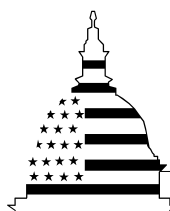


September 2004

U.S. POSTAL SERVICE

Better Guidance Is Needed to Ensure an Appropriate Response to Anthrax Contamination



G A O

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Highlights of [GAO-04-239](#), a report to congressional requesters

Why GAO Did This Study

In September and October 2001, at least four letters containing anthrax spores were mailed to news media personnel and two U.S. Senators, leading to the first cases of bioterrorism-related anthrax in the United States. The contaminated letters, which were delivered through the U.S. mail system, caused 22 cases of anthrax, 5 of them fatal. Nine postal employees associated with two postal facilities that processed the letters—Trenton in New Jersey and Brentwood in Washington, D.C.—contracted anthrax and two Brentwood employees died.

The U.S. Postal Service closed Trenton and Brentwood, but other contaminated postal facilities remained open. GAO's review covers Trenton, Brentwood, and three of these other facilities. As requested, this report describes (1) the factors considered in deciding whether to close the five facilities, (2) the information communicated to postal employees about health risk and the extent of the facilities' contamination, and (3) how lessons learned from the response to the contamination could be used in future situations.

What GAO Recommends

GAO is making recommendations to help ensure that the Postal Service has comprehensive, clear, accurate, and up-to-date guidance for any future anthrax response. The Postal Service indicated that it had taken or would take action on GAO's recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-04-239.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Mark L. Goldstein at (202) 512-2834 or goldsteinm@gao.gov.

U.S. POSTAL SERVICE

Better Guidance Is Needed to Ensure an Appropriate Response to Anthrax Contamination

What GAO Found

According to Postal Service managers, public health officials, and union representatives, the Postal Service considered the health risks to its employees ahead of its mission to deliver the mail in deciding whether to close postal facilities. The Postal Service relied on public health agencies to assess the health risks to its employees. These agencies believed the risks to be minimal until the Centers for Disease Control and Prevention (CDC) confirmed cases of anthrax in postal employees at Trenton and Brentwood. The Postal Service then closed these facilities. Public health agencies underestimated the health risks to postal employees, in part, because they did not know that anthrax spores could leak from taped, unopened letters in sufficient quantities to cause a fatal form of anthrax. The Postal Service kept the three other facilities covered by GAO's review open because public health officials had advised the agency that employees at those centers were at minimal risk. CDC and the Postal Service have said they would have made different decisions if they had earlier understood the health risks to postal employees.

The Postal Service communicated information to affected postal employees about the health risks posed by, and the extent of, anthrax contamination at the five facilities in GAO's review, but problems with accuracy, clarity, and timeliness led employees to question the information they received. Problems with accuracy stemmed from incomplete information about health risks, and problems with clarity occurred as information on the medical response to anthrax contamination changed with experience. Problems with timeliness occurred when the Postal Service delayed the release of quantitative data (anthrax spore counts) for one facility, in part because it was uncertain what the results meant for worker safety and public health. To communicate more effectively, the Postal Service has established a center to coordinate information within the postal system and has worked with other agencies to develop guidelines for responding to anthrax.

The response to anthrax contamination revealed several lessons, the most important of which is that agencies need to choose a course of action that poses the least risk of harm when considering actions to protect people from uncertain and potentially life-threatening health risks. Because public health officials underestimated the health risks involved, actions to protect postal employees were delayed. In addition, agencies' guidance did not cover all of the circumstances that occurred. The Postal Service has since revised its guidance, but the revised guidance (1) does not define some key terms, including those that would trigger a decision to evacuate a facility, (2) includes some outdated references that could cause confusion during a future response, and (3) does not address certain issues, such as what steps would be taken during the interval between a diagnosis of anthrax in a postal employee and confirmation of the disease. In addition, the guidance does not reflect proactive measures, including facility closures, that the Postal Service has recently implemented in response to suspected contamination.

Contents

Letter	1
Results in Brief	4
Background	8
Postal Service Primarily Considered Health Risks to Employees in Deciding to Close Facilities	17
Communication Problems Raised Employees' Concerns	28
Several Lessons Emerged from the Response to Anthrax Contamination	37
Conclusions	54
Recommendations for Executive Action	55
Agency Comments and Our Evaluation	56

Appendixes	
Appendix I: Comparison of Medical Services and Reassignment Benefits Provided to Postal Employees at Selected Facilities	59
Similar Medical Services Were Provided to Employees at the Five Facilities, but the Timing of the Services Varied	59
Employees at the Two Closed Facilities Received Various Reassignment Benefits That Lasted for Different Periods of Time	61
Appendix II: Objectives, Scope, and Methodology	65
Appendix III: Time Line of Key Events, Fall 2001	70
Appendix IV: Comments from the U.S. Postal Service	73
Appendix V: Comments from the Centers for Disease Control and Prevention	75

Tables	
Table 1: Characteristics of the Five Processing and Distribution Centers in Our Review, Fall 2001	11
Table 2: Distribution of Anthrax Cases, Fall 2001	15
Table 3: Key Events and Selected Medical Services Provided to Employees at the Five Postal Facilities	60
Table 4: Postal Facilities Closed for Other Emergencies, January 1, 1998, through December 31, 2002	64

Figure	Figure 1: Date in 2001, Type, and Location of Anthrax Cases	13
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Abbreviations

ABC	American Broadcasting Company
CBS	Columbia Broadcasting System
CDC	Centers for Disease Control and Prevention
FBI	Federal Bureau of Investigation
GAO	Government Accountability Office
HEPA	high efficiency particulate air
NBC	National Broadcasting Company
OSHA	Occupational Safety and Health Administration

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United States Government Accountability Office
Washington, D.C. 20548

September 9, 2004

The Honorable Joseph I. Lieberman
Ranking Minority Member
Committee on Governmental Affairs
United States Senate

The Honorable Christopher H. Smith
House of Representatives

The Honorable Eleanor Holmes Norton
House of Representatives

The first cases of bioterrorism-related anthrax in the United States occurred in September and October 2001 when at least four letters containing anthrax¹ spores were mailed to news media personnel and two U.S. Senators. The contaminated letters, which were delivered through the U.S. mail system, caused 22 cases of anthrax during the fall of 2001—11 from inhalation anthrax, an often-fatal form of the disease, and 11 from cutaneous (skin) anthrax, a readily treatable form.² Nine of the 22 cases of anthrax involved postal employees, including two of the five individuals who died from inhalation anthrax.

The U.S. Postal Service responded to this crisis by testing and closing two heavily contaminated processing and distribution centers—the Trenton facility in Hamilton, New Jersey, and the Brentwood facility in Washington, D.C.³ Testing also identified contamination at 21 other postal facilities, including 3 processing and distribution facilities in West Palm Beach, Florida; New York City, New York (the Morgan facility); and Wallingford,

¹Technically, the term “anthrax” refers to the disease caused by the bacterium *Bacillus anthracis*, not to the bacterium or its spores. However, for ease of reading and consistency with the terminology commonly used in the media and by the general public, this report generally uses the term to refer to both the disease and the bacterium.

²Another case of cutaneous anthrax was confirmed in March 2002 in a laboratory worker who contracted the disease by processing environmental samples in support of the investigations.

³The nine affected postal employees were all associated with one of the two facilities. Four of the employees worked at Brentwood, four worked at Trenton, and one worked at a post office that received mail from Trenton.

Connecticut.⁴ Brentwood was decontaminated and renovated and was fully operational as of December 22, 2003.⁵ Trenton also has been decontaminated and is expected to reopen in February 2005. Contaminated areas in the three other processing and distribution centers were isolated and decontaminated while operations continued elsewhere in the centers.⁶

We previously reported on the Postal Service's response to anthrax contamination at the Wallingford processing and distribution center in Connecticut⁷ and testified on specific issues related to the reopening of the Brentwood facility.⁸ Our work at the Wallingford facility identified communication difficulties and delays in disclosing test results to employees. Our testimony identified other communication problems associated with the reopening of the Brentwood facility. As you requested, for this report, we reviewed the Postal Service's response to anthrax contamination at five contaminated processing and distribution centers—the Trenton, Brentwood, Morgan, Wallingford, and West Palm Beach postal processing and distribution centers.⁹ Specifically, you asked us to describe

- the factors considered in deciding whether to close the five facilities and the actions taken to protect postal employees;

⁴For clarity, we refer to the five facilities as the Trenton, Brentwood, West Palm Beach, Morgan, and Wallingford postal facilities.

⁵The Brentwood facility has been renamed the Joseph Curseen Jr. and Thomas Morris Jr. Processing and Distribution Center in memory of the two Brentwood employees who died of inhalation anthrax.

⁶Issues related to contamination at the other 18 facilities that tested positive for anthrax were beyond the scope of this review.

⁷GAO, *U.S. Postal Service: Better Guidance Is Needed to Improve Communication Should Anthrax Contamination Occur in the Future*, [GAO-03-316](#) (Washington, D.C.: Apr. 7, 2003).

⁸GAO, *U.S. Postal Service: Clear Communication with Employees Needed before Reopening the Brentwood Facility*, [GAO-04-205T](#) (Washington, D.C.: Oct. 23, 2003).

⁹Each of the five facilities was apparently contaminated as (1) envelopes containing anthrax or (2) cross-contaminated envelopes passed through high-speed mail-sorting machines in the facilities. Two other processing and distribution centers, one in Raleigh, North Carolina, and the other in Bellmawr, New Jersey, also tested positive for anthrax, but they are not believed to have processed contaminated mail.

-
- the information communicated to affected postal employees about the health risks posed by, and the extent of, contamination in the five facilities; and
 - how lessons learned from the response to the contamination could be used in future situations.

You also asked us to determine what, if any, medical services and reassignment benefits were provided to employees at the five facilities and how these benefits compared across these facilities as well with those provided to employees at facilities closed for other emergencies between January 1, 1998, and December 31, 2002. A lesson learned related to the need for an emergency medical plan is discussed toward the end of this report, and a description of the medical services and reassignment benefits is discussed in appendix I.

To address our reporting objectives, we analyzed, among other things, pertinent reports, studies, scientific literature, and guidance for responding to anthrax, including public health and postal guidance for closing postal facilities. We also interviewed federal, state, and local officials involved in investigating and responding to anthrax contamination at the five postal processing and distribution centers in our review.¹⁰ We discussed, among other matters, the roles, responsibilities, activities, and lessons learned by the U.S. Postal Service, the Centers for Disease Control and Prevention (CDC) and its National Institute for Occupational Safety and Health within the Department of Health and Human Services, the Federal Bureau of Investigation (FBI) within the Department of Justice, the Environmental Protection Agency, the Occupational Safety and Health Administration (OSHA) within the Department of Labor, and the U.S. Army Medical Research Institute of Infectious Diseases within the Department of Defense. We also interviewed local public health officials, postal managers, and union representatives associated with each of the five processing and distribution centers. In addition, we met with representatives of a group of employees who worked at the Brentwood facility prior to its closure. We did not examine issues related to the other 18 postal facilities that tested

¹⁰Our work related to the Wallingford facility in Connecticut was principally derived from previous work we conducted between September 2002 and March 2003. We updated this information, obtained additional supporting information, and incorporated the information, as appropriate, to address our reporting objectives at the five facilities.

positive for anthrax or matters that are being litigated.¹¹ Likewise, we did not assess the response to the anthrax contamination at the Hart Senate Office Building in Washington, D.C., because these activities were also outside the scope of our work. However, a previous GAO report provides information on this topic,¹² which we incorporated in this report as appropriate. We performed our work from January 2003 through July 2004 in accordance with generally accepted government auditing standards. Further details about our scope and methodology appear in appendix II.

Results in Brief

According to postal managers, public health officials, and union representatives, the Postal Service considered the health risks to its employees ahead of its mission to deliver the mail in deciding whether to close postal facilities. Although the Postal Service had guidance that called for closure following the discovery of a suspicious letter or a powder spill at a facility, it did not consider this guidance applicable because neither a suspicious letter nor a powder spill was discovered at Trenton or Brentwood. As a result, the Postal Service relied on public health agencies to assess the health risks to its employees, and as long as these agencies advised the Postal Service that the health risks were minimal, it kept the facilities open. When CDC confirmed that employees at Trenton and Brentwood had contracted cutaneous and inhalation anthrax, respectively, the Postal Service closed these facilities within hours. At the time, CDC recommended that facilities be closed for inhalation anthrax, but not for cutaneous anthrax, since this form of the disease is considered readily treatable. Nevertheless, New Jersey public health officials recommended that Trenton be closed to facilitate environmental testing. The Postal Service kept the three other processing and distribution centers open because public health officials had advised the agency that employees at those centers were at minimal risk. During the anthrax response, the Postal Service took steps to protect its employees, such as providing gloves and disposable masks and reminding employees to wash their hands with soap and water if they encountered a suspicious letter or package. Later, the Postal Service began testing and installing detection systems at some of its

¹¹See, e.g., *Briscoe v. Potter*, No. 1:03cv2084 (DC DC filed Sept. 15, 2003); *Hubbard v. Potter*, No. 1:03cv1062 (DC DC filed Feb. 13, 2004); *Trenton Metropolitan Area Local v. the United States Postal Service*, No. 04-1628(6EB) (DC NJ filed Apr. 6, 2004).

¹²See GAO, *Bioterrorism: Public Health Response to Anthrax Incidents of 2001*, [GAO-04-152](#) (Washington, D.C.: Oct. 15, 2003).

processing facilities. While union leaders acknowledged the Postal Service's efforts during the response, some postal employees maintain that the Postal Service should have taken earlier action to protect them. However, critical information that could have alerted public health agencies and the Postal Service to the health risks that postal employees faced, such as the way the spores were prepared and the potential for anthrax spores to leak from taped, unopened envelopes in sufficient quantities to cause inhalation anthrax, was not available to them until after Brentwood's closure. According to CDC and the Postal Service, they would have made different decisions if they had understood the health risks to postal employees earlier.

The Postal Service communicated information to affected postal employees about the health risks posed by, and the extent of, anthrax contamination at the five facilities in our review, but problems with the accuracy, clarity, and timeliness of the information provided led employees to question the information they received. Problems with accuracy occurred because the early health risk information public health officials provided was based on their existing knowledge and experience that proved to be far more uncertain than the officials initially recognized and which resulted in underestimating the health risks to postal employees. Problems with clarity occurred because information on the medical response to anthrax contamination changed as knowledge evolved. For example, the Postal Service published and then corrected treatment-related information, and CDC revised its treatment recommendations as it gained more experience with anthrax. Problems with the accuracy and clarity of information communicated were exacerbated by (1) postal employees' perceptions of unequal treatment between the responses to anthrax contamination on Capitol Hill and at postal facilities and (2) long-standing distrust of postal management. Problems with timeliness occurred when the Postal Service delayed the release of quantitative data (anthrax spore counts) from environmental tests at one of the five facilities. A union representative had requested this information, and the Postal Service was required to disclose it, but the Postal Service delayed disclosure in part because it was uncertain what the results meant for worker safety and public health. The Postal Service has taken steps aimed at communicating more effectively, including establishing a center to coordinate information within the postal system and working with other agencies to develop guidelines for responding to anthrax.

The response to anthrax contamination afforded multiple lessons, two of which are key. First, it is important for agencies to err on the side of

caution—meaning that agencies should choose a course of action that poses the least risk of harm to individuals—when considering actions to protect people from uncertain and potentially life-threatening health risks. Because public health officials underestimated the health risks involved and did not communicate any uncertainty associated with the inferences they made based on scientific knowledge and experience, actions to protect postal employees were delayed. Furthermore, existing guidance did not address certain circumstances, such as the unobservable contamination that the Postal Service faced at the Trenton and Brentwood facilities in 2001. The Postal Service twice revised its guidance to address some of the circumstances it faced; however, the most recent guidance—issued in December 2003—(1) does not define some key terms, including those that would trigger a decision to evacuate a facility, (2) includes some outdated references that could cause confusion during a future response, and (3) does not address some of the circumstances that the Postal Service faced and could face again, such as what steps would be taken in the period between a diagnosis of inhalation anthrax in a postal employee and confirmation of the disease. Additionally, the revised guidance does not reflect the proactive measures that the Postal Service has recently taken, such as closing 11 postal facilities in November 2003 after a preliminary test—not a confirmed result—from a routine air sample at a U.S. Navy mail-processing facility indicated the possibility of anthrax contamination. The second key lesson is that agencies need to share information in a timely manner. Collocating liaisons from CDC and the Postal Inspection Service with FBI headquarters officials—who were in charge of the investigation—facilitated timely information sharing. Nevertheless, agencies reported that information was not always shared within and among public health agencies and the Postal Service. Several factors may have hindered the prompt exchange of information, including unclear responsibilities for decision making and postal employees’ distrust of postal management. Agencies have taken steps to improve information sharing. Additionally, the Postal Service is working with the Department of Homeland Security and other entities responsible for dealing with terrorist activity to formulate governmentwide policies and procedures for, among other things, paying for emergency medical services. While these policies and procedures should help avoid future confusion about such matters as where employees should go for emergency medical services and who will pay for them, it is not known when they will be available. As a result, if another emergency arises in the interim, confusion—such as occurred in New Jersey—could again cause delays in payments to providers and/or disputes over payments.

We are making several recommendations to help ensure that the Postal Service has accurate, clear, comprehensive, and up-to-date guidance for responding to a future anthrax emergency. Specifically, we are recommending that the Postal Service revise its December 2003 guidelines to (1) define key terms, including those that would trigger a decision to evacuate a facility; (2) ensure that any references to earlier guidance are still applicable; and (3) clarify the actions that the Postal Service would take under various scenarios, such as when it receives preliminary evidence of anthrax contamination. In addition, to ensure timely payment to medical providers for emergency medical services provided to postal employees exposed to anthrax or other life-threatening substances, we are recommending that the Postal Service establish and meet a definitive time frame for developing interim policies and procedures on paying for such services.

We requested comments on a draft of this report from the Postal Service, CDC, the FBI, the U.S. Army Medical Research Institute of Infectious Diseases, and representatives of three postal unions (the American Postal Workers Union, the National Postal Mailhandlers Union, and the National Association of Letter Carriers). Most of these organizations provided technical comments, which we incorporated as appropriate.

The Postal Service's written response to our draft report agreed with the thrust of our recommendations. For example, the Postal Service said that it either (1) had revised or (2) would revise and clarify its guidance, and we eliminated one proposed recommendation to reflect its action. The Postal Service also said that it was taking alternative action to address our recommendation about the need for policies and procedures for paying providers of emergency medical services. Finally, although the Postal Service said that we concluded that its decisions in 2001 were appropriate under the circumstances, we did not draw conclusions on this issue. As stated in our report, our first objective was to describe the factors considered in deciding whether to close the five postal facilities and the actions taken to protect postal employees—not to assess the appropriateness of the Postal Service's actions and decisions.

CDC provided detailed written comments to clarify portions of the draft report. For example, in its general comments, CDC objected to our use of the term "assumptions" to describe how it arrived at its public health recommendations. CDC noted that its recommendations were based on the best available science as well as its "inferences from previous experience and [its] epidemiological observations in Florida and New York, where no

disease occurred among postal workers.” We revised the report to more clearly describe the limitations of available knowledge and experience in the fall of 2001 and how these limitations led to the development of incorrect inferences and working assumptions about the health risk to postal employees. We also addressed CDC’s technical comments, as appropriate, in the body of the report.

Background

Health Effects of Anthrax

Anthrax is an acute infectious disease that is caused by the *Bacillus anthracis* bacterium, which is commonly found in the soil and forms spores (like seeds) that can remain dormant for many years. Although anthrax can infect humans, it occurs most commonly in plant-eating animals. Human anthrax infections are rare in the United States and have usually resulted from occupational exposure to infected animals or contaminated animal products, such as wool, hides, or hair. Infection can occur in three forms, two of which are relevant to this report—cutaneous anthrax, which occurs from exposure to spores through a cut or abrasion,¹³ and inhalation anthrax, which results from breathing airborne spores into the lungs.¹⁴ After anthrax spores enter the body, they can germinate into vegetative cells, which then multiply and secrete toxins that can produce local swelling and tissue death. The symptoms differ for each form of infection. According to a June 4, 2004, CDC Morbidity and Mortality Report, the incubation period for anthrax is usually less than 2 weeks; however, because spores can remain dormant for a long time and may be slow to clear from the lungs, the incubation period for inhalation anthrax can be prolonged for months.

¹³Cutaneous means “of, relating to, or affecting the skin.” Cutaneous anthrax is characterized by skin lesions.

¹⁴The third form of anthrax, gastrointestinal, results from ingesting undercooked contaminated meat.

People exposed to anthrax in its natural environment generally do not contract inhalation anthrax. Before the fall of 2001, no cases of inhalation anthrax had been reported in the United States since 1976.¹⁵ In the fall of 2001, information on the effects of exposure to refined anthrax was limited,¹⁶ but some information was available about a suspected release in 1979 of anthrax from a bioweapons facility in the former Soviet Union. According to published accounts, the release—which U.S. authorities believe was accidental—resulted in 79 cases of inhalation anthrax, 68 of which were fatal. The effects of exposure depend on the amount and form of exposure as well as the health of the individual exposed. A person can be exposed to anthrax and not develop the disease.

Anthrax is treatable with a variety of antibacterial drugs, such as amoxicillin, ciprofloxacin, and doxycycline. The optimal duration of preventive treatment for anthrax, known as prophylaxis, is uncertain; however, because of prolonged incubation—when inhaled spores can remain in the lungs and then germinate and cause disease—CDC currently recommends at least 60 days of antibacterial drugs and enrollment in an investigational new drug protocol to receive the anthrax vaccine. Fatalities are rare for cutaneous anthrax.¹⁷ Inhalation anthrax is far more lethal. According to CDC, the reported fatality rate was approximately 75 percent for the 18 cases of inhalational disease detected in the United States in the 20th century. In 2001, with antibacterial drugs and aggressive care, about half the cases ended in death.

A diagnosis of anthrax is based on a review of a person's symptoms and the results of initial tests, which are confirmed by additional laboratory testing. While a range of laboratory tests exists for detecting anthrax in the

¹⁵In 1976 a self-employed weaver in California contracted the disease from exposure to contaminated imported yarn containing goat hair. Between 1950 and August 2001, CDC investigated nine cases of inhalation anthrax, six of which occurred in 1957. Five of the 1957 cases were caused by exposure to contaminated goat hair at a textile mill in New Hampshire. Between 1944 and 1994, 224 cases of cutaneous anthrax were identified. See "Anthrax as a Biological Weapon, 2002: Updated Recommendations," *Journal of the American Medical Association*, 287 (2002): 2236-2252.

¹⁶The process of refining a substance purifies it. The more refinement that occurs, the more highly purified a substance becomes.

¹⁷According to information available on CDC's Web site as of June 14, 2004, early treatment with antibacterial drugs cures most cases of cutaneous anthrax. Even if untreated, CDC reported that "80 percent of the people who become infected with cutaneous anthrax do not die."

environment and in a person's body, analysis of the bacteria's growth in a culture is considered the most reliable method for confirming the presence of anthrax.

CDC classifies illness as "confirmed" or "suspected." According to CDC, a confirmed case of anthrax is clinically compatible with the disease and was either (1) confirmed by isolating anthrax bacteria cultured from a patient's clinical specimens or (2) associated with other laboratory evidence of anthrax infection obtained from at least two supportive tests. A suspected case is clinically compatible with anthrax but cannot be definitively confirmed by laboratory tests—possibly because the person has begun taking medication.¹⁸ According to CDC, a case would be classified as "suspected" if there was no alternative diagnosis and no anthrax bacteria were isolated, but there was either (1) laboratory evidence of anthrax obtained from one supportive laboratory test or (2) an epidemiological link to an environmental anthrax exposure.¹⁹

The U.S. Mail System

The mission of the Postal Service is to provide affordable, universal mail service. As of May 28, 2004, the Postal Service had over 800,000 employees who process more than 200 billion pieces of mail per year. The Postal Service's infrastructure includes its headquarters office in Washington, D.C.; 9 area offices; approximately 350 mail processing and distribution centers, including the 5 facilities in our review; and about 38,000 post offices, stations, and branches. The processing and distribution centers vary widely in size and capacity, as illustrated by the differences among the facilities in our review (see table 1).

¹⁸CDC classified 4 of the 22 anthrax cases as suspected. All 4 were cases of cutaneous anthrax.

¹⁹Centers for Disease Control and Prevention, Department of Health and Human Services, *Emerging Infectious Diseases*, vol. 8, No. 10 (October 2002): 1020.

Table 1: Characteristics of the Five Processing and Distribution Centers in Our Review, Fall 2001

Facility	Size (in square feet)	Mail volume/capacity per day	Number of employees
Trenton	282,000	4 million	960
Brentwood	684,000	5 million	2,490
Morgan	2.1 million	12.5 million	5,000
West Palm Beach	185,000	6 million	930
Wallingford	350,000	3 million	1,120

Source: GAO presentation of Postal Service data.

Note: Numbers are approximate.

Mail processing facilities use several types of high-speed machines to process letters. First, at the facility that initially receives a letter for mailing, an Advanced Facer-Canceller System cancels the postage stamp, among other functions. Other machines with optical character readers apply bar codes and markings to the envelopes for identification and sorting. The bar codes and markings identify, among other things, the time and date of processing, the machine and facility that processed the envelope, and the delivery destination. During the fall of 2001, the Postal Service used this information to track the path of contaminated envelopes through the U.S. mail system. Subsequently, a Delivery Bar Code Sorter machine sorts the mail using the bar codes. These machines process about 37,000 letters per hour, using belts and rollers that repeatedly squeeze the letters. During processing, paper dust accumulates, particularly on pinch rollers that move the mail through the machines. These rollers are hard to access using vacuum nozzles and, as a result, compressed air was typically used to blow debris out of the machines until it was banned in October 2001, due to concerns about the potential for spreading anthrax in mail processing facilities.

The Postal Service provides for the security of the mail and the enforcement of federal postal laws through its Postal Inspection Service, which employs approximately 1,970 fact-finding and investigative postal inspectors and 1,100 uniformed postal police officers.

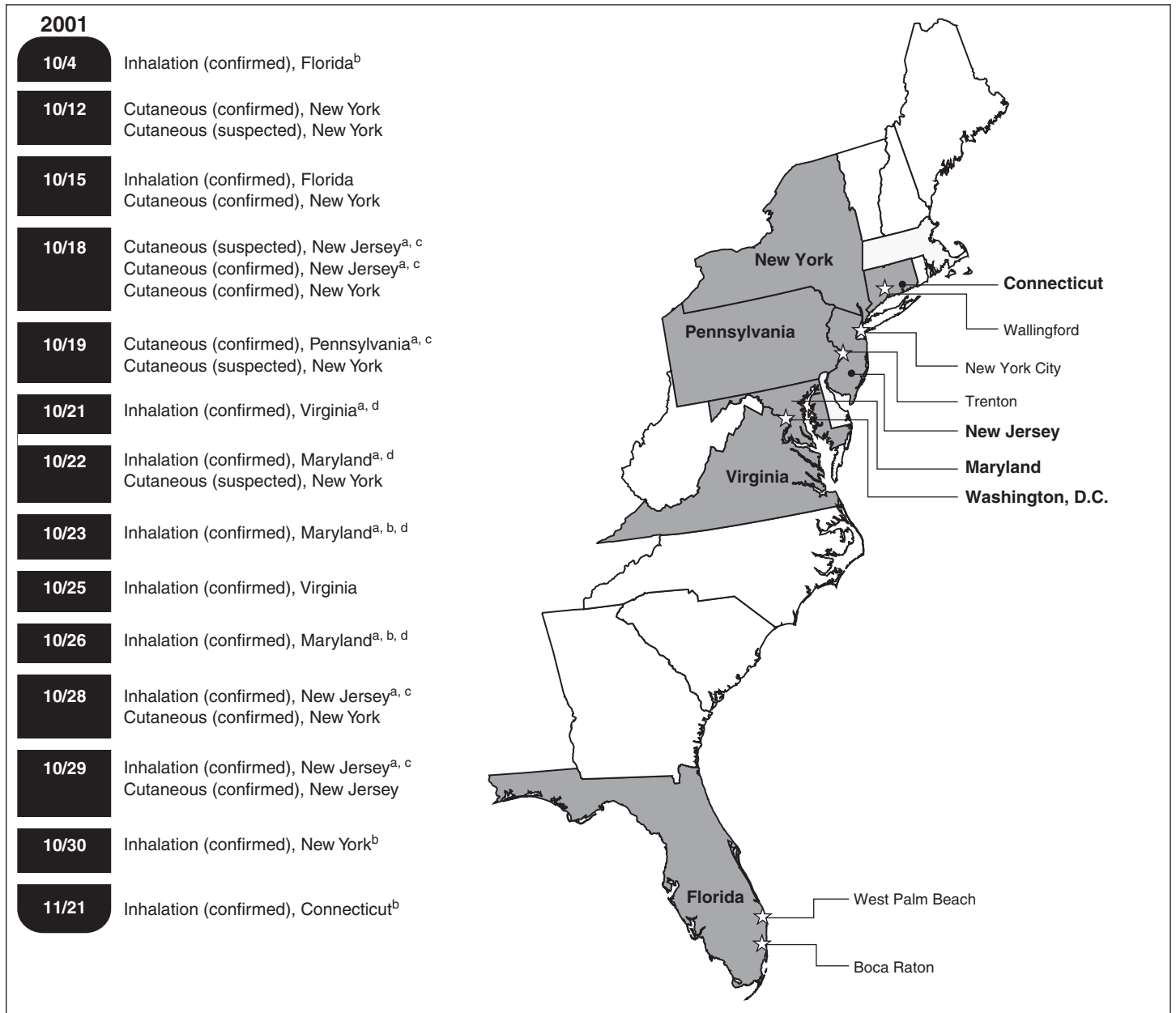
Fall 2001 Anthrax Incidents

During the fall of 2001, at least four letters containing anthrax spores were sent through the U.S. mail—two to media personnel and two to U.S. Senators. The first two recovered letters were sent on September 18, 2001, to a television news anchor at the National Broadcasting Company (NBC) and to the editor of the *New York Post* in New York City. At about the same time, investigators suspect that other letters containing anthrax were mailed to employees at the American Broadcasting Company (ABC) and the Columbia Broadcasting System (CBS) in New York City and at American Media Incorporated—a company that publishes the *National Enquirer* in Boca Raton, Florida—although no contaminated envelopes were recovered from these locations.²⁰ About 3 weeks later—on October 9—a letter containing anthrax spores was sent to Senator Thomas Daschle. The letter was opened in the Hart Senate Office Building on October 15 and was immediately viewed as high risk to Senator Daschle’s staff and first responders because the envelope contained a visible white powder that the accompanying letter identified, and testing quickly confirmed, as anthrax. Another letter containing anthrax spores was mailed to Senator Patrick Leahy at about the same time; however, it was not discovered until November 16, 2001. The letter was found unopened in a barrel of government mail that the FBI had impounded following the release of anthrax contained in Senator Daschle’s letter. The two recovered letters to NBC and the *Post* were processed on high-speed mail-sorting machines at the Trenton and Morgan facilities. The letters to the two Senators were similarly processed at Trenton and at the Brentwood facility in Washington, D.C.

Processing and delivering the letters contaminated or cross-contaminated numerous facilities, including the Hart Senate Office Building and 23 postal facilities, and resulted in the deaths of five people, including two postal employees. Investigators have not yet identified the person or persons responsible for these mailings. Meanwhile, the Postal Service has reported about 20,000 incidents involving suspicious packages or powder spills since the fall of 2001. (Fig. 1 shows the date of confirmed or suspected illness, type, and location of the anthrax cases that resulted from the fall 2001 mailings.)

²⁰Individuals at these locations developed the disease, indicating that contaminated letters may also have been delivered there. Employees of American Media Incorporated in Florida developed inhalation anthrax, whereas individuals in New York initially developed only the cutaneous form of the disease.

Figure 1: Date in 2001, Type, and Location of Anthrax Cases



Source: GAO analysis of CDC documentation.

Note: The date reflects when CDC either (1) confirmed a case of anthrax or (2) suspected a case of anthrax that could not be confirmed.

^aThis case involved a postal employee.

^bThis person died from inhalation anthrax.

^cThis person worked at or was associated with the Trenton facility in New Jersey.

^dThis person worked at the Brentwood facility in Washington, D.C.

As shown in figure 1, CDC confirmed the first case of anthrax on October 4, 2001, in an employee of American Media Incorporated in Boca Raton, Florida. He died the following day from inhalation anthrax. Ten days after his death, CDC confirmed that a coworker—a mailroom employee at the company—also had inhalation anthrax. The coworker subsequently recovered. Even though the source of contamination was never found, investigators thought that the two employees contracted the disease through their proximity to an opened letter or letters containing anthrax spores.²¹ If there was such a letter (or letters), it would likely have been processed on high-speed mail-sorting machines at the West Palm Beach, Florida, facility. Between October 12 and October 28, 2001, six media employees and the child of an ABC employee who had visited ABC developed cutaneous anthrax in New York City—the second location with anthrax cases. Investigators thought that these cases resulted from either handling envelopes containing anthrax spores or being exposed to contaminated work sites. On October 30, an eighth case of anthrax was confirmed in New York—the only inhalation case there.²² The initial cases at the third location with anthrax cases—New Jersey—involved, for the first time, postal employees, two of whom were confirmed with cutaneous anthrax on October 18 and 19, 2001.²³ Investigators thought that the employees had contracted the disease by handling the mail, rather than by opening or being exposed to opened letters containing anthrax spores. (See app. III for a timeline of key events.)

²¹Given that a contaminated envelope or package was not recovered, investigators could not initially establish how the anthrax had been delivered to American Media Incorporated—by U.S. mail or by some other means, such as a courier delivery. According to CDC, investigators began to explore the possibility that the Postal Service may have delivered a letter containing anthrax as early as October 10, 2001. However, according to the Postal Service, it was not until October 12—when it learned that it had delivered the letter recovered at NBC—that the link to the U.S. mail system was clearly established.

²²Unlike the other cases in New York, this individual was a hospital employee while the other seven were media employees or their children. Investigators believe that she was probably exposed to mail that had been cross-contaminated by its proximity to one of the letters containing anthrax spores.

²³On October 18, 2001, CDC classified another New Jersey postal employee as having a “suspected” case of cutaneous anthrax.

The first postal employee confirmed with inhalation anthrax worked at the Brentwood facility in Washington D.C.—the fourth location with anthrax cases. The confirmation of a case of inhalation anthrax revealed that processing unopened mail could release enough anthrax spores to cause inhalation anthrax, depending on the health of the person exposed and the aerosolization capacity of the anthrax spores. Subsequent inhalation cases, including the case involving the Wallingford, Connecticut postal facility—the fifth location with an anthrax case—underscored this finding. (Table 2 summarizes, for each location, the number of confirmed or suspected cases of cutaneous and inhalation anthrax among postal employees and others.)

Table 2: Distribution of Anthrax Cases, Fall 2001

Facility location	Number of confirmed or suspected cases	Type of anthrax and affected population			
		Cutaneous		Inhalation	
		Postal employees	Others	Postal employees	Others
Florida	2	0	0	0	2
New York	8	0	7	0	1
New Jersey	6	3	1	2	0
Washington, D.C.	5	0	0	4	1
Connecticut	1	0	0	0	1
Total	22	3	8	6	5

Source: GAO analysis of CDC information.

Roles and Responsibilities of Responders

Responding to health emergencies, including bioterrorist attacks, is generally a local responsibility, but localities can—and did—request CDC’s assistance in the fall of 2001. State and local health departments and CDC—which has responsibility for the nationwide surveillance of specific diseases, including anthrax—provided public health advice and assistance to the Postal Service. CDC also performed tests needed to confirm the cases of anthrax and conducted epidemiological investigations to

determine, among other things, how the disease had occurred at the affected locations.²⁴

Numerous other federal agencies were responsible for investigating and responding to the anthrax mailings. The FBI was, and still is, responsible for the criminal investigation. The Postal Service's Inspection Service continues to assist the FBI in the investigation. Other agencies, including the National Institute for Occupational Safety and Health and the Agency for Toxic Substances and Disease Registry, also within the Department of Health and Human Services, helped the Postal Service conduct environmental tests of its facilities and advised the agency about the facilities' decontamination.²⁵ The agencies collected samples from multiple locations throughout the facilities, analyzed the samples, and used the results of their analyses to guide decontamination activities in the facilities. The U.S. Army Medical Research Institute of Infectious Diseases—which conducts basic and applied research in the diagnosis, treatment, and prevention of hazardous infectious diseases for the military—analyzed environmental samples from some postal facilities. In addition, it analyzed the substances in the anthrax-contaminated letters recovered in New York and Washington, D.C., for the FBI. OSHA, which has responsibility for employee health and safety issues, provided technical assistance and guidance to the Postal Service on the decontamination of postal facilities. At Wallingford, OSHA also investigated the Postal Service's disclosure of test results at the facility after a union leader filed a complaint with OSHA alleging that the Postal Service had not complied with OSHA's requirements for disclosing such results.

On October 8, 2001, the President created the Office of Homeland Security to develop and coordinate a comprehensive national strategy for dealing

²⁴Epidemiological investigations involve interviews with family members, associates, coworkers, and other possible contacts for the purpose of eliminating some possibilities and focusing on others. For example, according to a handbook prepared by the FBI, if interviews with coworkers prove to be negative and no one else at work is affected, then public health investigators may be able to rule out the workplace as the source for the disease. Similarly, if interviews suggest the individual's associates have signs of the disease and that they shared a common experience, such as attending the same event, investigators may be able to focus their investigation on the common experience. The FBI prepared the Criminal and Epidemiological Investigation Handbook (2003) in consultation with public health officials and the U.S. Army Soldier and Biological Chemical Command.

²⁵The Environmental Protection Agency was also involved in discussions about and activities related to the decontamination of postal facilities, including the Brentwood facility.

with domestic terrorist threats or attacks. Because the office was just gearing up, it had limited involvement in the response to the 2001 anthrax incidents. The Homeland Security Act of 2002 created a cabinet-level agency, the Department of Homeland Security. The department is composed of 22 previously separate agencies and is responsible for coordinating the efforts of federal agencies that respond to acts of terrorism in the United States, including any future anthrax incidents.

Postal Service Primarily Considered Health Risks to Employees in Deciding to Close Facilities

In deciding whether to close the five facilities in our review, the Postal Service first considered the health risks to its employees and then considered its mission to process and deliver the mail. As long as public health agencies advised the Postal Service that health risks to its employees were minimal, it kept the facilities open. However, the Postal Service closed the facilities hours after CDC confirmed that employees at Trenton and Brentwood had contracted anthrax. The three other facilities remained open because public health officials had advised the Postal Service that employees at those facilities were at minimal risk. During the anthrax incidents, the Postal Service took steps to protect its employees, including providing gloves and disposable masks and reminding employees to wash their hands with soap and water if they encountered a suspicious letter or package. More recently, the Postal Service began testing and installing detection systems at some of its processing facilities. Nevertheless, some postal employees maintain that the Postal Service should have taken earlier action to protect them. Agencies lacked critical information, such as the potential for anthrax spores to leak from taped, sealed envelopes. According to CDC and the Postal Service, they would have made different decisions if they had understood the health risks to postal employees earlier.

The Postal Service Considered Health Risks to Employees Ahead of Other Factors

Postal managers, public health officials, and union representatives reported that the Postal Service considered several factors in deciding whether to close the five postal facilities in our review, but the health of its employees was its first concern. Unfortunately, however, CDC and local public health organizations—which relied on their knowledge and experience at that time—and the Postal Service, which relied on the advice it received from public health officials, incorrectly perceived the health risk to be minimal for several reasons. First, because postal employees did not contract anthrax during the earlier incidents in Florida and New York, CDC determined—consistent with its investigations of outbreaks involving naturally occurring infectious diseases—that postal employees were not at risk because the same conditions would likely apply to subsequent clusters of cases and letters.²⁶ Second, the recovered envelopes—those sent to media representatives in New York and to the Senators—were taped and unopened when they arrived at their destinations, suggesting that the addressees, rather than postal employees, were the targets of the attacks and the persons whose health could be at risk. Third, the available scientific information indicated that (1) anthrax spores in nature typically aggregate to form particles that do not readily aerosolize and (2) exposure to thousands of spores would be needed to cause inhalation anthrax.²⁷ This information led CDC and others to conclude that the anthrax particles in the contaminated letters would generally not leak through taped, unopened envelopes in sufficient quantities to cause inhalation anthrax. While public health officials recognized that handling unopened, contaminated letters might result in exposure to some spores that could possibly cause cutaneous anthrax, they believed that wearing gloves would protect postal employees from this readily treatable condition and did not think that

²⁶According to CDC, once risk is understood in cases involving a naturally occurring disease, it generally remains constant. Thus, early cases often provide clues to the mode and source of exposure. For bioterrorism-related diseases, however, the characteristics of the initial cases can be misleading because, as CDC and others learned in the fall of 2001, the perpetrator may vary the mode of transmission and source of exposure.

²⁷Various estimates of the amount of spores needed to cause inhalation anthrax existed in the fall of 2001. For example, according to a letter to members of the American Postal Workers Union in December 2001, early on, the medical community had suggested that 8,000 to 10,000 spores would be needed to cause the disease. Other estimates ranged from 8,000 to 22,000 and 2,500 to 55,000. In its technical comments on our draft report, CDC informed us that—based on research of primates—exposure to 8,000 to 50,000 aerosolized spores is sufficient to kill 50 percent of the animals exposed. However, CDC noted that the infectious dose in humans by any route is not known and the influence of the bacterial strain or host factors on the infectious dose is not completely understood.

postal facilities should be closed to avoid it. Accordingly, CDC advised the Postal Service that the health risks to postal employees from the contaminated letters were minimal and that there was no need to close facilities that had processed the contaminated letters. Absent evidence of illness among their employees and given the views of public health officials, postal managers said they focused on other factors, including (1) the psychological importance of keeping the mail moving in the aftermath of the September 11, 2001, attacks and (2) the widespread economic consequences of shutting down portions of the mail system. According to postal managers, it would have been irresponsible to close postal facilities without any recommendation to do so by public health or law enforcement authorities, such as the FBI.

Neither Existing Closure Guidance Nor Later Instructions Were Applicable to the Circumstances Surrounding the Fall 2001 Anthrax Mailings

The Postal Service had guidance for responding to anthrax and other hazardous incidents, but this guidance did not address the events that the Postal Service faced in the fall of 2001. The existing guidance—“Emergency Response to Mail Allegedly Containing Anthrax”—was issued in October 1999 in response to a growing number of suspicious incidents, including spills involving white powder. The guidance specified emergency response procedures and management actions for dealing with suspicious mail (letters, packages, and other pieces of mail) found in a U.S. postal facility. The guidance required postal managers to minimize the potential for employees to be exposed by quickly isolating any suspicious mail and promptly evacuating an affected facility.²⁸ However, the guidance addressed discovered incidents—a suspicious piece of mail or a powder spill—not undetected incidents such as those that occurred at the five facilities in our review. Each of these facilities was apparently contaminated as (1) envelopes containing anthrax or (2) cross-contaminated envelopes passed through high-speed mail-sorting machines in the facilities.²⁹ Because neither a suspicious piece of mail nor any leakage from a piece of mail was observed, there was a time lag between the exposure and the discovery of contamination. On October 19, 2001, as the anthrax events were unfolding, the Postal Service issued additional

²⁸According to the Postal Service, there are numerous possible indicators of a suspicious piece of mail, including stained mail or mail that emits an odor. Mail with a threatening message or containing loose sifting material may also cause suspicion, as may mail with excessive postage or weight, a handwritten or poorly typed address, no return address, and a lopsided or uneven envelope.

²⁹Envelopes can be cross-contaminated when processed close to a letter containing anthrax.

instructions for dealing with suspicious powder spills or the discovery of a suspicious piece of mail. However, these instructions—based on CDC advisories and termed “decision trees”—were intended to deal with the discovery of a suspicious package or piece of mail at a facility and, as subsequently became apparent, also did not address the circumstances that occurred in the fall of 2001 since no suspicious mail was discovered.

Postal Service Closed Facilities after CDC Confirmed Illness

Once CDC confirmed that postal employees had contracted anthrax, the Postal Service closed Trenton and Brentwood. It closed Trenton on October 18, 2001, within hours after CDC confirmed that a letter carrier—the first postal employee affected—had cutaneous anthrax. Initially, CDC did not recommend that the entire Trenton facility be closed because, at the time, it viewed facility closures as unnecessary for cases of cutaneous anthrax, since this form of the disease is readily treatable with antibacterial medication. Nevertheless, public health officials from the New Jersey Department of Health and Senior Services recommended that Trenton be closed to facilitate environmental testing of the facility.³⁰ According to CDC, it concurred with this decision. The mail-processing area on the first floor of Brentwood was closed on October 21, 2001, after CDC confirmed that an employee there had inhalation anthrax. This is the same day that the first of two postal employees died.³¹ The second floor of the facility, which housed administrative offices, was subsequently closed on October 22, 2001. Public health authorities began dispensing antibacterial drugs to the two facilities’ postal employees soon after the closures.

³⁰On October 28 and 29—about a week and a half later—CDC confirmed cases of inhalation anthrax in two Trenton employees, and Trenton remained closed.

³¹The two deceased employees sought medical attention but were not diagnosed with the disease before they died.

The Postal Service kept West Palm Beach, Morgan, and Wallingford open based on the advice of public health officials who indicated that postal employees were at minimal risk.³² While CDC and local public health agencies did not believe that the employees were at risk, they nevertheless offered antibacterial drugs to employees at the three facilities. At these facilities, the contaminated areas were isolated and decontaminated while operations continued elsewhere in the facilities.

The Postal Service Took Steps to Protect Its Employees, Including Revising Its Guidelines on Facility Closures

Nationwide, the Postal Service took several actions to protect its employees from anthrax. For example, during the response, it provided employees with protective equipment, such as gloves and disposable masks, and information on handling suspicious mail. Consistent with CDC's advice, the Postal Service also reminded employees to wash their hands with soap and water if they encountered a suspicious letter or package. In addition, the Postal Service required postal managers to update their facilities' emergency action plans and on October 16, 2001, restricted the use of high-pressure compressed air to clean mail-sorting equipment. For routine cleaning, employees were advised to vacuum the equipment first and, if more effective methods were needed, to use compressed air, but to limit the amount of pressure they used. On October 26, 2001, the Postal Service banned the use of compressed air altogether. The initial restriction and subsequent ban were intended as a precaution to help ensure that dirt, paper dust, and any existing spores would not be blown around a postal facility. According to postal managers, these actions seemed sufficient in view of the health risk information available to them at the time.

³²By the time environmental testing revealed contamination, the typical incubation period for inhalation anthrax (less than 2 weeks) had already passed. The West Palm Beach and Morgan facilities are believed to have been contaminated by letters sent in mid-September 2001. Thus, when contamination was identified in the facilities on October 29 and October 23, respectively, the most likely period of incubation had already passed. Wallingford was believed to have been contaminated in mid-October; however, the contamination was not identified until December 2, about 6 weeks later.

After closing Trenton on October 18, the Postal Service took additional steps to protect Brentwood employees. For example, although the Postal Service—following CDC’s advice—kept Brentwood open until CDC confirmed a case of inhalation anthrax, postal officials said that they consulted public health officials about the possible health risks to Brentwood employees. These consultations occurred after the Postal Service learned that the letter to Senator Daschle contained anthrax and had been processed through the U.S. mail—rather than delivered through another means, such as a courier—which meant that it would have been processed at Brentwood. In addition, on October 17, 2001, the Postal Service arranged for a series of environmental tests at Brentwood after it became aware that the Senate mailroom had tested positive for anthrax. The Postal Service arranged for the tests even though CDC determined from its epidemiological investigations that testing was not needed. The first tests—called “quick tests”—occurred on October 18, the same day that Trenton was closed. A local hazardous materials response team conducted these two quick tests, and the results, which were available later that day, were negative.³³ According to the contractor’s documentation, the positive results from other tests—also taken on October 18—were not available until October 22—the day after a Brentwood employee was confirmed with inhalation anthrax and the facility was closed.³⁴ In addition, the Postal Service reported that it requested both nasal swabs and medication for Brentwood employees in the days before the facility was closed.³⁵ However, according to postal managers, the requests were not

³³The tests were taken using hand-held assays that instantaneously analyze samples for anthrax. According to CDC, these tests are not reliable for detecting anthrax.

³⁴In contrast to the quick tests, these samples were cultured and analyzed in a laboratory setting.

³⁵Nasal swabs are samples taken from an individual’s nasal passages, preferably soon after a possible exposure to contamination. During the fall of 2001, the samples were sometimes taken to determine the location and extent of contamination at a facility or site. However, nasal swabs are not useful in diagnosing the disease in an individual or in evaluating an individual’s risk of disease, in part, because a negative result does not mean a person will not contract the disease. In addition, a positive result does not mean that a person has contracted the disease because, among other reasons, spores can wash out of the person’s nasal passages before being inhaled.

initially successful because public health officials informed them that neither was necessary.³⁶

While noting that Postal Service officials could have taken other actions to respond to the anthrax incidents, postal union leaders nevertheless praised the Postal Service for its efforts to provide a safe work environment and to prevent future occurrences, as well as to involve them in the response and to keep employees informed. For example, in testimony delivered to the House Committee on Government Reform on October 30, 2001, two union leaders stressed that the Postal Service had acted in good faith and that its decisions, including those about Brentwood, were guided by the advice and recommendations it received from the medical community.

Although the Postal Service sought the advice of public health agencies and took more precautions than had been recommended, some employees maintained that it did not act quickly enough to protect them. The employees cited a number of factors that, in their view, should have caused the Postal Service and others to conclude sooner that postal employees could be at risk. First, according to these employees, the fact that the anthrax was contained in an ordinary envelope—not packed in multiple layers to prevent leakage and damage—should, by itself, have caused authorities to conclude that spores could have escaped from the

³⁶In its technical comments on a draft of our report, CDC noted that nasal swab samples were collected on October 21 - 22, 2001—after the facility closed. Public health officials collected the samples as they distributed antibacterial drugs to employees of and visitors to the Brentwood facility. According to CDC, 3,110 nasal swabs were collected, all of which were negative for anthrax.

envelopes.³⁷ Second, apart from whether the packaging was adequate, employees noted that mail-processing machines function at high speeds and that the machines' mechanisms repeatedly squeeze mail as it moves through the mail system. This process creates a great deal of dirt and paper dust, demonstrating, according to the employees, that mail can leak—a possibility that they said the Postal Service should have recognized earlier. Compounding this risk, they said, was the long-standing use of compressed air to clean postal processing machines. The Postal Service terminated the use of compressed air on October 26, 2001, but until then, the employees say, its use re-aerosolized spores that had accumulated within mail-processing machines.³⁸ Finally, some employees expressed concern about what they perceived as a delay in closing postal facilities. They compared the decision to close congressional offices soon after anthrax was identified in the letter to Senator Daschle on October 15 with the Postal Service's decision to wait until cases of anthrax were confirmed, leading some employees to conclude that their health was of less concern than that of congressional employees.³⁹ This perception was particularly an issue at Brentwood, where two employees died and some postal employees attributed the differences in the responses to unequal treatment.

In November 2001, the Postal Service issued “interim guidance” for the sampling, analysis, decontamination, and disposal of anthrax in postal

³⁷By statute, infectious materials such as anthrax spores that are “disease germs or scabs, [or] other natural or artificial articles, compositions, or material which may kill or injure another” cannot be mailed. Such materials are termed “nonmailable matter.” Knowingly mailing such material is a criminal offense and doing so with the intent to kill or injure is a felony. When an etiologic material (infectious substance) is not “outwardly or of [its] own force dangerous or injurious to life, health, or property,” the Postal Service may allow it to be mailed subject to appropriate rules and regulations governing its preparation and packing. As a result, the Postal Service allows the mailing of small quantities of appropriately packaged infectious material, but only if it is intended for medical or veterinary use, research, or laboratory certification related to public health. In those instances, the infectious material must be contained within a securely sealed, pressure resistant, watertight primary receptacle surrounded with an absorbent and cushioning material. This in turn is enclosed in a securely sealed, watertight, and durable secondary packaging which must be enclosed in an outer packaging constructed of fiberboard or other equivalent material.

³⁸As discussed earlier, the Postal Service placed limitations on the use of compressed air on October 16, 2001, and terminated its use on October 26, 2001.

³⁹Differences between the responses to anthrax contamination on Capitol Hill and at postal facilities reflected differences in the circumstances at the locations (a powder identified in a letter and positively tested as anthrax on Capitol Hill versus no observable evidence of contamination at postal facilities). This topic is discussed in more detail later in this report.

facilities that specified, among other things, factors to be considered in making future closure decisions.⁴⁰ Such guidance did not exist before the fall 2001 anthrax incidents and, unlike the 1999 guidance, it specifically addressed unobserved exposures. According to the guidance, postal facilities would be closed (1) “if a confirmed case of inhalation anthrax is identified and a probable site of exposure is detected” or (2) when evidence suggests an aerosolization of anthrax in the facility (as evidenced by a positive sample from the heating and ventilation system).⁴¹ This guidance was consistent with guidance that CDC issued on November 9, 2001.⁴²

Agencies Lacked Critical Information Needed to Accurately Assess Health Risk to Postal Employees

Agencies lacked critical information needed to accurately assess the health risk to postal employees. For example, officials from the Postal Service, CDC, and other public health agencies acknowledged that, early on, they had little knowledge of (1) the characteristics and properties of refined anthrax; (2) the potential for anthrax spores to leak from taped, sealed envelopes; or (3) the effects of these factors on individuals’ health. Public health officials, for example, told us that until the first cases of anthrax were confirmed in Trenton and Brentwood postal employees, there was no evidence that anyone handling unopened mail would be at risk of contracting inhalation anthrax. Analyses of the substance in the recovered envelopes contributed additional information to their understanding. For example, on October 19, the U.S. Army Medical Research Institute of Infectious Diseases relayed its observations to the FBI that the anthrax particles in the letter to Senator Daschle were as small as 1 micron in diameter.⁴³ The Army Institute delivered a written report of the results of its

⁴⁰*Interim Guidelines for Sampling, Analysis, Decontamination, and Disposal of Anthrax for U.S. Postal Service Facilities*, November 16, 2001.

⁴¹In addition, the guidelines state that closure may occur if recommended by a state or local health department, the FBI, or the Postal Inspection Service.

⁴²CDC’s November 9, 2001, guidelines state that closing a facility may be indicated (1) after a case of inhalation anthrax is detected and a probable site of exposure is identified; (2) when there is a known aerosolization of anthrax in the facility; (3) where evidence strongly suggests an aerosolization of anthrax has occurred; or (4) as determined by law enforcement authorities in a criminal investigation.

⁴³A micron equals 1 millionth of a meter, or 1 thousandth of a millimeter. The period at the end of a sentence is approximately 500 microns in diameter.

analyses to the FBI on October 22—the day after Brentwood’s closure.⁴⁴ At about the same time, the FBI analyzed the pore size of envelopes used for the mailings and determined that the envelopes were extremely porous.⁴⁵ The results—available on October 23, 2001—revealed that the pores of the envelopes were larger than some of the anthrax particles, making it possible for the anthrax to escape through the envelopes.

Over time, other important differences between the substances in the recovered letters became apparent. For example, on October 31, 2001, CDC testified before the Senate Committee on Governmental Affairs that it initially assumed that the characteristics of the anthrax in all of the letters were the same. However, according to descriptions that CDC received after the letters were recovered,⁴⁶ the substance in the letter to NBC was brown and granular, whereas the substance in the letter to the *New York Post* was sandy.

Furthermore, according to a report issued in February 2003 about the decontamination of the Morgan facility, the substances in both the NBC and the *New York Post* letters contained compounds that did not appear in the highly milled and potent white powder that CDC was told was found in the letters to Senators Daschle and Leahy.⁴⁷

According to the Postmaster General’s October 30, 2001, testimony before the House Committee on Government Reform and other officials we talked to, it was not until more than a week after the Daschle letter was opened and days after Brentwood closed that these new pieces of information came together and officials realized that the anthrax spores in the letter to

⁴⁴The report was also faxed to the FBI on Sunday, October 21, 2001.

⁴⁵Each of the recovered envelopes was a franked (prepaid) Postal Service “blue eagle” envelope available from Postal Service vending machines.

⁴⁶The FBI recovered the contaminated letter to NBC and the *New York Post* on October 12 and October 19, respectively.

⁴⁷According to testimony by an FBI official before the House Committee on Government Reform on October 30, 2001, the various anthrax samples were “indistinguishable from one another on a DNA analysis.” The differences in the substance, according to a CDC publication, could be attributable to (1) differences in the spore preparation or (2) exposure to different environmental conditions (e.g., moisture) that created a different potential for aerosolization.

Senator Daschle were so highly refined that they could penetrate paper.⁴⁸ Consequently, when decisions were being made about the risk to employees at Brentwood and Trenton, public health and Postal Service officials said they did not yet know that the substance in the letter to Senator Daschle was more easily aerosolized and, therefore, potentially more dangerous than the substances in the letters to media representatives in New York.

According to CDC, it likely would have made different decisions in some facilities and circumstances had it known more about the characteristics of the highly refined substance in the letter to Senator Daschle and better understood (1) the significance of the information that it was provided or (2) how infections arising from bioterrorism incidents differ from outbreaks of naturally occurring disease. CDC explained that in outbreaks involving naturally occurring disease, early clues generally provide reliable information on the mode and source of exposure, whereas—as learned in the fall of 2001—the characteristics of the initial cases for bioterrorism-related disease may be misleading since the perpetrator can vary the mode of transmission and source of exposure.⁴⁹ In testimony before a subcommittee of the House Government Reform Committee in July 2002, CDC’s Associate Director for Science, National Institute for Occupational Safety and Health, admitted that CDC “clearly did not know what we did not know last October [2001] and that is the cardinal sin that resulted in deaths.”

Postal managers also told us that they would have made different decisions if they had understood that CDC’s health risk information had limitations and that their employees could be at risk. According to the former plant manager at Brentwood, he and others did everything they could to ensure that postal employees were safe. For example, the Deputy Director of the FBI, the Postmaster General, and a number of other high-ranking postal managers conducted a press conference at the facility to assure employees and the public that all appropriate steps were being taken to protect them. The former plant manager noted that none of the officials wore protective

⁴⁸The Army Institute did not analyze the size of the particles in the letter to NBC because of insufficient material. Similarly, according to the FBI, the letter to the *New York Post*, which was initially analyzed on October 20, 2001, “was not suitable” for particle size testing.

⁴⁹For additional information, see Jernigan et al., “Investigation of Bioterrorism-Related Anthrax, United States, 2001: Epidemiologic Findings,” *Emerging Infectious Diseases*, vol. 8, No. 10 (October 2002).

clothing or safety equipment. Likewise, the former plant manager indicated that, on October 20—one day before the first case of inhalation anthrax was confirmed—he toured the facility with a CDC doctor, who also wore no protective clothing or equipment. According to the former plant manager, the fact that the doctor did not wear protective clothing or equipment reassured him that the facility was safe. He emphasized that he would not have been in the building and would not have allowed other postal employees in the building if he had been aware that the facility was contaminated.

Communication Problems Raised Employees' Concerns

The Postal Service communicated information to affected postal employees about the health risks posed by, and the extent of, anthrax contamination at the five facilities in our review; but problems with accuracy, clarity, and timeliness led employees to question the information they received. The early health risk information provided to the Postal Service by public health officials understated the potential health risk to postal employees and information on the medical response to anthrax contamination was unclear to employees because it kept changing as knowledge evolved. Problems with accuracy and clarity were exacerbated by postal employees' perceptions of unequal treatment and long-standing distrust of management. Although the Postal Service reported qualitative (positive or negative) results of environmental tests at its facilities within 2 days, it delayed the release of quantitative data (spore counts) for one facility, Wallingford, even though OSHA requires such information to be provided if it is requested. The Postal Service has taken steps aimed at communicating more effectively.

Communications to Postal Employees Understated Health Risks

During the fall of 2001, before postal employees were confirmed with anthrax, the Postal Service transmitted extensive information from CDC about the health risks of anthrax to postal employees.⁵⁰ CDC derived this information from the existing scientific literature, experts, and its own early epidemiological investigations of the anthrax incidents in Florida and

⁵⁰The Postal Service used a wide variety of methods to communicate information to employees, including briefings, newsletters, fact sheets, videos played on closed-circuit televisions in its facilities, and a toll-free information line. CDC and local public health officials attended some of the employee briefings. In addition, the Postal Service said it regularly updated its Web site and, after the facilities closed, it mailed information to its employees' homes.

New York. The early health risk information, together with information that the envelopes were unopened and taped when they passed through the U.S. mail system, led CDC to conclude that the potential for leakage and aerosolization was too small to pose a risk of inhalation anthrax to postal employees. If postal employees contracted the disease, CDC believed they would contract cutaneous anthrax, the readily treatable form of the disease. The Postal Service disseminated information about this health risk to postal employees, including information needed to watch for signs of cutaneous anthrax and related information pertaining to the use of gloves and other protective equipment intended to prevent this form of the disease.⁵¹ The Postal Service also provided an October 12, 2001, CDC health advisory to postal employees that stated that to cause cutaneous anthrax, the organism must be rubbed into abraded skin. Further, the advisory indicated that anthrax spores would be very difficult to refine into particles that would be small enough to aerosolize.

Relying on available information, the state epidemiologist for the New Jersey Department of Health and Senior Services told employees at Trenton on October 15 that the likelihood of contracting anthrax through an unopened envelope was “infinitesimal.” Likewise, in an October 18 press conference at the Brentwood facility, held in part to announce a large financial reward for the arrest and conviction of the individual or individuals responsible for the anthrax mailings, the Postmaster General—accompanied by an FBI Deputy Director and the Chief Postal Inspector—assured postal employees and others that they were not at risk of contracting inhalation anthrax. Just 3 days later, when the first Brentwood employee was confirmed with inhalation anthrax, CDC and the Postal Service realized that the information they supplied to postal employees had underestimated the risks to their health.

⁵¹On numerous occasions, the Postal Service also provided employees with instructions on what to do if they observed a powder spill or found a suspicious package.

Medical Information Was Difficult to Communicate Accurately and Clearly, and Efforts Were Complicated by Perceptions of Unequal Treatment and Long-Standing Postal Labor-Management Relations Issues

Public health agencies and the Postal Service reported that they had difficulty communicating information about nasal swabs, antibacterial drugs, and the anthrax vaccine accurately and clearly to postal employees. In trying to communicate information about nasal swabs, for example, they had to contend first with the effects of an error and later with employees' perceptions of unequal treatment. During the fall of 2001, nasal swabs were used to determine the location and extent of contamination at a facility, not to diagnose illness. However, a Postal Service bulletin issued on October 11, 2001, incorrectly suggested that nasal swabs were useful in diagnosing anthrax.⁵² The media also incorrectly described nasal swabs as a "test" for anthrax. The Postal Service corrected the bulletin, but the media continued to refer to nasal swabs as a test for the illness, and many postal employees continued to believe the inaccurate information. When Capitol Hill employees began receiving nasal swabs to test for exposure to aerosolized anthrax spores after the letter to Senator Daschle was opened on October 15, some Trenton and Brentwood employees believed that they too should receive nasal swabs once it was determined that the letter was processed in their facilities. However, public health authorities were reluctant to administer the swabs to postal employees, given their belief that too much time would have elapsed to detect anthrax on a swab.⁵³ Some postal employees perceived this reluctance as evidence of unequal treatment. Public health officials told us that addressing employees' perceptions of unequal treatment was particularly challenging. As a result, when requested, the public health officials said they often administered nasal swabs simply to allay the employees' concerns.

⁵²In its technical comments on our draft report, CDC noted that, under the best conditions, nasal swabs serve primarily to identify persons who have been exposed to anthrax. According to CDC, this information along with other information about an employee's job, work location, and tasks may be used to support hypotheses about potential pathways of exposure. Nevertheless, CDC noted that the reliability of nasal swabs for this purpose is unknown.

⁵³As discussed, such samples should be taken soon after exposure, before the spores are inhaled or washed out of a person's nasal passages.

Public health agencies also reported that they had difficulty explaining the reasons for changes in (1) the medication recommended for individuals who might have been exposed to anthrax and (2) the length of the recommended treatment. Initially, CDC had recommended ciprofloxacin for a variety of reasons,⁵⁴ but later it recommended doxycycline. Postal employees believed that they were receiving an inferior drug because ciprofloxacin—which had been initially provided to Capitol Hill staff—had been characterized as the drug of choice in media reports. Similarly, in December 2001, when postal employees and others were finishing the 60-day drug regimen recommended in CDC's initial guidance, postal employees questioned CDC's advice about the need to consider taking the drugs for an additional 40 days. CDC officials acknowledged that CDC did not effectively communicate uncertainties related to the appropriate length of prophylaxis, even though there was significant disagreement on the issue within CDC at the time. Since the incidents, CDC officials have acknowledged the necessity of expressing uncertainty in terms the public can understand and appending appropriate caveats to the agency's statements. In addition, CDC has changed its processes to release information more quickly, bring in other professionals to aid in disseminating information, and expand its communication capacity, a step that includes the development of an emergency plan to communicate more effectively.

Finally, CDC officials reported difficulties in explaining information about the administration of the anthrax vaccine to interested postal employees. The Food and Drug Administration considers the vaccine safe but has approved its use only for individuals who have not been exposed to anthrax—not for those who may have been exposed. Consequently, CDC had to administer the vaccine using extensive protocols that the Food and

⁵⁴CDC initially recommended ciprofloxacin for several reasons. First, absent information about the strain's susceptibility to various drugs, CDC considered ciprofloxacin most likely to be effective against any naturally occurring strain of anthrax. Also, as the newest antibacterial available, CDC considered it less likely that someone would have had time to engineer a resistant strain of anthrax. Finally, the Food and Drug Administration had already approved ciprofloxacin for the postexposure prophylaxis for inhalation anthrax. After CDC determined that the anthrax was equally susceptible to doxycycline and other drugs and the Food and Drug Administration announced that doxycycline was approved for inhalation anthrax, CDC began recommending that individuals use doxycycline instead. At the time, the switch to doxycycline was considered desirable for a variety of reasons, including its (1) lower risk for side effects, (2) lower cost, and (3) greater availability. In its technical comments on a draft of this report, CDC noted that research conducted in the fall of 2001 suggests that doxycycline and ciprofloxacin generally have equal rates of side effects.

Drug Administration requires for an “investigational new drug.”⁵⁵ These protocols, which are standard for new drugs, required postal employees to complete more paperwork and undergo more monitoring than for approved drugs. According to some postal employees, the protocols made them feel like “guinea pigs.” CDC officials acknowledged that CDC did not explain the vaccine program clearly and concluded, in hindsight, that communication problems probably contributed to the misperceptions of postal employees and others potentially exposed to the disease.

As we reported in October 2003,⁵⁶ differences between the responses to anthrax contamination on Capitol Hill and Brentwood reflected differences in the circumstances at the two locations (a powder identified in a letter and positively tested as anthrax on Capitol Hill versus no observable evidence of contamination at postal facilities) and in the decision makers (the Attending Physician of the U.S. Capitol versus the Postal Service in consultation with CDC). However, it appears that these differences were less visible to postal employees and others than the differences between the actions taken on Capitol Hill—where the Hart Senate Office Building was closed within a day and nasal swabs and antibacterial medications were quickly administered to nearby employees and first responders—and at postal facilities—where operations continued and medical intervention was less immediate because contamination was not observed at the postal facilities. Some postal employees perceived these differences as evidence of unequal treatment.

Long-standing labor relations issues also complicated efforts to communicate with postal employees. For example, while consistent with a CDC alert at the time, some Brentwood employees told us that they viewed instructions by Postal Service managers to pick up suspicious letters and packages and isolate them in sealed containers as evidence that the Postal

⁵⁵Requirements for investigational new drugs apply to new, unapproved drugs as well as to drugs—such as the anthrax vaccine—that have been approved by the Food and Drug Administration for a different use or purpose.

⁵⁶[GAO-04-205T](#).

Service was not concerned about their safety.⁵⁷ According to CDC, local public health officials, union representatives, and postal officials, postal employees were often suspicious of postal management's motives and routinely scrutinized information they received for evidence of any ulterior motives. In fact, the Director of the Palm Beach County Health Department told us that postal employees in Florida expressed a greater degree of anger and mistrust toward management than she had ever observed. Such concerns appear consistent with the results of our past work, which has identified persistent workplace problems exacerbated by decades of adversarial labor-management problems. These problems were so serious, we reported in 2001, that long-standing and adversarial labor-management relations hampered efforts to address its management challenges.⁵⁸ The President's Commission on the United States Postal Service also identified a need to address this long-standing issue.⁵⁹

Postal Service Did Not Provide Timely Quantitative Information on Contamination at One Facility When Requested

The Postal Service provided employees with the qualitative results (i.e., negative or positive) of environmental tests conducted at the five facilities in our review within 2 days of receiving the results, but it did not promptly disclose available quantitative results (spore counts) for the Wallingford facility when requested. OSHA requires employers to disclose available test results in response to an employee's request.⁶⁰ Initially, the Postal Service obtained only qualitative results, but as testing methods evolved, it obtained quantitative results for three of the five facilities—Wallingford, which remained open, and Brentwood and Trenton, both of which closed.⁶¹

As we reported in April 2003, the Postal Service obtained quantitative test results for Wallingford on December 2, 2001, but it did not disclose these

⁵⁷This instruction was consistent with guidance the Postal Service issued on October 10, 2001, and a health advisory from the CDC. The Postal Service revised its guidance on October 12, 2001. Instead of handling suspicious letters and packages, employees were told to isolate them and contact their supervisor.

⁵⁸GAO, *Major Management Challenges and Program Risks: U.S. Postal Service*, GAO-01-262 (Washington, D.C.: January 2001).

⁵⁹Report of the President's Commission on the United States Postal Service, *Embracing the Future: Making the Tough Choices to Preserve Universal Mail Service*, July 31, 2003.

⁶⁰See 29 C.F.R. § 1910.1020 (e)(1)(i).

⁶¹The results were quantified to assist agencies in decontaminating the facilities.

results until September 4, 2002.⁶² Although a union leader had requested the results in January and February 2002, the Postal Service did not initially provide them, it said, because, among other reasons, it was uncertain what the results meant for employees' safety and public health, it could not validate the results as its guidelines require, and Connecticut's Chief Epidemiologist had assured postal managers that the results did not indicate any additional health risk to employees at the facility.⁶³ The Postal Service disclosed the quantitative results after the union leader filed a formal complaint with OSHA and OSHA investigated the complaint. The complaint alleged that the Postal Service's failure to "properly and timely disclose" the level of contamination in the facility left employees without adequate information for making informed decisions about such issues as whether to continue taking antibacterial drugs and working in the facility.⁶⁴ Although OSHA did not take regulatory action against the Postal Service,⁶⁵ it stressed the importance of timely communication of test results and stated in a letter to the Postal Service that a "failure to effectively communicate issues" affecting employees' health and safety "can lead to fear and mistrust."⁶⁶

⁶²The results indicated that four mail-sorting machines were contaminated, including one that was highly contaminated. Analysis of a sample taken from the highly contaminated machine identified about 3 million colony-forming units (i.e., living cells) of anthrax.

⁶³The Chief Epidemiologist informed postal managers that there was no additional risk to employees for a variety of reasons—the contaminated machines had already been isolated and were being decontaminated; the anthrax was not believed to be airborne; employees at the facility had already been offered antibacterial drugs; and, in the view of public health officials, the incubation period for the disease had already passed without illness.

⁶⁴The union leader and other union representatives at Wallingford subsequently explained to us that, according to their discussions with employees at the facility, many of the employees either (1) did not take their antibacterial medication or (2) stopped taking their medicine prematurely based on the Postal Service's use of the terms "trace" and "concentration" to characterize the extent of contamination in the facility.

⁶⁵According to an OSHA Regional Administrator involved in the decision not to take regulatory action, OSHA's decision was influenced by several factors, including the (1) national panic about the anthrax threat in the fall of 2001; (2) lack of information about the significance, in terms of employee exposure, of anthrax spores found in the Wallingford facility; and (3) existence of an ongoing criminal investigation into the source of the anthrax spores that involved several federal agencies.

⁶⁶In its technical comments on a draft of this report, CDC noted that there are several issues related to the December 2, 2001, test results at Wallingford. These issues are discussed in more detail in our prior report. See [GAO-03-316](#).

According to documentation from CDC, the quantitative results for Brentwood, which were based on samples taken by CDC investigators and Postal Service contractors in October 2001, were made available to the Postal Service and national union representatives on November 1, 2001, and CDC published the results on December 21, 2001.⁶⁷ According to the document, 27 of the 39 vacuum samples—69 percent—tested positive for anthrax, with concentrations up to 9.7 million colony-forming units per gram of material collected. The Postal Service notified former Brentwood employees about the quantitative results on January 25, 2002, and referred them to CDC’s Web site to obtain the actual results. CDC reported the quantitative results for tests taken in Trenton in February 2002 to the Postal Service and to representatives of the national postal unions on May 31, 2002.⁶⁸ This analysis indicated that 247 of the 362 samples—68 percent—were positive for anthrax, with concentrations up to 800 million colony-forming units.⁶⁹

The Postal Service Took Steps Aimed at Communicating More Effectively

Recognizing the need to improve its communication both internally and externally, the Postal Service took a number of steps aimed at communicating more effectively during the fall of 2001. First, on October 16, 2001, it established a National Postal Operations Center to coordinate information within the postal system. It also created a Mail Security Task Force composed of representatives from management associations and employee unions. Union leaders applauded the efforts of this task force, which met daily as the crisis unfolded, to involve them in decision making. Finally, to improve its communications with other agencies, on October 31, 2001, the Postal Service established a Unified Incident Command Center with representatives from the agencies that respond to contamination in

⁶⁷U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, *Morbidity and Mortality Weekly Report*, “Evaluation of *Bacillus anthracis* Contamination Inside the Brentwood Mail Processing and Distribution Center—District of Columbia, October 2001.” (Atlanta, GA: Dec. 21, 2001).

⁶⁸CDC provided the qualitative test results to the Postal Service and its unions on March 4, 2002. These samples were reanalyzed and quantified and CDC reported the results to the Postal Service and its unions on May 31.

⁶⁹The sample with a concentration of 800 million colony-forming units of anthrax was a composite wipe—a combination sample taken from four stacker bins on one of the facility’s contaminated mail-processing machines. Thus, according to CDC, the concentration would be more accurately reported as “800 million CFUs (colony-forming units) per 4 bin composite wipe.”

postal facilities. According to the Chief Operating Officer, the Postal Service had not previously needed such an infrastructure because, before September 11, its weather-related and other emergencies were relatively short-lived and could be dealt with locally.

The Postal Service also worked with the National Response Team—a group of 16 federal agencies responsible for planning, preparing, and responding to the release of hazardous substances—to revise existing guidelines for responding to anthrax. Consistent with recommendations in our April 7, 2003, report on the response to anthrax at the Wallingford facility, the most recent version of the guidelines,⁷⁰ dated November 3, 2003, suggests that agencies (1) disclose more—rather than less—information, particularly when the release of undisclosed information could damage an agency’s credibility; (2) consider the needs of different audiences (e.g., employees, reporters, local politicians) for different types of information; (3) anticipate what information people need and in what form; and (4) admit when you do not know the information. As we recommended, the Postal Service also revised its guidance to require that facility managers communicate future test results—including quantitative results—to employees and others as quickly as possible, along with information explaining any limitations or uncertainties associated with the results.⁷¹

While the Postal Service agreed to explain any limitations or uncertainties associated with future test results, it did not accurately characterize the extent of residual risk at Brentwood after the facility was decontaminated. As we previously testified, an October 2003 newsletter to former Brentwood employees incorrectly stated that the facility was “100 percent free of anthrax contamination” and that there was “no remaining health risk” associated with returning to work there. Although the facility has since been certified as safe, it is scientifically impossible to eliminate all risk or to guarantee that working at a previously contaminated facility is absolutely risk free. Postal managers agreed with this assessment and indicated that a misunderstanding within the Postal Service resulted in the distribution of incorrect information to employees before the document had been fully reviewed. The Postal Service mailed corrected information to Brentwood employees in December 2003.

⁷⁰*Technical Assistance for Anthrax Response, Interim-Final Draft Phase I Update*, November 3, 2003.

⁷¹*Interim Guidelines for Sampling, Analysis, Decontamination, and Disposal of Anthrax for U.S. Postal Service Facilities*, December 2003.

Several Lessons Emerged from the Response to Anthrax Contamination

The response to anthrax contamination afforded multiple lessons, two of which are key. First, it is important for agencies to err on the side of caution when dealing with uncertain and potentially life-threatening situations—meaning that agencies need to choose a course of action that poses the least risk of harm to individuals. Because public health agencies underestimated the health risks involved in the anthrax attacks, actions to protect postal employees were delayed. Public health agencies and the Postal Service have since adopted a more proactive approach and the Postal Service has twice revised its guidance. However, the most recently revised guidance—issued in December 2003—needs improvement in several areas. The second key lesson is that sharing information in a timely manner is critical to an effective response. While collocating liaisons from CDC and the Postal Inspection Service with FBI headquarters officials facilitated timely information sharing, agencies reported that information was not always shared within and among public health agencies and the Postal Service. Several factors may have hindered the prompt exchange of information, including unclear responsibilities for decision making. Two additional lessons, on the need for reliable methods to test for anthrax in the environment and on the need for an emergency medical plan, also emerged.

Erring on the Side of Caution Is Important When Human Life May Be at Risk

The uncertainty of health risk information—demonstrated by the gap between what public health agencies knew about anthrax and what they learned over time—points to a need for agencies to err on the side of caution when considering actions to protect people in uncertain and potentially life-threatening situations. For example, the Commander of the U.S. Army Medical Research Institute of Infectious Diseases noted in testimony before a subcommittee of the House Committee on Government Reform in May 2003, that there is “still much to be learned about the effects of this agent [anthrax] under conditions different from those encountered during natural outbreaks.” In particular, he said, the health effects of aerosolized anthrax spores on human populations are poorly understood, and there is no scientific consensus on the lethal dose for humans. Thus, any level of contamination could potentially harm some individuals. Consistent with what he described as the Army Institute’s long-standing approach, the Commander advised agencies to initially err on the side of caution “in the absence of surety” while taking full advantage of all available expertise to formulate a future long-term response. In addition, due to such factors as limitations in testing methods and the uncertainty of the anthrax dose necessary to cause infection, representatives from the

Environmental Protection Agency and the U.S. Army's Dugway Proving Ground have also indicated the advisability of taking a cautious approach when dealing with anthrax.⁷²

As discussed, the events of October 2001 soon demonstrated that the agencies' inferences about the anthrax health risks to postal employees were wrong. For example, 3 days after the Postmaster General, in consultation with public health officials, assured postal employees that they were not at risk of contracting inhalation anthrax, CDC confirmed the first case of inhalation anthrax in a postal employee and within 5 days, CDC confirmed three more cases. These cases belied the views of public health agencies that postal employees were not at risk for contracting inhalation anthrax. Ultimately, even the participants in the press conference, who did not work at Brentwood, were advised to take antibacterial drugs because they might have been exposed to contamination at the facility. According to the former director of the D.C. Department of Public Health, once a postal employee developed inhalation anthrax, it became clear that CDC's recommendations, while sound in terms of prior knowledge and science, "had left the Brentwood workers unprotected."

The Palm Beach County Health Department initiated its epidemiological investigation on October 3, 2001, about 36 hours before it received confirmation that the first of two employees from American Media Incorporated had inhalation anthrax. Initially, the epidemiological investigation focused on, among other locations, office space within American Media Incorporated. As the investigation proceeded, investigators realized that the contamination might have come from a letter delivered by the Postal Service. On the basis of this possibility, the department began offering antibacterial medication to selected postal employees—those most likely to have handled mail to the media company—on October 12, the same day that environmental testing began at selected postal facilities and 3 days before anthrax contamination was confirmed at any of the facilities.⁷³ The director of the Palm Beach County

⁷²The mission of the Dugway Proving Ground is to test U.S. and Allied biological and chemical defense systems; perform nuclear, biological, and chemical survivable testing of defense material; provide support to chemical and biological weapons conventions; and operate and maintain an installation to support its testing mission.

⁷³At the other facilities in our review, antibacterial prophylaxis was provided after the facility tested positive or after CDC confirmed that a postal employee or customer had contracted anthrax.

Health Department acknowledged that the department's sensitivity to risk had been heightened by the first case of inhalation anthrax at American Media Incorporated. The director emphasized the importance of intervening early when a delay in responding could threaten lives. In her view, the only risk in responding immediately is the possibility of being criticized for wasting public money. According to public health officials in Florida, the single most important lesson they learned from their experience with anthrax was the importance of taking precautions in the face of potentially life-threatening situations.

An April 2002 report prepared for the Department of Defense⁷⁴ noted that because neither the local health officials nor the private physicians involved in the Florida response waited for final CDC confirmation of anthrax disease before acting, the medical community in Florida had a 36-hour head start on containing the crisis. The report also identified other proactive steps that Florida public health officials took to alert the medical community and the public to the risks of anthrax. For example, public health officials notified all hospitals of the anthrax threat, attempted to fax an informational letter to every licensed doctor in Florida, established a toll-free telephone number for people who might have been exposed, and set up an informational Web site staffed with doctors who were available to answer direct questions.⁷⁵ According to the report, these steps heightened public awareness, increased medical surveillance throughout the system, and aided in discovering the second case of inhalation anthrax in Florida.

Since the anthrax incidents, public health agencies and the Postal Service have moved to a more proactive approach. On November 9, 2001, CDC revised its guidance, indicating that closing a facility may be warranted, among other conditions, (1) after a case of inhalation anthrax is detected and a probable site of exposure is identified, (2) when there is a known aerosolization of anthrax in the facility, or (3) where evidence strongly suggests that an aerosolization of anthrax has occurred. Furthermore, while CDC's November 2001 guidance recommends minimizing the risk of inhalation anthrax and reducing opportunities for the spread of contamination, the guidance states that facility closures are not warranted

⁷⁴Center for Strategic and International Studies and the Defense Threat Reduction Agency, *Lessons from the Anthrax Attacks: Implications for U.S. Bioterrorism Preparedness*, April 2002.

⁷⁵In its technical comments on a draft of this report, CDC noted that many parts of the country, including Washington, D.C., New Jersey, and New York also took similar actions.

based solely on the identification of cutaneous anthrax cases or anthrax in samples from environmental surfaces.

In May 2004, we discussed CDC's November 9, 2001, guidance for responding to cases of cutaneous anthrax and positive environmental samples with several CDC officials, including the Acting Associate Director for Policy, Planning, and Evaluation, Office of Terrorism Preparedness and Emergency Response. The officials noted that CDC learned a great deal about the potential for aerosolization during the fall of 2001 but that its knowledge and current approach are not yet fully reflected in its guidance. While emphasizing that the decisions reached in any response are highly dependent on the circumstances at each site, the officials said that if a case of cutaneous anthrax or positive environmental samples were identified at a postal facility, CDC would immediately assemble a multidisciplinary team of experts to assess the situation. The team would, among other things, determine the extent of contamination, the likelihood of aerosolization, and the potential health risks to postal employees. In addition, CDC informed us that it may require closure or, depending upon the circumstances, recommend that other federal or state agencies close the facility. In fact, according to one of the officials, CDC would now likely recommend that a facility be closed unless CDC was otherwise convinced that the facility should remain open. Later this year, CDC expects to publish updated guidance on its current approach, including recommendations for planning for and responding to a case of cutaneous anthrax or positive environmental samples in postal facilities.

The Postal Service has taken several proactive steps, including changing its cleaning procedures, increasing its use of technology, and revising its guidance. As discussed, it restricted its use of compressed air to clean ("blow-out") its mail-processing machines on October 16, 2001, and eliminated the use of this procedure altogether on October 26, 2001. According to its existing guidance, Postal Service employees are now to vacuum the mail-processing machines and, instead of dry sweeping the floors, are to use wet or treated mops to clean floors.

The Postal Service has also been shipping certain types of mail destined for federal agencies in Washington, D.C., to a facility in New Jersey, where the mail is irradiated to kill any organisms, such as anthrax. In addition, the Postal Service has pilot-tested a new detection system at 15 facilities and plans to install the system at 283 of its processing facilities by July 2006. This system collects and preliminarily analyzes samples from the

environment and triggers an alarm if anthrax is detected.⁷⁶ The Postal Service's guidelines for implementing the new detection system call for taking immediate emergency actions, including evacuation, as soon as the system is triggered. Furthermore, according to these guidelines,⁷⁷ a facility will reopen only if a follow-up analysis of the sample is negative for anthrax—a process that can take several days.⁷⁸

If the detection system is triggered at a facility with the technology, the Postal Service also plans to follow CDC's April 2004 guidance to employers and others using autonomous systems to detect anthrax,⁷⁹ which not only recommends immediate evacuation, but also prescribes antibacterial treatment for employees "as soon as possible" after a qualified laboratory has initially confirmed a positive result. According to the guidance, such treatment should continue until the sample is cultured, which will likely take 3 to 5 days. If positive results are ultimately confirmed, CDC recommends a 60-day course of antibacterial drugs in combination with inoculation with the anthrax vaccine. Because the Postal Service issued guidance to reflect CDC's recommended medical interventions on June 30, 2004,⁸⁰ we eliminated a proposed recommendation in our draft report that it do so. According to the Postal Service's Manager, Safety Performance Management, the Postal Service has already implemented the CDC guidance through training, standard operating procedures, and emergency management plans at sites with the detection systems.

The Postal Service revised its Interim Guidelines in December 2003 to reflect the need for more proactive measures when responding to anthrax.

⁷⁶The technology is designed, ultimately, to detect multiple biological and chemical contaminants, but the Postal Service is currently using the system only to test for anthrax.

⁷⁷*Biohazard Detection System Pre-production Concept of Operations*, July 18, 2003.

⁷⁸This follow-up analysis involves culturing the sample that triggered the alarm. Spores collected by the detection system are cultured so that the resulting bacteria can be positively confirmed.

⁷⁹U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, *Morbidity and Mortality Weekly Report*, "Responding to Detection of Aerosolized *Bacillus anthracis* by Autonomous Detection Systems in the Workplace," (Atlanta, GA: Apr. 30, 2004).

⁸⁰*Biohazard Detection System Alert-Positive Test: Evacuation, personal decontamination, and postexposure prophylaxis*, June 30, 2004.

The guidelines are generally applicable to all postal facilities.⁸¹ For the first time, the guidance describes a “suspected release” of anthrax spores as an emergency and specifies that if the suspicion is “strong,” the building will be evacuated and secured. Furthermore, in accordance with CDC’s April 2004 recommendations, the guidance specifies antibacterial prophylaxis for postal employees and others along the transit path of an envelope containing anthrax that may have been aerosolized. The revised guidance—which conforms to the guidelines developed by the National Response Team—also emphasizes the Postal Service’s commitment to continuously improve its responses and processes related to anthrax and other biohazards. This commitment includes updating its guidance as more information is gleaned, lessons are learned, and technologies advance.

While the December 2003 guidance reflects some of the lessons learned since the fall of 2001, it does not define or provide examples of some key terms, including what would constitute either a “suspected release” or a “strong suspicion” of anthrax that would warrant evacuation from a facility. In addition, the December 2003 guidance references outdated guidance and could therefore cause confusion during an emergency response. Specifically, the guidance refers readers to the Postal Service’s October 1999 guidance on responding to mail allegedly containing anthrax for a description of,⁸² among other topics, management roles and responsibilities and lines of responsibility for the response. Directing readers to this outdated information could cause confusion in the future because the 1999 guidance is no longer in effect.⁸³ The December 2003 guidance also does not fully address all of the circumstances that the Postal Service faced in 2001 or could likely face in the future. For example, although the guidance calls for closure if sampling results indicate that anthrax has been aerosolized and transported throughout a facility, the Postal Service would not have any sampling results for facilities without detection systems unless (1) it routinely collected and tested samples from all of its facilities or (2) an observable event—such as the discovery of a suspicious letter or package—or a “strong suspicion” had triggered a decision to sample. The

⁸¹As discussed, additional guidance exists for facilities with anthrax detection systems.

⁸²*Emergency Response to Mail Allegedly Containing Anthrax*, October 4, 1999, Management Instruction EL-860-1999-3.

⁸³In response to our inquiries, on June 24, 2004, the Postal Service published a bulletin indicating that roles and lines of responsibility identified in sections 4 to 7 of the December 2003 guidance are obsolete. The December 2003 guidance, however, has not yet been updated to eliminate the obsolete information.

guidance also specifies closure if a diagnosis of inhalation anthrax is confirmed in a postal employee, but confirmation takes time, and the guidance does not indicate what measures would be taken in the interim.

Although the Postal Service's December 2003 guidance does not fully address all of the circumstances the agency faced in 2001, the Postal Service has since taken additional precautions in responding to threats. However, it has not yet finalized its guidance to reflect these precautions. According to the Manager, Safety Performance Management, the Postal Service has learned not to wait for others before taking action; now, if it learned that it had delivered an envelope containing anthrax, it would immediately determine the path of the recovered envelope through the mail system and immediately close the facilities that had processed it. Consistent with this proactive approach, on November 6, 2003, the Postal Service shut down 11 postal facilities in and around Washington, D.C., after a preliminary test—not a confirmed result—from a routine air sample taken by a U.S. Navy contractor on November 5 indicated that a Navy mail-processing facility might be contaminated with anthrax. The Postal Service tracked the flow of mail through the facility and closed 11 postal facilities, most of which picked up mail from the Navy facility. The subsequent confirmatory tests were negative, and the postal facilities reopened on November 7 and 8. In addition, on February 2, 2004, the Postal Service shut down its "V Street" facility, which now processes mail for Capitol Hill and other federal offices in Washington, D.C, soon after preliminary tests indicated that a powder found on a mail machine in the Senate mailroom was ricin, a deadly toxin.⁸⁴ No letter was ever found in this incident, and no ricin was detected at the V Street facility. Nevertheless, the Postal Service monitored the health of the facility's employees and the facility remained closed for 2 days while 132 environmental samples were taken and analyzed. All of the samples were negative, and the facility reopened on February 4, 2004.

According to Postal Service managers, the Postal Service is in the process of updating its guidance and intends to replace the December 2003 interim guidelines for anthrax with a more comprehensive "all hazards" emergency response plan for addressing future natural and man-made emergencies. According to the Manager, Safety Performance Management, the plan will

⁸⁴Ricin is a poison that can be made from the waste (mash) left over from processing castor beans. Ricin can be made in the form of a powder, a mist, or a pellet or it can be dissolved in water or weak acid.

be completed by the fall of 2004 and will address the additional precautions that the Postal Service has taken since the fall of 2001, such as its November 2003 closure of postal facilities after receiving preliminary test results indicating the possibility of anthrax.

Although the Postal Service has taken a more proactive approach to protect its employees since the anthrax attacks, it is also responsible for carrying out its mission to process and deliver the mail. False positive test results, such as the one obtained for the Navy mail-processing facility, are but one of the obstacles to efficient operations. Incidents involving suspicious packages or powder spills can also interrupt operations, cause fear, and divert resources, not only for the Postal Service but also for law enforcement and public health agencies at all levels of government. During the anthrax attacks, the frequency of suspicious powder incidents increased dramatically. According to the head of the Postal Inspection Service, over 7,000 anthrax hoaxes, threats, and suspicious letters and packages—an average of almost 600 per day—were reported to his agency in the weeks following the first anthrax attack, and nearly 300 postal facilities had to be evacuated because of these incidents. On October 30, 2001, the head of the FBI's Counterterrorism Division testified before the House Committee on Government Reform that the FBI and state and local authorities were overwhelmed by hoaxes in the wake of the anthrax incident, handling more than 2,000 in the first 2 weeks of October 2001, compared with about 250 a year previously. He cited both the "indeterminable" resources required to address them and "the terror they bring to the victims." Additionally, according to CDC officials, large numbers of medical, public health, law enforcement, and emergency response personnel throughout the country and the world dealt with numerous hoaxes perpetrated in the weeks after the incidents. According to officials, while the frequency of incidents involving suspicious packages or powder spills has declined since 2001, they nevertheless remain a challenge to the Postal Service and other agencies.

Timely Sharing of Information Is Critical to an Effective Response

A second key lesson learned during the anthrax response was the need for prompt information sharing. While efforts were made to facilitate effective, timely communication, information was not always shared within and among agencies. Several factors may have contributed to the problems with information sharing.

Collocating Liaisons at FBI Headquarters Facilitated Timely Information Sharing

Historically, according to an April 2002 report prepared for the Department of Defense,⁸⁵ the FBI has “been reluctant to share information it has collected in pursuit of a criminal investigation,” and the goals of law enforcement and of public health sometimes conflict. During the anthrax response, the FBI tried to mitigate these differences by collocating liaisons from CDC and the Postal Inspection Service with FBI headquarters officials. As the Section Chief of the FBI’s Counterterrorism Division testified on October 30, 2001, before the House Committee on Government Reform, the CDC liaison was “literally living in my space at FBI headquarters” and the Postal Inspection Service liaison was “also working in our space, in on every briefing, . . . so that he can coordinate postal efforts with the FBI efforts.” As a result, he said, “there’s no information that we have or the Postal Service has that doesn’t cross back and forth, so that we’re all totally informed of all aspects of the investigation.”

The CDC and Postal Inspection Service liaisons we interviewed confirmed that they generally received timely information from the FBI. For example, the CDC liaison testified that he participated in an interagency teleconference on October 15, when the FBI first received information from the U.S. Army Medical Research Institute of Infectious Diseases describing the anthrax contamination in the letter to Senator Daschle. It was during this teleconference that a scientist for the Army Institute referred to the anthrax spores in the letter as “weaponized”—a term that was subsequently modified.⁸⁶ The CDC liaison further testified that he hosted a conference call to relay the information to other CDC personnel in the early hours of October 16. The liaison for the Postal Inspection Service did not begin work at the FBI until October 17, 2001; consequently, he did not participate in the interagency teleconference on October 15. Nevertheless, the liaison told us that, to the best of his knowledge, the FBI shared all of the information it had, including the test results of the Daschle letter. He described his agency’s relationship with the FBI as cooperative, saying that if the Inspection Service asked for something, the FBI did its

⁸⁵Center for Strategic and International Studies and the Defense Threat Reduction Agency, *Lessons from the Anthrax Attacks: Implications for U.S. Bioterrorism Preparedness*, April 2002.

⁸⁶On October 16, the U.S. Army Medical Research Institute of Infectious Diseases revised its description, indicating in another teleconference that the spores were “professionally done” and “energetic.” According to an official from the Army Institute, these terms were considered more appropriate, since personnel at the Army Institute, he said, were not familiar with weaponized materials.

best to provide what was needed; and if the FBI asked for something, the Inspection Service likewise did its best to supply it.

While collocating liaisons from other agencies at FBI headquarters facilitated information sharing, it appears that there are still opportunities for improvement. For example, although CDC asked the FBI for information on the size of the spores in the Daschle letter and their potential to aerosolize on October 19, 2001, a discrepancy exists between CDC and the FBI about when the information was provided. We could not resolve the discrepancy. The CDC liaison told us that he received the information from the FBI on October 24, 2001—a day after the Secretary of Health and Human Services was briefed on the results. In contrast, FBI officials said that the information was provided to CDC’s liaison on October 22—the same day that the U.S. Army Medical Research Institute of Infectious Diseases delivered its report to the FBI.⁸⁷ Similarly, the liaison for the Postal Inspection Service and the Postal Service’s former Senior Vice President for Government Relations and Public Policy told us that they were unaware of the Army Institute’s results, including the results of its spore size analysis, until days after Brentwood’s closure.⁸⁸ According to the testimony of the Commanding General of the U.S. Medical Research and Materiel Command before the Senate Committee on Governmental Affairs on October 31, 2001,⁸⁹ the Army Institute’s analyses revealed particles ranging from single spores to aggregates of spores up to 100 microns or more in diameter. Furthermore, the spores had a “propensity to pulverize.”

⁸⁷The Army Institute also faxed a report of the results of its analyses to the FBI on Sunday, October 21, 2001.

⁸⁸Questions remain about why this information was not or may not have been communicated to CDC and the Postal Service earlier. An official from the U.S. Army Medical Research Institute of Infectious Diseases told us that under the terms of its agreement with the FBI, officials from the Army Institute could not discuss their test results without FBI approval. Thus, according to the Postal Service’s former Senior Vice President for Government Relations and Public Policy, an official from the Army Institute subsequently called to apologize for the delay.

⁸⁹The Army Institute is part of the U.S. Army Medical Research and Materiel Command.

Problems with Sharing Information Were Reported within and among Agencies

Local public health officials identified problems with the timely sharing of information both within CDC and among state public health agencies. For example, the epidemiologist for New Jersey told us that based on his interactions with the CDC team that assisted in New Jersey, the information CDC learned from the response in Florida did not appear to have been shared. The epidemiologist also said that he did not acquire some information about the Florida response that could have influenced his decision making until a year after the anthrax incidents. Specifically, he learned from an October 2002 CDC publication⁹⁰ that public health authorities in Florida had provided antibacterial drugs for some postal employees on October 12, 2001—the same day testing was initiated at selected postal facilities in Florida⁹¹—and that the Postal Service had some preliminary positive test results on October 13, 2001. The epidemiologist said that if this information had been shared at the time, New Jersey officials would very likely have begun testing the Trenton facility immediately and might have urged closing the facility and offering antibacterial medication to the employees deemed most likely to have been affected. The former director of the D.C. Department of Health also reported problems with information sharing. Specifically, he said that information about the characteristics of anthrax in the Daschle letter was not shared with departmental personnel and other local officials, including the D.C. mayor. As a result, he said he first read about the anthrax being “weaponized” in the newspaper.

Within the Postal Service, managers found that some postal employees had not shared current and accurate information on how they could be contacted in an emergency. As a result, the managers said, they were greatly hampered in their efforts to relay important information to Trenton and Brentwood employees who were not at work when the facilities closed, including information on how to receive medical treatment and where to report to work. Postal managers said they had to rely on contact information supplied by union representatives, use postal inspectors and local law enforcement authorities to search for employees and, when

⁹⁰Centers for Disease Control and Prevention, Department of Health and Human Services, *Emerging Infectious Diseases*, vol. 8, No. 10 (October 2002): 1033.

⁹¹While an established link to U.S. mail did not initially exist in Florida, investigators were beginning to explore that possibility.

unsuccessful, wait for employees to report for duty after they learned about the facility closures through the media.

Several Factors May Have Hindered Timely Information Sharing

The problems with timely information sharing may have occurred for a variety of reasons. First, according to the Postal Service's Chief Operating Officer and other senior postal managers, information on who was responsible for managing the response within federal agencies was not always clear. Individuals involved in early discussions, the managers learned, were not always authorized to make decisions. As a result, decisions were sometimes delayed while decision makers familiarized themselves with the issues. A U.S. Army Medical Research Institute of Infectious Diseases official also observed that within CDC, and between CDC and affected locations, information was not shared well because, at the time, CDC did not have a command center. Changes in CDC staffing further complicated information sharing, according to Postal Service managers, who cited difficulties in educating CDC officials who lacked knowledge of postal operations.

Within the Postal Service, problems with sharing information appear to be linked to poor relations between labor and management. For example, union representatives and postal managers told us that postal employees often do not provide current and accurate contact information because they do not trust postal management.

As recollections have faded over time and changes in agency personnel have occurred, it has become increasingly difficult to reconstruct events and determine what information was available to whom at what time. Documentation of who participated in key meetings, what information was communicated, and what decisions were reached is often unavailable or difficult to identify and obtain. In our earlier work on the anthrax contamination at Wallingford, for example, we could not determine when the Postal Service first learned of the quantitative test results for the facility because there was no definitive documentation. Similarly, during this review, we could not always reconcile seemingly conflicting recollections of what information was shared, with whom, and when, because participants often did not document their activities or decisions. Even during the response, postal managers said, it was very difficult to reconcile conflicting information from different parties. Nearly 3 years later, it is even more difficult.

Agencies Have Taken Steps to Improve Information Sharing and Documentation

Organizational changes made since the anthrax incidents may facilitate information sharing at the federal level. While the Office of Homeland Security existed in the fall of 2001, it had just been created and played a limited role in the anthrax response. Now that there is a cabinet-level Department of Homeland Security, responsible for coordinating the homeland security activities of multiple federal agencies, opportunities exist for establishing clear lines of authority and designating positions with responsibility for making decisions in the event of a future bioterrorist attack. According to the Postal Service's Chief Operating Officer and other senior postal managers, coordination at the federal level has been greatly improved with the creation of the Department of Homeland Security. Postal managers noted that when ricin was discovered in a South Carolina postal facility in October 2003, personnel from the new department immediately took the lead, sought advice from all the relevant agencies, and reached a quick consensus on how to proceed. However, when a ricin-contaminated letter addressed to the White House was intercepted at an off-site nonpostal mail-sorting facility in November 2003, the Secret Service waited 2 days after the substance was positively identified to notify the FBI, the Postal Service, and other agencies about the discovery. According to postal managers, the following day, the Department of Homeland Security oversaw a series of conference calls to discuss the situation. A Postal Service manager said that the Postal Service would have liked to have known about the ricin letter earlier so that the Postal Service could have monitored the health of the employees, even though there is no drug or antidote for ricin poisoning.

The Postal Service has also improved its ability to share information. During the anthrax response, the Postal Service learned more about the roles and responsibilities of key federal agencies and personnel. Postal managers said they now interact regularly with federal agencies, including OSHA and the Environmental Protection Agency. In addition, postal managers meet periodically with representatives of the 16 federal agencies that make up the National Response Team. Such regular interaction has established a basis for better coordination with federal agencies than the Postal Service had prior to the anthrax incidents.

Internally, the Postal Service has centralized responsibility for any future response. According to postal managers, the agency has created a new position, the Vice President for Emergency Preparedness, to identify a single decision maker and to ensure that one individual will be involved in all phases of planning for and responding to any future emergency. Additionally, according to officials from the Postal Inspection Service, the

Postal Service has established a 24-hour watch desk so that when an incident occurs, a call goes directly to the desk and the Inspection Service can transmit information nationwide. The agency can then see, track, and analyze patterns as they develop, they said, whereas in the past such information was not available until after a report on the incident had been prepared. They noted that having earlier information on the response also allows the Inspection Service to meet sooner with the Department of Homeland Security to discuss the issues.

Finally, the Postal Service has established procedures for obtaining up-to-date information for contacting employees. For example, when the Brentwood facility reopened, the Postal Service required employees to provide current information before their identification badges were issued. In addition, the Postal Service said the plant orientation brochure and orientation briefing would address the importance of keeping the information up to date. The Postal Service added that it would post periodic reminders and locate a kiosk within the workspace to make it easier for employees to update their contact information.

Efforts have also been made to improve documentation during the response to a bioterrorist attack. In our April 2003 report on the events at Wallingford, we recommended that the Postal Service and the Environmental Protection Agency—as lead agency of the National Response Team—revise their guidance to require and maintain documentation of the basis for decisions made, including the health-related advice that they receive and the specific content of their communications to employees and others. This information is needed to establish a clear record of actions taken and to help reconcile differences in the recollections of participants. Both organizations have implemented this recommendation. Guidance developed by the National Response Team, for example, recommends that agencies “develop and maintain good records documenting advice received from public health officials and others about the communication of health-related information of workers and the general public.”

Two Other Lessons Also Emerged

In addition to the two key lessons that the Postal Service and other agencies learned about the importance of responding proactively in the face of uncertain health risks and of sharing information in a timely manner with all affected parties during an emergency, we identified two additional lessons during our review: the need for reliable methods to test for anthrax

in the environment and the need for a plan to provide emergency medical services to employees.

Reliable Methods Are Needed to Test for Anthrax in the Environment

The lesson on needing reliable methods to test for anthrax contamination in the environment emerged when two initial quick tests at Brentwood—performed by a local hazardous materials response team on October 18, 2001—produced negative results that misled the Postal Service and public health agencies. As a result, the facility remained open and CDC did not recommend antibacterial drugs for employees until after it confirmed a case of inhalation anthrax in a Brentwood employee on October 21. In total, four Brentwood employees contracted inhalation anthrax, two of whom died, and later tests showed that the facility was heavily contaminated. At Wallingford, four rounds of tests were also conducted before anthrax was identified in the facility.

During an anthrax investigation, taking environmental samples is critical to identify the likely source of infection and the extent of environmental contamination and to support decisions about the need for antibacterial medication or decontamination and determine when employees and others can reenter a facility. However, at the time of the 2001 investigations, there were no validated methods of sampling the environment to test for anthrax.

The quick tests that were used at Brentwood are designed to detect living organisms, but are not specific to anthrax and are known to produce a high rate of false positive results. A false positive occurs when organisms are detected in a sample, but follow-up laboratory testing proves that they are not anthrax. Laboratory testing traditionally involves culturing bacterial spores taken from the sample so that they can grow into cells whose identity can be confirmed through a variety of additional tests. According to CDC, obtaining confirmation can take 3 to 5 days.

Quick tests may also produce false negative results if the environment is contaminated but the sample does not contain a sufficient number of spores for the test to detect any living organisms. While positive results may have provided early warning of contamination at Brentwood, even though more time would have been needed to identify the contaminant as anthrax, the negative results appear to have promoted a false sense of

security. Results from other tests, conducted the same day, took much longer to obtain but revealed that the facility was contaminated.⁹²

The environmental testing at Wallingford, conducted in November and December 2001, helped to demonstrate the relative sensitivity of different sampling methods.⁹³ Various methods were used there, including dry and wet swabs, wet wipes, and a high efficiency particulate air (HEPA) vacuum.⁹⁴ For the first two rounds of tests, contractors hired by the Postal Service used dry swabs, and for the third round, a CDC investigation team used wet swabs. CDC found no contamination in the samples collected by these methods. For the fourth round, the CDC investigative team used a combination of these methods, and found contamination in the samples collected from mail-sorting machines. On the basis of research on and experience from sampling efforts in the fall of 2001, CDC eventually recommended the use of wet wipes and vacuums for future investigations of large facilities.

In 2001, CDC reported that it lacked data on the relative effectiveness of the methods used to collect samples from surfaces typically found in an indoor environment. Since then, various studies have addressed this issue. In a report published in 2002,⁹⁵ for example, side-by-side samples were collected from surfaces at Brentwood before it was decontaminated, using swabs, wipes, and a HEPA vacuum. Wet wipes and the vacuum were found to be more effective than surface swabs, particularly dry swabs. While various sampling and analytical methods have been evaluated for the detection of anthrax, none of those that were used in postal facilities

⁹²It is unclear whether the two quick tests produced false negatives because, with only two samples available, investigators may have inadvertently sampled uncontaminated areas.

⁹³For additional information about the sensitivity and effectiveness of various sampling methods, see E.H. Teshale, J. Painter, G.A. Burr, P. Mead, S.V. Wright, L.F. Cseh et al., "Environmental Sampling for Spores of *Bacillus anthracis*," *Emerging Infectious Diseases*, vol. 8, No. 10 (October 2002): 1083.

⁹⁴Swabs—either wet or dry—have small surface areas (similar to Q-tips® cotton swabs) and are typically used to collect samples from small, nonporous surface areas that do not have a large accumulation of dust. Wet wipes—sterile gauze pads—are typically used to collect samples from larger, nonporous surface areas. A HEPA vacuum is a suction device with a nozzle that has a filter attached to it for collecting dust samples from a surface or from the air.

⁹⁵W.T. Sanderson, M.J. Hein, L. Taylor, B.D. Curwin, G.M. Kinnes, T.A. Seitz, et al., "Surface Sampling Methods for *Bacillus anthracis* Spore Contamination," *Emerging Infectious Diseases*, vol. 8, No. 10 (October 2002): 1145.

during the fall of 2001 had been scientifically validated. GAO is currently completing a review of, among other matters, (1) the activities performed by federal agencies in the fall of 2001 to detect anthrax contamination in postal facilities, (2) the results of these activities, and (3) the process of validation and its significance. The results of this review, including recommendations for improving sampling methods, are expected before the end of 2004.

Policies and Procedures for Obtaining Emergency Medical Services

The lesson about the need for an emergency medical plan detailing, among other matters, where postal employees would go for medical services and who would pay arose when the lack of such a plan resulted in some confusion in New Jersey. Medical treatment was not immediately provided to postal employees after Trenton closed on October 18.⁹⁶ The following day, New Jersey public health officials recommended that postal employees consult with their personal physicians about getting antibacterial medication.⁹⁷ They made this recommendation late on a Friday afternoon, when there was little opportunity for postal employees to contact their personal physicians. The local mayor disagreed with the recommendation and arranged instead for a local hospital, which had an existing contract to provide treatment for job-related injuries to postal employees, to begin treating postal employees immediately. However, specific arrangements for paying for the anthrax-related treatment were not made at that time; consequently, it was unclear who was financially responsible for the treatment—the Postal Service, the Office of Homeland Security using funds for emergencies, or the state. Payment of the bill, which was submitted to the Postal Service in March 2002, was delayed for about 3 months for a number of reasons. Specifically, the Postal Service's existing agreement with the hospital for providing services to postal employees did not cover all of the types of services needed to deal with anthrax exposure; the Postal Service did not specifically authorize the services in advance, as required; and initially, the hospital did not provide

⁹⁶Public health officials told us the facility was closed for testing to determine the extent of the contamination and that they initially did not believe that immediate antibacterial treatment was appropriate because a case of cutaneous, rather than inhalation, anthrax had been identified.

⁹⁷According to the New Jersey epidemiologist, the recommendation was based on several factors: (1) the relatively high mean age of the postal employees suggested that added medications should be supervised by their personal physicians, (2) the lack of state and local public health resources to provide direct medical services to the employees, and (3) the lack of clear state authority to designate a specific nongovernmental facility to provide these services.

any supporting documentation with its bill. Nevertheless, after resolving these issues, the Postal Service reached agreement with the hospital on the amount to be reimbursed and, in June 2002, paid the hospital \$618,000.

Subsequently, the Postal Service worked with the New Jersey Department of Health and Senior Services to develop response guidelines to deal with possible future anthrax exposure events. The guidelines, which were still in draft as of mid-June 2004, included arrangements for getting emergency medical services for postal employees but did not address policies and procedures for payments. In commenting on a draft of this report, the Postal Service noted that it is working with the Department of Homeland Security and other entities responsible for dealing with terrorist activity to formulate policies and procedures for dealing with terrorist events, including how to pay providers of emergency medical services. While we agree that the Postal Service's policies and procedures eventually should be consistent with those adopted by others, it is not clear when the broader policies and procedures will be available. Thus, consistent with our recommendation, we continue to believe that the Postal Service should establish a time frame by which it will develop interim policies and procedures for paying emergency service providers.

Conclusions

Since the anthrax incidents, the Postal Service has twice revised its Interim Guidelines to incorporate the lessons it has learned from the response to anthrax in its facilities. While the revised guidance addresses many of the circumstances that the Postal Service faced in 2001 and could face in the future, the specific concerns that we identified—including the use of undefined terms, such as “suspected release” and “strong suspicion,” and the references to outdated guidance—could be confusing for decision makers. Without definitions of such terms, for example, it would not be clear what events should trigger an evacuation or closure or what evidence should indicate a need for medical intervention, particularly for facilities without anthrax detection devices. Furthermore, the revised guidance does not reflect precautions that the Postal Service has taken since 2001, such as closing facilities after receiving preliminary test results indicating possible contamination with anthrax and ricin. The Postal Service acknowledges limitations in its existing guidance and has committed to updating its guidance as more information is gleaned and more lessons are learned.

Like the Postal Service, CDC has not yet published its updated guidance to reflect its current knowledge about anthrax or its current approach for responding to evidence of anthrax contamination. Consequently, for cases

of cutaneous anthrax or positive environmental samples, CDC's published guidance does not call for a facility to be closed, even though CDC informed us that it may now require or recommend other agencies to close facilities in these circumstances. Given the many uncertainties revealed during the anthrax incidents—including (1) the possibility that cases of cutaneous anthrax may indicate a risk of inhalation anthrax and (2) the potential for very low levels of environmental exposure to cause inhalation anthrax in some persons, especially those with preexisting health conditions—we believe it is important for CDC to publish its revised guidance to reflect its current approach. Because CDC is currently revising its guidance to reflect the cautious approach it described and plans to have this guidance completed by the end of 2004, we are not making a specific recommendation that it do so at this time.

The Postal Service and New Jersey have drafted an agreement for providing emergency medical services to postal employees in New Jersey but have not yet developed policies and procedures for paying for these services. The Postal Service is also working with the Department of Homeland Security and others responsible for dealing with terrorist events, among other things, to formulate governmentwide policies and procedures for paying for emergency medical services. However, it is not known when these policies and procedures will be available. As a result, if another emergency arises in the interim, confusion could again cause delays in payments to providers and/or disputes over payments. Given that nearly 3 years have elapsed since the Trenton postal employees were exposed to anthrax and reimbursement issues arose, we believe that, at a minimum, the Postal Service should set and meet a definitive time frame for developing interim policies and procedures for paying for emergency services. These policies and procedures should address the documentation needed by the Postal Service to support bills submitted to it and any other steps the Postal Service believes are necessary to provide for sound financial management.

Recommendations for Executive Action

To help ensure that the Postal Service has accurate, clear, comprehensive, and up-to-date guidance for responding to an emergency, we recommend that the Postmaster General, working with other agency officials as appropriate, implement the following two recommendations. First, the Postal Service should revise its December 2003 Interim Guidelines to

- define key terms, such as “suspected release” and “strong suspicion” of contamination;

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- ensure that any references to earlier guidance are still applicable; and
 - clarify the actions that the Postal Service would take under various scenarios, such as when (1) the Postal Service receives preliminary evidence of anthrax contamination or (2) a postal employee is diagnosed with either inhalation or cutaneous anthrax.

Second, to help ensure (1) the availability of timely and appropriate emergency medical treatment and (2) that medical providers receive timely payment for emergency medical services provided to postal employees exposed to anthrax or other threatening substances, the Postal Service should establish and meet a definitive time frame for developing interim policies and procedures on paying for such services.

Agency Comments and Our Evaluation

We requested comments on a draft of this report from the Postal Service, CDC, the FBI, the U.S. Army Medical Research Institute of Infectious Diseases, and representatives of three postal unions (the American Postal Workers Union, the National Postal Mailhandlers Union, and the National Association of Letter Carriers). Most of these organizations provided technical comments, which we incorporated as appropriate.⁹⁸ The Postal Service's written response to our draft report agreed with the thrust of our recommendations. CDC provided detailed written comments to clarify portions of our draft report. The agencies' comments are summarized below.

The Postal Service acknowledged that it would have made different decisions had the present state of medical and scientific knowledge been available in 2001. However, the Postal Service said it was pleased that we recognized that the health and safety of its employees and customers were its first priority and that its decisions were based on the advice and guidance it received from the scientific and medical community. Regarding our draft recommendations, the Postal Service said that it either (1) had revised or (2) would revise and clarify its guidance. For example, the Postal Service noted that it had recently published a new management instruction that establishes the procedures to be followed if a biohazard detection system generates a positive test alert, including the procedures set forth in CDC's April 2004 guidance for evacuating a facility and administering

⁹⁸We also provided local public health officials with relevant excerpts of our draft report. However, none of the officials provided comments.

postexposure antibacterial drugs. We deleted our proposed recommendation in this area to reflect the Postal Service's action. The Postal Service also said that it would work with the Department of Homeland Security and other relevant entities to develop appropriate policies and procedures for paying for emergency medical service; however, it is unclear when these policies and procedures will be available. Finally, although the Postal Service said that we concluded that its decisions in 2001 were appropriate under the circumstances, we did not draw conclusions on this issue. As stated in our report, our first objective was to describe the factors considered in deciding whether to close the five postal facilities and the actions taken to protect postal employees—not to assess the appropriateness of the Postal Service's actions and decisions. The Postal Service's comment letter is reproduced in appendix IV.

In its general comments, CDC agreed that communication challenges occurred during the anthrax incidents, but maintained that the draft report did not adequately emphasize (1) the nation's limited experience with anthrax or (2) the lack of assigned federal leadership responsibility for coordinating a response to it. CDC also objected to our use of the term "assumptions" in our draft report to describe how it arrived at its public health recommendations. CDC emphasized that its decisions and recommendations were based on available science—not assumptions about health risk. Specifically, CDC indicated that its decisions "were based on inferences from previous experience and [its] epidemiological observations in Florida and New York, where no disease occurred among postal workers." While we believe our draft report clearly described the limitations of available knowledge and experience in the fall of 2001 and how these limitations led to the development of incorrect inferences and working assumptions about health risk to postal employees, we revised the report to further clarify these and other points. CDC's general comments are reproduced in appendix V. We addressed CDC's technical comments, as appropriate, in the body of the report.

We are sending copies of this report to the Postmaster General; the Chairman of the Senate Committee on Governmental Affairs; the Chairman and Ranking Minority Member of the House Committee on Government Reform; the CDC; OSHA; the U.S. Army Medical Research Institute of Infectious Diseases, and the FBI, as well as to postal unions, local public health departments, and other interested parties. We will provide copies to others on request. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you have any questions about this report, please contact me on (202) 512-2834 or at goldsteinm@gao.gov. Key contributors to this assignment were Don Allison, Jeannie Bryant, Derrick Collins, Elizabeth Eisenstadt, Bert Japikse, José Matos, Kathleen Turner, and Bernard Ungar.

A handwritten signature in black ink, appearing to read 'M. Goldstein', with a long horizontal flourish extending to the right.

Mark L. Goldstein
Director, Physical Infrastructure Issues

Comparison of Medical Services and Reassignment Benefits Provided to Postal Employees at Selected Facilities

Employees at the five facilities in our review received similar medical services, but the timing of the services varied depending on events at each location. Likewise, employees at the two facilities that were closed—Trenton and Brentwood—received similar reassignment benefits; however, the duration of the benefits differed. Available information on reassignment benefits received at facilities that the Postal Service said were closed for other emergencies was neither complete nor comparable, hampering efforts to compare benefits across facilities. This information is incomplete because the Postal Service does not centrally maintain information on its facility closures. Furthermore, of the 22 closures for other emergencies that the Postal Service identified during the 5-year period between January 1, 1998, and December 31, 2002, none lasted nearly as long as the closures of Trenton and Brentwood.

Similar Medical Services Were Provided to Employees at the Five Facilities, but the Timing of the Services Varied

Public health authorities provided similar medical services to employees at the five facilities in our review, including educational briefings on anthrax, literature to help employees make informed health decisions, medical screening, and antibacterial drugs; however, the timing of the services varied with the circumstances at each location. For example, in Florida, the local public health officials offered antibacterial drugs to employees at the West Palm Beach facility as soon as testing began at the facility and before any positive results were known. As discussed in the body of this report, the officials took this action because they believed it was important to respond proactively to the suspicion of contamination. In contrast, at the other facilities in our review, antibiotic prophylaxis was provided after the facility tested positive or after the Centers for Disease Control and Prevention (CDC) confirmed that a postal employee or customer had contracted anthrax. Table 3 identifies key events and indicates when medical screening began and antibacterial medication was offered to employees at the five facilities.

Appendix I
Comparison of Medical Services and
Reassignment Benefits Provided to Postal
Employees at Selected Facilities

Table 3: Key Events and Selected Medical Services Provided to Employees at the Five Postal Facilities

Postal facility	Primary medical service provider	Date of key events and selected medical services provided
Trenton	Local hospital	10/18/01: CDC confirmed that a postal employee had cutaneous anthrax. The facility was closed. 10/19/01: Medical screening and distribution of antibacterial drugs were initiated.
Brentwood	D.C. Department of Health	AM 10/21/01: CDC confirmed that a postal employee had inhalation anthrax. The mail-processing area of the facility was closed. PM 10/21/01: Medical screening and distribution of antibacterial drugs were initiated.
Morgan	CDC	10/24/01: Medical screening and distribution of antibacterial drugs were initiated.
West Palm Beach	Palm Beach County Health Department	10/27/01: Initiation of environmental tests at the facility. 10/27/01: Antibacterial drugs were offered to postal employees at the facility. 10/29/01: The facility tested positive for anthrax.
Wallingford	Connecticut Department of Public Health	11/21/01: CDC confirmed that an elderly woman (a postal customer in Connecticut) had inhalation anthrax. 11/21/01: Medical screening and distribution of antibacterial drugs were initiated.

Sources: GAO presentation of Postal Service, CDC, and state health department information.

Employees at the Two Closed Facilities Received Various Reassignment Benefits That Lasted for Different Periods of Time

Employees at the Trenton and Brentwood facilities received various benefits related to their reassignment to other facilities; however, the duration of the benefits differed at the two facilities.¹ The reassignment benefits to Trenton and Brentwood employees included administrative leave, free bus transportation and payment for time spent on the bus, and reimbursement for any additional commuting expenses.² The Postal Service provided the administrative leave first—from 1 to 3 days of time off—while it made alternative work arrangements for the employees. In addition, the Postal Service allowed employees to use administrative leave for any work time spent obtaining medical treatment.

Second, the Postal Service provided Trenton and Brentwood employees with free bus transportation to their new work locations and compensated them for their time spent commuting on the bus. However, the length of time that the transportation was offered and the period of compensation for the commute differed at the two locations. At Trenton—where most employees were initially reassigned to one of two facilities³—interested employees were bused from the parking lot of the Trenton facility to the alternative facilities beginning on Monday, October 22, 2001, and continuing until a new interim facility was opened in November 2002. The round-trip commute took about 2 hours per day and, for about the first month, the employees were paid for the time they spent commuting on the bus. However, as of November 19, 2001, the Postal Service stopped paying

¹The Postal Service allowed employees at the three other facilities to take leave or to work temporarily at other locations while their facilities were being tested and decontaminated. However, few employees took advantage of these opportunities. At Wallingford, for example, only 3 of the over 1,100 employees asked to work elsewhere during the facility's testing, while 180 employees took leave during the facility's decontamination. At Morgan, the Postal Service allowed employees to work on other floors of the facility or at the postal facility across the street from Morgan during the facility's testing and decontamination, but few people asked to do so. Similarly, at West Palm Beach, although some employees took leave during the facility's decontamination, none requested to be reassigned to other postal facilities, according to the facility manager.

²The benefits provided to employees following a postal facility's closure are specified in the Postal Service's *Employee and Labor Relations Manual* and in its collective bargaining agreements with unions.

³Not all Trenton employees were eligible for reassignment benefits. For example, carrier operations, which include sorting the mail, preparing it for letter carriers to deliver, and retail operations, continued in the parking lot of the facility, and therefore reassignment benefits were not paid to the employees performing these functions. Carrier operations continued in the Trenton parking lot for a few months, until they were relocated to a new building within a few miles of the Trenton facility.

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Reassignment Benefits Provided to Postal
Employees at Selected Facilities

employees for their commuting time on the bus, indicating that it was inconsistent with postal policy because the alternative locations were within the local commuting area.⁴ Although the Postal Service stopped paying for the time spent commuting on the bus, free bus transportation was provided until November 2002, when an interim facility was established. Similarly, the Postal Service assigned Brentwood employees to several facilities around Washington, D.C., and bused interested employees, free of charge, from the parking lot of the facility to one of the new work locations in Maryland beginning on Monday, October 22, 2001. At Brentwood, as at Trenton, the employees were initially paid for their commuting time, but Brentwood employees received this benefit for about 3 months—2 months longer than the Trenton employees. According to a former manager of the Brentwood facility, the time spent commuting was reimbursed for a longer period at Brentwood out of consideration for the trauma arising from the deaths of employees there. The Postal Service terminated the benefit to Brentwood employees in January 2002, indicating that the payments were costly and inconsistent with postal policy. However, it continued to provide bus service to an alternate work location in Maryland until January 2003.

At both locations, the Postal Service reimbursed employees for any additional commuting expenses they incurred while traveling independently to their new work locations, such as extra mileage driven in their vehicles or additional fares paid for public transportation. At Trenton, employees were reimbursed about \$1.5 million in fiscal year 2002 and about \$1.4 million in fiscal year 2003 for their additional commuting costs. Brentwood employees were reimbursed more than \$540,000 in fiscal year 2002 and more than \$1.1 million in fiscal year 2003, according to the Postal Service.⁵

⁴Trenton employees filed grievances over the decision not to compensate them for their commuting time. The grievances were not resolved and Trenton employees filed a lawsuit to force the Postal Service into arbitration on this issue. See *Trenton Metropolitan Area Local v. the United States Postal Service*, No. 04-1628(6EB) (DC NJ filed April 6, 2004).

⁵Although Trenton had fewer employees than Brentwood, it incurred higher costs because of greater distances traveled. In many cases, Trenton employees traveled more than 20 miles per round trip to alternate facilities and in some cases in excess of 60 miles. The Postal Service reported that its costs increased at Brentwood between fiscal years 2002 and 2003, in part because of a procedural change that allowed Brentwood employees to begin claiming reimbursement for the use of their private vehicles for transportation to work.

**Information on Benefits
Paid to Employees at
Facilities Closed for Other
Emergencies Is Neither
Complete nor Comparable,
Hampering Comparisons
across Facilities**

Available information on reassignment benefits received at facilities closed for other emergencies was neither complete nor comparable, hampering efforts to compare benefits across facilities. First, the Postal Service does not centrally maintain information on its facility closures. Thus, it was able to provide only general information on a portion of its facilities—the 22 facilities with 10 or more employees that, it says, were closed for more than 3 days between January 1, 1998, and December 31, 2002. Moreover, the circumstances associated with these closures (e.g., facility size, number of employees, length of closure) are not comparable to the closures of the Trenton and Brentwood facilities.⁶ For example, as shown in table 4, only 1 of the 22 closed facilities—the Houston Processing and Distribution Center—is comparable in size and function to the Trenton and Brentwood facilities. However, unlike Trenton and Brentwood, the Houston facility was closed for less than a month because of damage from tropical storm Allison in June 2001. The facility’s operations and 1,560 employees were moved temporarily to another facility.

Of the remaining 21 facilities, 12 closed for damage from natural disasters (fires, floods, or other weather-related reasons), 5 closed for safety reasons (such as renovation), and 4 closed for damage from the September 11, 2001, terrorist attacks on the World Trade Center. The number of employees at these facilities ranged from 10 to 338—far fewer than the numbers of employees at Trenton and Brentwood. Operations for 14 of the 21 facilities were temporarily transferred to other facilities, and the facilities have since reopened; 3 of the 21 facilities were closed for such a short time that the Postal Service granted the employees administrative leave and did not have to transfer operations to other facilities. Operations at 3 of the 4 facilities that were closed for damage from the terrorist attacks were moved temporarily to new facilities close to the original facilities. The fourth facility, the Church Street station in New York City, remained closed as of June 30, 2004. Table 4 provides information about the postal facilities closed for other emergencies during the 5 years between January 1, 1998, and December 31, 2002.

⁶When Trenton and Brentwood closed in October 2001, they had about 960 and 2,490 employees, respectively. Trenton is not expected to reopen until February 2005, which would be more than 3 years after its closure. Brentwood reopened and was fully operational on December 22, 2003—about 26 months after it closed.

Appendix I
Comparison of Medical Services and
Reassignment Benefits Provided to Postal
Employees at Selected Facilities

Table 4: Postal Facilities Closed for Other Emergencies, January 1, 1998, through December 31, 2002

Facility location	Reason for closure	Number of employees	Approximate date	
			Closed	Reopened
Brooklyn, N.Y., New Lots Station	S	66 ^b	3/1998	4/1998
Phoenix, Ariz., McDowell Station	S	65 ^b	5/1998	8/1998
Loudonville, Ohio, Main Post Office	N	10 ^b	1/1999	4/1999
Bound Brook, N.J., Main Post Office	N	30 ^b	9/1999	5/2000
Los Alamos, N. Mex., Main Post Office	N	44 ^a	5/2000	5/2000
Davenport, Iowa, Main Post Office	N	101 ^b	4/2001	5/2001
Houston, Tex., Computerized Forwarding System	N	65 ^b	6/2001	6/2001
Houston, Tex., Processing and Distribution Center	N	1,560 ^b	6/2001	6/2001
New York City, 3 stations	(3) WTC	338 ^b	9/2001	9/2001
La Plata, Md., Main Post Office	N	11 ^b	4/2002	4/2002
Archbald, Pa., Main Post Office	N	14 ^b	4/2002	6/2002
Roseau, Minn., Main Post Office	N	11 ^b	6/2002	7/2002
Brooklyn, N.Y., Brevoort Station	S	58 ^b	8/2002	8/2002
Abbeville, La., Main Post Office	N	31 ^a	11/2002	11/2002
Kaplan, La., Main Post Office	N	15 ^a	11/2002	11/2002
Cold Spring, N.Y., Main Post Office	N	12 ^b	2/2002	1/2003
Dallas, Tex., Downtown Station	S	124 ^b	4/2001	6/2003
Balch Springs, Tex., Station	S	16 ^b	11/2000	6/2003
New York City, Church St. Station	WTC	202 ^b	9/2001	Not reopened ^c
Tampa, Fla., Ybor City Station	N	60 ^b	5/2001	Not reopened ^c
Total facilities closed	22			
Facilities not reopened				2

Source: GAO presentation of Postal Service data as of June 30, 2004.

Note: Reasons for closure:

S = building safety.

N = natural disaster or other emergency.

WTC = closed as a result of the attacks on the World Trade Center.

^aThe Postal Service reported that it granted employees administrative leave.

^bAccording to the Postal Service, employees were assigned to other facilities during the closure.

^cThe functions of this facility were transferred.

Objectives, Scope, and Methodology

As requested, we reviewed the response to anthrax contamination at five postal processing and distribution centers—the Trenton Processing and Distribution Center in Hamilton, New Jersey; the Brentwood Processing and Distribution Center in Washington, D.C.; the Southern Connecticut Processing and Distribution Center in Wallingford, Connecticut; the West Palm Beach Processing and Distribution Center in West Palm Beach, Florida; and the Morgan Processing and Distribution Center in New York City.¹

Specifically, our objectives were to describe (1) the factors considered in deciding whether to close the five processing and distribution centers; (2) the information communicated to affected postal employees about the health risks posed by, and the extent of, contamination in these facilities; and (3) how lessons learned from the response to the contamination could be used in future situations. Additionally, as requested, we determined what, if any, medical services and reassignment benefits were provided to employees at the five processing and distribution centers and how these benefits compared to those provided to employees at facilities closed for other emergencies during the 5-year period ending December 31, 2002.

To address our overall reporting objectives, we interviewed federal and local officials involved in investigating and responding to anthrax contamination at the five postal processing and distribution centers in our review. We discussed, among other matters, the roles, responsibilities, activities, and lessons of the U.S. Postal Service; the Federal Bureau of Investigation (FBI); CDC and its National Institute for Occupational Safety and Health within the Department of Health and Human Services; the Environmental Protection Agency; the Occupational Safety and Health Administration within the Department of Labor; and the U.S. Army Medical Research Institute of Infectious Diseases within the Department of Defense. We also interviewed officials from the New Jersey Department of Health and Senior Services, the D.C. Department of Health, the Florida Department of Health, the Palm Beach County Department of Health in Florida, the New York City Department of Health and Mental Hygiene, and the Connecticut Department of Health. We also spoke to postal managers and union representatives from each of the facilities, including

¹Each of the five facilities was apparently contaminated as (1) envelopes containing anthrax or (2) cross-contaminated envelopes passed through high-speed mail-sorting machines in the facilities. Two other processing and distribution centers, one in Raleigh, North Carolina, and the other in Bellmawr, New Jersey, also tested positive for anthrax, but they are not believed to have processed contaminated mail.

representatives from the American Postal Workers Union, the National Association of Letter Carriers, and the National Postal Mail Handlers Union, and we met with representatives of an employee group who had worked at the Brentwood facility. Our work related to the Wallingford facility in Connecticut was principally derived from previous work we conducted between September 2002 and March 2003.² We updated this information, obtained additional supporting information, and incorporated the information, as appropriate, in this report to address our reporting objectives at the five facilities.

To understand the context in which the response to anthrax contamination occurred, we reviewed and analyzed, among other things, published literature; including technical reports on anthrax, studies and analyses of the anthrax incidents, prior reports by GAO and the Postal Service's Office of Inspector General, and newspaper articles from the period October 1, 2001, through December 31, 2001, in communities near the five postal facilities. To obtain information on anthrax, the treatment of the disease, and the response to the 2001 contamination, we also reviewed reports prepared by CDC (including its *Mortality and Morbidity Weekly* reports and its monthly *Emerging Infectious Diseases* journals), as well other medical publications, such as the *Journal of the American Medical Association*. We reviewed testimony delivered before numerous congressional committees on the response to the anthrax contamination in the fall of 2001; we also reviewed videotapes of national and local television coverage of the events as they were unfolding.

Specifically, to determine the factors considered in deciding whether to close postal facilities, we interviewed headquarters' postal officials as well as managers at each of the five facilities to identify the person or persons responsible for deciding whether to close the facility and to understand their roles in the decisions that were made. We also interviewed local public health officials, including state officials who participated in making closure decisions; reviewed agency documentation related to the factors considered in deciding whether to close facilities; and reviewed results of environmental testing for anthrax at the facilities. We interviewed a former official from the D.C. Department of Health who provided advice to the Postal Service in the days prior to the closure of the Brentwood facility. To understand the policies and guidance related to closure decisions, we reviewed the Postal Service's anthrax-related guidance available at that

²GAO-03-316.

time, specifically its October 1999 *Emergency Response to Mail Allegedly Containing Anthrax*; its October 19, 2001, guidance for responding to anthrax; and its *Interim Guidelines for Sampling, Analysis, Decontamination, and Disposal of Anthrax for U.S. Postal Facilities* initially dated November 16, 2001. We also reviewed CDC's guidance for closing facilities and the Postal Service's plans for responding to other hazardous incidents in the fall of 2001, including its plans for controlling exposure to blood-borne diseases, evacuating facilities, and responding to releases of hazardous materials. Finally, we reviewed available emergency response plans at the Trenton and Brentwood facilities.

To obtain information on what was communicated to employees about health risks posed by anthrax and the extent of contamination in facilities, we interviewed a wide range of postal and public health officials who provided information to employees during the crisis, including the epidemiologists for New Jersey and Connecticut, the CDC doctor who assisted in the response at Morgan, the occupational nurse for the Postal Service who assisted in providing medical services at the Robert Wood Johnson University Hospital in Hamilton, New Jersey, and the public health doctors who provided care to postal employees, as well as staff from the National Institute for Occupational Safety and Health who participated in testing and analyzing facility samples. To obtain employee views about the response to anthrax and what was communicated to them, we interviewed union representatives from each of the five facilities and met with representatives of an employee group who had worked at the Brentwood facility. In addition, we reviewed letters, flyers, and newsletters sent to employees, as well as videotapes of news programs and meetings between the Postal Service and affected parties, including employees. We also reviewed the Occupational Safety and Health Administration's regulations for disclosing test results to employees, as well as documentation of briefings, health advisories, and various news bulletins provided to employees. To determine what was communicated to employees about the contamination at each facility, including the results of testing, we interviewed officials from the Postal Service, CDC, local public health authorities, the National Institute for Occupational Safety and Health, the FBI, the U.S. Army Medical Research Institute of Infectious Diseases, and the Occupational Safety and Health Administration. We also obtained environmental tests results for the facilities and reports and other documentation prepared by government and contractor personnel. We did not independently assess or verify any of these data, including the adequacy or reliability of the testing methods. Because the Postal Service and others did not document all of the advice that they received or

provided, and did not, in all cases, document the precise information communicated to employees during various talks at the facilities, we sometimes relied on the recollections of Postal Service, public health, and other officials to reconstruct the events in this report. To the extent possible, we corroborated the information with other sources.

To determine how lessons learned from the response to the contamination could be used in future situations, we reviewed testimony and relevant reports to identify actions taken to prepare for future bioterrorism incidents, including those related to the creation of the new Department of Homeland Security. We also interviewed involved parties, including CDC and local public health authorities, about the lessons that have been or should be learned from the response to anthrax. We identified and documented actions taken, including actions taken to respond to our April 7, 2003, report about the response to anthrax at the Wallingford facility in Connecticut. For example, we reviewed guidelines revised by the National Response Team for responding to anthrax contamination. Finally we reviewed the Postal Service's December 2003 updated guidance, entitled *Interim Guidelines for Sampling, Analysis, Decontamination, and Disposal of Anthrax for U.S. Postal Facilities*, for, among other things, the Postal Service's most recent guidance on closing facilities and communicating test results to workers. We also obtained and reviewed the Postal Service's guidance for responding to anthrax at facilities with detection systems.

Fourth, to determine what, if any, medical services and reassignment benefits were provided to employees, we interviewed officials from CDC, local public health officials, and Postal Service managers who helped coordinate the medical services at the five facilities in our review, including managers from the D.C. Department of Health who assisted in organizing the provision of medical services to Brentwood employees. We also interviewed officials at the Robert Wood Johnson University Hospital to obtain information about the medical services provided to Trenton postal employees and to discuss issues related to the hospital's payment for the services. In addition, we discussed these issues with postal accounting staff at headquarters. We did not attempt to determine whether appropriate medications and guidance were provided to employees or whether appropriate medical protocols were followed at the five locations. To determine what, if any, reassignment benefits were paid to employees we interviewed Postal Service managers at the five facilities, including the human resource managers and representatives from the local unions. We also reviewed the Postal Service's *Employee and Labor Relations Manual*

and the national collective bargaining agreements for three unions representing postal employees and the Postal Service's memoranda terminating the reassignment benefits at Trenton and Brentwood. We did not attempt to determine whether appropriate benefits were provided to employees. Finally, to compare benefits received at the five facilities with those received by employees at facilities closed for emergencies, we requested and reviewed summary information on benefits received at facilities closed between January 1, 1998, and December 31, 2002, for emergencies unrelated to anthrax. Because the Postal Service specifically stated the limitations of the data, we did not attempt to independently assess or verify any of these data.

We did not examine issues related to the other 18 postal facilities that tested positive for anthrax or matters that are being litigated.³ Likewise, we did not assess the response to the anthrax contamination at the Hart Senate Office building in Washington, D.C.; however, a previous GAO report provided information on this topic,⁴ which we incorporated as appropriate.

³See, for example, *Briscoe v. Potter*, No. 1:03cv2084 (DC DC, filed Sept. 15, 2003); *Hubbard v. Potter*, No. 1:03cv1062 (DC DC filed Feb. 13, 2004).

⁴[GAO-04-152](#).

Time Line of Key Events, Fall 2001

Date	Events
Tuesday, 9/11/01	• Terrorist attacks on the World Trade Center and the Pentagon heighten concerns about possible bioterrorism.
Monday, 9/18/01	• Letters containing anthrax spores are mailed to the National Broadcasting Company (NBC) and the <i>New York Post</i> from Trenton, N.J.
Wednesday, 9/26/01-Monday, 10/01/01	• Two NBC employees, a <i>New York Post</i> employee, and the baby of an American Broadcasting Company (ABC) employee in New York City, and two postal employees in N.J. seek medical treatment for skin conditions. • In Fla., an American Media Incorporated employee is admitted to the hospital with a respiratory condition.
Tuesday, 10/02/01	• In Fla., a second American Media Incorporated employee is admitted to the hospital with a diagnosis of meningitis. • CDC issues an alert about bioterrorism, which provides information about preventive measures for anthrax.
Thursday, 10/04/01	• CDC and the Fla. Department of Health announce that an American Media Incorporated employee has inhalation anthrax.
Friday, 10/05/01	• In Fla., an American Media Incorporated employee becomes the first person to die from anthrax.
Monday, 10/08/01	• In Washington, D.C., the Postmaster General announces that the Postal Inspection Service is working with other law enforcement agencies on the incident in Fla.
Tuesday, 10/09/01	• Letters containing anthrax spores are mailed to Senator Daschle and Senator Leahy from Trenton, N.J.
Wednesday, 10/10/01	• The Postal Service begins to educate employees nationwide on signs of cutaneous anthrax exposure and procedures for handling mail to avoid anthrax infection.
Friday, 10/12/01	• In N.Y., the New York City Department of Health announces that an NBC employee has a confirmed case of cutaneous anthrax. • The FBI recovers the letter sent to NBC and, later that day, a public health laboratory in New York City confirms that the letter contained anthrax. However, there was insufficient sample remaining to determine the size of the anthrax particles. • The Postal Service says that it will offer gloves and disposable masks to all employees who handle mail. • Senator Daschle's letter passes through the Brentwood processing and distribution center. • The Boca Raton post office in Fla., which handled mail for American Media Incorporated, is tested for anthrax, and the Palm Beach County Department of Health administers nasal swabs and offers a 15-day supply of ciprofloxacin to postal employees considered most likely to have handled the mail to American Media Incorporated.
Monday, 10/15/01	• On Capitol Hill, an employee opens an envelope that is addressed to Senator Daschle containing anthrax. Staffs in that office, an adjacent office, and first responders are given nasal swabs and a 3-day supply of antibacterial drugs. • In N.J., the State Department of Health and Senior Services assures Trenton employees that they have a low risk of contracting anthrax. • In Fla., the presence of anthrax spores is confirmed at the Boca Raton post office. • In Fla., CDC confirms that a second American Media Incorporated employee has inhalation anthrax. • U.S. Army Medical Research Institute of Infectious Diseases personnel communicate the initial results of the agency's analyses of the substance in the letter to Senator Daschle to the FBI and the CDC.

Appendix III
Time Line of Key Events, Fall 2001

Date	Events
Tuesday, 10/16/01- Wednesday, 10/17/01	• In Washington, D.C., part of the Hart Senate Office Building is closed in the morning, and the remainder of the building is closed in the evening. Over the next 3 days, employees located in the Hart building and other Capitol Hill employees who request them are given nasal swabs and a 3-day supply of antibacterial drugs. • U.S. Army Medical Research Institute of Infectious Diseases personnel conduct additional analyses of the substance in the Daschle letter and communicate their generalized findings to representatives of the FBI, CDC, and selected other agencies. Representatives from the Postal Service were not present.
Thursday, 10/18/01	• In Washington, D.C., a local hazardous materials response team conducts two “quick tests” at Brentwood. The tests are negative for anthrax. A contractor begins taking additional samples for laboratory testing in the evening. • In Washington, D.C., the Postmaster General holds a press conference at Brentwood, in part to reassure postal employees that they are at low risk for contracting anthrax. • In N.J., CDC confirms cutaneous anthrax in a N.J. postal employee, and a second suspected case is identified. The Trenton facility is closed for environmental testing, and employees are sent home. • In N.Y., the New York City Department of Health announces another case of cutaneous anthrax in a Columbia Broadcasting System employee. • In Fla., the Postal Service arranges with the Environmental Protection Agency to clean two post offices contaminated with anthrax spores. • CDC distributes a press release announcing that the Food and Drug Administration has approved doxycycline for postexposure prophylaxis for anthrax, and begins recommending its use instead of ciprofloxacin. • In Washington, D.C., a Brentwood postal employee seeks medical attention. • U.S. Army Medical Research Institute of Infectious Diseases personnel continue their analyses of the anthrax in the letter sent to Senator Daschle.
Friday, 10/19/01	• In N.J., the Department of Health and Senior Services refers postal employees to their private physicians for medical treatment. The mayor makes alternative arrangements and employees begin seeking treatment at a local hospital. CDC confirms that another N.J. postal employee has cutaneous anthrax. • In Washington, D.C., a hospital notifies CDC that it has admitted a Brentwood employee with a possible case of inhalation anthrax. • U.S. Army Medical Research Institute of Infectious Diseases personnel brief FBI personnel on, among other things, their observations about the size of the anthrax particles in Senator Daschle’s letter. Staff from CDC and the Postal Service were not present. • The FBI recovers the contaminated letter to the <i>New York Post</i>. The letter was recovered unopened from mail that had been set aside as suspicious by the media company.
Saturday, 10/20/01	• In Washington, D.C., another Brentwood employee is admitted to a hospital with a respiratory condition. • CDC arrives at the Brentwood facility to meet with Postal Service managers and monitor the employee admitted to the hospital on 10/19. According to Postal Service officials, CDC informed them that there was no reason to close Brentwood unless and until an employee is confirmed to have inhalation anthrax. • Analyses by the U.S. Army Medical Research Institute of Infectious Diseases determine that the letter to the <i>New York Post</i>, recovered on 10/19, contains anthrax. According to the FBI, the sample was not suitable for testing the size of the anthrax particles.
Sunday, 10/21/01	• In Washington, D.C., the Brentwood employee who was admitted to the hospital on 10/19/01 is confirmed to have inhalation anthrax. The mail-processing area on the first floor of Brentwood is closed and evaluation and prophylaxis of Brentwood employees begins. • In Washington, D.C., the Brentwood employee who initially sought medical attention on 10/18/01 is admitted to a hospital with a possible case of inhalation anthrax and becomes the first postal employee (and second person) to die. • In Washington, D.C., another Brentwood employee seeks medical attention at a hospital. His chest X-ray is initially determined to be normal, and he is discharged.

Appendix III
Time Line of Key Events, Fall 2001

Date	Events
Monday, 10/22/01	• In Washington, D.C., the Brentwood postal employee who sought medical attention on 10/21/01 and was discharged is readmitted to the hospital. This time, he is diagnosed with inhalation anthrax and subsequently dies, becoming the second postal employee (and third person) to die from anthrax. • In Washington, D.C., distribution of antibacterial drugs is expanded to include all employees and visitors to nonpublic areas at the Brentwood facility. • The Postal Service learns that environmental tests of Brentwood are positive for anthrax. • U.S. Army Medical Research Institute of Infectious Diseases personnel hand-delivered a report, dated 10/21/01, describing the results of their various analyses of the substance in Senator Daschle's letter to the FBI. The report had been previously faxed to the FBI on 10/21/01. • According to FBI officials, the CDC liaison is briefed on the results of the 10/21/01 report prepared by the U.S. Army Medical Research Institute of Infectious Diseases on its analyses of Senator Daschle's letter, but CDC's liaison said he was not briefed until later.
Wednesday, 10/23/01	• In N.Y., environmental test results from the Morgan facility, which processed the anthrax-contaminated letters delivered to media personnel in N.Y., are positive for anthrax. • In Washington, D.C., the Secretary of Health and Human Services is briefed on the results of the U.S. Army Medical Research Institute of Infectious Diseases' analyses. • The Postal Service participates in discussions with U.S. Army Medical Research Institute of Infectious Diseases about test results from Senator Daschle's letter. • The FBI learns that an envelope similar to the ones used in the anthrax mailings had pores up to 50 microns in size.
Thursday, 10/24/01	• According to the CDC liaison, he was informed about the results of U.S. Army Medical Research Institute of Infectious Diseases' 10/21/01 analyses of Senator Daschle's letter.
Sunday, 10/28/01	• In N.J., CDC confirms that a Trenton postal employee has inhalation anthrax.
Monday, 10/29/01	• In N.Y., preliminary tests indicate that a N.Y. resident who was admitted to the hospital on 10/28 has inhalation anthrax. • In N.J., laboratory testing confirms cutaneous anthrax in a woman who received mail from the Trenton facility, but had not visited the facility. The woman originally sought medical attention on 10/18/01 and was admitted to the hospital on 10/22/01 for a skin condition. • In N.J., laboratory testing confirms a second case of inhalation anthrax in a Trenton postal employee who initially sought medical attention on 10/16/01 and was admitted to the hospital on 10/18/01 with a respiratory condition.
Wednesday, 10/31/01	• In N.Y., the person hospitalized on 10/29/01 becomes the fourth person to die from inhalation anthrax.
Friday, 11/2/01	• In N.Y., public health officials announce another case of cutaneous anthrax, in a <i>New York Post</i> employee.
Friday, 11/16/01	• In Washington, D.C., a letter addressed to Senator Leahy is recovered in mail that was impounded before delivery to Capitol Hill by the FBI on 10/17/01. The letter, which was also mailed in Trenton, N.J., and processed through both the Trenton and Brentwood postal facilities, was subsequently found to contain anthrax. A total of four letters containing anthrax have now been recovered, all mailed from Trenton, N.J.
Wednesday, 11/21/01	• In Connecticut, an elderly woman who was admitted to the hospital for dehydration on 11/16/01 becomes the fifth person to die from inhalation anthrax. • The Connecticut Department of Public Health, in consultation with CDC, begins prophylaxis for postal employees working at the Wallingford postal facility, which processed mail to the fifth victim's home.
Friday, 12/27/01	• CDC offers the anthrax vaccine to postal employees.

Source: GAO based on information provided by the U.S. Postal Service, the CDC, the Connecticut Department of Public Health, the D.C. Department of Health, the FBI, the Florida Department of Health, the New Jersey Department of Health and Senior Services, and the New York City Department of Health and Mental Hygiene.

Comments from the U.S. Postal Service

HENRY A. PANKEY
VICE PRESIDENT, EMERGENCY PREPAREDNESS



July 2, 2004

Mr. Mark L. Goldstein
Director, Physical Infrastructure Issues
United States General Accounting Office
Washington, DC 20548-0001

Dear Mr. Goldstein:

Thank you for providing the Postal Service with the opportunity to review and comment on the draft report, U.S. Postal Service: Better Guidance Needed to Ensure An Appropriate Response to Anthrax Contamination.

We are pleased that the GAO correctly recognizes that the health and safety of our employees and customers was at all times our first priority during the anthrax crisis of 2001. We also agree with your conclusion that the decisions made by the Postal Service, which as you state were based upon and consistent with the advice and guidance that we received from the scientific community and public health agencies, were appropriate under the circumstances. In that regard, we note that the medical and scientific knowledge relating to anthrax has evolved considerably since the unprecedented anthrax attacks, and we acknowledge that we would have made some different decisions had the present state of medical and scientific knowledge been available to us in October of 2001.

Regarding Recommendations 1 and 2, that we revise and clarify the Interim Guidelines and other related emergency response guidance, we will make or are in the process of making the appropriate revisions. For example, we will shortly publish a Management Instruction (MI) that sets out the procedures to be followed if a Biohazard Detection System generates a positive test and subsequent alert. The policy covers facility evacuation, personal decontamination and the administration of post-exposure antibiotics. This MI is consistent with the April 2004 guidance from the Centers for Disease Control and Prevention concerning the medical interventions appropriate during the response to a detection system alert for anthrax exposure in a facility. When published, this MI will fully respond to Recommendation 2.

For Recommendation 3, that we set a time frame for developing procedures to ensure that medical providers receive timely payment for services they may be requested to provide in the event of a similar medical emergency, the entities responsible for dealing with terrorist activity are continuing to formulate policy concerning how to deal with terrorist events, including how to pay or reimburse medical providers that provide emergency medical services during a terrorist incident. We will continue to work with the Department of Homeland Security and other relevant entities to develop appropriate policies and procedures in this regard.

We have worked in good faith to provide full and complete communication to our employees and their union representatives on all aspects of the testing and decontamination process at the Curseen/Morris and Trenton Processing and Distribution Centers.

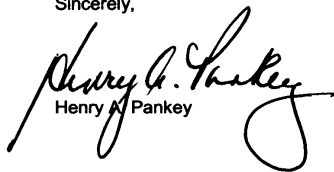
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Appendix IV
Comments from the U.S. Postal Service

- 2 -

If you or your staff would like to discuss any of these comments further, I am available at your convenience.

Sincerely,


Henry A. Pankey

Comments from the Centers for Disease Control and Prevention



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
and Prevention (CDC)
Atlanta GA 30333

JUL 1 2004

Mr. Mark Goldstein
Director, Physical Infrastructure Issues
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Goldstein:

Enclosed are the Centers for Disease Control and Prevention's (CDC) comments regarding the U.S. General Accounting Office's (GAO) draft report entitled "*U.S. Postal Service: Better Guidance Needed to Ensure an Appropriate Response to Anthrax Contamination*" (GAO-04-239).

Due to GAO's unusual requirements for the review of this draft report, the enclosed comments represent CDC's tentative position and are subject to re-evaluation when the final version of the report is received.

CDC appreciates the opportunity to comment on the draft report prior to its publication.

Sincerely,


Julie Louise Gerberding, M.D., M.P.H.
Director

Enclosure

Comments of the Centers for Disease Control and Prevention, Department of Health and Human Services, on the U.S. General Accounting Office's Draft Report "U.S. Postal Service: Better Guidance Needed to Ensure an Appropriate Response to Anthrax Contamination" (GAO-04-239)

CDC appreciates the opportunity to review the draft report. However, given GAO's unusual rules for review of this draft, the document could not be circulated to all CDC staff who participated in the 2001 anthrax investigations or to all approving and clearance officials. Therefore, CDC would like to acknowledge that the following comments were made, under the circumstances, to the best of the agency's ability and some areas of the draft report may not have been sufficiently reviewed or cleared.

General Comments

While CDC acknowledged the communication challenges which occurred during the anthrax attacks, the GAO report should highlight the following points more prominently throughout:

- No one had dealt with an anthrax event of this nature and magnitude previously, and the last serious outbreak occurred in the 1970s leaving agencies with very little to rely on in terms of protocol for handling these types of issues.
- The lines of authority for managing this type of crisis were very confusing and there was a lack of assigned responsibility government-wide for taking the lead role in coordinating a response to these attacks, a situation which has been rectified with the creation of the Department of Homeland Security (DHS) and the exertion of DHS authority for these issues. While this is acknowledged in the report, it is done quite late in the text, and CDC believes that acknowledging this fact earlier would provide a more accurate picture of the leadership challenges facing all the agencies involved in the 2001 anthrax response.

In addition, the report repeatedly states that CDC made "assumptions" concerning the health risks associated with anthrax exposure at the postal facilities. CDC believes that this leaves an inaccurate picture of occurrences at the time of the anthrax attacks. A more scientifically accurate description is provided in the report on page 36, lines 915-916, where it is stated that "CDC recommendations, while sound in terms of prior knowledge and science, had left the Brentwood workers unprotected." This description more accurately reflects the process by which CDC makes recommendations, (i.e., recommendations are not based on assumptions but rather are based on the best available science). CDC believes it is critical that the report be revised to address this issue in order to avoid misperceptions concerning CDC's decision-making processes which are always science-based.

This issue has been discussed in previous publications by CDC authors. For example, Perkins, Popovic and Yeskey (2002) include this statement:

The decision-making involved in closing the U.S. Postal Service's Brentwood Processing and Distribution Facility, Washington, D.C., has been criticized. The risk to Brentwood facility employees by contaminated envelopes in transit was not recognized in time to

prevent illness in four employees, two of whom died. Decisions concerning the Brentwood facility were based on inferences from previous experience and epidemiologic observations in Florida and New York, where no disease occurred among postal workers. A possible explanation for the differential risk is that the *B. anthracis* spore preparation in the October 9 envelopes had a higher potential for aerosolization than the preparation in the September 18 envelopes or that the two mailings were made under or exposed to different environmental conditions (e.g., amount of moisture) that created a different potential for aerosolization. A different aerosolization potential is supported by the epidemic curve in the manuscript by Jernigan et al., which shows a higher proportion of inhalational (versus cutaneous) anthrax cases associated with the October 9 mailing. In naturally occurring disease, once risk is understood, it generally remains constant; however, in intentional contamination, risk may be altered by the perpetrator(s).

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