

April 2003

# BIOTERRORISM

## Preparedness Varied across State and Local Jurisdictions



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Highlights of [GAO-03-373](#), a report to the Senate Committee on Health, Education, Labor, and Pensions; the Senate and House Committees on Appropriations; and the House Committee on Energy and Commerce

## Why GAO Did This Study

Much of the response to a bioterrorist attack would occur at the local level. Many local areas and their supporting state agencies, however, may not be adequately prepared to respond to such an attack. In the Public Health Improvement Act that was passed in 2000, Congress directed GAO to examine state and local preparedness for a bioterrorist attack. In this report GAO provides information on state and local preparedness and state and local concerns regarding the federal role in funding and improving preparedness. To gather this information, GAO visited seven cities and their respective state governments, reviewed documents, and interviewed officials. Cities are not identified because of the sensitive nature of this issue.

## What GAO Recommends

GAO recommends that the Department of Health and Human Services (HHS), in consultation with the Department of Homeland Security,

- develop specific benchmarks that define adequate preparedness for a bioterrorist attack and can be used by jurisdictions to guide their preparedness efforts; and
- develop a mechanism for evaluating and sharing useful solutions to problems among jurisdictions.

HHS and the Department of Homeland Security concurred with the recommendations.

[www.gao.gov/cgi-bin/getrpt?GAO-03-373](http://www.gao.gov/cgi-bin/getrpt?GAO-03-373).

To view the full report, including the scope and methodology, click on the link above. For more information, contact Janet Heinrich at (202) 512-7119.

# BIOTERRORISM

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### What GAO Found

State and local officials reported varying levels of preparedness to respond to a bioterrorist attack. Officials reported deficiencies in capacity, communication, and coordination elements essential to preparedness and response, such as workforce shortages, inadequacies in disease surveillance and laboratory systems, and a lack of regional coordination and compatible communications systems. Some elements, such as those involving coordination efforts and communication systems, were being addressed more readily, whereas others, such as infrastructure and workforce issues, were more resource-intensive and therefore more difficult to address. Cities with more experience in dealing with public health emergencies were generally better prepared for a bioterrorist attack than other cities, although deficiencies remain in every city.

State and local officials reported a lack of adequate guidance from the federal government on what it means to be prepared for bioterrorism. They said they needed specific standards (such as how large an area a response team should be responsible for) to indicate what they should be doing to be adequately prepared. The need for federal guidance has continued to be an issue as states have proceeded in their planning and preparedness activities with funding from HHS. For example, in their progress reports to HHS in late 2002 two states reported that they were seeking guidance from HHS on assessing vulnerabilities for foodborne or waterborne diseases and preparedness steps they should take for these hazards. One of these states has declared that it could not make further efforts on testing for these types of diseases until it receives more guidance.

State officials also expressed a desire for more sharing of best practices. Officials stated that, while each jurisdiction might need to adapt procedures to its own circumstances, time could be saved and needless duplication of effort avoided if there were better mechanisms for sharing strategies across jurisdictions. They stated that HHS was better positioned to know about different strategies that states were pursuing and they want information on the best practices.

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Figure 1: Local, State, and Federal Entities Involved in Response to the Covert Release of a Biological Agent

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**Abbreviations**

CDC	Centers for Disease Control and Prevention
DOJ	Department of Justice
Epi-X	Epidemic Information Exchange
FEMA	Federal Emergency Management Agency
HAN	Health Alert Network
HHS	Department of Health and Human Services
HRSA	Health Resources and Services Administration
MMRS	Metropolitan Medical Response System
OER	Office of Emergency Response

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United States General Accounting Office  
Washington, DC 20548

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April 7, 2003

Congressional Committees

Since the terrorist attacks of September 11, 2001, and the subsequent anthrax incidents, there has been great concern about bioterrorism<sup>1</sup> in the United States. With this concern, there is growing recognition that the unique characteristics of a bioterrorist attack, in contrast to a conventional attack, would require additional response preparation and coordination. Much of the response to a bioterrorist attack would occur at the local level. The intentional release of a biological agent by a terrorist might not be recognized for several days, during which time a communicable disease could be spread to those who were not initially exposed. Hospitals and their emergency departments, as well as private physicians and nurses, would most likely be the first responders, as victims began to seek treatment of their symptoms.

In order to be adequately prepared for a bioterrorist attack, state and local response organizations<sup>2</sup> need to have several basic capabilities, whether they possess them directly or have access to them through regional agreements. Health care providers, including emergency medical personnel, need to be trained to recognize symptoms of diseases caused by biological agents likely to be used in a bioterrorist attack (such as anthrax and smallpox). Public health departments need to have the

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<sup>1</sup>Bioterrorism is the threatened or intentional release of biological agents (viruses, bacteria, or their toxins) for the purpose of influencing the conduct of government or intimidating or coercing a civilian population. These agents can be released by way of the air (as aerosols), food, water, or insects.

<sup>2</sup>In this report, the term response organizations refers to any organization or individual that would respond to a bioterrorist incident. These include physicians, hospitals, laboratories, public health departments, emergency medical services, emergency management agencies, fire departments, and law enforcement agencies.

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appropriate infrastructure,<sup>3</sup> including disease surveillance systems,<sup>4</sup> in place at the state and local levels to detect clusters of suspicious symptoms or diseases in order to facilitate early detection of an attack and treatment of victims. Laboratories need to have adequate capacity and necessary staff to test clinical and environmental samples in order to identify an agent promptly so that proper treatment can be started and infectious diseases prevented from spreading. Hospitals need to have adequate facilities and necessary staff to appropriately treat patients. All organizations involved in the response must be able to communicate easily with one another as events unfold and critical information is acquired. In addition, plans that describe how state and local officials would manage and coordinate an emergency response need to be in place and to have been tested in an exercise, both at the state and local levels and at the regional level.

It has been suggested, however, that many state and local areas may not be adequately prepared to respond to and manage a bioterrorist attack.<sup>5</sup> For example, it has been reported that there is an ongoing shortage of intensive care unit beds and isolation rooms, where infectious disease patients are treated.<sup>6</sup> In addition, a recent report has identified problems with the public health infrastructure, particularly at the local level, and stated that public health departments have generally been poorly funded.<sup>7</sup>

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<sup>3</sup>Public health infrastructure is the foundation that supports the planning, delivery, and evaluation of public health activities and is composed of a well-trained public health workforce, effective program and policy evaluation, sufficient epidemiology and surveillance capability to detect outbreaks and monitor incidence of diseases, appropriate response capacity for public health emergencies, effective laboratories, secure information systems, and advanced communications systems.

<sup>4</sup>Disease surveillance systems provide for the ongoing collection, analysis, and dissemination of health-related data to identify, prevent, and control disease.

<sup>5</sup>National Association of Counties, *Counties Secure America: A Survey of County Public Health Needs and Preparedness* (Washington, D.C.: January 2002) and National Association of County and City Health Officials, *Research Brief: Assessment of Local Bioterrorism and Emergency Preparedness*, no. 5 (Washington, D.C.: October 2001).

<sup>6</sup>Amy Smithson and Leslie-Ann Levy, *Ataxia: The Chemical and Biological Terrorism Threat and the U.S. Response* (Washington, D.C.: The Henry L. Stimson Center, October 2000), 242, 262-263.

<sup>7</sup>Institute of Medicine of the National Academies, *The Future of the Public's Health in the 21st Century* (Washington, D.C.: The National Academies Press, 2003, forthcoming).

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The Department of Health and Human Services (HHS), the Federal Emergency Management Agency (FEMA), and the Department of Justice (DOJ) provide assistance to state and local governments in enhancing preparedness for bioterrorism and for emergencies of all types.<sup>8</sup> In November 2002, the President signed the Homeland Security Act of 2002, which established the Department of Homeland Security. As a result of this legislation, FEMA and certain DOJ and HHS programs with preparedness and response functions have been transferred to the new department.

The Public Health Improvement Act directed that we examine state and local levels of preparedness for a bioterrorist attack.<sup>9</sup> We have previously reported on activities by federal agencies to prepare for and respond to a bioterrorist attack.<sup>10</sup> In this report, we are providing information on the preparedness of state and local jurisdictions for responding to such an attack, state and local bioterrorism response planning efforts, and state and local concerns regarding the federal role in funding and improving state and local preparedness.

To address our objectives, we conducted multiday site visits to seven cities and their respective state governments from December 2001 through March 2002, at a time when states were intensively planning for their response to a future potential bioterrorist attack following the anthrax incidents of the previous fall. Cities were selected to provide wide variation in geographic location, population size, and experience with natural disasters and large exercises. (See app. I for an overview of each city we visited, including comparisons across several elements of preparedness.) We do not identify these cities in this report because of the sensitive nature of this issue. During the site visits, we interviewed officials from state and local public health departments, local emergency medical services, state and local emergency management agencies, local fire and law enforcement agencies, and hospitals. For each city we visited, we also reviewed copies of the state's spring 2002 application for bioterrorism-related funding through cooperative agreements with HHS's Centers for Disease Control and Prevention (CDC) and Health Resources

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<sup>8</sup>See, for example, U.S. General Accounting Office, *Bioterrorism: Federal Research and Preparedness Activities*, [GAO-01-915](#) (Washington, D.C.: Sept. 28, 2001).

<sup>9</sup>Pub. L. No. 106-505, § 102, 114 Stat. 2314, 2323 (2000).

<sup>10</sup>[GAO-01-915](#).

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and Services Administration (HRSA). In addition, we reviewed the progress reports on the CDC and HRSA cooperative agreements that were submitted to HHS in late 2002 from the relevant states, covering the period through October 31, 2002. Because of the events of the fall of 2001, and the subsequent federal preparedness funding, changes were occurring at the state and local levels with regard to bioterrorism preparedness during our site visits and subsequent data collection. Changes have continued to occur since our visits, and this report may not reflect all these changes. In addition to making the state and local site visits and reviewing the pertinent documents, we interviewed officials from federal agencies and representatives from national public health associations, and we reviewed reports, including reports of the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction,<sup>11</sup> concerning state and local preparedness for bioterrorism. Because our focus was on the public health and medical consequences of a bioterrorist event, we do not report on preparedness activities funded by DOJ and FEMA in this study. (See app. II for details regarding our scope and methodology.) We conducted our work from November 2001 through April 2003 in accordance with generally accepted government auditing standards.

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## Results in Brief

Officials in the states and cities we visited reported varying levels of preparedness to respond to a bioterrorist attack. They recognized deficiencies in preparedness and were beginning to address these gaps and weaknesses. The states and cities we visited were generally better prepared in certain elements than in others. Some elements, such as those involving coordination efforts and communication systems, were being addressed more readily, whereas others, such as infrastructure and workforce issues, were more resource-intensive and therefore more difficult to address. Officials in the seven cities we visited told us of gaps and weaknesses in capacity elements essential to preparedness and response, such as workforce shortages and inadequate laboratory facilities. The level of preparedness varied by city as well as by element.

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<sup>11</sup>Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, *Third Annual Report to the President and the Congress of the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction* (Arlington, Va.: RAND, Dec. 15, 2001), and *Fourth Annual Report to the President and the Congress of the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction* (Arlington, Va.: RAND, Dec. 15, 2002).

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Those cities that had multiple prior experiences with public health emergencies caused by natural disasters and with preparation for special events, such as political conventions, were generally more prepared than the other cities, which had little or no such experience prior to our site visits.

State and local jurisdictions and response organizations we visited were engaged in planning efforts to address problems in bioterrorism preparedness at the state and local levels, but regional planning between states was generally lacking. Most of the cities and states we visited had emergency operation plans for coordinating the response to emergencies. At the time of our site visits, many of these plans had not specifically addressed the unique requirements of response to a bioterrorist attack, but many officials were beginning to incorporate a bioterrorism response component. Preparing the application plans for the CDC and HRSA funding helped states to identify problems on which to focus their efforts, including the need for increased participation of hospitals in local preparedness and the development of regional plans. Although progress was made on local planning, regional planning involving multiple municipalities, counties, or jurisdictions in neighboring states or a neighboring country lagged. A regional response to a bioterrorist attack could require participation of officials from neighboring states or a neighboring country, yet some states lacked sufficient coordination with their neighboring states and country and had not participated in joint response planning.

State and local officials had concerns regarding the distribution and sustainability of federal funding for improving state and local bioterrorism preparedness programs and the lack of specific standards for determining adequacy of preparedness. State and local officials disagreed as to whether federal funding should flow through the state or go directly to the local jurisdictions, with each group wanting to control the funds. In addition, hospital officials reported that federal funding intended to enhance emergency preparedness in their cities had not always been shared with them in the past. Further, state and local officials stressed that sustained funding is a key factor in maintaining the effectiveness of federal funds. Officials requested more federal guidance and sharing of best practices to assist them in addressing the remaining deficiencies. All types of response organizations were asking for federal guidance on what it means to be adequately prepared for bioterrorism. State and local officials told us that specific benchmarks would help them determine whether they were adequately prepared to respond to a bioterrorist attack. State

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officials also requested that federal agencies do more to identify and share best practices to assist in preparedness and avoid duplication of effort.

We are recommending that HHS, in consultation with the Department of Homeland Security, help state and local jurisdictions better prepare for a bioterrorist attack by developing specific benchmarks that define adequate preparedness for a bioterrorist attack and can be used by state and local jurisdictions to assess and guide their preparedness efforts. We are also recommending that HHS, in consultation with the Department of Homeland Security, develop a mechanism by which solutions to problems that have been used in one jurisdiction can be evaluated by HHS and, if appropriate, shared with other jurisdictions.

We provided a draft of this report to HHS and the Department of Homeland Security for their review. HHS concurred with our recommendations and provided information on measures it is taking to address the concerns we identified. The liaison from the Department of Homeland Security provided oral comments noting the department's concurrence with the draft report and the recommendations.

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## Background

Initial response to a public health emergency of any type, including a bioterrorist attack, is generally a local responsibility that could involve multiple jurisdictions in a region, with states providing additional support when needed. The federal government could also become involved in investigating or responding to an incident. In addition, the federal government provides funding and resources to state and local entities to support preparedness and response efforts.

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## Response to a Bioterrorist Incident

Response to a release of a biological agent, whether covert or overt, would generally begin at the local level, with the federal government becoming involved as needed.<sup>12</sup> Having the necessary resources immediately available at the local level to respond to an emergency can minimize the magnitude of the event and the cost of remediation. In the case of a covert release of a biological agent, it could be hours or days before exposed

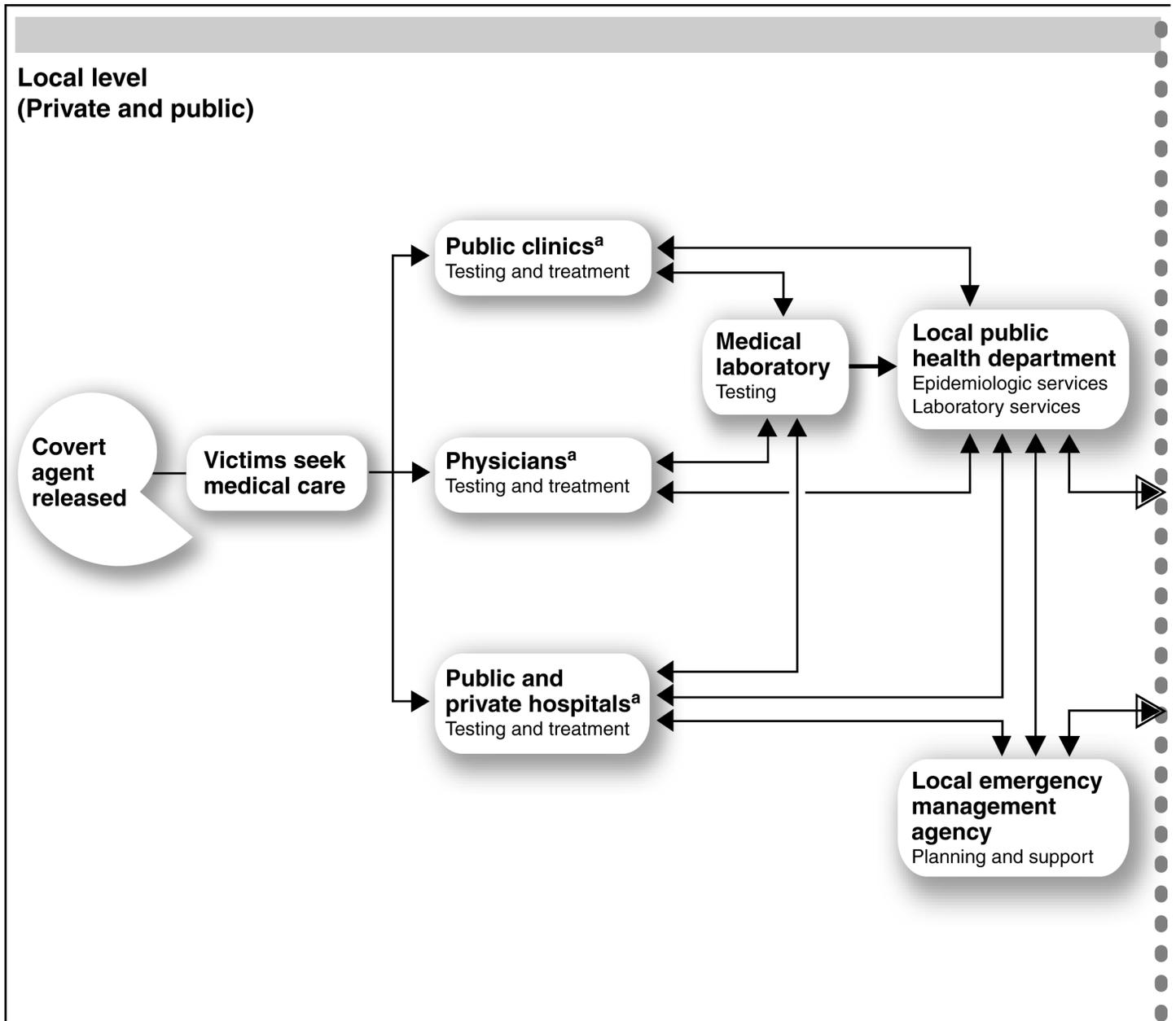
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<sup>12</sup>For example, in responding to an overt release of a biological agent, the federal government would become involved more quickly. The Federal Bureau of Investigation is the federal agency responsible for investigating all terrorist threats and acts within the United States and would conduct a criminal investigation concurrent with local public health and medical community's response.

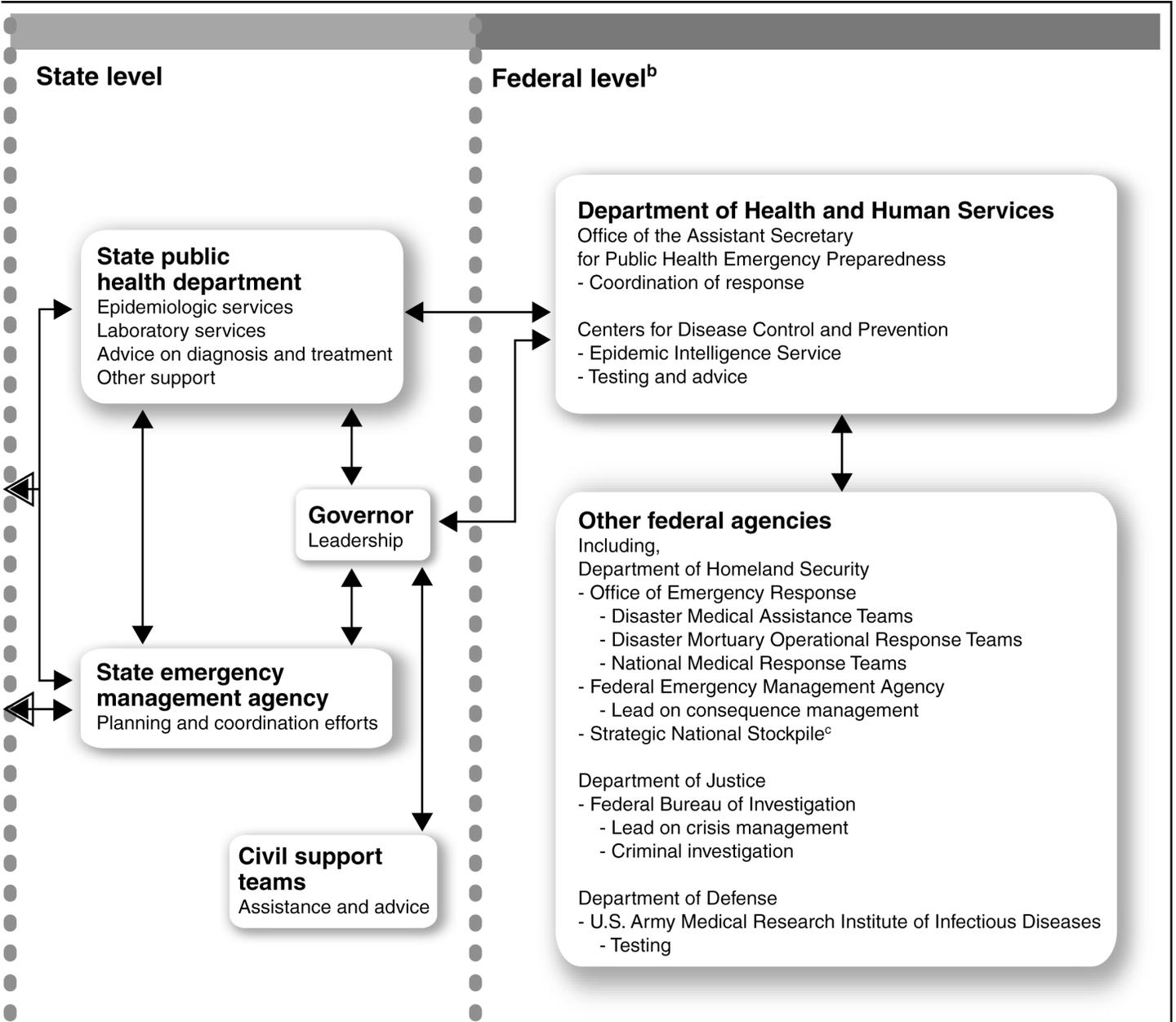
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people start exhibiting signs and symptoms of the disease. Figure 1 presents the probable series of responses to such a bioterrorist incident. Just as in a naturally occurring outbreak, exposed individuals would seek out local health care providers, such as private physicians or medical staff in hospital emergency departments or public clinics. Health care providers would report any illness patterns or diagnostic clues that might indicate an unusual infectious disease outbreak associated with the intentional release of a biologic agent to their state or local health departments.

**Figure 1: Local, State, and Federal Entities Involved in Response to the Covert Release of a Biological Agent**



Source: GAO.



<sup>a</sup>Health care providers can also contact state entities directly.

<sup>b</sup>Federal departments and agencies can also respond directly to local and state entities.

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<sup>12</sup>The Strategic National Stockpile, formerly the National Pharmaceutical Stockpile, is a repository of pharmaceuticals, antidotes, and medical supplies that can be delivered to the site of a biological (or other) attack.

Local and state health departments would collect and monitor data, such as reports from health care providers, for disease trends and outbreaks. Clinical samples would be collected for laboratorians<sup>13</sup> to test for identification of illnesses. Epidemiologists<sup>14</sup> in the health departments would use the disease surveillance systems to provide for the ongoing collection, analysis, and dissemination of data to identify unusual patterns of disease.

The federal government could also become involved, as needed, in investigating or responding to an incident. For certain high-risk diseases, such as the Ebola virus, sample testing would be done at a federal Biosafety Level 4 laboratory<sup>15</sup> equipped to handle dangerous and exotic biological agents. CDC has one such laboratory for testing of these dangerous agents. CDC also provides state and local jurisdictions with assistance on epidemiological investigations and treatment advice. Other federal agencies may also assist state and local jurisdictions in the investigation of and response to bioterrorism and other public health emergencies.

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## HHS Funding for State and Local Bioterrorism Preparedness

Prior to January 2002, HHS distributed funds for bioterrorism preparedness through two main programs. From 1999 to through 2001 it funded state and local health departments through CDC's Bioterrorism Preparedness and Response Program. From 1996 through 2001 it provided funding to local jurisdictions, targeting police, firefighters, emergency medical responders, hospitals, and public health agencies through the

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<sup>13</sup>A laboratorian is one who works in a laboratory; in the medical and allied health professions, a laboratorian examines or performs tests (or supervises such procedures) with various types of chemical and biologic materials, chiefly to aid in the diagnosis, treatment, and control of disease, or as a basis for health and sanitation practices.

<sup>14</sup>An epidemiologist is a specialist in the study of how disease is distributed in populations and the factors that influence or determine this distribution.

<sup>15</sup>Laboratories are categorized as either Biosafety Level 1, 2, 3, or 4, with Biosafety Level 4 laboratories providing the highest degree of protection to personnel, the environment, and the community. Biosafety levels represent combinations of laboratory practices and techniques, safety equipment, and laboratory facilities. Each combination is specifically appropriate for the operations performed, the documented or suspected routes of transmission of the infectious agents, and the laboratory function or activity.

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Metropolitan Medical Response System (MMRS)<sup>16</sup> of the Office of Emergency Response (OER), formerly the Office of Emergency Preparedness, which was transferred to the Department of Homeland Security on March 1, 2003.<sup>17</sup> CDC and HRSA are expanding or developing programs to help state and local governments, as well as hospitals and other health care entities, improve preparedness for and response to bioterrorism and other emergencies.

In January 2002, HHS announced the allocation of \$1.1 billion through CDC, HRSA, and OER for state and local bioterrorism preparedness.<sup>18</sup> This funding supports three separate but related efforts—CDC’s Public Health Preparedness and Response for Bioterrorism program, HRSA’s Bioterrorism Hospital Preparedness Program, and OER’s MMRS program. States applying for funding through cooperative agreements under CDC’s Public Health Preparedness and Response for Bioterrorism program and HRSA’s Bioterrorism Hospital Preparedness Program were required to submit bioterrorism preparedness plans to HHS by April 15, 2002. All 50 states and four major municipalities<sup>19</sup> applied for and received funding through these cooperative agreements.<sup>20</sup> The noncompetitive cooperative agreements provide that CDC and HRSA funds must be used to

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<sup>16</sup>The MMRS program is intended to develop or enhance the local response to a public health crisis, especially an attack using weapons of mass destruction, by bringing together hospital and public health officials, emergency managers, and others to deal with the consequences of an attack. Under the MMRS program, OER contracts with cities to improve the ability of local jurisdictions to respond to a public health crisis.

<sup>17</sup>DOJ and FEMA also provide funding that supports planning, equipment needs, and training for traditional emergency responders and for state emergency management agencies, respectively. These funds are targeted toward police, firefighters, and emergency medical professionals and are intended to help improve coordination and communication by encouraging state and local officials to plan and conduct joint exercises for responding to terrorist events. State and local governments can use these funds to plan for response to terrorist attacks, conduct exercises to test capabilities, purchase equipment, and train personnel.

<sup>18</sup>The funds were primarily appropriated by the Department of Defense and Emergency Supplemental Appropriations for Recovery from and Response to Terrorist Attacks on the United States Act, Pub. L. No. 107-117, 115 Stat. 2230, 2314 (2002), and the Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act of Fiscal Year 2002, Pub. L. No. 107-116, 115 Stat. 2186, 2198.

<sup>19</sup>The four eligible municipalities were Chicago, the District of Columbia, Los Angeles County, and New York City.

<sup>20</sup>In addition, CDC funded five American territories: American Samoa, Guam, the Northern Marianas Islands, Puerto Rico, and the U.S. Virgin Islands. CDC also funded the three freely associated states of the Pacific: Marshall Islands, Micronesia, and Palau.

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supplement and not supplant any current federal, state, and local funds that would otherwise be used for bioterrorism and other public health preparedness activities and that these activities should be coordinated with any MMRS programs in the jurisdiction. Also in 2002, additional funding was appropriated for expanding the National Pharmaceutical Stockpile, renamed the Strategic National Stockpile,<sup>21</sup> and supporting bioterrorism-related research at the National Institutes of Health's National Institute of Allergy and Infectious Diseases.<sup>22</sup>

Of the \$1.1 billion, the CDC program provided funding through cooperative agreements in fiscal year 2002 totaling \$918 million to states and municipalities to improve bioterrorism preparedness and response, as well as other public health emergency preparedness activities.<sup>23,24</sup> The HRSA program provided funding through cooperative agreements in fiscal year 2002 of approximately \$125 million to states and municipalities to enhance the capacity of hospitals and associated health care entities to

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<sup>21</sup>The Strategic National Stockpile is a repository of pharmaceuticals, antidotes, and medical supplies that can be delivered to the site of a bioterrorist (or other) attack.

<sup>22</sup>The funds allocated were appropriated by the Department of Defense and Emergency Supplemental Appropriations for Recovery from and Response to Terrorist Attacks on the United States Act, 115 Stat. at 2314.

<sup>23</sup>To determine eligibility for the funding, CDC required the applicants to submit plans for use of the funds in six focus areas: preparedness planning and readiness assessment, surveillance and epidemiology capacity, laboratory capacity for biological agents, communications and information technology, risk communication and health information dissemination, and education and training. Each focus area included critical capacities that had to be addressed. These are the core expertise and infrastructure elements that need to be in place as soon as possible to enable a public health system to prepare for and respond to bioterrorism and other infectious disease outbreaks. An example of a critical capacity under the laboratory capacity for biological agents focus area is to develop and implement a jurisdiction-wide program to provide rapid and effective laboratory services in support of the response to public health threats and emergencies.

<sup>24</sup>In November 2002, HHS released supplemental guidance for implementing the new National Smallpox Vaccination Program. These guidelines state that recipients are encouraged to use funds made available through the CDC cooperative agreements to plan and implement this program and should redirect the funding as necessary.

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respond to bioterrorist attacks.<sup>25</sup> The department released the first 20 percent of these funds to states and the municipalities within weeks of the January announcement. HHS identified 17 “critical benchmarks” (14 for the CDC funding and 3 for the HRSA funding) that officials were required to address in their application plans. HHS used the critical benchmarks to screen application plans for approval before it released the remaining 80 percent of the CDC and HRSA funding. The benchmarks for the CDC program included such activities as designating an executive director of the state bioterrorism preparedness and response program, developing an interim plan to receive and manage items from the Strategic National Stockpile, and preparing a time line for the development of regional plans to respond to bioterrorism. In addition, CDC is allowing states to use this funding to address preparedness efforts between states and in regions that border a foreign country. The benchmarks for the HRSA program included development of a timeline for developing and implementing a regional hospital plan for dealing with a potential epidemic involving at least 500 patients. HHS requires progress reports from the states at approximately 6-month intervals to provide oversight of CDC and HRSA programs and to determine future funding.<sup>26</sup> The remaining funds that were allocated for state and local preparedness in January 2002 supported OER’s MMRS program.<sup>27</sup>

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<sup>25</sup>HRSA’s guidance on the preparation of application plans for funding required states and municipalities to lay out their plans for conducting a needs analysis of hospitals, which would enable states and municipalities to allocate their resources most effectively to improve preparedness. States and municipalities also needed to discuss their developing bioterrorism preparedness plans and protocols for hospitals and other health care entities, such as community health centers. In addition, states and municipalities were required to address four priority-planning areas: medications and vaccines; personal protection, quarantine, and decontamination; communications; and biological disaster drills.

<sup>26</sup>In addition, a department official told us that the Office of the Inspector General will have a role in ensuring that program participants are accountable for their use of the funds. This oversight will include reviewing cooperative agreement requirements, examining program participants’ performance and financial records for completeness and timeliness, and performing pilot reviews of CDC program participants to determine whether bioterrorism preparedness funds were used in accordance with the cooperative agreement terms and conditions.

<sup>27</sup>OER contracts totaling \$10 million in fiscal year 2002 were used to establish an MMRS capability in 25 additional cities (bringing the total to 122 cities receiving MMRS funding). It was expected that by the end of 2002 80 percent of the U.S. population would reside in an area covered by an MMRS contract.

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## State and Local Officials Reported Varying Levels of Bioterrorism Preparedness

State and local officials reported varying levels of preparedness to respond to a bioterrorist attack. They recognized deficiencies in preparedness and were beginning to address them. We found that the states and cities we visited were making greater progress in certain elements of preparedness than in others. Some elements, such as those involving coordination efforts and communication systems, were being addressed more readily, whereas others, such as infrastructure and workforce issues, were more resource-intensive and therefore more difficult to address. The level of preparedness varied across the cities, with jurisdictions that had multiple prior experiences with public health emergencies generally being more prepared than the other cities, which had little or no such experience prior to our site visits.

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## Progress Was Made in Elements of Preparedness Related to Coordination and Communication

The cities we visited generally made greater progress in coordination and communication preparedness than in other elements of preparedness. Coordination efforts where progress was made included participation by relevant government and private sector officials in meetings to discuss how to work together in an emergency and participation in joint training exercises. Communication efforts included the purchase and implementation of new communication systems and development of procedures for communicating with the public and the media. Despite these advances, deficiencies in coordination and communication remained.

Most of the cities we visited had made efforts to improve coordination among the response organizations. Experience from public health emergencies, especially the terrorist attacks of September 11, 2001, and the subsequent anthrax incidents, provided momentum for local response organizations—including fire departments, emergency medical services, law enforcement, public health departments, emergency management agencies, and hospitals—to improve coordination. Organizations, such as hospitals, that previously were not substantially involved increased their participation in preparedness meetings and agreements. Further, most of the states we visited reported having established better links between the public health departments and the hospitals since the September 11, 2001, terrorist attacks and the subsequent anthrax incidents than had previously existed. For example, after September 11, 2001, a hospital in one of the cities reported that the public health department had given it a telephone number to reach public health officials 24 hours a day, 7 days a week.

In many aspects, the anthrax incidents in October 2001 were exercises in cooperation between the health care community and traditional first responders. Many cities were inundated with calls about suspicious

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packages and powders. In several of the cities we visited, public health officials reported working with police and fire officials to create a system to determine which specimens were most suspicious. These triage systems greatly reduced the number of costly full-emergency responses. For example, during the height of the public's concern about anthrax, one city, which was experiencing as many as 75 to 90 reports of a white powder per day, decided against sending out a complete hazardous materials unit for every report. Instead it sent a team consisting of a fire official, a hazardous materials official, a police official, and a public health official and this team made an initial assessment of whether the full team was needed to respond.

Coordination improved not only horizontally, that is, across different entities within jurisdictions, but also vertically, that is, between local and state agencies. According to their progress reports, all of the states we visited used the 2002 federal funding in part to identify needs and coordinate and integrate information technology systems. In all of these states, emergency management communication systems were integrated both vertically between state and local agencies and horizontally between local government and hospitals. Only one of these states reported in its progress report to HHS that it continued to have major difficulties in improving coordination across different governmental levels because its communication system was not capable of sending and receiving critical health information.

In addition, we found that officials were beginning to address communication problems. For example, six of the seven cities we visited were examining how communication would take place in an emergency. Many cities have purchased communication systems that allow officials from different organizations to communicate with one another in real time. Officials in one area told us that the fire and police departments in their area had incompatible radio systems and, consequently, were unable to communicate directly. This locality intended to install a compatible radio system. It was also considering purchasing wireless communication and messaging devices because of their success in other jurisdictions on September 11, 2001.

State officials reported that they were beginning to make progress in developing procedures for communication. Responding to the anthrax incidents revealed a number of communication issues. For example, state and local agency officials identified problems with how information about the anthrax incidents was given to the public. These problems included not always getting facts about anthrax out quickly, not explaining what

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was occurring, and releasing inconsistent messages. Officials in one city told us that they set up an advisory group of retired media personnel to help them examine how they could use the media to help convey their message. Following a chemical exercise, public health officials in the same city realized that better lines of communication were needed. In response, members of the core bioterrorism team were issued pagers so that they could be contacted more easily. In addition, two states we visited reported to HHS that the outbreaks of West Nile virus in summer 2002 provided successful tests of their communication capabilities.

In addition to these improvements, the state and local health agencies were working with CDC to build the Health Alert Network (HAN), an information and communication system. The nationwide HAN program has provided funding to establish infrastructure at the local level to improve the collection and transmission of information related to a bioterrorism incident as well as other emergency health events and disease surveillance. Goals of the HAN program include providing high-speed Internet connectivity, broadcast capacity for emergency communication, and distance-learning infrastructure for training.

Despite these improvements, deficiencies in communication and coordination remained. For example, while four of the states we visited said in their progress reports that they had completed integrating all of their jurisdictions into HAN, two states had not yet achieved CDC's goal to cover 90 percent of the state's population.<sup>28</sup> One of these states reported that, although it had developed a plan for emergency communication with the public, local needs were still being assessed. This state reported that coordination across multiple governmental levels was problematic and time-consuming, and progress in meeting goals for planning was slow. In addition, as of November 2002, only two of the states we visited reported that they had conducted preparedness exercises that encompassed all jurisdictions in the state. According to the states' progress reports, all states we visited intended to conduct exercises on at least some portion of their various preparedness plans, such as the plan for receiving and distributing the Strategic National Stockpile, in 2003.

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<sup>28</sup>The seventh state reported that although 95 percent of the state's population was covered by HAN, all of the jurisdictions in the state were not integrated into the system.

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## Progress in Improving Preparedness Capacity Lagged

In contrast to the improvements made in coordination and communication, progress related to the response capacity of the workforce, the surveillance and laboratory systems, and hospitals generally lagged. Deficiencies in capacity often are not amenable to solution in the short term because either they require additional resources or the solution takes time to implement.

### Workforce

At the time of our site visits, shortages in personnel existed in state and local public health departments, laboratories, and hospitals and were difficult to remedy. Officials from state and local health departments told us that staffing shortages were a major concern. One official from a state health department said that local health departments in his state were able to handle the additional work generated by the anthrax incidents only by putting aside their normal daily workload. Local officials also stated that their normal daily workload suffered when staff were diverted from their usual responsibilities to work on bioterrorism response planning. Local officials recognized that diverting staff from their usual duties is appropriate in a time of crisis but were concerned about the impact on their other public health responsibilities over the longer term. Two of the states and cities that we visited were particularly concerned that they did not have enough epidemiologists to do the appropriate investigations in an emergency. One state department of public health we visited had lost approximately one-third of its staff because of budget cuts over the past decade. This department had been attempting to hire more epidemiologists. Barriers to finding and hiring epidemiologists included noncompetitive salaries and a general shortage of people with the necessary skills.

Shortages in laboratory and hospital personnel were also cited. Officials in one city noted that they had difficulty filling and maintaining laboratory positions. People that accepted the positions often left the health department for better-paying positions. Five of the states we visited reported shortages of hospital medical staff, including nurses and physicians, necessary to increase response capacity in an emergency. Increased funding for hiring staff cannot necessarily solve these shortages because for many types of positions, such as laboratorians, there are not enough trained individuals in the workforce. According to the Association of Public Health Laboratories, training laboratorians to provide them with

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## Surveillance Systems and Laboratory Facilities

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the necessary skills will take time and require a strategy for building the needed workforce.<sup>29</sup>

Three states cited ongoing shortages of personnel, which they were addressing in their progress reports. Two states had reported that they plan to hire veterinarians<sup>30</sup> to assist in their preparedness efforts. One of these two states also noted difficulties in recruiting personnel when there was no guarantee of funding beyond the current year, meaning that prospective employees may not be offered permanent positions. Another state, however, has had success in hiring epidemiologists.

State and local officials for the cities we visited recognized and were attempting to address inadequacies in their surveillance systems and laboratory facilities. Local officials were concerned that their surveillance systems were inadequate to detect a bioterrorist event. Six of the cities we visited used a passive surveillance system<sup>31</sup> to detect infectious disease outbreaks.<sup>32</sup> However, passive systems may be inadequate to identify a rapidly spreading outbreak in its earliest and most manageable stage because, as officials in three states noted, there is chronic underreporting and a time lag between diagnosis of a condition and the health department's receipt of the report. To improve disease surveillance, six of the states and two of the cities we visited were developing electronic surveillance systems. In one city we visited, the public health department received clinical information electronically from existing hospital

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<sup>29</sup>Association of Public Health Laboratories, "State Public Health Laboratory Bioterrorism Capacity," *Public Health Laboratory Issues in Brief: Bioterrorism Capacity* (Washington, D.C.: October 2002).

<sup>30</sup>As we found with the West Nile virus, the links between public and animal health agencies are becoming more important. Many emerging diseases affect both animals and humans, as do many viruses or other disease-causing agents that might be used in bioterrorist attacks. See U.S. General Accounting Office, *West Nile Virus Outbreak: Lessons for Public Health Preparedness*, [GAO/HEHS-00-180](#) (Washington, D.C.: Sept. 11, 2000).

<sup>31</sup>Passive surveillance systems rely on laboratory and hospital staff, physicians, and other relevant sources to take the initiative to provide data on illnesses to the health department, where officials analyze and interpret the information as it arrives. In contrast, in an active disease surveillance system, public health officials contact sources, such as laboratories, hospitals, and physicians, to obtain information on conditions or diseases in order to identify cases. Active surveillance can provide more complete detection of disease patterns than a system that is wholly dependent on voluntary reporting.

<sup>32</sup>Officials in one city told us that although it had no local disease surveillance, its state maintained a passive disease surveillance system.

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databases, which required no additional work by the hospitals. Several cities were also evaluating the use of nontraditional data sources, such as pharmacy sales, to conduct surveillance. Three of the cities we visited were attempting to improve their surveillance capabilities by incorporating active surveillance components into their systems.<sup>33</sup> For example, one city asked six hospitals to participate in a type of active system in which the public health department obtains information from the hospitals and conducts ongoing analysis of the data to search for certain combinations of signs and symptoms.<sup>34</sup> The city also had an active surveillance system for influenza.

However, work to improve surveillance systems has proved challenging. For example, despite initiatives to develop active surveillance systems, the officials in one city considered event detection to be a weakness in their system, in part because they did not have authority to access hospital information systems. In addition, various local public health officials in other cities reported that they lacked the resources to sustain active surveillance.

Officials from all of the states we visited reported problems with their public health laboratory systems and said that they needed to be upgraded. All states were planning to purchase the equipment necessary for rapidly identifying a biological agent. State and local officials in most of the areas that we visited told us that the public health laboratory systems in their states were stressed, in some cases severely, by the sudden and significant increases in workload during the anthrax incidents. During these incidents, the demand for laboratory testing was significant even in states where no anthrax was found and affected the ability of the laboratories to perform their routine public health functions. Following the incidents, over 70,000 suspected anthrax samples were tested in laboratories across the country. Public health laboratories in some areas quickly ran out of space for testing and storing samples. State and local officials had to rely on laboratory assistance at the federal level, and CDC

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<sup>33</sup>In addition, all of the states we visited were making efforts to improve their disease surveillance systems.

<sup>34</sup>This type of active surveillance system is sometimes referred to as a syndromic surveillance system. One federal official has stated that research examining the usefulness of syndromic surveillance needs to continue. See S. Lillibridge, (untitled), in *Disease Surveillance, Bioterrorism, and Homeland Security*, Conference Summary and Proceedings Prepared by the Annapolis Center for Science-Based Public Policy (Annapolis, Md.: U.S. Medicine Institute for Health Studies, Dec. 4, 2001).

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received over 6,000 anthrax-related samples and had to operate its anthrax-testing laboratory 24 hours a day, 7 days a week and open an additional laboratory to test all the samples. Eighty-five percent of state and territorial public health laboratories reported that the need to perform bioterrorism testing during the anthrax incidents had a negative impact on their ability to do routine work, delaying testing for tuberculosis, sexually transmitted diseases, and other infectious diseases.<sup>35</sup>

Further, public health laboratories have a minimal association with private laboratories (that is, laboratories that are associated with private hospitals or are independent) or sometimes lack ties to laboratories in other states that could serve as a backup to ensure timely testing of samples. One state we visited had one state public health laboratory, no backup laboratory, and no written agreements with neighboring states to provide support. A task force of the Association of Public Health Laboratories has written that a lack of close ties can lead to a lack of communication and a lack of coordination of laboratory testing, both of which are needed to support public health interventions.<sup>36</sup> All states we visited recognized these problems and, in their progress reports to HHS, reported that they were using the funds to improve the Laboratory Response Network.<sup>37</sup>

According to their progress reports, officials in the states we visited were working on solutions to their laboratory problems. States were examining various ways to manage peak loads, including training additional staff in the newest bioterrorism response methods, entering into agreements with other states to provide surge capacity, incorporating clinical laboratories into cooperative laboratory systems, and purchasing new equipment. One state was working to alleviate its laboratory problems by providing training on protocols for handling bioterrorist agents, upgrading two local

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<sup>35</sup> Association of Public Health Laboratories, 1, 3.

<sup>36</sup> J. Witt-Kushner, J.R. Astles, J.C. Ridderhof, and others, "Core Functions and Capabilities of State Public Health Laboratories: A Report of the Association of Public Health Laboratories," *Morbidity and Mortality Weekly Report*, vol. 51, no. RR-14 (2002), 1-8.

<sup>37</sup> CDC has established the Laboratory Response Network to maintain state-of-the-art capabilities for biological agent identification and characterization. The Laboratory Response Network is a multilevel system designed to link state and local public health laboratories with advanced capacity clinical, military, veterinary, agricultural, water, and food-testing laboratories.

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public health laboratories to Biosafety Level 3 laboratories,<sup>38</sup> and establishing agreements with other states to provide backup capacity. Another state reported that it was using the funding from CDC to increase the number of pathogens the state laboratory could diagnose. The state also reported that it has worked to identify laboratories in adjacent states that are capable of being reached within 3 hours over surface roads. In addition, all of the states reported that their laboratory response plans were revised to cover reporting and sharing laboratory results with local public health and law enforcement agencies.

## Hospitals

Federal, state, and local officials were concerned that hospitals might not have the capacity to accept and treat sudden, large increases in the number of patients, as might be seen in a bioterrorist attack. Hospital, state, and local officials reported that hospitals needed additional equipment and capital improvements—including medical stockpiles, personal protective equipment, decontamination facilities, quarantine and isolation facilities, and air handling and filtering equipment—to enhance preparedness.

The resources that hospitals would require for responding to a bioterrorist attack with mass casualties are far greater than what are needed for everyday performance. Meeting these needs fully would be extremely difficult because bioterrorism preparedness is expensive and hospitals are reluctant to create capacity that is not needed on a routine basis and may never be utilized at a particular facility. Although hospitals may not be able to fully meet all preparedness needs, they can take action to increase their preparedness by developing plans for their internal emergency response operations, and some hospital officials reported taking these initial actions. For example, officials at one hospital we visited appointed a bioterrorism coordinator and developed plans for taking care of the families of hospital staff, transporting patients to the hospital, and communicating during an emergency. However, from its assessments of hospital capacity, one of the states we visited reported that only 11 percent of its hospitals could readily increase their capacity for treating patients with communicable diseases requiring isolation, such as smallpox. Another state reported that most of its hospitals have little or no capacity for isolating patients diagnosed with or being tested for

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<sup>38</sup>In Biosafety Level 3 laboratories, work is done with indigenous or exotic agents with a potential for respiratory transmission, and which may cause serious and potentially lethal infection. Biosafety Level 3 laboratories provide the second-highest degree of protection to personnel, the environment, and the community.

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communicable diseases. A third state was working with the state hospital association to provide every hospital in the state with portable decontamination units.

Efforts have been made to assist hospitals in preparing for bioterrorism. For example, the hospital association in one city we visited was developing a set of recommendations, based on the American Hospital Association checklist,<sup>39</sup> along with cost estimates, for health care facilities to improve their preparedness. The association's recommendations included that each hospital have a 3-day supply of basic personal protective equipment (such as gloves, gowns, and shoe covers) on hand for staff, a 3-day supply of specified pharmaceuticals, emergency power, a loud speaker or other mechanism to communicate with a large group of converging casualties outside of the hospital entrance, and an external decontamination facility capable of handling 50 victims per hour. These guidelines give hospitals criteria by which they can measure their preparedness and, in turn, improve their internal emergency response operation plans.

In their progress reports to HHS, all the states we visited discussed a number of activities they were undertaking with the HRSA funding to increase hospital preparedness. These included hiring state hospital bioterrorism program coordinators and medical directors, exploring the feasibility of coordinating hospitals' bioterrorism emergency planning across states, and supplying selected hospitals with biohazard suits and decontamination systems.

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## Level of Preparedness Varied across Cities We Visited

We found that the overall level of bioterrorism preparedness varied by city. In the cities we visited, we observed that those cities that had recurring experience with public health emergencies, including those resulting from natural disasters, or with preparation for National Security Special Events, such as political conventions,<sup>40</sup> were generally more

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<sup>39</sup>A. David Mangelsdorff, *Chemical and Bioterrorism Preparedness Checklist* (Chicago: American Hospital Association, Oct. 3, 2001), [http://www.hospitalconnect.com/aha/key\\_issues/disaster\\_readiness/resources/HospitalReady.html](http://www.hospitalconnect.com/aha/key_issues/disaster_readiness/resources/HospitalReady.html) (downloaded Oct. 22, 2002). The checklist was developed to help hospitals describe and assess their state of preparedness for chemical and biological incidents.

<sup>40</sup>Presidential Decision Directive 62 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. In addition to major political party conventions, such events include presidential inaugurations.

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prepared than cities with little or no such experience. Cities that had dealt with multiple public health emergencies in the past might have been further along because they had learned which organizations and officials need to be involved in preparedness and response efforts and moved to include all pertinent parties in the efforts. Experience with natural disasters raised the awareness of local officials regarding the level of public health emergency preparedness in their cities and the kinds of preparedness problems they needed to address. For example, in one city we visited, officials found that emergency operations center personnel became separated from one another during earthquakes and had trouble staying in contact. These problems made decision making difficult. The officials told us that the personnel needed to learn how to use their radio system more effectively. (See app. I for details concerning preparedness by city.)

All the cities we visited had to respond to suspected anthrax incidents in fall 2001; however, each city found different deficiencies in its capabilities. The anthrax incidents presented challenges for jurisdictions across the country, not just in the communities where anthrax was found. Among the problems that surfaced during the anthrax incidents, for example, were several dealing with coordination across agencies and communication among departments and jurisdictions and with the public. A local official reported that there was no mechanism to coordinate the public information, medical recommendations, and epidemiologic assessments throughout the state and neighboring areas and that this created considerable confusion and frustration for the public and medical community.<sup>41</sup> In addition, officials in several states became aware of different types of limitations in their state and local communication capabilities during the anthrax incidents. For example, in one rural state, which had no confirmed anthrax cases but numerous false alarms, the state public health department faxed messages containing critical information to hospitals throughout the state. Officials in the department realized that this one-way system was insufficient because they also needed to be able to receive communications rapidly. They were able to increase their communication capabilities by setting up a 24-hour toll-free telephone number staffed by officials, who could respond to questions from hospitals. In another state, public health laboratory officials found

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<sup>41</sup>S. Allan, "The Challenges of Local Preparedness for Bioterrorism and Other Emergencies," *NACCHO Exchange: Promoting Effective Local Public Health Practice*, vol. 1, no. 1 (2002), 1-5.

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that it was difficult for many facilities to print files received from CDC because their Internet connections were inadequate. Ultimately, the state created CD-ROMs containing the protocols describing how to deal with suspected anthrax samples, and a state public health official drove more than 500 miles across the state to deliver them.

One of the cities we visited, which had experienced a large natural disaster in the late 1990s, was in the early stages of bioterrorism preparedness. This city is in a predominantly rural state, which started receiving funds for establishing a HAN system for public health information in fiscal year 2002. There were five epidemiologists at the state level and none at the local level, so the city depended on the state to determine when a disease investigation was warranted. The state had a limited passive surveillance system, with plans for a more elaborate, active surveillance system.

In contrast, another city we visited was much further along in bioterrorism preparedness. In addition to dealing with natural disasters and other public health emergencies, the city had also prepared for and hosted a National Security Special Event. The state had been receiving funding for HAN since 1999. Epidemiologists were employed at the state and local levels. The city had a passive surveillance system, and it also had an active surveillance system for influenza, which has symptoms similar to those of the early stages of diseases attributable to several likely bioterrorist agents, such as anthrax.

Even the cities that were better prepared were not strong in all elements. For example, one city had successfully developed an integrated approach to preparedness in which multiple organizations, both governmental and nongovernmental, examined where terrorist attacks are likely to occur, how they could be mitigated, and what resources were necessary. City officials also reported that communications had been effective during public health emergencies and that the city had an active disease surveillance system. However, officials also reported deficiencies in laboratory capacity and said that hospitals had not received sufficient bioterrorism response training. Another one of the better-prepared cities was connected to HAN and the Epidemic Information Exchange (Epi-X),<sup>42</sup> and all county emergency management agencies in the state were linked.

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<sup>42</sup>Epi-X is a secure, Web-based exchange for public health officials to rapidly exchange information on disease outbreaks, exposures to environmental hazards, and other health events as they are identified and investigated.

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However, the state did not have written agreements with its neighboring states for responding to an emergency, and a major hospital in the city we visited lacked sufficient equipment for a bioterrorism response.

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## State and Local Jurisdictions and Response Organizations Made Progress in Developing Preparedness Plans, but Regional Plans Remained Undeveloped

State and local jurisdictions and response organizations made progress in developing plans to improve their preparedness. They had begun to include bioterrorism in their agencies' overall emergency operation plans, and preparing the application plans for HHS funding helped states focus their planning efforts. In addition, hospitals, which were beginning to be seen as part of a local response system, were starting to participate in local response planning. While progress was made in local planning, regional planning between states lagged. A regional response to a bioterrorist attack would potentially require the mutual participation of officials from neighboring states or, in several instances, a neighboring country, yet some states lacked such coordination with their neighboring states and country and had not participated in joint response planning.

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## State and Local Jurisdictions Had Increased Bioterrorism Planning Efforts

At the time of our site visits, although most of the cities and states we visited had emergency operation plans, many of these plans did not specifically address the unique requirements of response to a bioterrorist attack. However, many of the response organizations in these cities and states had begun to develop emergency operation plans that include bioterrorism response. Officials from all of these response organizations stated that planning for a bioterrorist incident is difficult because they do not know what it means to be prepared and therefore are not sure if their plans will be adequate.

At the time of our site visits, all seven states were in the stage of "planning to plan" for bioterrorism. While all of these states had previously taken steps to assess the readiness levels of their localities, they continued to need further assessments. For example, most were doing some assessments of capacity, such as assessments of hospital capacity and equipment. Although some of these efforts were time-consuming because of the need to develop assessment tools, such as surveys, the information on needs and current status is essential for the states to be able to plan.

Preparing the application plans for HHS helped states to identify problems in bioterrorism preparedness by requiring them to address specified preparedness focus areas. In the application process, states were required

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to assess their capabilities in the focus areas and discuss how they planned to address their deficiencies. For example, under the surveillance and epidemiologic capacity focus area in its application plan for CDC funding, one state we visited identified a lack of adequate staffing, expertise, and resources. Officials reported in the plan that the department of public health was developing regional medical epidemiology teams, each of which would include a part-time practicing physician and a full-time epidemiologist, with enough teams to cover all the regions in the state. These teams would establish ongoing relationships with area hospital infection control programs, emergency departments, and other health care providers. Another state reported in its HRSA application plan that it did not have the capability to track resources, supplies, and the distribution of patients at the regional level. It planned to expand an existing electronic tracking system to track each hospital's capacity, resources, and patient distribution on a real-time basis.

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### Hospitals Were Beginning to Recognize Need for Inclusion in Local Planning

At the time of our site visits, we found that hospitals were beginning to coordinate with other local response organizations and collaborate with each other in local planning efforts. Hospital officials in one city we visited told us that until September 11, 2001, hospitals were not seen as part of a response to a terrorist event but that the city had come to realize that the first responders to a bioterrorism incident could be a hospital's medical staff. Officials from the state began to emphasize the need for a local approach to hospital preparedness. They said, however, that it was difficult to impress the importance of cooperation on hospitals because hospitals had not seen themselves as part of a local response system. The local government officials were asking them to create plans that integrated the city's hospitals and addressed such issues as off-site triage of patients and off-site acute care.

Government officials, health care association representatives, and hospital officials in many of the areas that we visited stated that hospitals had become more interested in these issues and more involved in planning efforts than prior to September 11, 2001. They noted that health care providers in hospitals gained an awareness of the seriousness of the threat of bioterrorism and began to ask for information, lectures, and presentations of their cities' emergency plans. Hospital representatives, as well as state and local officials, told us that hospital personnel were more interested in attending training on biological agents and that hospitals had formed better connections with local public health departments in many areas. We also found that some hospitals were starting to collaborate with one another on planning efforts.

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## Regional Planning Was Lacking between States

Response organization officials were concerned about a lack of planning for regional coordination between states. As called for by the guidance for the cooperative agreements, all of the states we visited organized their planning on a regional basis, assigning local areas to particular regions for planning purposes. However, the state-defined regions encompassed areas within the state only. A concern for response organization officials was the lack of planning for regional coordination between states and with a neighboring country of the public health response to a bioterrorist attack. With regard to coordination efforts between states, a hospital official in one city we visited said that state lines presented a “real wall” for planning purposes. Hospital officials in one state reported that they had no agreements with other states to share physicians. However, one local official reported that he had been discussing border issues and had drafted mutual aid agreements for hospitals and emergency medical services. Public health officials from several states reported developing working relationships with officials from other states to provide backup laboratory capacity.

States varied with regard to the intensity of their coordination efforts with a neighboring country. Officials in one state told us that the state lacked the needed coordination with the foreign country that it borders, but they reported in the state’s CDC application plan that workforce plans and infectious disease surveillance and reporting are the two priorities for the state with the neighboring country. The emergency management officials in the city we visited in that state reported that the border guards knew and informally coordinated with one another. Officials in this state reported in the state’s CDC application plan that some of the state’s hospitals employed people from the foreign country and so hospital staffing could be problematic if borders were closed during an emergency. However, officials in another state that we visited reported good regional partnerships with the foreign country that it borders. In fact, the state officials noted that the needs of a metropolitan area in the neighboring country would be evaluated and integrated into the state plan. In addition, the state reported in its progress report that it was developing an agreement with the neighboring country to provide laboratory surge capacity.

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## State and Local Officials Expressed Concerns regarding Federal Funding and Lack of Guidance

State and local officials and hospital officials expressed concerns about the distribution and sustainability of federal bioterrorism preparedness funding, as well as about a lack of guidance on what it means to be prepared for a bioterrorism event. State and local officials we met with disagreed about whether federal funding for bioterrorism preparedness should flow through the state or go directly to the local jurisdictions. Hospital officials reported that federal funding from OER's MMRS program in their cities had not always been shared with them in the past. In addition, state and local officials reported that sustainability in funding over several years would be beneficial to all jurisdictions. State and local officials requested more specific federal guidance on what constitutes adequate preparedness. State officials also requested more sharing of best practices to assist them in closing the remaining gaps in preparedness.

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## Funding Concerns Were Related to Distribution and Sustainability

State and local officials expressed several concerns regarding the federal funding provided for state and local bioterrorism preparedness both before and after September 11, 2001. These concerns were related to the distribution and sustainability of these funds.

### Distribution

State and local officials we met with disagreed about whether federal funding for bioterrorism preparedness should flow through the state or go directly to the local jurisdictions. Local officials suggested that some funding should be allocated directly to local governments because it would be more efficient since the state would not withhold a percentage for its own use. However, state officials told us that if funds went directly to the local level, it would be difficult for them to direct the funding to the areas of greatest need within the states. In addition, state officials reported that when money flows through the states they can control purchases of emergency response equipment to ensure compatibility across regions of the state.

Progress reports to HHS from the seven states we visited showed great variability in the speed with which the states committed funds provided through the CDC cooperative agreements, in part because of the differing state requirements for distribution. Two of the states had obligated more than 70 percent of the funding they received from HHS as of fall 2002, while two other states had obligated only about 20 percent of their funds as of the same time, with the remaining three states obligating percentages between these figures. Some states reported that they needed to arrange for grants or take other actions before they could transfer any of the funds to local jurisdictions.

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Hospital officials also raised concerns about the distribution of federal funding for preparedness. In a national survey, 62 percent of hospital officials said that a lack of awareness of federally sponsored preparedness programs was a factor in not participating in preparedness programs.<sup>43</sup> In addition, hospital officials that we spoke with in two cities added that federal funding from OER's MMRS program in their cities had not been shared with hospitals in the past. The HRSA program may help alleviate these problems. It has led to increased coordination among government agencies, which may lead to an increased awareness of the funding opportunity it provides. In addition, the HRSA guidance on funding under the cooperative agreement requires that approximately three-quarters of the funding be spent directly on or in hospitals, community health clinics, and other health care systems. HRSA also requires states to undertake certain initial state-level tasks that would not involve costs to the hospitals, including designating a hospital bioterrorism preparedness coordinator, establishing a statewide advisory committee, and conducting a needs assessment. In their progress reports to HHS, all states we visited reported that the HRSA funding was being used primarily to support such initial state-level activities, including conducting assessments, developing plans, and hiring state-level personnel. HHS recently stated that most, if not all, states have now determined how funding will be awarded to hospitals, community health clinics, and other health care systems.

During our site visits, state officials also expressed concerns in light of the budget shortfalls and cuts they were experiencing. Officials from one state expressed concern that the 2002 funding from HHS might be used to supplant state funding instead of supplementing it, because of general budgetary cutbacks in the state, although such use is expressly prohibited by the funding agreements. An official from another state told us that the funding that its state public health laboratory received in 2002 from CDC for bioterrorism preparedness was not enough to offset the general cuts in the state budget for the public health laboratory. We were not able to determine whether any of the state funds were supplanted by the HHS funding.

## Sustainability

The public health infrastructure depends on sustained and consistent investment, yet in the past the funding has been viewed as unsystematic.<sup>44</sup>

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<sup>43</sup> Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, *Third Annual Report*, G-7-9.

<sup>44</sup> Institute of Medicine of the National Academies, xi.

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In fiscal year 2002, states were experiencing budget shortfalls (as a percentage of general fund revenues) that were worse than after the recession of the early 1990s ended,<sup>45</sup> and shortfalls in 2003 were expected to be even worse. The influx of federal funds for bioterrorism preparedness made it possible for jurisdictions to undertake new efforts in this area, at a time when other public health programs were experiencing cutbacks.

State and local officials told us that sustained funding would be necessary to address one important need—hiring and retaining needed staff. They told us they would be reluctant to hire additional staff unless they were confident that the funding would be sustained and staff could be retained. These statements are consistent with the findings of the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, which recommended that federal support for state and local public health preparedness and infrastructure building be sustained at an annual rate of \$1 billion for the next 5 years to have a material impact on state and local governments' preparedness for a bioterrorist event.<sup>46</sup> We have noted previously that federal, state, and local governments have a shared responsibility in preparing for terrorist attacks and other disasters.<sup>47</sup> However, prior to the infusion of federal funds, few states were investing in their public health infrastructure.

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### State and Local Officials Requested Specific Federal Benchmarks for Adequate Preparedness and Sharing of Best Practices

Officials we spoke with at both the state and the local levels requested more federal guidance and sharing of best practices to assist them in closing the remaining gaps in preparedness. Officials from response organizations in every state we visited reported a lack of guidance from the federal government on what it means to be prepared for bioterrorism. In the past, CDC has made efforts to develop guidance for state and local public health officials on bioterrorism preparedness. For example, in its core capacity project of 2001, CDC developed criteria to provide guidance

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<sup>45</sup>In 1991, which was the formal end of the recession, state budget shortfalls were 6.2 percent of total state general fund revenues. In 1992, shortfalls were 6.5 percent of revenues. Fiscal year 2002 state budget shortfalls are estimated to be 7.8 percent of estimated total general fund revenues.

<sup>46</sup>Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, *Fourth Annual Report*, v.

<sup>47</sup>See U.S. General Accounting Office, *Homeland Security: Effective Intergovernmental Coordination Is Key to Success*, [GAO-02-1013T](#) (Washington, D.C.: Aug. 23, 2002).

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on developing the bioterrorism preparedness capacity of state and local public health systems. However, these criteria were broad and nonspecific. State and local officials told us they needed specific benchmarks (such as how large an area a response team should be responsible for) to indicate what they should be doing to be adequately prepared. Local officials were turning to state officials for guidance, and state officials wanted to be able to turn to the federal government.

Response organizations have been hindered in their efforts to prepare for bioterrorism because they do not know what agents pose the most credible threat, which makes it difficult to know when they are prepared. There have been federal efforts to devise lists of threats, but as we reported,<sup>48</sup> these efforts have been fragmented, as is evident in the different biological agent threat lists that were developed by federal departments and agencies. In addition, medical organizations have historically not been recipients of intelligence regarding threat information. The Institute of Medicine and the National Research Council have stated that this practice needs to be changed.<sup>49</sup>

The need for federal guidance has continued to be an issue as states have proceeded in their planning and preparedness activities using the HHS funding. For example, in their progress reports to HHS in late 2002, two of the states we visited reported that they were seeking guidance from HHS on assessing vulnerabilities for foodborne or waterborne diseases and preparedness steps they should take for these hazards. One of these states declared that it could not make further efforts on testing for waterborne or agricultural diseases until it received more guidance. States also reported needing guidance in such areas as using the CDC emergency notification systems.

State and local officials were interested in receiving detailed guidance from HHS to be able to better assess their progress and develop realistic time frames. One state we visited wrote in its progress report that CDC's development of pre-event guidelines for use of the vaccinia vaccine for smallpox would be crucial for providing consistent practices nationwide.

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<sup>48</sup>GAO-01-915.

<sup>49</sup>Institute of Medicine, *Chemical and Biological Terrorism: Research and Development to Improve Civilian Medical Response* (Washington, D.C.: National Academy Press, 1999), and National Research Council, *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism* (Washington, D.C.: National Academies Press, 2002).

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It also wrote that it would be useful to have an approved method for evaluating laboratory response to ensure that minimum standards were being met. Two other states wrote that they would like CDC to provide guidance for developing emergency operation plans.

CDC has begun to provide more detailed guidance in some areas. For example, it is developing standards for the National Electronic Disease Surveillance System, which serves as the foundation for many states' bioterrorism information systems. Under this system, standards are being developed to ensure uniform data collection and electronic reporting practices across the nation. Another initiative that is providing guidance on communication is CDC's Public Health Information Network. This network is intended to build on and integrate existing public health communication systems and will include public health data standards to ensure the compatibility of the communication systems used by the health care community and federal, state, and local public authorities. In addition, CDC has made efforts in developing new laboratory protocols. One state noted that CDC's efforts have been of the highest standard, and the protocols received have been designed for easy implementation at the state level.

Officials at the state level also expressed a desire for more sharing of best practices. Officials stated that although each jurisdiction might need to adapt procedures to its own circumstances, time could be saved and needless duplication of effort avoided if there were better mechanisms for sharing strategies across jurisdictions. They contended that HHS was positioned to know about different strategies that states were pursuing. For example, one state wrote in its progress report that it would be useful for HHS to provide information on syndromic surveillance systems that were operational. In its progress report, another state wrote that it had requested the portions of other states' application plans related to risk communication and health information dissemination. The state wanted to include its Native American population in preparedness planning and was looking for best practices on how to involve tribal governments in planning.

Some officials particularly expressed a desire for increased information sharing of best practices among state and local jurisdictions on various types of training. Many jurisdictions were developing training programs to increase bioterrorism preparedness. One state official told us during our visit that his agency needed training material on handling incidents, but he did not want to duplicate others' efforts by developing his own materials. In their progress reports, five of the seven states we visited indicated that

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they would like CDC's help in obtaining training information. One state wrote that establishing national standards for training and training aids for laboratories would minimize the need for individual states or regions to develop their own materials. Another state requested assistance with Strategic National Stockpile and smallpox education and training materials, and a third state requested training videos or videos of tabletop exercises to study. One state suggested that it would be useful for CDC to organize an Internet site and teleconferences among states to facilitate information sharing.

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## Conclusions

As concerns about bioterrorism and other public health emergencies, including newly emerging infectious diseases such as West Nile virus, have surfaced over the past few years, cities across the nation have been working to increase their preparedness for responding to such events. An essential first step for cities was to recognize some of the deficiencies that existed in their public health infrastructures and how these would affect their ability to respond to a bioterrorism event.

Cities have recognized and begun to work on deficiencies in elements of coordination, communication, and capacity necessary for bioterrorism preparedness. Progress in addressing capacity issues has lagged behind progress in other areas, in part because finding solutions to deficiencies in capacity can be complicated by the magnitude of the resource needs. For example, the resources that hospitals would require for responding to a biological attack would be greater than what are normally needed. Local authorities can shift resources between functions and plan for ways to expand capacity in an emergency. However, shifting resources between functions can cause serious problems if the emergency is an extended one and other important responsibilities are not being met. Needs for additional capacity for responding to bioterrorism emergencies must be balanced with preparedness for all types of emergencies and must not detract from meeting the everyday needs of cities for emergency care. Regional plans can help address capacity deficiencies by providing for the sharing across localities of resources that, while adequate for everyday needs, may be in short supply on a local level in an emergency.

Our observations of state and local preparedness for bioterrorism in selected cities bring certain other needs into focus as well. First, there is not yet a consensus on what constitutes adequate preparedness for a public health emergency, including a bioterrorist incident, at the state and local levels. There have been some efforts to provide guidelines for hospital preparedness, but specific standards for state and local

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preparedness are lacking. Officials from state and local response organizations expressed a need for specific benchmarks from the federal government, which could lead to consistent standards across all states. This could also facilitate needed regional planning across state boundaries.

Second, we noted several instances in which cities found solutions to deficiencies that they identified. For example, cities developed methods for triaging samples during the anthrax incidents. Federal mechanisms for sharing innovations and other resources, such as fact sheets on infectious diseases and training materials, could prevent states and cities from having to develop solutions to common problems individually. The federal government could take additional steps to assist these states and cities in efficiently and effectively increasing their preparedness.

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## Recommendations for Executive Action

To help state and local jurisdictions better prepare for a bioterrorist attack, we recommend that the Secretary of Health and Human Services, in consultation with the Secretary of Homeland Security,

- develop specific benchmarks that define adequate preparedness for a bioterrorist attack and can be used by state and local jurisdictions to assess and guide their preparedness efforts and
- develop a mechanism by which solutions to problems that have been used in one jurisdiction can be evaluated by HHS and, if appropriate, shared with other jurisdictions.

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## Agency Comments

We provided a draft of this report to HHS and the Department of Homeland Security. HHS submitted written comments, which are reprinted in appendix III. HHS said the report provides an informative assessment of preparedness for bioterrorism and other public health emergencies at the state and local levels. HHS concurred with our recommendations. The liaison from the Department of Homeland Security provided oral comments noting the department's concurrence with the draft report and the recommendations.

In its comments, HHS stated that it is taking steps to address the concerns we identified. For example, the department noted that both CDC and HRSA will issue guidance that will emphasize coordination of planning on a regional level. HHS also stated that CDC and HRSA will be developing guidelines and templates to assist states in identifying specific benchmarks and that the Office of the Assistant Secretary for Public

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Health Emergency Preparedness will be leading an effort to create a repository of best practices.

HHS noted that it has been a year since our site visits and that during that period both state and local health departments have made further strides in their efforts to achieve preparedness for bioterrorism and other public health emergencies. We noted in the draft report that we include information obtained from state officials several months after our site visits. As we also noted in the draft report, we recognize that changes continue to occur. However, many of the problems we identified will require sustained efforts, and HHS said that it is now taking steps that are intended to facilitate further progress.

HHS also provided technical comments, which we incorporated where appropriate.

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We are sending copies of this report to the Secretary of Health and Human Services and the Secretary of Homeland Security, and other interested officials. We will also provide copies to others upon request. In addition, the report will be available at no charge on GAO's Web site at <http://www.gao.gov>.

If you or your staffs have any questions about this report, please call me at (202) 512-7119. Another contact and key contributors are listed in appendix IV.



Janet Heinrich  
Director, Health Care—Public Health Issues

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*List of Committees*

The Honorable Judd Gregg  
Chairman

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Ranking Minority Member  
Committee on Health, Education, Labor, and Pensions  
United States Senate

The Honorable Ted Stevens  
Chairman

The Honorable Robert C. Byrd  
Ranking Minority Member  
Committee on Appropriations  
United States Senate

The Honorable W.J. "Billy" Tauzin  
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The Honorable John D. Dingell  
Ranking Minority Member  
Committee on Energy and Commerce  
House of Representatives

The Honorable C.W. Bill Young  
Chairman

The Honorable David Obey  
Ranking Minority Member  
Committee on Appropriations  
House of Representatives

# Appendix I: Bioterrorism Preparedness in Seven Case Cities

Table 1 provides comparisons across several elements of preparedness for each of the seven cities we visited. The purpose of this table is to provide additional context for the discussion in the report and some understanding of the strengths and weaknesses of each city in preparing for a bioterrorist attack and how these strengths and weaknesses vary among the cities. The information in this table was obtained from December 2001 through March 2002. The cities have continued to make changes to improve their bioterrorism preparedness; however, this table does not reflect those changes.

**Table 1: Bioterrorism Preparedness Elements for the Seven Cities We Visited, December 2001 through March 2002**

	City A	City B	City C	City D	City E	City F	City G
<b>Context</b>							
City population	Under 300,000	300,000-1,000,000	Over 1,000,000	300,000-1,000,000	Over 1,000,000	300,000-1,000,000	Under 300,000
State has a foreign border	Yes	No	No	Yes	Yes	No	No
Metropolitan area has a port	Yes	Yes	Yes	Yes	Yes	No	Yes
City had received funding from the Metropolitan Medical Response System (MMRS) <sup>a</sup> program	No	Yes	Yes	Yes	Yes	Yes	Yes
City had responded to suspected anthrax incidents, other public health emergencies, or both within previous 5 years	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City prepared and hosted a National Security Special Event <sup>b</sup> within previous 5 years	No	No	Yes	Yes	Yes	No	No
<b>Disease surveillance, follow-up, and agent identification</b>							
Statewide passive disease surveillance system <sup>c</sup>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Statewide active disease surveillance system <sup>d</sup>	Yes	Yes	No	No	Yes	No	Yes
Local active disease surveillance system <sup>d</sup>	No	No <sup>e</sup>	No <sup>e</sup>	Yes	Yes	No	No
One or more epidemiologists in local public health agency	No	Yes	Yes	Yes	Yes	Yes	Yes

**Appendix I: Bioterrorism Preparedness in  
Seven Case Cities**

	<b>City A</b>	<b>City B</b>	<b>City C</b>	<b>City D</b>	<b>City E</b>	<b>City F</b>	<b>City G</b>
One or more epidemiologists in state public health agency	Yes	Yes	Yes	Yes	Yes	Yes	Yes
One or more Biosafety Level 3 laboratories in the state <sup>f</sup>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Treatment capacity</b>							
Drug stockpile maintained by city <sup>g</sup>	No	Yes	Yes	Yes	Yes	No	Yes
Drug stockpile maintained by hospital <sup>h</sup>	Yes	Yes	Yes	Yes	Yes	No	Yes
Hospital had sufficient bioterrorism response training, per self-report	No	No	No	No	No	No	No
Hospital had sufficient equipment for bioterrorism response, per self-report <sup>i</sup>	No	No	No	No	No	No	No
<b>Responder communications</b>							
Communications between emergency responders had been effective during public health emergencies, per self-report	No	No	No	No	Yes	No	No
City had compatible radio system	Yes	Yes	Yes	Yes	Yes	No	Yes
<b>State public health resources</b>							
State had a plan for using the Strategic National Stockpile	Yes <sup>j</sup>	Yes <sup>j</sup>	Yes	Yes	Yes <sup>j</sup>	Yes	Yes <sup>j</sup>
State public health office used Health Alert Network (HAN) <sup>k</sup>	No	Yes	No	Yes	Yes	No	Yes
Local public health office used HAN <sup>k</sup>	No	Yes	No	Yes	Yes	No	Yes
<b>Cooperation among responders</b>							
Written agreements exist to cooperate with neighboring state(s)	Yes	No	Yes	No	No	Yes	No
Coordination with neighboring country	No	NA <sup>l</sup>	NA <sup>l</sup>	Yes	No	NA <sup>l</sup>	NA <sup>l</sup>
Local officials had developed a system for triaging samples prior to the 2001 anthrax incidents	No	No	No	No	Yes <sup>m</sup>	No	No

Source: GAO.

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**Appendix I: Bioterrorism Preparedness in  
Seven Case Cities**

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Note: GAO analysis of information obtained from visits to each of the cities.

<sup>a</sup>The MMRS program is an Office of Emergency Response (OER) program intended to develop or enhance the local response to a public health crisis, especially an attack using weapons of mass destruction. It takes a comprehensive local approach by assembling hospitals, emergency managers, the public health establishment, and others to deal with the consequences of an attack. Cities enter into contracts with OER for a predetermined period. For more information on the MMRS program, see U.S. General Accounting Office, *Bioterrorism: Federal Research and Preparedness Activities*, [GAO-01-915](#) (Washington, D.C.: Sept. 28, 2001).

<sup>b</sup>Presidential Decision Directive 62 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. Such events include presidential inaugurations and major political party conventions.

<sup>c</sup>Passive disease surveillance systems rely on laboratory and hospital staff, physicians, and other relevant sources to take the initiative to provide data on illnesses to health departments, where officials analyze and interpret the information as it comes in.

<sup>d</sup>In an active disease surveillance system, public health officials contact sources, such as laboratories, hospitals, and physicians, to obtain information on conditions or diseases in order to identify cases.

<sup>e</sup>City had implemented an active disease surveillance system in the past for a public health emergency or special event but had discontinued the system.

<sup>f</sup>Biosafety levels represent combinations of laboratory practices and techniques, safety equipment, and laboratory facilities. Each combination is specifically appropriate for the operations performed, the documented or suspected routes of transmission of the infectious agents, and the laboratory function or activity. In Biosafety Level 3 facilities, work is done with indigenous or exotic agents with a potential for respiratory transmission, and which may cause serious and potentially lethal infection. Level 3 laboratories provide the second-highest degree of protection to personnel, the environment, and the community.

<sup>g</sup>The drug stockpile is maintained by the local responders (not including individual hospitals). These city stockpiles are independent of the federal Strategic National Stockpile, a repository of pharmaceuticals, antidotes, and medical supplies that can be delivered to the site of a bioterrorist (or other) attack.

<sup>h</sup>A "yes" entry indicates that officials from at least one hospital that we spoke with in that city gave a positive response. These hospital stockpiles are independent of the federal Strategic National Stockpile.

<sup>i</sup>Equipment includes personal protective gear or decontamination equipment.

<sup>j</sup>The state had a draft plan or was developing a plan.

<sup>k</sup>HAN is a Centers for Disease Control and Prevention program that supports the exchange of key public health information over the Internet and other communication methods, such as two-way radio.

<sup>l</sup>NA means not applicable; this state has no foreign borders.

<sup>m</sup>During the anthrax incidents of 2001, the locality built on the existing triage system.

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# Appendix II: Scope and Methodology

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We visited seven cities selected to provide wide variation in geographic location, population size, and experience with natural disasters and large exercises. Recommendations from experts, including officials from the Department of Health and Human Services (HHS) Office of Emergency Response and the National Association of County and City Health Officials, were also considered in the selection of cities. We also visited each city's state government. The cities visited are not identified in this report because of the sensitive nature of the issue.

During the multiday site visits, which we conducted from December 2001 through March 2002, we interviewed officials from state and local public health departments, local emergency medical services, state and local emergency management agencies, local fire and law enforcement agencies, and hospitals and national public health care associations. We asked them about their activities related to preparing for and responding to bioterrorism, lessons learned from past natural disasters and the anthrax incidents in October 2001, past and current federal funding for helping state and local agencies prepare for bioterrorism, and gaps and weaknesses as well as strengths and successes in their readiness for bioterrorism. We reviewed copies of the bioterrorism preparedness plans states sent to HHS in spring 2002 for cooperative agreement funding from the Centers for Disease Control and Prevention (CDC) and the Health Resources and Services Administration (HRSA). In addition, to update our data, we obtained follow-up information from state and local officials and reviewed the 6-month progress reports on the CDC and HRSA cooperative agreements that were submitted to HHS in late 2002 from the relevant states, covering the period through October 31, 2002. Because our focus was on the public health and medical consequences of a bioterrorist event, we do not report on preparedness efforts funded by the Department of Justice and the Federal Emergency Management Agency in this study.

The results of our visits cannot be generalized to the entire country. In addition, the hospitals we included in our site visits were chosen based on recommendations of local public health officials and hospital associations. This resulted in a mix of private and public hospitals, but because of the selection method, the results cannot be generalized to all hospitals in the areas we visited.

We interviewed officials from HHS's Office of the Assistant Secretary for Public Health Emergency Preparedness regarding its efforts to improve state and local preparedness for responding to a bioterrorist incident.

We reviewed reports from the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction<sup>1</sup> and reports from several associations, including the American Hospital Association, the National Association of County and City Health Officials, and the American College of Emergency Physicians. We conducted interviews with representatives from several associations, including the American Hospital Association, the Association of State and Territorial Health Officials, and the National Governors Association. We also reviewed a report by the U.S. Conference of Mayors about local costs associated with bioterrorism preparedness.<sup>2</sup> In addition, we examined the President's budget request for bioterrorism preparedness for fiscal year 2003.

Because of the events of the fall of 2001, and the subsequent federal preparedness funding, changes were occurring at the state and local levels with regard to bioterrorism preparedness during our site visits and subsequent data collection. Changes have continued to occur and this report may not reflect all these changes.

We conducted our work from November 2001 through April 2003 in accordance with generally accepted government auditing standards.

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<sup>1</sup>Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, *Third Annual Report to the President and the Congress of the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction* (Arlington, Va.: RAND, Dec. 15, 2001), and *Fourth Annual Report to the President and the Congress of the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction* (Arlington, Va.: RAND, Dec. 15, 2002).

<sup>2</sup>The United States Conference of Mayors, *The Cost of Heightened Security in America's Cities: A 192-City Survey* (Washington, D.C.: City Policy Associates, January 2002).

# Appendix III: Comments from the Department of Health and Human Services



DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of Inspector General

Washington, D.C. 20201

MAR 27 2003

Ms. Janet Heinrich  
Director, Health Care – Public Health Issues  
United States General  
Accounting Office  
Washington, D.C. 20548

Dear Ms. Heinrich:

Enclosed are the department's comments on your draft report entitled, "Bioterrorism: Preparedness Varied across State and Local Jurisdictions." The comments represent the tentative position of the department and are subject to reevaluation when the final version of this report is received.

The department also provided several technical comments directly to your staff.

The department appreciates the opportunity to comment on this draft report before its publication.

Sincerely,

A handwritten signature in black ink, appearing to read "Dennis J. Duquette".

Dennis J. Duquette  
Acting Principal Deputy Inspector General

Enclosure

The Office of Inspector General (OIG) is transmitting the department's response to this draft report in our capacity as the department's designated focal point and coordinator for General Accounting Office reports. The OIG has not conducted an independent assessment of these comments and therefore expresses no opinion on them.

**Comments of the Department of Health and Human Services on the General Accounting Office's Draft Report, "Bioterrorism: Preparedness Varied across State and Local Jurisdictions" (GAO-03-373)**

General Comments

The Department of Health and Human Services (department) appreciates the opportunity to review and comment on the draft report of the General Accounting Office (GAO) entitled *Bioterrorism: Preparedness Varied Across State and Local Jurisdictions*. The department commends the GAO for an informative assessment of preparedness for bioterrorism and other public health emergencies at the state and local levels. The GAO's findings for the seven cities and states probably are representative to a considerable extent of the situation across the country at that time. Having said that, the department would like to reinforce the point made in the report that changes have continued to take place since the GAO site visits and this report does not reflect all such changes. Indeed, it has been a year since the completion of the GAO site visits and, in that period of time, both state and local health departments have made further strides in their efforts to achieve preparedness for bioterrorism and other public health emergencies.

GAO Recommendations for Executive Action

To help state and local jurisdictions better prepare for a bioterrorist attack, we recommend that the Secretary of Health and Human Services, in consultation with the Secretary of Homeland Security:

- develop specific benchmarks that define adequate preparedness for a bioterrorist attack and which can be used by state and local jurisdictions to assess and guide their preparedness efforts,
- develop a mechanism by which solutions to problems that have been used in one jurisdiction can be evaluated by HHS and, if appropriate, shared with other jurisdictions.

Department Response

The department would like to respond to some of the principal findings in the report and provide additional information on measures it is taking to address the concerns identified by GAO.

*Regional Planning.* We recognize that since public health emergencies, including bioterrorist attacks, do not respect geopolitical lines, preparedness planning and implementation must be carried out on a regional basis (regions defined to include geographical areas that cover not only multiple counties within a state but also those involving two or more states and those that cross international borders). To that end, the guidances to be issued this year by both the Centers for Disease Control and Prevention (CDC) and the Health Resources and Services Administration (HRSA) will reinforce our emphasis on coordination of planning on a regional level.

*Workforce Shortages.* This is a concern we are addressing through several different mechanisms. Both the CDC and HRSA guidances this year will continue to focus on the education and training needed to prepare for and respond to bioterrorism and other public health emergencies. For state and local health departments that do not have sufficient fiscal resources at this time for hiring, an effort is being made to advance necessary funding from the CDC and HRSA FY 2003 cooperative agreements to meet this need as well as others that may be creating impediments to achieving state and local public health emergency preparedness.

This year HRSA is also mounting a new \$28 million initiative on continuing education and curriculum development for clinical providers who may be involved in the triage, diagnosis, treatment or definitive care of terrorist victims. With respect to the longer term challenge of creating an adequate public health workforce, we have already awarded a cooperative agreement to the Association of Schools of Public Health with the intent of having 19 Schools of Public Health develop and implement a curriculum to train personnel specifically in the array of skills needed by state and local health departments to respond to bioterrorism and other public health emergencies.

*Laboratory Capacity.* Laboratories play a critical role in the detection and diagnosis of illnesses resulting from exposure to either biological or chemical agents. No therapy or prophylaxis can be initiated without laboratory identification and confirmation of the agent in question. Therefore, discussion of state and local efforts in laboratory capacity building should not be consolidated with discussion of surveillance activities. We recommend that these two topics each be accorded its own section in the report.

*Specific Benchmarks and Detailed Guidance.* In response to the concern articulated by various state and local health departments that they need more specific benchmarks and more detailed guidance, we are in fact including a larger number of specific benchmarks in this year's guidance. Furthermore, both CDC and HRSA will be developing additional guidelines as well as templates that will be shared with all awardee jurisdictions. Every effort will be made to ensure that these guidelines will allow states to better assess their progress toward achieving an adequate level of preparedness and to determine when they have achieved that level.

*Sharing of Best Practices.* This is a goal that we strongly endorse. In fact, the Office of the Assistant Secretary for Public Health Emergency Preparedness, working closely with CDC and HRSA, will be leading an effort to create a repository of "best practices," that could include, but not be limited to readiness assessment, 24/7 disease reporting, laboratory proficiency testing, risk communication or Information Technology interoperability. Such "best practices" will be identified, validated and then shared with state and local health departments. This project will reduce the duplication of time, effort and resources that take place when each jurisdiction tries to "reinvent the wheel." We intend to initiate this project by no later than early summer.

Last year at its first annual meeting with recipients of its cooperative agreements, HRSA highlighted a number of best practices in areas that would be beneficial to state health departments attempting to address hospital preparedness. As HRSA begins to plan for this year's annual meeting of its grantees, the sharing of best practices will be considered a high priority agenda item.

On a related effort, HRSA will be publishing very shortly a Federal Register Notice announcing an initiative that will provide funding to relevant national professional organizations to collaborate on the development of core competencies essential for hospital leadership and for clinical care to be provided by hospital-based personnel in bioterrorism, radiological, or chemical disasters.

Thank you for a valuable report. It adds to and reinforces what we already know about the activities/concerns of state and local health departments as they go about preparing for and responding to bioterrorism and other public health emergencies.

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# Appendix IV: GAO Contact and Staff Acknowledgments

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## GAO Contact

Marcia Crosse, (202) 512-7119

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## Acknowledgments

In addition to the contact named above, George Bogart, Barbara Chapman, Robert Copeland, Deborah Miller, and Roseanne Price made key contributions to this report.

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# Related GAO Products

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*Chemical and Biological Defense: Observations on DOD's Risk Assessment of Defense Capabilities.* [GAO-03-137T](#). Washington, D.C.: October 1, 2002.

*Anthrax Vaccine: GAO's Survey of Guard and Reserve Pilots and Aircrew.* [GAO-02-445](#). Washington, D.C.: September 20, 2002.

*Homeland Security: New Department Could Improve Coordination but Transferring Control of Certain Public Health Programs Raises Concerns.* [GAO-02-954T](#). Washington, D.C.: July 16, 2002.

*Homeland Security: New Department Could Improve Biomedical R&D Coordination but May Disrupt Dual-Purpose Efforts.* [GAO-02-924T](#). Washington, D.C.: July 9, 2002.

*Homeland Security: New Department Could Improve Coordination but May Complicate Priority Setting.* [GAO-02-893T](#). Washington, D.C.: June 28, 2002.

*Homeland Security: New Department Could Improve Coordination but May Complicate Public Health Priority Setting.* [GAO-02-883T](#). Washington, D.C.: June 25, 2002.

*Bioterrorism: The Centers for Disease Control and Prevention's Role in Public Health Protection.* [GAO-02-235T](#). Washington, D.C.: November 15, 2001.

*Bioterrorism: Review of Public Health Preparedness Programs.* [GAO-02-149T](#). Washington, D.C.: October 10, 2001.

*Bioterrorism: Public Health and Medical Preparedness.* [GAO-02-141T](#). Washington, D.C.: October 9, 2001.

*Bioterrorism: Coordination and Preparedness.* [GAO-02-129T](#). Washington, D.C.: October 5, 2001.

*Bioterrorism: Federal Research and Preparedness Activities.* [GAO-01-915](#). Washington, D.C.: September 28, 2001.

*Chemical and Biological Defense: Improved Risk Assessment and Inventory Management Are Needed.* [GAO-01-667](#). Washington, D.C.: September 28, 2001.

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**Related GAO Products**

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*West Nile Virus Outbreak: Lessons for Public Health Preparedness.* [GAO/HEHS-00-180](#). Washington, D.C.: September 11, 2000.

*Combating Terrorism: Need for Comprehensive Threat and Risk Assessments of Chemical and Biological Attacks.* [GAO/NSIAD-99-163](#). Washington, D.C.: September 14, 1999.

*Chemical and Biological Defense: Program Planning and Evaluation Should Follow Results Act Framework.* [GAO/NSIAD-99-159](#). Washington, D.C.: August 16, 1999.

*Combating Terrorism: Observations on Biological Terrorism and Public Health Initiatives.* [GAO/T-NSIAD-99-112](#). Washington, D.C.: March 16, 1999.

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## To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Web site: [www.gao.gov/fraudnet/fraudnet.htm](http://www.gao.gov/fraudnet/fraudnet.htm)

E-mail: [fraudnet@gao.gov](mailto:fraudnet@gao.gov)

Automated answering system: (800) 424-5454 or (202) 512-7470

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## Public Affairs

Jeff Nelligan, managing director, [NelliganJ@gao.gov](mailto:NelliganJ@gao.gov) (202) 512-4800  
U.S. General Accounting Office, 441 G Street NW, Room 7149  
Washington, D.C. 20548