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BIOTERRORISM

Review of Public Health Preparedness Programs

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Mr. Chairman and Members of the Subcommittee:

I appreciate the opportunity to be here today to discuss our work on the activities of federal agencies to prepare the nation to respond to the public health and medical consequences of a bioterrorist attack.[1] Preparing to respond to the public health and medical consequences of a bioterrorist attack poses some challenges that are different from those in other types of terrorist attacks, such as bombings. On September 28, 2001, we released a report[2] that describes (1) the research and preparedness activities being undertaken by federal departments and agencies to manage the consequences of a bioterrorist attack,[3] (2) the coordination of these activities, and (3) the findings of reports on the preparedness of state and local jurisdictions to respond to a bioterrorist attack. My testimony will summarize the detailed findings included in our report, highlighting weaknesses in the public health infrastructure that we have identified in our ongoing work and which we believe warrant special attention.

In summary, we identified more than 20 federal departments and agencies as having a role in preparing for or responding to the public health and medical consequences of a bioterrorist attack. These agencies are participating in a variety of activities, from improving the detection of biological agents to developing a national stockpile of pharmaceuticals to treat victims of disasters. Federal departments and agencies have engaged in a number of efforts to coordinate these activities on a formal and informal basis, such as interagency work groups. Despite these efforts, we found evidence that coordination between departments and agencies is fragmented. We did, however, find recent actions to improve coordination across federal departments and agencies. In addition, we found emerging concerns about the preparedness of state and local jurisdictions, including insufficient state and local planning for response to terrorist events, a lack of hospital participation in training on terrorism and emergency response

[1]Bioterrorism is the threat or intentional release of biological agents (viruses, bacteria, or their toxins) for the purposes of influencing the conduct of government or intimidating or coercing a civilian population.

[2]See *Bioterrorism: Federal Research and Preparedness Activities* (GAO-01-915, Sept. 28, 2001). This report was mandated by the Public Health Improvement Act of 2000 (P.L. 106-505, sec. 102). Also, see the list of related GAO products at the end of this statement.

[3]We conducted interviews with and obtained information from the Departments of Agriculture, Commerce, Defense, Energy, Health and Human Services, Justice, Transportation, the Treasury, and Veterans Affairs; the Environmental Protection Agency; and the Federal Emergency Management Agency.

planning, the timely availability of medical teams and resources in an emergency, and inadequacies in the public health infrastructure. The last includes weaknesses in the training of health care providers, communication among responsible parties, and capacity of laboratories and hospitals, including the ability to treat mass casualties.

Background

A domestic bioterrorist attack is considered to be a low-probability event, in part because of the various difficulties involved in successfully delivering biological agents to achieve large-scale casualties.[4] However, a number of cases involving biological agents, including at least one completed bioterrorist act and numerous threats and hoaxes,[5] have occurred domestically. In 1984, a group intentionally contaminated salad bars in restaurants in Oregon with salmonella bacteria. Although no one died, 751 people were diagnosed with foodborne illness. Some experts predict that more domestic bioterrorist attacks are likely to occur.

The burden of responding to such an attack would fall initially on personnel in state and local emergency response agencies. These "first responders" include firefighters, emergency medical service personnel, law enforcement officers, public health officials, health care workers (including doctors, nurses, and other medical professionals), and public works personnel. If the emergency were to require federal disaster assistance, federal departments and agencies would respond according to responsibilities outlined in the Federal Response Plan.[6] Several groups, including the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction (known as the Gilmore Panel), have assessed the capabilities at the federal, state, and local levels

[4]See *Combating Terrorism: Need for Comprehensive Threat and Risk Assessments of Chemical and Biological Attacks* (GAO/NSIAD-99-163, Sept. 14, 1999), pp. 10-15, for a discussion of the ease or difficulty for a terrorist to create mass casualties by making or using chemical or biological agents without the assistance of a state-sponsored program.

[5]For example, in January 2000, threatening letters were sent to a variety of recipients, including the Planned Parenthood office in Naples, Florida, warning of the release of anthrax. Federal authorities found no signs of anthrax or any other traces of harmful substances and determined these incidences to be hoaxes.

[6]The Federal Response Plan, originally drafted in 1992 and updated in 1999, is authorized under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act; P.L. 93-288, as amended). The plan outlines the planning assumptions, policies, concept of operations, organizational structures, and specific assignment of responsibilities to lead departments and agencies in providing federal assistance once the President has declared an emergency requiring federal assistance.

to respond to a domestic terrorist incident involving a weapon of mass destruction (WMD), that is, a chemical, biological, radiological, or nuclear agent or weapon.[7]

While many aspects of an effective response to bioterrorism are the same as those for any disaster, there are some unique features. For example, if a biological agent is released covertly, it may not be recognized for a week or more because symptoms may not appear for several days after the initial exposure and may be misdiagnosed at first. In addition, some biological agents, such as smallpox, are communicable and can spread to others who were not initially exposed. These differences require a type of response that is unique to bioterrorism, including infectious disease surveillance,[8] epidemiologic investigation,[9] laboratory identification of biological agents, and distribution of antibiotics to large segments of the population to prevent the spread of an infectious disease. However, some aspects of an effective response to bioterrorism are also important in responding to any type of large-scale disaster, such as providing emergency medical services, continuing health care services delivery, and managing mass fatalities.

[7]Some agencies define WMDs to include large conventional explosives as well.

[8]Disease surveillance systems provide for the ongoing collection, analysis, and dissemination of data to prevent and control disease.

[9]Epidemiological investigation is the study of patterns of health or disease and the factors that influence these patterns.

Federal Departments and Agencies Reported a Variety of Research and Preparedness Activities

Federal spending on domestic preparedness for terrorist attacks involving WMDs has risen 310 percent since fiscal year 1998, to approximately $1.7 billion in fiscal year 2001, and may increase significantly after the events of September 11, 2001. However, only a portion of these funds were used to conduct a variety of activities related to research on and preparedness for the public health and medical consequences of a bioterrorist attack. We cannot measure the total investment in such activities because departments and agencies provided funding information in various forms—as appropriations, obligations, or expenditures. Because the funding information provided is not equivalent,[10] we summarized funding by department or agency, but not across the federal government (see apps. I and II).[11] Reported funding generally shows increases from fiscal year 1998 to fiscal year 2001. Several agencies received little or no funding in fiscal year 1998. For example, within the Department of Health and Human Services (HHS), the Centers for Disease Control and Prevention's (CDC) Bioterrorism Preparedness and Response Program was established and first received funding in fiscal year 1999 (see app. I and app. II). Its funding has increased from approximately $121 million at that time to approximately $194 million in fiscal year 2001.

Research Activities Focus on Detection, Treatment, Vaccination, and Equipment

Research is currently being done to enable the rapid identification of biological agents in a variety of settings; develop new or improved vaccines, antibiotics, and antivirals to improve treatment and vaccination for infectious diseases caused by biological agents; and develop and test emergency response equipment such as respiratory and other personal protective equipment. Appendix I provides information on the total

[10]For example, an agency providing appropriations is not necessarily indicating the level of its commitments (that is, obligations) or expenditures for that year—only the amount of budget authority made available to it by the Congress, some of which may be unspent. Similarly, an agency that provided expenditure information for fiscal year 2000 may have obligated the funds in fiscal year 1999 based on an appropriation for fiscal year 1998. To simplify presentation, we generally refer to all the budget data we received from agencies as "reported funding."

[11]Although there are generally no specific appropriations for activities on bioterrorism, some departments and agencies did provide estimates of the funds they were devoting to activities on bioterrorism. Other departments and agencies provided estimates for overall terrorism activities, but were unable to provide funding amounts for activities on bioterrorism specifically. Still others stated that their activities were relevant for bioterrorism, but they were unable to specify the funding amounts. Funding levels for activities on terrorism, including bioterrorism, were reported for activities prior to the 2001 Emergency Supplemental Appropriations Act for Recovery From and Response to Terrorist Attacks on the United States (P.L. 107-38).

reported funding for all the departments and agencies carrying out research, along with examples of this research.

The Department of Agriculture (USDA), Department of Defense (DOD), Department of Energy, HHS, Department of Justice (DOJ), Department of the Treasury, and the Environmental Protection Agency (EPA) have all sponsored or conducted projects to improve the detection and characterization of biological agents in a variety of different settings, from water to clinical samples (such as blood). For example, EPA is sponsoring research to improve its ability to detect biological agents in the water supply. Some of these projects, such as those conducted or sponsored by DOD and DOJ, are not primarily for the public health and medical consequences of a bioterrorist attack against the civilian population, but could eventually benefit research for those purposes.

Departments and agencies are also conducting or sponsoring studies to improve treatment and vaccination for diseases caused by biological agents. For example, HHS' projects include basic research sponsored by the National Institutes of Health to develop drugs and diagnostics and applied research sponsored by the Agency for Healthcare Research and Quality to improve health care delivery systems by studying the use of information systems and decision support systems to enhance preparedness for the delivery of medical care in an emergency.

In addition, several agencies, including the Department of Commerce's National Institute of Standards and Technology and DOJ's National Institute of Justice are conducting research that focuses on developing performance standards and methods for testing the performance of emergency response equipment, such as respirators and personal protective equipment.

Preparedness Efforts Include Multiple Actions

Federal departments' and agencies' preparedness efforts have included efforts to increase federal, state, and local response capabilities, develop response teams of medical professionals, increase availability of medical treatments, participate in and sponsor terrorism response exercises, plan to aid victims, and provide support during special events such as presidential inaugurations, major political party conventions, and the

Superbowl.[12] Appendix II contains information on total reported funding for all the departments and agencies with bioterrorism preparedness activities, along *with* examples of these activities.

Several federal departments and agencies, such as the Federal Emergency Management Agency (FEMA) and CDC, have programs to increase the ability of state and local authorities to successfully respond to an emergency, including a bioterrorist attack. These departments and agencies contribute to state and local jurisdictions by helping them pay for equipment and develop emergency response plans, providing technical assistance, increasing communications capabilities, and conducting training courses.

Federal departments and agencies have also been increasing their own capacity to identify and deal with a bioterrorist incident. For example, CDC, USDA, and the Food and Drug Administration (FDA) are improving surveillance methods for detecting disease outbreaks in humans and animals. They have also established laboratory response networks to maintain state-of-the-art capabilities for biological agent identification and the characterization of human clinical samples.

Some federal departments and agencies have developed teams to directly respond to terrorist events and other emergencies. For example, HHS' Office of Emergency Preparedness (OEP) created Disaster Medical Assistance Teams to provide medical treatment and assistance in the event of an emergency. Four of these teams, known as National Medical Response Teams, are specially trained and equipped to provide medical care to victims of WMD events, such as bioterrorist attacks.

Several agencies are involved in increasing the availability of medical supplies that could be used in an emergency, including a bioterrorist attack. CDC's National Pharmaceutical Stockpile contains pharmaceuticals, antidotes, and medical supplies that can be delivered anywhere in the United States within 12 hours of the decision to deploy. The stockpile was deployed for the first time on September 11, 2001, in response to the terrorist attacks on New York City.

[12]Presidential Decision Directive 62, issued May 22, 1998, created a category of special events called National Security Special Events, which are events of such significance that they warrant greater federal planning and protection than other special events.

Federally initiated bioterrorism response exercises have been conducted across the country. For example, in May 2000, many departments and agencies took part in the Top Officials 2000 exercise (TOPOFF 2000) in Denver, Colorado, which featured the simulated release of a biological agent.[13] Participants included local fire departments, police, hospitals, the Colorado Department of Public Health and the Environment, the Colorado Office of Emergency Management, the Colorado National Guard, the American Red Cross, the Salvation Army, HHS, DOD, FEMA, the Federal Bureau of Investigation (FBI), and EPA.

Several agencies also provide assistance to victims of terrorism. FEMA can provide supplemental funds to state and local mental health agencies for crisis counseling to eligible survivors of presidentially declared emergencies. In the aftermath of the recent terrorist attacks, HHS released $1 million in funding to New York State to support mental health services and strategic planning for comprehensive and long-term support to address the mental health needs of the community. DOJ's Office of Justice Programs (OJP) also manages a program that provides funds for victims of terrorist attacks that can be used to provide a variety of services, including mental health treatment and financial assistance to attend related criminal proceedings.

Federal departments and agencies also provide support at special events to improve response in case of an emergency. For example, CDC has deployed a system to provide increased surveillance and epidemiological capacity before, during, and after special events. Besides improving emergency response at the events, participation by departments and agencies gives them valuable experience working together to develop and practice plans to combat terrorism.

[13]In addition to simulating a bioterrorism attack in Denver, the exercise also simulated a chemical weapons incident in Portsmouth, New Hampshire. A concurrent exercise, referred to as National Capital Region 2000, simulated a radiological event in the greater Washington, D.C., area.

Fragmentation Remains Despite Efforts to Coordinate Federal Programs

Federal departments and agencies are using a variety of interagency plans, work groups, and agreements to coordinate their activities to combat terrorism. However, we found evidence that coordination remains fragmented. For example, several different agencies are responsible for various coordination functions, which limits accountability and hinders unity of effort; several key agencies have not been included in bioterrorism-related policy and response planning; and the programs that agencies have developed to provide assistance to state and local governments are similar and potentially duplicative. The President recently took steps to improve oversight and coordination, including the creation of the Office of Homeland Security.

Departments and Agencies Use a Variety of Methods to Coordinate Activities

Over 40 federal departments and agencies have some role in combating terrorism, and coordinating their activities is a significant challenge. We identified over 20 departments and agencies as having a role in preparing for or responding to the public health and medical consequences of a bioterrorist attack. Appendix III, which is based on the framework given in the Terrorism Incident Annex of the Federal Response Plan, shows a sample of the coordination efforts by federal departments and agencies with responsibilities for the public health and medical consequences of a bioterrorist attack, as they existed prior to the recent creation of the Office of Homeland Security. This figure illustrates the complex relationships among the many federal departments and agencies involved.

Departments and agencies use several approaches to coordinate their activities on terrorism, including interagency response plans, work groups, and formal agreements. Interagency plans for responding to a terrorist incident help outline agency responsibilities and identify resources that could be used during a response. For example, the Federal Response Plan provides a broad framework for coordinating the delivery of federal disaster assistance to state and local governments when an emergency overwhelms their ability to respond effectively. The Federal Response Plan also designates primary and supporting federal agencies for a variety of emergency support operations. For example, HHS is the primary agency for coordinating federal assistance in response to public health and medical care needs in an emergency. HHS could receive support from other agencies and organizations, such as DOD, USDA, and FEMA, to assist state and local jurisdictions.

Interagency work groups are being used to minimize duplication of funding and effort in federal activities to combat terrorism. For example, the Technical Support Working Group is chartered to coordinate

interagency research and development requirements across the federal government in order to prevent duplication of effort between agencies. The Technical Support Working Group, among other projects, helped to identify research needs and fund a project to detect biological agents in food that can be used by both DOD and USDA.

Formal agreements between departments and agencies are being used to share resources and knowledge. For example, CDC contracts with the Department of Veterans Affairs (VA) to purchase drugs and medical supplies for the National Pharmaceutical Stockpile because of VA's purchasing power and ability to negotiate large discounts.

Coordination Remains Fragmented Within the Federal Government

Overall coordination of federal programs to combat terrorism is fragmented.[14] For example, several agencies have coordination functions, including DOJ, the FBI, FEMA, and the Office of Management and Budget. Officials from a number of the agencies that combat terrorism told us that the coordination roles of these various agencies are not always clear and sometimes overlap, leading to a fragmented approach. We have found that the overall coordination of federal research and development efforts to combat terrorism is still limited by several factors, including the compartmentalization or security classification of some research efforts.[15] The Gilmore Panel also concluded that the current coordination structure does not provide for the requisite authority or accountability to impose the discipline necessary among the federal agencies involved.[16]

The multiplicity of federal assistance programs requires focus and attention to minimize redundancy of effort.[17] Table 1 shows some of the federal programs providing assistance to state and local governments for emergency planning that would be relevant to responding to a bioterrorist attack. While the programs vary somewhat in their target audiences, the

[14]See also *Combating Terrorism: Comments on Counterterrorism Leadership and National Strategy* (GAO-01-556T, Mar. 27, 2001), p. 1.

[15]See *Combating Terrorism: Selected Challenges and Related Recommendations* (GAO-01-822, Sept. 20, 2001), pp. 79, 84.

[16]Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction (Gilmore Panel), *Toward a National Strategy for Combating Terrorism*, Second Annual Report (Arlington, Va.: RAND, Dec. 15, 2000), p. 7.

[17]See also *Combating Terrorism: Issues in Managing Counterterrorist Programs* (GAO/T-NSIAD-00-145, Apr. 6, 2000), p. 8.

potential redundancy of these federal efforts highlights the need for scrutiny. In our report on combating terrorism, issued on September 20, 2001, we recommended that the President, working closely with the Congress, consolidate some of the activities of DOJ's OJP under FEMA.[18]

Table 1: Selected Federal Activities Providing Assistance to State and Local Governments for Emergency Planning Relevant to a Bioterrorist Attack

Department or agency	Activities	Target audience
HHS—CDC	Provides grants, technical support, and performance standards to support bioterrorism preparedness and response planning.	State and local health agencies
HHS—OEP	Enters into contracts to enhance medical response capability. The program includes a focus on response to bioterrorism, including early recognition, mass postexposure treatment, mass casualty care, and mass fatality management.	Local jurisdictions (for fire, police, and emergency medical services; hospitals; public health agencies; and other services)
DOJ—OJP	Assists states in developing strategic plans. Includes funding for training, equipment acquisition, technical assistance, and exercise planning and execution to enhance state and local capabilities to respond to terrorist incidents.	States (for fire, law enforcement, emergency medical, and hazardous materials response services; hospitals; public health departments; and other services)
FEMA	Provides grant assistance to support state and local consequence management planning, training, and exercises for all types of terrorism, including bioterrorism.	State emergency management agencies

Source: Information obtained from departments and agencies.

We have also recommended that the federal government conduct multidisciplinary and analytically sound threat and risk assessments to define and prioritize requirements and properly focus programs and investments in combating terrorism.[19] Such assessments would be useful in addressing the fragmentation that is evident in the different threat lists of biological agents developed by federal departments and agencies.

[18]See GAO-01-822, Sept. 20, 2001, pp. 104-106.

[19]See *Combating Terrorism: Threat and Risk Assessments Can Help Prioritize and Target Program Investments* (GAO/NSIAD-98-74, Apr. 9, 1998) and GAO/NSIAD-99-163, Sept. 14, 1999.

Understanding which biological agents are considered most likely to be used in an act of domestic terrorism is necessary to focus the investment in new technologies, equipment, training, and planning. Several different agencies have or are in the process of developing biological agent threat lists, which differ based on the agencies' focus. For example, CDC collaborated with law enforcement, intelligence, and defense agencies to develop a critical agent list that focuses on the biological agents that would have the greatest impact on public health. The FBI, the National Institute of Justice, and the Technical Support Working Group are completing a report that lists biological agents that may be more likely to be used by a terrorist group working in the United States that is not sponsored by a foreign government. In addition, an official at USDA's Animal and Plant Health Inspection Service told us that it uses two lists of agents of concern for a potential bioterrorist attack. These lists of agents, only some of which are capable of making both animals and humans sick, were developed through an international process. According to agency officials, separate threat lists are appropriate because of the different focuses of these agencies. In our view, the existence of competing lists makes the assignment of priorities difficult for state and local officials.

Fragmentation is also apparent in the composition of groups of federal agencies involved in bioterrorism-related planning and policy. Officials at the Department of Transportation (DOT) told us that that even though the nation's transportation centers account for a significant percentage of the nation's potential terrorist targets, the department was not part of the founding group of agencies that worked on bioterrorism issues and has not been included in bioterrorism response plans. DOT officials also told us that the department is supposed to deliver supplies for FEMA under the Federal Response Plan, but it was not brought into the planning early enough to understand the extent of its responsibilities in the transportation process. The department learned what its responsibilities would be during the TOPOFF 2000 exercise, which simulated a release of a biological agent.

Recent Actions Seek to Improve Coordination Across Federal Departments and Agencies

In May 2001, the President asked the Vice President to oversee the development of a coordinated national effort dealing with WMDs.[20] At the same time, the President asked the Director of FEMA to establish an Office of National Preparedness to implement the results of the Vice President's effort that relate to programs within federal agencies that address consequence management resulting from the use of WMDs. The purpose of this effort is to better focus policies and ensure that programs and activities are fully coordinated in support of building the needed preparedness and response capabilities. In addition, on September 20, 2001, the President announced the creation of the Office of Homeland Security to lead, oversee, and coordinate a comprehensive national strategy to protect the country from terrorism and respond to any attacks that may occur. These actions represent potentially significant steps toward improved coordination of federal activities. Our recent report highlighted a number of important characteristics and responsibilities necessary for a single focal point, such as the proposed Office of Homeland Security, to improve coordination and accountability.[21]

Despite Federal Efforts, Concerns Exist Regarding Preparedness at State and Local Levels

Nonprofit research organizations, congressionally chartered advisory panels, government documents, and articles in peer-reviewed literature have identified concerns about the preparedness of states and local areas to respond to a bioterrorist attack. These concerns include insufficient state and local planning for response to terrorist events, a lack of hospital participation in training on terrorism and emergency response planning, questions regarding the timely availability of medical teams and resources in an emergency, and inadequacies in the public health infrastructure. In our view, there are weaknesses in three key areas of the public health infrastructure: training of health care providers, communication among responsible parties, and capacity of laboratories and hospitals, including the ability to treat mass casualties.

Questions exist regarding how effectively federal programs have prepared state and local governments to respond to terrorism. All 50 states and approximately 255 local jurisdictions have received or are scheduled to receive at least some federal assistance, including training and equipment grants, to help them prepare for a terrorist WMD incident. In 1997, FEMA

[20]According to the Office of the Vice President, as of June 2001, details on the Vice President's efforts had not yet been determined.

[21]See GAO-01-822, Sept. 20, 2001, pp. 41-42.

identified planning and equipment for response to nuclear, biological, and chemical incidents as areas in need of significant improvement at the state level. However, an October 2000 research report concluded that even those cities receiving federal aid are still not adequately prepared to respond to a bioterrorist attack.[22]

Inadequate training and planning for bioterrorism response by hospitals is a major problem. The Gilmore Panel concluded that the level of expertise in recognizing and dealing with a terrorist attack involving a biological or chemical agent is problematic in many hospitals.[23] A recent research report concluded that hospitals need to improve their preparedness for mass casualty incidents.[24] Local officials told us that it has been difficult to get hospitals and medical personnel to participate in local training, planning, and exercises to improve their preparedness.

Local officials are also concerned about whether the federal government could quickly deliver enough medical teams and resources to help after a biological attack.[25] Agency officials say that federal response teams, such as Disaster Medical Assistance Teams, could be on site within 12 to 24 hours. However, local officials who have deployed with such teams say that the federal assistance probably would not arrive for 24 to 72 hours. Local officials also told us that they were concerned about the time and resources required to prepare and distribute drugs from the National Pharmaceutical Stockpile during an emergency. Partially in response to these concerns, CDC has developed training for state and local officials in using the stockpile and will deploy a small staff with the supplies to assist the local jurisdiction with distribution.

Components of the nation's public health system are also not well prepared to detect or respond to a bioterrorist attack. In particular, weaknesses exist in the key areas of training, communication, and hospital and laboratory capacity. It has been reported that physicians and nurses in

[22]A.E. Smithson and L.-A. Levy, *Ataxia: The Chemical and Biological Terrorism Threat and the U.S. Response* (Washington, D.C.: The Henry L. Stimson Center, Oct. 2000), p. 271.

[23]Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, p. 32.

[24]D.C. Wetter, W.E. Daniell, and C.D. Treser, "Hospital Preparedness for Victims of Chemical or Biological Terrorism," *American Journal of Public Health*, Vol. 91, No. 5 (May 2001), pp. 710-16.

[25]Smithson and Levy, p. 227.

emergency rooms and private offices, who will most likely be the first health care workers to see patients following a bioterrorist attack, lack the needed training to ensure their ability to make observations of unusual symptoms and patterns.[26] Most physicians and nurses have never seen cases of certain diseases, such as smallpox or plague, and some biological agents initially produce symptoms that can be easily confused with influenza or other, less virulent illnesses, leading to a delay in diagnosis or identification. Medical laboratory personnel require training because they also lack experience in identifying biological agents such as anthrax.

Because it could take days to weeks to identify the pathogen used in a biological attack, good channels of communication among the parties involved in the response are essential to ensure that the response proceeds as rapidly as possible. Physicians will need to report their observations to the infectious disease surveillance system. Once the disease outbreak has been recognized, local health departments will need to collaborate closely with personnel across a variety of agencies to bring in the needed expertise and resources. They will need to obtain the information necessary to conduct epidemiological investigations to establish the likely site and time of exposure, the size and location of the exposed population, and the prospects for secondary transmission. However, past experiences with infectious disease response have revealed a lack of sufficient and secure channels for sharing information. Our report last year on the initial West Nile virus outbreak in New York City found that as the public health investigation grew, lines of communication were often unclear, and efforts to keep everyone informed were awkward, such as conference calls that lasted for hours and involved dozens of people.[27]

Adequate laboratory and hospital capacity is also a concern. Reductions in public health laboratory staffing and training have affected the ability of state and local authorities to identify biological agents. Even the initial West Nile virus outbreak in 1999, which was relatively small and occurred in an area with one of the nation's largest local public health agencies, taxed the federal, state, and local laboratory resources. Both the New York State and the CDC laboratories were inundated with requests for tests, and the CDC laboratory handled the bulk of the testing because of the limited

[26]Smithson and Levy, p. 248.

[27]See *West Nile Virus Outbreak: Lessons for Public Health Preparedness* (GAO/HEHS-00-180, Sept. 11, 2000), pp. 21-22.

capacity at the New York laboratories. Officials indicated that the CDC laboratory would have been unable to respond to another outbreak, had one occurred at the same time. In fiscal year 2000, CDC awarded approximately $11 million to 48 states and four major urban health departments to improve and upgrade their surveillance and epidemiological capabilities. With regard to hospitals, several federal and local officials reported that there is little excess capacity in the health care system in most communities for accepting and treating mass casualty patients. Research reports have concluded that the patient load of a regular influenza season in the late 1990s overtaxed primary care facilities and that emergency rooms in major metropolitan areas are routinely filled and unable to accept patients in need of urgent care.[28]

Concluding Observations

We found that federal departments and agencies are participating in a variety of research and preparedness activities that are important steps in improving our readiness. Although federal departments and agencies have engaged in a number of efforts to coordinate these activities on a formal and informal basis, we found that coordination between departments and agencies is fragmented. In addition, we remain concerned about weaknesses in public health preparedness at the state and local levels, a lack of hospital participation in training on terrorism and emergency response planning, the timely availability of medical teams and resources in an emergency, and, in particular, inadequacies in the public health infrastructure. The latter include weaknesses in the training of health care providers, communication among responsible parties, and capacity of laboratories and hospitals, including the ability to treat mass casualties.

Mr. Chairman, this completes my prepared statement. I would be happy to respond to any questions you or other Members of the Subcommittee may have at this time.

[28]J.R. Richards, M.L. Navarro, and R.W. Derlet, "Survey of Directors of Emergency Departments in California on Overcrowding," *Western Journal of Medicine*, Vol. 172 (June 2000), pp. 385-88. R. Derlet, J. Richards, and R. Kravitz, "Frequent Overcrowding in U.S. Emergency Departments," *Academic Emergency Medicine*, Vol. 8, No. 2 (2001), pp.151-55. Smithson and Levy, p. 262.

Contact and Acknowledgments

For further information about this testimony, please contact me at (202) 512-7118. Barbara Chapman, Robert Copeland, Marcia Crosse, Greg Ferrante, Deborah Miller, and Roseanne Price also made key contributions to this statement.

Appendix I: Funding for Research

Total Reported Funding for Research on Bioterrorism and Terrorism by Federal Departments and Agencies, Fiscal Year 2000 and Fiscal Year 2001

Dollars in millions

Department or agency	Fiscal year 2000 funding	Fiscal year 2001 funding	Sample activities
U.S. Department of Agriculture (USDA)—Agricultural Research Service	0	$0.5	Improving detection of biological agents
Department of Energy	$35.5	$39.6	Developing technologies for detecting and responding to a bioterrorist attack Developing models of the spread of and exposure to a biological agent after release
Department of Health and Human Services (HHS)—Agency for Healthcare Research and Quality	$5.0	0	Examining clinical training and ability of frontline medical staff to detect and respond to a bioterrorist threat Studying use of information systems and decision support systems to enhance preparedness for medical care in the event of a bioterrorist event
HHS—Centers for Disease Control and Prevention (CDC)	$48.2	$46.6	Developing equipment performance standards Conducting research on smallpox and anthrax viruses and therapeutics
HHS—Food and Drug Administration (FDA)	$8.8	$9.1	Licensing of vaccines for anthrax and smallpox Determining procedures for allowing use of not-yet-approved drugs and specifying data needed for approval and labeling
HHS—National Institutes of Health	$43.0	$49.7	Developing new therapies for smallpox virus Developing smallpox and bacterial antigen detection system
HHS—Office of Emergency Preparedness (OEP)	0	$4.6	Overseeing a study on response systems
Department of Justice (DOJ)—Office of Justice Programs (OJP)	$0.7	$4.6	Developing a biological agent detector
DOJ—Federal Bureau of Investigation	0	$1.1	Conducting work on detection and characterization of biological materials
Department of the Treasury—Secret Service	0	$0.5	Developing a biological agent detector
Environmental Protection Agency (EPA)	0	$0.5	Improving detection of biological agents

Note: Total reported funding refers to budget data we received from agencies. Agencies reported appropriations, actual or estimated obligations, or actual or estimated expenditures. An agency providing appropriations is not necessarily indicating the level of its obligations or expenditures for that year—only the amount of budget authority made available to it by the Congress. Similarly, an agency that provided expenditure information for fiscal year 2000 may have obligated the funds in fiscal year 1999 based on an appropriation for fiscal year 1998.

Source: Information obtained from departments and agencies.

Appendix II: Funding for Preparedness Activities

Total Reported Funding for Preparedness Activities on Bioterrorism and Terrorism by Federal Departments and Agencies, Fiscal Year 2000 and Fiscal Year 2001

Dollars in millions

Department or agency	Fiscal year 2000 funding	Fiscal year 2001 funding	Sample activities
USDA—Animal and Plant Health Inspection Service	0	$0.2	Developing educational materials and training programs specifically dealing with bioterrorism
Department of Defense (DOD)—Joint Task Force for Civil Support	$3.4	$8.7	Planning, and when directed, commanding and controlling DOD's WMD and high-yield explosive consequence management capabilities in support of FEMA
DOD—National Guard	$70.0	$93.3	Managing response teams that would enter a contaminated area to gather samples for on-site evaluation
DOD—U.S. Army	$29.5	$11.7	Maintaining a repository of information about chemical and biological weapons and agents, detectors, and protection and decontamination equipment
HHS—CDC	$124.9	$147.3	Awarding planning grants to state and local health departments to prepare bioterrorism response plans Improving surveillance methods for detecting disease outbreaks Increasing communication capabilities in order to improve the gathering and exchanging of information related to bioterrorist incidents
HHS—FDA	$0.1	$2.1	Improving capabilities to identify and characterize foodborne pathogens Identifying biological agents using animal studies and microbiological surveillance
HHS—OEP	$35.3	$46.1	Providing contracts to increase local emergency response capabilities Developing and managing response teams that can provide support at the site of a disaster
DOJ—OJP	$7.6	$5.3	Helping prepare state and local emergency responders through training, exercises, technical assistance, and equipment programs Developing a data collection tool to assist states in conducting their threat, risk, and needs assessments, and in developing their preparedness strategy for terrorism, including bioterrorism
EPA	$0.1	$2.0	Providing technical assistance in identifying biological agents and decontaminating affected areas Conducting assessments of water supply vulnerability to terrorism, including contamination with biological agents
Federal Emergency Management Agency	$25.1	$30.3	Providing grant assistance and guidance to states for planning and training Maintaining databases of safety precautions for biological, chemical, and nuclear agents

Note: Total reported funding refers to budget data we received from agencies. Agencies reported appropriations, actual or estimated obligations, or actual or estimated expenditures. An agency providing appropriations is not necessarily indicating the level of its obligations or expenditures for that year—only the amount of budget authority made available to it by the Congress. Similarly, an agency that provided expenditure information for fiscal year 2000 may have obligated the funds in fiscal year 1999 based on an appropriation for fiscal year 1998.

Source: Information obtained from departments and agencies.

Appendix III: Examples of Coordination Activities on Bioterrorism Among Federal Departments and Agencies

We identified the following federal departments and agencies as having responsibilities related to the public health and medical consequences of a bioterrorist attack:

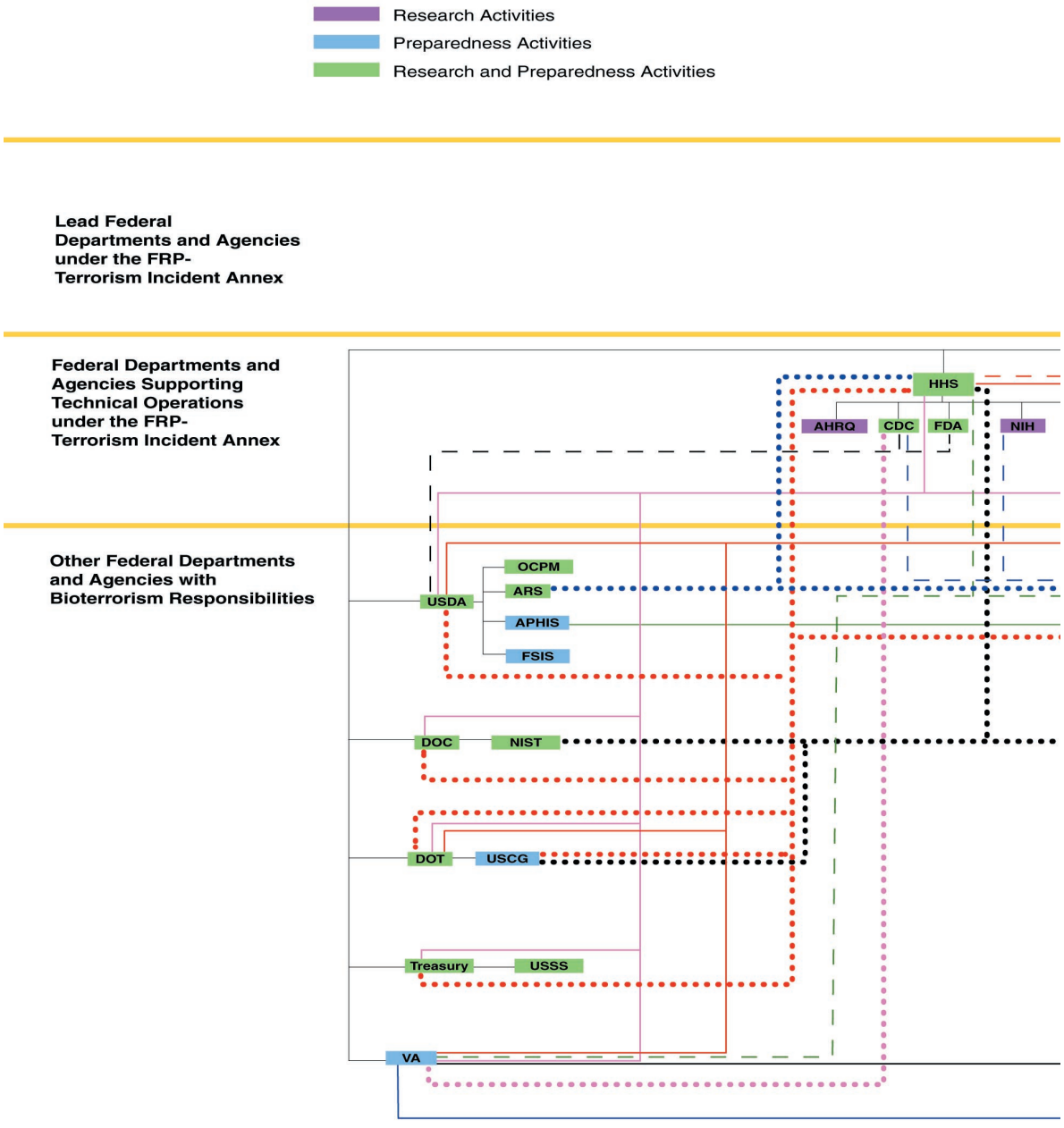
- USDA – U.S. Department of Agriculture
  - APHIS – Animal and Plant Health Inspection Service
  - ARS – Agricultural Research Service
  - FSIS – Food Safety Inspection Service
  - OCPM – Office of Crisis Planning and Management
- DOC – Department of Commerce
  - NIST – National Institute of Standards and Technology
- DOD – Department of Defense
  - DARPA – Defense Advanced Research Projects Agency
  - JTFCS – Joint Task Force for Civil Support
  - National Guard
  - U.S. Army
- DOE – Department of Energy
- HHS – Department of Health and Human Services
  - AHRQ – Agency for Healthcare Research and Quality
  - CDC – Centers for Disease Control and Prevention
  - FDA – Food and Drug Administration
  - NIH – National Institutes of Health
  - OEP – Office of Emergency Preparedness
- DOJ – Department of Justice
  - FBI – Federal Bureau of Investigation
  - OJP – Office of Justice Programs
- DOT – Department of Transportation
  - USCG – U.S. Coast Guard
- Treasury – Department of the Treasury
  - USSS – U.S. Secret Service
- VA – Department of Veterans Affairs
- EPA – Environmental Protection Agency
- FEMA – Federal Emergency Management Agency

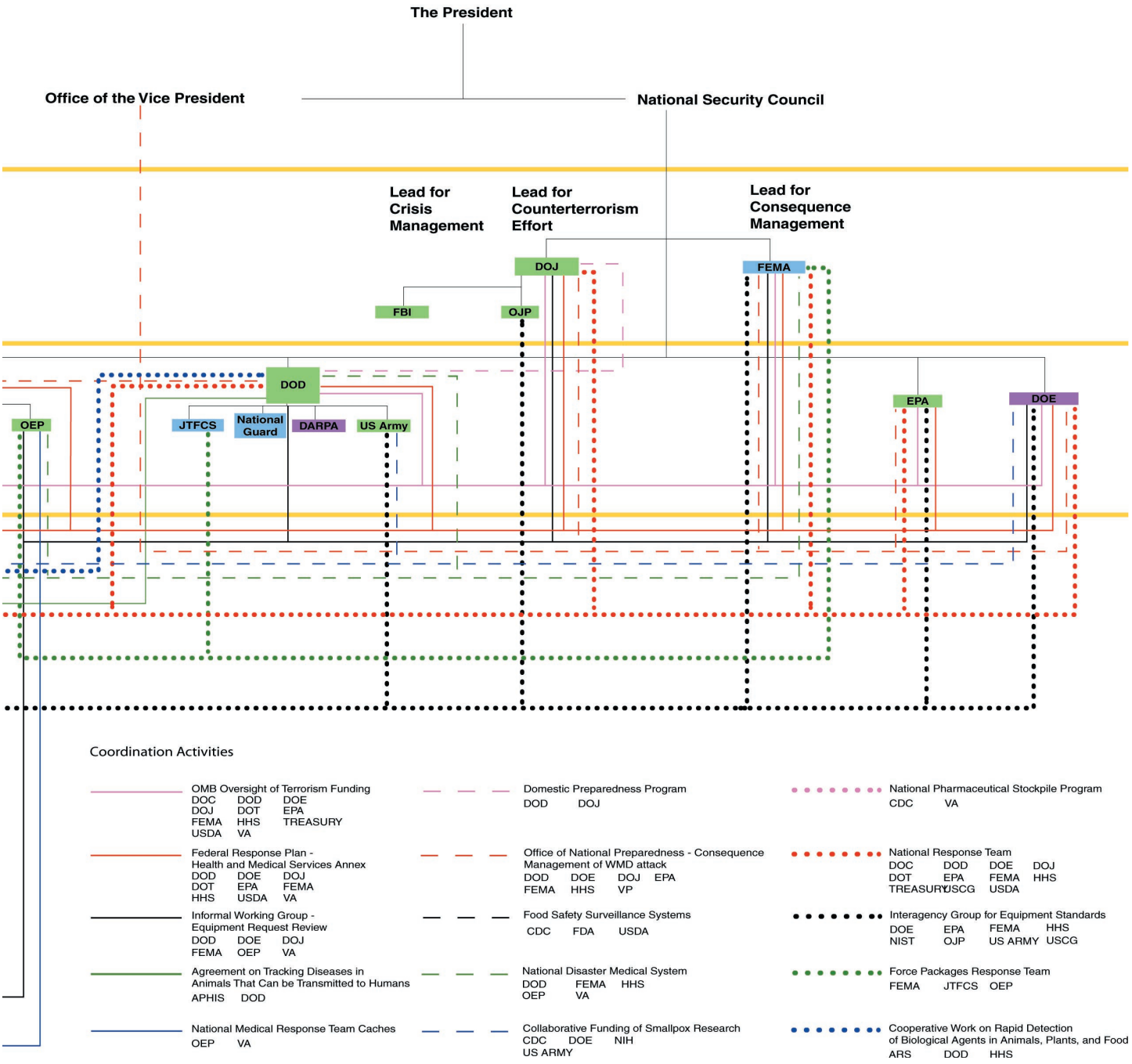
Figure 1, which is based on the framework given in the Terrorism Incident Annex of the Federal Response Plan, shows a sample of the coordination activities by these federal departments and agencies, as they existed prior to the recent creation of the Office of Homeland Security. This figure illustrates the complex relationships among the many federal departments and agencies involved. The following coordination activities are represented on the figure:

- OMB Oversight of Terrorism Funding. The Office of Management and Budget established a reporting system on the budgeting and expenditure of funds to combat terrorism, with goals to reduce overlap and improve coordination as part of the annual budget cycle.
- Federal Response Plan – Health and Medical Services Annex. This annex to the Federal Response Plan states that HHS is the primary agency for coordinating federal assistance to supplement state and local resources in response to public health and medical care needs in an emergency, including a bioterrorist attack.
- Informal Working Group – Equipment Request Review. This group meets as necessary to review equipment requests of state and local jurisdictions to ensure that duplicative funding is not being given for the same activities.
- Agreement on Tracking Diseases in Animals That Can Be Transmitted to Humans. This group is negotiating an agreement to share information and expertise on tracking diseases that can be transmitted from animals to people and could be used in a bioterrorist attack.
- National Medical Response Team Caches. These caches form a stockpile of drugs for OEP's National Medical Response Teams.
- Domestic Preparedness Program. This program was formed in response to the National Defense Authorization Act of Fiscal Year 1997 (P.L. 104-201) and required DOD to enhance the capability of federal, state, and local emergency responders regarding terrorist incidents involving WMDs and high-yield explosives. As of October 1, 2000, DOD and DOJ share responsibilities under this program.
- Office of National Preparedness – Consequence Management of WMD Attack. In May 2001, the President asked the Director of FEMA to establish this office to coordinate activities of the listed agencies that address consequence management resulting from the use of WMDs.
- Food Safety Surveillance Systems. These systems are FoodNet and PulseNet, two surveillance systems for identifying and characterizing contaminated food.
- National Disaster Medical System. This system, a partnership between federal agencies, state and local governments, and the private sector, is intended to ensure that resources are available to provide medical services following a disaster that overwhelms the local health care resources.
- Collaborative Funding of Smallpox Research. These agencies conduct research on vaccines for smallpox.
- National Pharmaceutical Stockpile Program. This program maintains repositories of life-saving pharmaceuticals, antidotes, and medical supplies that can be delivered to the site of a biological (or other) attack.

- National Response Teams. The teams constitute a national planning, policy, and coordinating body to provide guidance before and assistance during an incident.
- Interagency Group for Equipment Standards. This group develops and maintains a standardized equipment list of essential items for responding to a terrorist WMD attack. (The complete name for this group is the Interagency Board for Equipment Standardization and Interoperability.)
- Force Packages Response Team. This is a grouping of military units that are designated to respond to an incident.
- Cooperative Work on Rapid Detection of Biological Agents in Animals, Plants, and Food. This cooperative group is developing a system to improve on-site rapid detection of biological agents in animals, plants, and food.

Figure 1: Examples of Coordination Activities on Bioterrorism Among Federal Departments and Agencies




The President
Office of the Vice President
National Security Council
Lead for Crisis Management
Lead for Counterterrorism Effort
Lead for Consequence Management
DOJ
FEMA
FBI
OJP
DOD
OEP
JTFCS
National Guard
DARPA
US Army
EPA
DOE
Coordination Activities
OMB Oversight of Terrorism Funding
DOC DOD DOE
DOJ DOT EPA
FEMA HHS TREASURY
USDA VA
Federal Response Plan - Health and Medical Services Annex
DOD DOE DOJ
DOT EPA FEMA
HHS USDA VA
Informal Working Group - Equipment Request Review
DOD DOE DOJ
FEMA OEP VA
Agreement on Tracking Diseases in Animals That Can be Transmitted to Humans
APHIS DOD
National Medical Response Team Caches
OEP VA
Domestic Preparedness Program
DOD DOJ
Office of National Preparedness - Consequence Management of WMD attack
DOD DOE DOJ EPA
FEMA HHS VP
Food Safety Surveillance Systems
CDC FDA USDA
National Disaster Medical System
DOD FEMA HHS
OEP VA
Collaborative Funding of Smallpox Research
CDC DOE NIH
US ARMY
National Pharmaceutical Stockpile Program
CDC VA
National Response Team
DOC DOD DOE DOJ
DOT EPA FEMA HHS
TREASURY USCG USDA
Interagency Group for Equipment Standards
DOE EPA FEMA HHS
NIST OJP US ARMY USCG
Force Packages Response Team
FEMA JTFCS OEP
Cooperative Work on Rapid Detection of Biological Agents in Animals, Plants, and Food
ARS DOD HHS

Related GAO Products

Bioterrorism: Public Health and Medical Preparedness (GAO-02-141T, Oct. 9, 2001).

Bioterrorism: Coordination and Preparedness (GAO-02-129T, Oct. 5, 2001).

Bioterrorism: Federal Research and Preparedness Activities (GAO-01-915, Sept. 28, 2001).

Combating Terrorism: Selected Challenges and Related Recommendations (GAO-01-822, Sept. 20, 2001).

Combating Terrorism: Comments on H.R. 525 to Create a President's Council on Domestic Terrorism Preparedness (GAO-01-555T, May 9, 2001).

Combating Terrorism: Accountability Over Medical Supplies Needs Further Improvement (GAO-01-666T, May 1, 2001).

Combating Terrorism: Observations on Options to Improve the FederalResponse (GAO-01-660T, Apr. 24, 2001).

Combating Terrorism: Accountability Over Medical Supplies Needs Further Improvement (GAO-01-463, Mar. 30, 2001).

Combating Terrorism: Comments on Counterterrorism Leadership and National Strategy (GAO-01-556T, Mar. 27, 2001).

Combating Terrorism: FEMA Continues to Make Progress in Coordinating Preparedness and Response (GAO-01-15, Mar. 20, 2001).

Combating Terrorism: Federal Response Teams Provide Varied Capabilities; Opportunities Remain to Improve Coordination (GAO-01-14, Nov. 30, 2000).

West Nile Virus Outbreak: Lessons for Public Health Preparedness (GAO/HEHS-00-180, Sept. 11, 2000).

Combating Terrorism: Linking Threats to Strategies and Resources (GAO/T-NSIAD-00-218, July 26, 2000).

Chemical and Biological Defense: Observations on Nonmedical Chemical and Biological R&D Programs (GAO/T-NSIAD-00-130, Mar. 22, 2000).

Combating Terrorism: Need to Eliminate Duplicate Federal Weapons of Mass Destruction Training (GAO/NSIAD-00-64, Mar. 21, 2000).

Combating Terrorism: Chemical and Biological Medical Supplies Are Poorly Managed (GAO/T-HEHS/AIMD-00-59, Mar. 8, 2000).

Combating Terrorism: Chemical and Biological Medical Supplies Are Poorly Managed (GAO/HEHS/AIMD-00-36, Oct. 29, 1999).

Food Safety: Agencies Should Further Test Plans for Responding to Deliberate Contamination (GAO/RCED-00-3, Oct. 27, 1999).

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