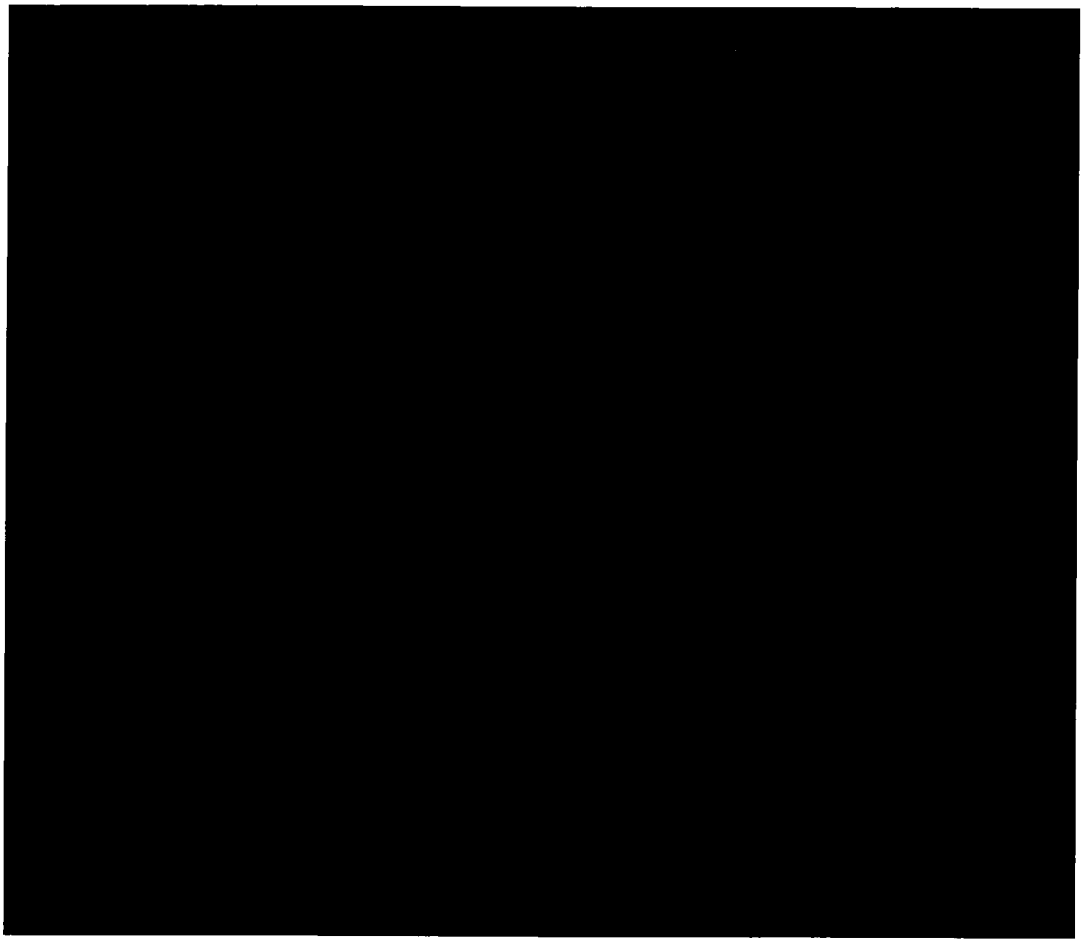
[redacted]

Proposals

- Expand cooperation between medical, public health, and law enforcement communities. Cooperation between medical, public health, and law enforcement officials at all levels of government should be expanded to increase information sharing during criminal and epidemiological investigations. Information sharing should be expanded in a manner that does not compromise the criminal investigation or the privacy of patients.
- [redacted]

---

23 Granting clearances is a serious, nontrivial task Heads of executive branch departments and agencies assigned to or supporting national security missions may request clearance of individuals who may occupy a sensitive position or require access to national security information In the case of those working with the FBI, the Department of Justice would likely be the requesting agency Clearances may range from confidential to top secret and may include access to various more sensitive programs such as sensitive compartmented information (SCI), special access programs (SAPs), and code name programs The U S government conducts extensive background investigations and subsequent periodic reinvestigations to determine whether the applicants or incumbents either employed by the government or working for the government under contract are suitable to occupy a position and/or are eligible for access to classified information These investigations typically take six months to complete The requesting department or agency uses the results of these investigations to make final determinations regarding suitability to occupy a sensitive position and/or eligibility for access to classified national security information



Speeding Recovery: Decontamination

Cleaning up contaminated sites can be a sizable component of recovering from acts of bioterrorism and was a process that was greatly underestimated prior to the anthrax attacks.

Prior to the anthrax attacks, decontamination strategies focused primarily on cleaning up scientific laboratories These facilities are relatively easy to decontaminate They are generally small, in many instances self-contained, and have nonporous surfaces and sophisticated ventilation systems. Consequently, all surfaces can be cleaned with a highly potent decontaminate.

By
AMI buildings are very large facilities filled with absorbable materials and fabrics.[24]

24 The Hart Building, for example, includes more than 10 million square feet.

Because of the absorbable materials and size of these facilities, the methods typically used in laboratories were not possible New techniques had to be developed.

Remediation procedures that were developed and utilized at the Hart Building included burning the "absorbables" (e g., furniture, carpets, etc) using Fort Detrick's incineration facilities and decontaminating the remaining infrastructure with chlorine dioxide The use of chlorine dioxide (ClO_2) in the Hart Building was not anticipated and raised additional technical issues First, to achieve maximum effectiveness the use of ClO_2 requires a humidity level above 85 percent This requirement initially posed a problem as portable humidifiers were unable to raise the humidity in this way to the optimal level. A steam pipe that brought heat into the building was eventually diverted Second, raising the humidity increased the temperature in the building, which was already high from the shutting down of heating, ventilation, and air-conditioning systems and from the sun's warming High temperatures can reduce the amount of time people can be in the hot zone wearing full protective gear (that do not contain cooling systems) and can slow operations In general, the approach developed for the Hart Building was costly, both in terms of time and money. At the time this report was published, neither the AMI building in Florida nor the Brentwood postal facility had been decontaminated.

Proposal

- **Expand research into decontaminating "hot zones."** Significant research is needed to develop new technologies and techniques for decontaminating "everyday" facilities and their surrounding environment. Criteria for ensuring that remediation efforts have been successful must also be identified and standardized

Additional Considerations: Policies and Legal Authorities

Several policy issues were identified that may require further consideration:

- **Disaster Assistance and the Stafford Act.** As noted earlier, no disaster declaration was ever requested or made for any of the anthrax attacks. Consequently, local regions shouldered the multimillion-dollar—perhaps billion-dollar—costs required to mount a response In a bio-attack, a disaster may not be known or may not occur instantly, unlike the case of a flood, a hurricane, or a nuclear attack Is there an alternative to invoking the Stafford Act to provide localities with the resources they may need?
- **Civil Liberties and Discrimination.** There were several cases where discrimination resulted from the fear of contracting anthrax In Florida, some doctors refused to care for potential victims; private doctors who lacked sufficient information were fearful of the dangers to themselves. Similarly, a woman who worked at AMI was refused employment by another employer because of her possible exposure. Perhaps less consequential, but equally troublesome, were cases where some children were ostracized from friendships and some adults were ostracized by their employ-

ers. Are there legal provisions that can be invoked or should be established to protect from discrimination those exposed during an attack?

- **Indemnification.** Indemnification is a major issue with subcontractors. Private sector firms cannot and will not perform work without federal assurances that they will be held harmless for any sickness or side-effects that may occur after their work has been performed. What steps must the federal government take to ensure appropriate indemnification for contractors responding to bioterrorism?
- **The Closing and Reopening of Facilities.** The authority for determining that a building should be closed or that it can be reopened following successful remediation efforts is unclear. Who should decide whether to close a building? What are the protocols needed for this decision? Who should decide whether to reopen a building? What are the protocols needed for this decision?
- **Privacy and Biosurveillance.** Effective biosurveillance requires sharing and aggregating medical data without compromising patient confidentiality. Initial responsibility for collecting data lies with each state. With so many different privacy requirements across the states, how are these data collected? If analysis of surveillance data indicates bioterrorism, how are the data disaggregated to determine who requires prophylaxis? What is the appropriate and fair use of these data other than for detecting bioterrorism?
- **A Balanced Portfolio: Budget Issues.** A review of U.S. biopreparedness and the gaps identified in biodefense following the anthrax attacks reveals a wide range of potential investments in (1) research in vaccines, diagnostics, prophylaxis, therapeutics, and detection and communication systems; (2) medical capacity, laboratories, and public health infrastructure; and (3) funding for training, basic research, and technology development and deployment. Given that the United States cannot protect every American citizen from every conceivable terrorist threat, what priorities should be funded to ensure a balanced portfolio of investments?
- **Population Quarantine.** Had this attack been a contagious pathogen, could quarantining the affected population have been an effective solution to containing the outbreak or at least limiting it? Who should have the authority to direct, mandate, and enforce quarantines? What are the political and legal ramifications?
- **International Cooperation.** With infectious agents, a biological attack is likely to spread disease across borders, and countries may well close their borders to protect their populations.[25] What agreements and standards must be established to ensure that resources can be shared across borders? What are the rights of foreign nationals if quarantines must be imposed? What steps must be taken to maintain international trade activities?

---

25 Even with a noncontagious agent, an attack is rapidly internationalized by hoaxes, the spread of fear, and copycats. In Europe, for example, there were more than 7,000 anthrax-related hoaxes in the period following the attacks in America[redacted]

CHAPTER 4

Conclusion

THE FALL 2001 ANTHRAX ATTACKS may turn out to be [redacted] to confront. *Bacillus anthracis* is the most studied pathogen of possible biological agents, and the use of mailed letters as a delivery mechanism provided a readily identifiable means of attack. Further, the areas of attack were for the most part easy to isolate In short, the anthrax attacks were straightforward, overt, and localized, and they entailed a relatively well-understood pathogen

Among the contagious agents that pose a threat to the United States, smallpox has received the most attention recently, largely because of the devastation it could cause. Although no one knows if a smallpox attack is likely to happen, fear of a smallpox attack has spurred a large mobilization of resources, including the development of treatment protocols and training courses and the procurement of enough vaccines to vaccinate the entire U S population (at a cost of more than $500 million). By contrast, [redacted]

[redacted]

The primary lesson from the first significant bioterrorist attacks on the United States is that to mitigate the spread of disease, loss of life, and disruptions to daily lives, the nation must maximize the effectiveness and speed of its response. This will require [redacted]

[redacted]

The United States faces new challenges in a world shaken by attacks with hijacked airplanes and biological agents on the U.S. homeland. Terrorism and the proliferation of weapons of mass destruction threaten U.S. national security, and public health has now become a key element to U.S. defense. The December 2001 National Forum on Biodefense played an important first step toward identifying specific gaps and proposing areas to strengthen the U.S. response to biological attacks. More analysis is certainly needed, and significant and sustained investments must be made. No one knows if and when future bioterrorist attacks might occur, but actions taken to bolster U.S. biodefense today can help mitigate the consequences, improve public health, and strengthen U.S. national security in the future.

APPENDIX A

List of Forum Participants

David A. Ashford
Chief, Zoonoses Unit
CDC

Joseph A. Barbera
Co-director
Institute for Crisis, Disaster and Risk Management
The George Washington University

Steve Barrett
Senior Analyst
Asymmetric Threat Division
ANSER

Larry Bush
Infectious Diseases Specialist
JFK Medical Center

Richard Casey
Director
Combat Support Directorate
DTRA

Frank J. Cilluffo
Special Assistant to the President
Office of Homeland Security

Jerry Conley
Military Analyst
Advanced Systems and Concepts Office
DTRA

Charles Cooke
Scientific Advisor
Advanced Systems and Concepts Office
DTRA

Anthony H. Cordesman
Arleigh A Burke Chair in Strategy
CSIS

Ruth A David
President and CEO
ANSER

Mark C DeMier
Homeland Defense Strategic Analysis
ANSER

Gerald L. Epstein
Scientific Advisor
Advanced Systems and Concepts Office
DTRA

Mike Evenson
Deputy Director
Combat Support Directorate
DTRA

John Faulkner
Chief, Emergency Management Division
DTRA

Charles Gallaway
Director
Advanced Systems and Concepts Office
DTRA

Asha George
Senior Program Officer
Biological Programs
Nuclear Threat Initiative

Martha Girdany
WINPAC

John J. Hamre
President and CEO
CSIS

Jerry Hauer
Deputy Director
Office of Public Health Preparedness
U S Department of
Health and Human Services

David F Heyman
Senior Fellow
CSIS

Edward Hildebrand
Senior Policy Analyst
Science Division
Office of Science & Technology Policy

Forrest Horton
Technology Security and Cooperation
ANSER

Paul J Jackson
Biothreat Reduction Thrust Leader
Los Alamos National Laboratory

Ali Kahn
Medical Epidemiologist
National Center for Infectious Disease
CDC

Alfonso E Lenhardt
Sergeant-at-Arms
United States Senate

Rachel E Levinson
Assistant Director for Life Sciences
Office of Science & Technology Policy

Scott R Lillibridge
Special Advisor to the Secretary
U S Department of
Health and Human Services

Jean Marie Malecki
Director
Palm Beach County Health Department
Florida Department of Health

Barbara Y. Martinez
Chief WMD Operations Unit
FBI

David McIntyre
Deputy Director–Research
ANSER

Richard Meyer
Director
Rapid Response and Technology
Laboratory
CDC

Cathy Montie
Chief, Nuclear Stockpile Division
DTRA

Scott Moore
Military Policy Analyst
Advanced Systems and Concepts Office
DTRA

Linda Norberg-Peterson
Program Specialist
Office of Policy & Regional Operations
FEMA

Michael T Osterholm
Director
Center for Infectious Disease Research
and Policy
University of Minnesota

John S Parker
Commanding General
U.S Army Medical Research and
Materiel Command

James Rice
Supervisory Special Agent
FBI

Lisa Rotz
Chief, Epidemiology
Surveillance and Response Branch
CDC

Richard Rupert
On-Scene Coordinator
EPA

Larry Siegel
Senior Deputy Director, Medical Affairs
D C Department of Health

APPENDIX B

Forum Agenda

Bioterrorism Crisis Management and Response Forum: Anthrax Case Study

Wednesday, December 19, 2001

7 30–8 00 AM	Continental Breakfast
8 00–8 15 AM	Welcoming Remarks Dr John Hamre, President and CEO, Center for Strategic and International Studies (CSIS) Dr Stephen M Younger, Director, Defense Threat Reduction Agency (DTRA)
8 15–8.45 AM	Opening Keynote Addresses *Introductory Lessons Learned and Issues to Consider Public Health, Law Enforcement, Integration & Information Management* Lisa Rotz, Chief, Epidemiology, Surveillance and Response Branch (CDC) Mr Dale Watson, Executive Assistant Director for Counterterrorism & Counterintelligence, Federal Bureau of Investigation (FBI)
Panel Session I	
8 45–10 30 AM	Medical and Public Health Chair: Michael Osterholm (U of Minnesota) Panelists: Dr Larry Bush (treated 1st anthrax case), Dr Jean Malecki (Palm Beach Health Dept), Maj Gen John Parker (U S Army Medical Research and Materiel Command/USAMRIID), Dr Ali Kahn (CDC), Dr Jerry Hauer (HHS)
10 30–10 45 AM	Break
Panel Session II	
10 45–12 45 PM	Law Enforcement and National Security Chair Stephen Younger (DTRA) Panelists: Maj Gen Alfonso E Lenhardt (U S Senate Sergeant at Arms), Craig Watz (FBI-HQ), James Rice (FBI-Field), Richard Rupert (EPA, On-Scene Commander), Dr Paul Jackson (LANL)
12.45–1 00 PM	Break
1 00–2 30 PM	Luncheon Speaker Dr Ruth David, President and CEO, ANSER Analytic Services, Inc (ANSER)
Panel Session III	
2 30–4 45 PM	Integration and Synthesis Chair Dr John Hamre (CSIS) Panelists: Dr Scott Lillibridge (HHS), Dr David Ashford (CDC), Barbara Martinez (FBI), Dr Douglas Stutz (Incident Commander, U S Capitol), Dr Larry Siegel (Deputy Director, D C Public Health), Linda Norberg (FEMA)
4 45–5 00 PM	Wrap-up

Douglas R Stutz
Incident Commander
U S Capitol Police

Jim Varey
Chief of Police
U.S. Capitol Police

Marion C Warwick
Medical Epidemiologist
Emergency/Terrorism Response Unit
Missouri Department of Health

Dale L Watson
Executive Assistant Director for
Counterterrorism & Counterintelligence
FBI

Craig Watz
Supervisory Special Agent
FBI

John Wohlforth
Research Analyst
ANSER

Stephen Younger
Director
DTRA

APPENDIX C

Chronology of Events

Date (2001)	Event	Policy/Response
September 18	Letters postmarked in Trenton, N J , are sent to *New York Post* and NBC News anchor Tom Brokaw	
September 22	Johanna Huden, an editorial page assistant at the *New York Post* who opens letters to the editor, notices a blister on her finger	
September 26	Unidentified maintenance worker at Trenton regional post office in Hamilton, N J , visits physician to have lesion on arm treated	
September 27	Teresa Heller, letter carrier at West Trenton post office, develops lesion on her arm	
September 28	Erin O'Connor, assistant to NBC News anchor Tom Brokaw, notices a lesion and develops a low-grade fever	
September 29	Infant son of ABC World News Tonight producer begins presenting signs of cutaneous anthrax	
September 30	Bob Stevens, photo editor at the *Sun* working for America Media Inc (AMI) in Boca Raton, Fla , starts to feel ill	
October 1	Ernesto Blanco, mailroom employee at AMI, publisher of the *Sun*, admitted to hospital with heart problems O'Connor begins taking Cipro ABC News producer's son admitted to NYU medical center Claire Fletcher, assistant to CBS news anchor Dan Rather, notices small lesion on cheek	
October 2	Stevens admitted to hospital	

October 3	Heller is hospitalized and biopsy is performed	Tommy Thompson, secretary of health and human services (HHS), testifies on bioterrorism preparedness before the Senate Appropriations Subcommittee on Labor, Health, and Human Services, Education and Related Agencies, says "the department is ready to respond "
October 4	Fletcher begins taking penicillin after visiting doctor	Authorities confirm Stevens has inhaled form of anthrax CDC releases first public health message regarding Florida anthrax case, says it will respond ' more aggressively" than in the past to "what may appear to be isolated cases," but stresses that risk of contraction is low and that anthrax is not contagious
October 5	Stevens dies	
October 7		CDC issues update reporting that anthrax may be present in building where Stevens worked, again stresses that the illness is not contagious
October 9	Anthrax-tainted letters postmarked in Trenton, N J , sent to Senators Tom Daschle and Patrick Leahy	
October 10	Skin biopsy is taken from O'Connor and sent to the CDC	HHS announces U S and UK agreement to collaborate on fighting bioterrorism
October 11		CDC issues update on progress of Florida anthrax investigation House Intelligence Committee's Subcommittee on Terrorism and Homeland Security holds hearing on "The Role of the National Security Council in the Present Crisis, with Special Briefings on the FBI Investigation and the Anthrax Event in Florida "
October 12	Microsoft announces that an office in Nevada received a letter suspected to be contaminated with *Bacillus anthracis*	Officials announce O'Connor developed cutaneous anthrax after opening contaminated letter Vice President Dick Cheney says investigation of the anthrax cases in New York and Florida should ' proceed on the basis that [the anthrax attacks] could be linked to terrorists " Parts of NBC News headquarters sealed by authorities for further anthrax testing
October 13		Nevada governor Kenny Guinn announces that the third test of the Microsoft letter is positive
October 14	A police officer and two lab technicians who handled the NBC letter test positive for *B anthracis* exposure	CDC releases updated guidelines for state health departments on how to handle anthrax and other biological agents
October 15	Suspicious letter opened in Daschle's office Daschle's office tests positive for *B anthracis* contamination	Daschle's office is closed off Officials announce infant son of ABC News producer developed cutaneous anthrax after visiting newsroom on Sept 28

October 16	Hundreds of Senate staffers tested for anthrax Reports say *B. anthracis* bacteria sent to NBC in New York is of same strain as that sent to Daschle in Washington	Twelve Senate offices closed CDC issues two separate updates on progress of anthrax investigations in Florida, New York, Nevada, and elsewhere in the country, confirms 2 cases of anthrax and 1 exposure in Florida, 2 cases of anthrax and 3 exposures in New York, initial negative results from Nevada samples FBI director Robert Mueller holds press conference on progress of the anthrax investigation FBI releases photos of letters sent to Sens. Daschle and Leahy, NBC News, and *New York Post*
October 17		Officials announce 31 people at U.S. Capitol have tested positive for exposure to *B. anthracis* (number later revised to 28) House shuts down for testing Federal health officials confirm that New York and Florida *B. anthracis* strains match N.Y. governor George Pataki's Manhattan office evacuated after test detects presence of *B. anthracis* (no staffers test positive for exposure) Pataki begins taking Cipro, health experts and journalistic commentators call the move irresponsible overkill CDC announces FDA approval of penicillin, doxycycline, and ciprofloxacin as treatments for anthrax HHS secretary Thompson requests emergency $1.5 billion to combat bioterrorist attacks
October 18	Fletcher tests positive for cutaneous anthrax Heller diagnosed with cutaneous anthrax	CDC holds special Webcast to teach doctors how to recognize anthrax N.Y. mayor Rudy Giuliani announces that nearly all of the 1100+ tests for *B. anthracis* taken from NBC and ABC offices have come back negative Gov. Guinn of Nevada announces that the Microsoft letter was confirmed negative by the CDC
October 19	*New York Post* announces that Hudenis diagnosed with cutaneous anthrax Second N.J. postal worker at Hamilton regional office tests positive for cutaneous anthrax	Senate shuts down for testing FBI questions residents, businesses on N.J. mail route of infected letter carrier Homeland security chief Tom Ridge announces that *B. anthracis* bacteria strains in Fla., N.Y., and D.C. may have come from same batch CDC announces Nevada tests negative, confirmed cases stand at 2 in Fla., 3 in N.Y., and 1 in N.J.
October 20	Tests confirm *B. anthracis* traces found in mail-bundling machine at Ford House Office Building	In his weekly radio address, President Bush stresses that no conclusive link has been made between the anthrax incidents and the Sept. 11 terrorist attacks

October 21	Thomas L Morris, Jr , a Washington postal worker, found gravely ill with inhalation anthrax, dies that night Another Washington postal worker, Joseph P Curseen, goes to Maryland hospital complaining of flu-like symptoms (He is sent home) Five other D C postal workers sick	Officials close two postal facilities, begin testing thousands of postal employees N J health officials say work areas, but not public areas, at Hamilton post office test positive for *B anthracis* spores CDC now confirms 8 cases of anthrax 2 in Fla , 3 in N Y , 2 in N J , and 1 in D C
October 22	Curseen returns to hospital at 5 45 a m , dies six hours later of inhalation anthrax Two other postal workers hospitalized in serious but stable condition	House and Senate reopen, but office buildings remain closed CDC now confirms 9 cases 2 in FL, 3 in NY, 2 in NJ, and 2 in D C , one additional unconfirmed case under investigation at the *New York Post* Governor Ridge discusses anthrax situation in joint press briefing
October 23	*Bacillus anthracis* found on machinery at military base that sorts mail for the White House, all tests at White House itself come back negative Blanco released from hospital after 23-day stay	President Bush speaks with reporters about investigation, declares, "I don't have anthrax " Officials confirm that deaths of two D C postal workers were caused by inhalation anthrax, announce that unidentified N J postal worker at Hamilton office is hospitalized with a suspected case of inhalation anthrax CDC now confirms 11 cases 2 in FL, 3 in NY, 2 in NJ, and 4 in D C , one unconfirmed case still pending in N Y Sec Thompson testifies on HHS readiness and role of vaccine R&D before House Government Reform Subcommittee on National Security, Veterans Affairs, and International Relations that "new vaccines, antitoxins, or innovative drug treatments need to be developed, manufactured (or produced), and/or stocked "
October 24		Surgeon General David Satcher admits "we were *wrong*" not to respond more aggressively to tainted mail in Washington Three new cases of suspected inhalation anthrax announced in Md suburbs, all linked to Daschle letter HHS, Bayer agree to federal purchase of Cipro at reduced cost
October 25	Employee at U S State Department's mail facility is hospitalized *with anthrax* 10,000 Americans taking antibiotics for possible *B anthracis* exposure	Postal service sets up environmental spot checks at facilities nationwide Governor Ridge says that *B anthracis* in Daschle letter was highly concentrated and made 'to be more easily absorbed" by its victims CDC issues "Interim Recommendations for Protecting Mail Handlers from Cutaneous and Inhalational Anthrax" and holds teleconference to discuss ongoing investigation

October 26	Postal workers demand the closure of *B. anthracis*–tainted buildings in N.Y. and Fla., with some union officials threatening to sue the U.S. Postal Service	CDC now confirms 12 cases: 2 in Fla., 3 in N.Y., 2 in N.J., and 5 in D.C., additional cases suspected: 2 in N.Y. and 3 in N.J.
October 27		CDC reports one additional suspected case in N.Y.
October 28		CDC confirms anthrax infection in one of N.J. suspect cases, bringing total confirmed cases to 13 Department of Justice confirms discovery of *B. anthracis* at its Landover, Md., mail facility
October 29	Two new anthrax cases reported in N.J., marks first instance of a victim who does not work for the government or the media	Supreme Court building ordered shut down for *B. anthracis* testing A postal union sues to force the closing of New York's largest mail-sorting center, where traces of *B. anthracis* were found on four machines Postal union in Miami also sues, seeking emergency hearing on demands to close, test, and, if necessary, clean 10 to 12 facilities CDC now confirms 15 cases: 2 in Fla., 3 in N.Y., 5 in N.J., and 5 in D.C., additional cases suspected: 3 in N.Y. and 1 in N.J. CDC also holds additional teleconference to discuss ongoing investigation, releases guidelines for safe mail handling Senior State Department officials announce that "very minor" amounts of *B. anthracis* found in two mailrooms at State HQ, on letters sent to rewards for justice program, and in mail pouch bound for U.S. Embassy in Lima, Peru
October 30	State Department employees question decision not to close offices for cleaning, like the Supreme Court and other Capitol Hill buildings had been	Officials at the National Institutes of Health announce that the agency is "intensively investigating" the possibility that private homes are being targeted for *B. anthracis* contamination via the U.S. mail CDC confirms additional case in N.Y., bringing total to 16 (4 cases total still suspected in N.Y. and N.J.)
October 31	Kathy Nguyen, of New York City, dies of inhalation anthrax	NY authorities close down the hospital where Nguyen worked, pending the results of environmental testing CDC reports one additional suspected case in N.J. State Department spokesman Richard Boucher announces trace amounts of what appears to be *B. anthracis* discovered in mailbags in U.S. Embassy in Vilnius, Lithuania

November 1		CDC reports one additional suspected case in N Y (bringing total suspect cases to 6, confirmed cases stand at 16) FTC issues "consumer alert" regarding antibiotics sold online HHS Sec Thompson names Dr Donald A Henderson to serve as director of new Office of Public Health Preparedness, which will coordinate national response to public health emergencies
November 2		CDC confirms anthrax infection in one of N J suspect cases, bringing total confirmed cases to 17
November 3		CDC announces plans to hold daily anthrax telebriefings during the entire month of November Traces of *B anthracis* found in post office branch inside Pentagon Complex, office is closed
November 4		CDC announces creation of special teams to respond to possible smallpox outbreak
November 5	Longworth House Office Building reopens, though three suites where *B anthracis* was found remain closed	
November 6	Suspicious letter sent to U S Consulate in Islamabad, Pakistan, tests positive for *B anthracis*	
November 7		Federal judge in N J orders postal facility closed pending resolution of dispute between U S Postal Service and workers union NY health officials say *B anthracis* spores found at ABC News mailroom have been removed USPS reports that anthrax hoaxes now average 654 daily, lawmakers considering legislation to stem the tide of hoax mail
November 8		CDC issues new fact sheets on diagnosing anthrax in children, and conducting environmental sampling for B anthracis
November 9		FBI releases analysis of anthrax letter-writer
November 13	Howard University mail facilities closed for cleaning after trace amounts of *B anthracis* discovered, first known case of anthrax contamination at a nongovernmental facility in the Washington area	
November 14	Postal worker Leroy Richmond, last of six inhalation anthrax survivors, is released from hospital	In Chester, Pa , the houses of two city officials (who are Pakistani) are searched by FBI and hazardous materials team

November 16	Ottilie Lungren, of Oxford, Connecticut, is hospitalized with what appears to be a respiratory ailment	FBI announces that unopened letter to U S Senator Patrick Leahy discovered among quarantined mail appears to contain *B anthracis* HHS Sec Thompson announces administration decision to preserve remaining smallpox repositories "until adequate medical tools are available to counter any future outbreak of this disease " FBI profiler James Fitzgerald says anthrax mailer likely "a male, a loner and not connected with the September 11 terrorists "
November 19		FBI announces protocol for analyzing suspected anthrax letter sent to Sen Leahy DOJ announces that two areas in Bureau of Prisons mailroom have tested positive for "scant contamination" by *B anthracis* (Mailroom remains sealed) HHS Sec Thompson says anthrax mailings probably have domestic origins
November 21	Lungren dies of inhalation anthrax	Officials announce that a "small amount" of *B anthracis* bacteria has been found in the main mail room of the U S Department of Education, no threat to workers CDC confirms environmental tests conducted in N Y subway in conjunction with Nguyen death have come back negative
November 22		Criticizing government efforts, William Burrus, president of the American postal workers union, announces that union members won't work in any postal facility that isn't completely clear of *B anthracis* or any other form of contamination
November 25		Sen Leahy says that letter sent to him "may contain enough spores to kill well over a 100,000 people "
November 26		CDC issues "Interim Smallpox Response Plan and Guidelines "
November 28		CDC confirms strain of *B anthracis* discovered in Chile does not match strain involved in U S cases HHS awards $428 million contract to produce smallpox vaccine Cleanup plan for Hart Senate Building criticized at hearing of Senate Health, Education, Labor and Pensions Subcommittee on Public Health Swiss police state that anthrax letter sent to Chile (which bore Swiss postmark and return address of U S publisher Harcourt) may have been mailed in New York

November 29		Health experts at hearing of House Government Reform Subcommittee on National Security, Veterans Affairs and International Relations say that government must improve ability to communicate effectively with the American public in the event of future bioterrorist attacks CDC announces that isolate of anthrax from Chile letter is of different strain from that used in U S attacks
December 1		Environmental Protection Agency floods Sen Daschle's office with chlorine dioxide gas to kill any remaining *B anthracis* spores Cleanup of 1 ; other offices and areas in Hart Building continues
December 2		*Officials announce discovery of trace amounts of B anthracis* at Wallingford, Conn , processing center, responsible for mail in Oxford, where Lungren lived
December 3		In teleconference, CDC officials state that tens of thousands of letters may have become cross-contaminated, HHS Secretary Thompson and others stress that there is no evidence of widespread threat to public health Federal scientists report extremely close similarities between *B anthracis* in tainted letters and that produced by U S military for biowar Postal officials say two letters processed in Bellmawr, N J , processing and distribution facility along with contaminated U S Senate letters may have cross-contaminated mail to Nguyen and Lungren White house issues third nonspecific warning of possible terrorist strikes in coming weeks
December 5		Letter sent to Sen Leahy opened at Ft Detrick Army lab Congressional aides detail irradiation and decontamination procedures for mail addressed to congressional members EPA releases findings from anthrax testing of American Media office (Fla) suggesting that the spores spread easily through air currents U S Marshals arrest Clayton Lee Waagner, primary suspect in the mailing of hundreds of hoax anthrax letters to abortion clinics (The FBI does not consider Waagner a suspect in the deadly *B anthracis* mailings) House and Senate hold several hearings exploring bioterrorism and emergency preparedness Witnesses at one discount the FBI profile of the anthrax mailer as a loner, and instead say attacks are likely state-sponsored

December 6		FBI announces that contents of Leahy letter were identical to that sent to Daschle Officials at the Federal Reserve Board announce that a batch of mail delivered to its headquarters that day was contaminated with *B. anthracis* Post Office Inspector General launches investigation into whether officials rushed the reopening of the Belimawr, N.J., processing and distribution center after *B. anthracis* spores were discovered there HHS Sec. Thompson announces seven new initiatives to accelerate bioterrorism research and help strengthen the nation's ability to deal with the public health threat posed by bioterrorism
December 7	U.S. publisher Harcourt announces that the Florida office, listed as return address for anthrax-tainted letter discovered in Chile, is clean (CDC and FBI have said they believe letter was tampered with after it left the office.)	Federal authorities announce Federal Reserve HQ has tested negative for *B. anthracis* On final day of the Fifth Review Conference of the International Biological Weapons Convention of 1972, officals decide to suspend the conference until November 2002
December 9		Federal officials prepare to initiate nationwide effort to encourage manufacturers to report suspicious purchases to the customs service

APPENDIX D

Anthrax Cases

Anthrax Cases by Date, 2001[1]

Confirmed Victim	State	Type	Date Confirmed
Bob Stevens, 63	Fla	Inhalational	Oct 4*
Erin O'Connor, 38	N Y	Cutaneous	Oct 12
Unnamed child, 7 months	N Y	Cutaneous	Oct 15
Ernesto Blanco, 73	Fla	Inhalational	Oct 15
Claire Fletcher, 27	N Y	Cutaneous	Oct 18
Teresa Heller, 32	N J	Cutaneous	Oct 18
Patrick O'Donnell, 35	N J	Cutaneous	Oct 19
Leroy Richmond, 57	D C	Inhalational	Oct 21
Unnamed adult, undisclosed age	D C	Inhalational	Oct 22
Thomas L Morris Jr, 55	D C	Inhalational	Oct 23*
Joseph Curseen Jr 47	D C	Inhalational	Oct 23*
Unnamed adult, 59	D C	Inhalational	Oct 25
Unnamed adult, 56	N J	Inhalational	Oct 28
Unnamed adult, undisclosed age	N J	Cutaneous	Oct 29
Unnamed adult, 59	N J	Inhalational	Oct 30
Kathy Nguyen, 61	N Y	Inhalational	Oct 30*
Unnamed adult, undisclosed age	N Y	Cutaneous	Nov 2
Ottilie Lungren, 94	Conn	Inhalational	Nov 21*

1 CDC confirmed victims as of December 2001 Data drawn from the *Washington Post* and CDC

* Deaths associated with inhalational anthrax

Summary of Anthrax Cases by Location and Type[2]

Case Status	Type	Fla.	N.Y	N.J.	D.C.	Conn.	Total
Confirmed		2	5	5	5	1	18
	Cutaneous	0	4	3	0	0	7
	Inhalational	2	1	2	5	1	11
Suspected		0	3	2	0	0	5
	Cutaneous	0	3	2	0	0	5
	Inhalational	0	0	0	0	0	0

2 Confirmed cases as of December 2001, as defined by the CDC The CDC case definition was published in CDC's *Morbidity and Mortality Weekly Report (MMWR)* on October 19, 2001

APPENDIX E

HHS/CDC Staff Deployment

(as of October 31, 2001)

Washington, D.C. (90)

27 Epidemic Intelligence Service officers (EIS)
18 epidemiologists
15 industrial hygienists
4 laboratorians
4 media specialists
2 National Pharmaceutical Stockpile staff
4 nurses
10 public health advisers
5 public health prevention specialists
1 medical officer

Trenton, N.J. (17)

7 EIS officers
5 epidemiologists
1 industrial hygienist
1 information technology specialist
1 media specialist
2 public health advisers

New York City (44)

21 EIS officers
8 epidemiologists
4 industrial hygienists
4 laboratorians
1 media specialist
5 public health advisers
1 public health prevention specialists

Phoenix, Ariz. (3)

2 EIS officers
1 epidemiologist

West Palm Beach, Fla. (12)

4 EIS officers
3 epidemiologists
1 industrial hygienist
1 laboratorian
1 media specialist
1 medical officer
1 public health adviser