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Combating Terrorism

How Prepared Are State and Local Response Organizations?

Lois M. Davis, Louis T. Mariano, Jennifer E. Pace,
Sarah K. Cotton, Paul Steinberg

Prepared for the Office of the Secretary of Defense

NATIONAL DEFENSE RESEARCH INSTITUTE

The research described in this report was prepared for the Office of the Secretary of Defense (OSD). The research was conducted in the RAND National Defense Research Institute, a federally funded research and development center sponsored by the OSD, the Joint Staff, the Unified Combatant Commands, the Department of the Navy, the Marine Corps, the defense agencies, and the defense Intelligence Community under Contract DASW01-01-C-0004.

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1200 South Hayes Street, Arlington, VA 22202-5050
4570 Fifth Avenue, Suite 600, Pittsburgh, PA 15213-2665
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Preface

The Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction (also known as the Gilmore Commission) was established by Congress on October 17, 1998, to assess federal agency efforts and programs for enhancing domestic weapons of mass destruction (WMD) preparedness programs. This goal included evaluating the progress of federal training programs for local emergency response and recommending strategies for effective coordination of preparedness and response efforts between federal, state, and local government and response organizations. The Advisory Panel completed its work in 2003.

The Act that created the Panel specified that a federally funded research and development center (FFRDC) provide research, analytical, and other support to the Panel during its activities and deliberations. The RAND Corporation provided this support under contract from the Department of Defense.

Just prior to the September 11, 2001, terrorist attacks, RAND undertook a nationwide survey of state and local organizations likely to be involved in the initial stages of detection and response in the event of a terrorist incident involving WMD.[1] In 2002, RAND sent a follow-up survey to the initial respondents to assess what had changed since 9/11 in terms of threat experience, planning activities, joint preparedness activities, and training. The results of the second survey

[1] For that survey, the Panel expanded the definition of WMD from chemical, biological, radiological, or nuclear devices to include *any* device capable of producing large-scale physical destruction, widespread disruption, and/or mass casualties.

were included in the Advisory Panel's fourth-year report, released in December 2002.

This report presents the results from the third and final wave of the national survey, in which respondents were asked about the broader concept of preparedness for terrorism in general, including, but not limited to, incidents involving WMD. This survey was performed to elicit state and local response agencies' assessments of federal programs intended to improve their preparations and readiness to respond to terrorist-related incidents. It also sought information on preparedness activities since 9/11 and how state and local agencies are obtaining funding and other resources for these activities. The results will be of interest to federal, state, and local policymakers and to the emergency response and public health and medical communities. Where appropriate, the report also discusses changes that have occurred since the survey's completion in 2003.

This research was conducted within the Forces and Resources Policy Center of the RAND National Defense Research Institute, a federally funded research and development center sponsored by the Office of the Secretary of Defense, the Joint Staff, the Unified Combatant Commands, the Department of the Navy, the Marine Corps, the defense agencies, and the defense Intelligence Community.

Comments are welcome and may be addressed to the project leader, Lois Davis. She can be reached by email at Lois_Davis@rand.org.

For more information on RAND's Forces and Resources Policy Center, contact the Director, James R. Hosek. He can be reached by email at James_Hosek@rand.org; by phone at 310-393-0411, extension 7183; or by mail at the RAND Corporation, 1776 Main Street, Santa Monica, California 90407-2138. More information about RAND is available at www.rand.org.

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Summary

Since the 9/11 attacks on the World Trade Center and the Pentagon, state and local governments and response organizations have focused attention on preparing for and responding to acts of domestic terrorism. Of particular concern has been improving state and local response capabilities for dealing with terrorist incidents involving weapons of mass destruction (WMD), i.e., biological, radiological, chemical, or nuclear weapons. Much activity has focused on what the federal government itself can do to better support the efforts of state and local organizations in the war on terrorism.

The Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction (also known as the Gilmore Commission) was established by Congress on October 17, 1998, to evaluate the progress of federal preparedness programs for local emergency response and to recommended strategies for effective coordination of preparedness and response efforts between federal, state, and local government and response organizations.

As part of its support for this effort, just prior to the 9/11 terrorist attacks, RAND conducted the first wave of a nationwide survey to gather in-depth data about state and local response organizations' assessments of federal preparedness programs for combating terrorism. Follow-on surveys were conducted in 2002 and 2003. The surveys gathered in-depth data on the planning and preparedness activities of the key professional communities involved in preparedness and emergency response: law enforcement, fire services, offices of emergency management (OEMs), emergency medical services (EMSs), hospitals, and public health agencies.

This national survey provides the first comprehensive picture of efforts in the two years following the 9/11 attacks to improve the nation's preparedness for terrorism. It enables us to gauge what is going right and what is going wrong, and it allows us to identify areas for improvement. This report presents a summary of results from the third wave of the survey, conducted in 2003. The report addresses six key issues: (1) intelligence information and warning; (2) what organizations did in response to 9/11 to improve their preparedness capabilities; (3) which types of incidents state and local organizations consider most important to prepare for; (4) organizations' views about funding support needs and the association between receipt of funding and preparedness activities; (5) differences between state and local organizations in their participation in federal programs and in their expectations of the federal government; and (6) involvement of response organizations with the private sector.

Also, where appropriate, we discuss changes that have occurred since the survey was completed.

What Is Going Right and Areas That Need improvement

Stepping back from the detail of the survey responses, we can take a broader view of what has gone right following the 9/11 terrorist attacks and what still needs to be worked on.

Following 9/11, Preparedness Received a Lot of Attention

In response to 9/11, state and local response organizations undertook a number of steps to improve their preparedness. They updated mutual-aid agreements for emergencies in general and response plans for chemical, biological, and radiological (CBR) incidents, and they conducted risk assessments. As one might expect, the types of incidents local response organizations focused on tended to follow the organizations' missions. However, there was considerable variation in the priority organizations assigned to investing departmental resources in terrorism preparedness.

In light of the catastrophic impact of hurricanes Katrina and Rita, controversy has arisen over whether state and local organizations have overemphasized preparedness for terrorism at the expense of emergency preparedness for natural disasters. Our survey results suggest that the events of 9/11 spurred response organizations not only to undertake preparedness activities for terrorism-related incidents—e.g., updating response plans to address chemical, biological, radiological/nuclear, and explosives (CBRNE) incidents—but also to make general improvements in emergency response, including updating mutual-aid agreements and participating in joint preparedness activities with other organizations. All these activities support overall preparedness for any catastrophic event.

However, we cannot tell from the survey how much better prepared the United States is to deal with a terrorist attack as a result of these activities. Although state and local organizations undertook a range of activities following the 9/11 terrorist attacks to improve their response capabilities, it is difficult to quantify the preparedness of those organizations without standardized measures of organizational and community preparedness. We are also unable to tell the extent to which resources may have been diverted from other areas of preparedness (or other agency responsibilities). We found substantial variation among organizations in the way in which they financed their efforts: Some increased internal spending or reallocated departmental resources to improve terrorism preparedness following 9/11, while others used external funding to support those activities. Our results suggest that by taking on these additional demands, some local response organizations may have been stretched thin in the years following 9/11. This is an area that warrants further examination.

Threat Information Appears to Be Reaching the Right Organizations

Threat information appears to be reaching the right organizations, but given the central role law enforcement plays in receiving and sharing threat information, it is of some concern that only half of the U.S. law enforcement agencies in 2003 had received guidance from the Federal Bureau of Investigation (FBI) about what information to collect and pass on. Further, very few law enforcement agencies had applied for

security clearances; rather, they relied primarily on the FBI and other sources for threat information. And although the majority of state OEMs applied for security clearances, less than half had received them at the time of our survey. While a number of state and local officials have federally sponsored clearances, the Department of Homeland Security (DHS) was unable to provide an accurate count of how many such clearances had been issued to states and localities.

Current trends suggest that law enforcement also may play an increasingly important role in investigating terrorist-related incidents (Davis et al., 2004). These trends underscore the importance of improving coordination between the FBI and law enforcement. At the same time, it will be important for DHS and the Department of Justice (DOJ) to monitor the role and function of the specialized terrorism and criminal intelligence units and the intelligence training law enforcement personnel receive.

Organizations That Believed the Threat to Be Higher for Their Jurisdictions Were More Proactive in Improving Preparedness

Local response organizations that felt their jurisdictions faced a higher threat of terrorism were more likely to take action to improve their response capabilities than were others that felt the threat was lower. For example, law enforcement agencies and paid/combination fire departments that perceived the threat to be high were more likely to have assigned a higher priority to investing departmental resources in terrorism preparedness. Local OEMs behaved similarly.

Among health organizations, local public health agencies that perceived the threat to their jurisdiction to be high were more likely to update their response plans for CBRNE and to create new organizational structures (e.g., units or positions) or assign personnel to focus on terrorism preparedness. In addition, health agencies that perceived the threat to be high were more likely to assign a higher priority to investing resources in terrorism preparedness and to increase spending or reallocate departmental resources following 9/11 than were departments that perceived the threat to be low. Hospitals that perceived the threat to be high for their jurisdiction were more likely to pur-

chase both monitoring and detection equipment and decontamination equipment.

Views Varied on Whether Funding Is Reaching the Communities and Organizations with the Greatest Need

State OEMs and state public health agencies (the organizations responsible for distributing federal funding and resources within the state for emergency and bioterrorism preparedness) tended to believe that federal support was reaching the communities and organizations with the greatest need. However, at the local level, law enforcement agencies, in particular, felt that federal funding was not reaching those with the greatest need, regardless of whether the funding was distributed through the state or directly to localities.

These differences of opinion might partly reflect differential receipt of funding from the federal level. For example, initial federal monies for bioterrorism preparedness targeted public health, while funding for first responders was not as rapidly forthcoming, and there were delays in distribution.

Funding Appears to Have Gone to Localities That Response Organizations Believed Faced a Higher Threat of Terrorism

Local response organizations that perceived the threat of terrorism to be high for their jurisdictions, particularly law enforcement, were more likely to report receipt of external funding after 9/11 to support their preparedness activities.

Receipt of funding, not surprisingly, was positively correlated with being proactive in improving an organization's level of preparedness. That is, local response organizations (except volunteer fire departments) that received an increase in external funding or resources or agency-specific federal support following 9/11 were more likely than other organizations of their same type to have, for example, increased spending or reallocated resources to focus on terrorism preparedness.

These survey results suggest that in 2003, federal preparedness funding and resources were appropriately being targeted to jurisdictions that local response organizations believed faced a higher threat of terrorism. It is difficult to assess whether the targeting was actually

better or whether other factors were influencing this relationship. It could be that the law enforcement agencies and combination paid/volunteer fire departments in the high-threat category, for example, were more proactive in general about seeking federal funding and assistance and were more successful in obtaining it. Also, because our findings are based on the self-reports of local organizations, we were unable to verify the extent to which different organizations had received federal funding.

Receipt of Funding Was Variable Across Organizations

The reported receipt of funding was highly variable across state and local organizations. The differences are partly the result of the grant mechanisms in place and of differences among response communities about when federal support was made available to them. Following 9/11, federal funding to the states was initially focused on public health preparedness; state public health agencies and, to a lesser degree, state EMSs received federal support early in 2002 to undertake comprehensive assessment and planning efforts to improve their states' overall preparedness for bioterrorism. Funding to first responders, however, did not begin to flow in any substantial amounts until spring 2003, when the newly created DHS announced the release of funding to be distributed to the first-responder community. In summer 2003, when the third wave of this survey was undertaken, federal funding distributed through the states was just beginning to reach local response organizations. However, as discussed below, distribution of these grant funds encountered a number of obstacles.

Organizations Have Differing Expectations About the Role of the Military in Terrorism Response

In the aftermath of hurricane Katrina, events in Louisiana highlighted the differing expectations that state and local officials have with respect to the role of the federal military and the National Guard in responding to a major catastrophe. We found that state and local response organizations varied similarly in what they expected of the military in the event of a large-scale terrorist-related incident.

In some cases, the differences may reflect misunderstandings about the roles and responsibilities of the federal military under the Federal Response Plan or the new National Response Plan, as well as a lack of knowledge about legal restrictions on the domestic use of the federal military. Nevertheless, these differences raise an important question about whether state and local organizations are planning under very different assumptions about the role they expect the military to play in the response to a terrorist-related incident or a major disease outbreak. This is an area that warrants greater awareness training and possibly a reexamination of planning assumptions.

Coordination with the Private Sector Needs Improvement

Enhancing coordination with the private sector is critical for ensuring the preparedness of states and localities and for protecting vital critical infrastructure (e.g., utilities, transportation). The 2003 survey provides several indicators of how much coordination is occurring between emergency responders and the private sector, and what we see indicates that there is considerable room for improvement. There is limited interaction with the private sector, either in sharing threat information or in participation in joint preparedness activities (e.g., planning, training). These results suggest that significant room for improvement remains in the area of public/private-sector coordination.

Coordination Between Public Health Agencies and Emergency Responders Needs Improvement

During a public health emergency or a bioterrorist attack, law enforcement and other emergency response organizations might be called on to enforce quarantines, manage crowds, or participate in joint investigations with public health officials. Many have expressed concern about the lack of integration between the public health and medical communities and other local emergency responders to address preparedness for bioterrorism or other acts of domestic terrorism (Hamburg, 2001).

The 2003 survey revealed important differences in the way health agencies and law enforcement agencies and fire departments viewed this relationship. Specifically, only one-quarter of the law enforcement organizations and one-third of the paid/combination fire departments

that had participated in joint preparedness activities since 9/11 indicated that those activities involved local health agencies. At the same time, the majority of the local health agencies that reported participation in joint preparedness activities following 9/11 indicated that those activities had involved law enforcement and fire departments.

These survey results clearly suggest a disconnect between how emergency responders and public health agencies view the degree to which they are integrating their preparedness activities. These results may reflect differences in the way these organizations interpreted the question or in what they consider joint activities might entail. Nevertheless, public health and emergency responder coordination remains an area where additional efforts are needed.

Support Needs and Expectations of DHS

Beyond helping us understand what is working well and what is in need of improvement, the survey results were useful in identifying what state and local organizations felt were their most urgent support needs and what expectations they had about support from DHS.

Protection of Response Personnel, Training, and Equipment Were Identified as Important Support Needs, but Funding Was Viewed as a Limiting Factor

The survey revealed that first responders were primarily concerned about protection of response personnel and their ability to decontaminate victims and provide mass care, results that are consistent with the emergency responder protection needs reported in LaTourrette et al. (2003). In structured discussions with representatives from the emergency responder community, a common concern expressed was the need for adequate protection against terrorist attacks and the need to deal with the vulnerability of nonspecialist responders. A majority of state and local public health agencies were also concerned about protecting response personnel, decontamination of victims, and mass care capabilities. Also, despite the fact that the 9/11 Commission hearings highlighted communications problems emergency responders

had encountered in responding to the attacks—in particular, lack of interoperability—our survey results did not show this to be a particularly important concern. This was somewhat surprising in light of the 9/11 experience and the numerous examples of communications and coordination problems reported for other recent disasters.

Organizations cited limited training and equipment procurement budgets, as well as competing or higher departmental budget priorities, as factors limiting their ability to purchase specialized equipment for terrorism preparedness and to participate in federally sponsored training or equipment programs.

Volunteer Fire Departments' Support Needs Merit Closer Examination

Given the limited resources and the small size of many volunteer fire departments, one might argue that they should focus primarily on their firefighting duties and leave terrorism preparedness to full-time, professionally staffed fire departments. And indeed, volunteer fire departments reported lower levels of involvement in terrorism-specific preparedness activities. However, given that the majority of fire departments in the United States are volunteer rather than paid/combination departments, their limited participation in joint preparedness activities and training should raise some concerns; this suggests that attention will need to be given to finding ways to ensure increased participation in the future.

Expectations of DHS Are High

Most of the organizations surveyed were looking toward DHS for funding support. In addition, state and local organizations wanted more information about the terrorist threat and expressed a number of views on how to improve DHS's Homeland Security Advisory System. They expected DHS to improve coordination between the federal, state, and local levels, streamline grant processes and requirements, consolidate training courses/programs and equipment programs, and facilitate integration of the private sector.

Since the 2003 survey, some of these expectations have been met, while others have been met with only limited success. For example,

many survey responders hoped that DHS would standardize the grant application process across federal agencies and consolidate multiple grant application requirements. In September 2003, DHS announced that a single point of access for state and local grants would be established, partly to streamline the process. However, delays in the distribution of grant funding from the federal to the state level and from the state to the local levels have hampered efforts to get funding to state and local response organizations.

Delays in the distribution and spending of federal first-responder grant funds resulted from a number of problems. In some instances, states were delayed in developing plans and detailed guidelines for distributing funds to the local level. Some state and local jurisdictions also were delayed in developing detailed spending plans and in completing statewide risk assessments and homeland security strategies needed to inform the distribution of first-responder grant funds.

In addition, the overall appropriations for federal homeland security assistance have been steadily decreasing, from a total of $3.82 billion in FY 2003 to $3.61 billion in FY 2005; the FY 2006 budget request represents a further reduction, to $3.36 billion. As noted by the Congressional Research Service, although the intent was to use federal funding to help create a base for states and localities to build upon, attempts to establish that base may have been inadequate, and further reductions in federal homeland security assistance may impair state and local attempts to meet such goals as implementing the National Incident Management System (NIMS) and the National Response Plan (NRP); expanding regional homeland security collaboration; improving detection, response, and decontamination capabilities for CBRNE; and strengthening medical surge and mass prophylaxis capabilities, among other areas (Reese, 2005).

Next Steps

Our survey results provide a broad national picture of what state and local response organizations were doing in 2003 to improve preparedness to deal with a terrorist incident. They also constitute a valuable

database and a useful set of baseline measures for tracking improvements in U.S. preparedness over time. However, these data are now more than three years old. Periodic updates of the survey and assessments of results would be useful for determining what has changed in the intervening years. Although changes have occurred, the issues identified probably remain relevant today. And so do the challenges.

Acknowledgments

We would like to thank the members of the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction (the Gilmore Commission) for their leadership in understanding state and local response capabilities and concerns, and for supporting the development of these nationwide surveys. We are most grateful to all the state and local response organizations that provided detailed information on their planning and preparedness activities, as well as thoughtful comments regarding the impact of the 9/11 attacks on their organizations. We also wish to thank RAND colleagues Michael Wermuth, Jennifer Brower, Susan Everingham, Greg Ridgeway, Michael Stoto, and Ronald Fricker for their helpful input and their review of drafts of this report. Of course, any errors or omissions are solely the responsibility of the authors.

Acronyms and Abbreviations

AHA	American Hospital Association
AIC	Akaike Information Criterion
ATTF	Anti-Terrorism Task Force
BJA/OJP	Bureau of Justice Assistance/Office of Justice Programs
CBR	chemical, biological, and radiological
CBRNE	chemical, biological, radiological/nuclear, and explosive
CDC	Centers for Disease Control and Prevention
COPS	Community Oriented Police Services
CRS	Congressional Research Service
DHHS	Department of Health and Human Services
DHS	Department of Homeland Security
DOE	Department of Energy
DOJ	Department of Justice
EMPG	Emergency Management Performance Grant
EMS	emergency medical service
EMT/P	emergency medical technician/paramedic
EPA	Environmental Protection Agency
ERTP	Emergency Response Training Program
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FTE	full-time equivalent
FWMDPPS	Federal Weapons of Mass Destruction Preparedness Programs Survey

HAZMAT	hazardous materials
HRSA	Health Resources and Services Administration
JTTF	Joint Terrorism Task Force
MMWR	Morbidity and Mortality Weekly Report
NAEM	National Association of Emergency Managers
NDPO	National Domestic Preparedness Office
NIMS	National Incident Management System
NPSIB	National Public Safety Information Bureau
NRP	National Response Plan
ODP	Office of Domestic Preparedness, Department of Homeland Security
OEM	Office of Emergency Management
OJP	Office of Justice Programs/Department of Justice
PPE	personal protective equipment
PPS	probability proportional to size
SAS	Statistical Analysis System
SDPP	State Domestic Preparedness Program
SHSGP	State Homeland Security Grant Program
SLATT	State and Local Anti-Terrorism Training
USACLMS	U.S. Army Chemical School
WMD	weapons of mass destruction

CHAPTER ONE

Introduction

Overview

Since the September 11, 2001, attacks on the World Trade Center and the Pentagon, state and local governments and response organizations have focused attention on preparing for and responding to acts of domestic terrorism. Of particular concern has been improving state and local response capabilities to deal with terrorist incidents involving weapons of mass destruction (WMD), such as biological, radiological, or chemical weapons. Much activity has centered on what the federal government itself can do to better support the efforts of state and local organizations in the war on terrorism.

The Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction (also known as the Gilmore Commission) was established by Congress on October 17, 1998, to evaluate the progress of federal preparedness programs for local emergency response and to recommend strategies for effective coordination of preparedness and response efforts between federal, state, and local government and response organizations.

As part of its support for this effort, just prior to the 9/11 terrorist attacks, RAND conducted the first wave of a nationwide survey to gather in-depth data about state and local response organizations' assessments of federal preparedness programs for combating terrorism. The 2001 survey was undertaken "to elicit state and local response agencies' assessments of federal programs intended to improve state and local preparation and readiness to respond to a WMD terrorism incident" (Advisory Panel to Assess Domestic Response Capabilities

for Terrorism Involving Weapons of Mass Destruction, 2000). For that survey, the Advisory Panel expanded the definition of WMD from chemical, biological, radiological, or nuclear devices to include *any* device capable of producing large-scale physical destruction, widespread disruption, and/or mass casualties. The survey thus provided a good baseline of where state and local organizations stood in addressing planning for emergency response to WMD incidents on the eve of the 9/11 attacks.[1]

Follow-up surveys were conducted in 2002 and 2003. The second survey asked the organizations that responded to the initial survey what had changed since 9/11 in terms of their threat experience, planning activities, joint preparedness activities, and training. In addition, we were interested in learning how organizations were financing these new activities since 9/11. The results of the 2002 survey were reported in the Advisory Panel's fourth-year report.[2] The third and final survey asked all state and local response organizations surveyed in 2001 about the broader concept of preparedness for terrorism in general, including, but not limited to, incidents involving WMD. The purpose of this survey was to elicit state and local response agencies' assessments of federal programs and their expectations of the Department of Homeland Security (DHS).

The surveys gathered in-depth data from 2001 through fall 2003 on the planning and preparedness activities of the key professional communities involved in preparedness and emergency response: law enforcement organizations, fire services, offices of emergency management (OEMs), emergency medical services (EMSs), hospitals, and public health agencies.

This report presents a summary of results from the third wave of the survey, providing a comprehensive picture of what was done in the two years following 9/11 to improve the nation's prepared-

[1] Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, 2000; Davis and Blanchard, 2002; Fricker, Jacobson, and Davis, 2002.

[2] Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, 2002.

ness to respond to terrorist attacks. It also provides a gauge of what is going right and what is going wrong and allows us to identify areas for improvement. The report addresses six key issues: (1) intelligence information and warning; (2) what organizations did to improve their preparedness capabilities in response to 9/11; (3) which types of incidents state and local organizations consider most important to prepare for; (4) organizations' views about funding support needs and the association between receipt of funding and preparedness activities; (5) differences between the participation of state and local organizations in federal programs and in their expectations of the federal government; and (6) involvement of public response organizations with the private sector.

Also, where appropriate, it discusses changes that have taken place since the survey was completed in 2003.

Approach

The third survey questionnaire contained seven sections: (1) Emergency Response Planning Activities (questions about planning, joint preparedness activities, training); (2) Resourcing Preparedness Activities (questions about increased spending since 9/11 and receipt of external funding to support additional activities); (3) Responding to Specific Terrorist Incidents (questions to elicit self-assessments of response capabilities for the type of incident respondents considered most important for their organization to prepare for); (4) Assessment of Federal Programs (questions about respondents' participation in federal preparedness programs since 9/11, expectations of DHS, and support needs); (5) Intelligence Information and Warning (questions about intelligence support needs and suggestions for improving the Homeland Security Advisory System); (6) Other Homeland Security Issues (questions about respondents' threat experience since 9/11, risk-assessment activities, and views regarding the role of the military); (7) Organizational Information (questions about organizational characteristics and a request for overall written comments).

The survey was mailed to the organizations that comprised the initial survey sample. The sample was constructed by first randomly selecting 200 counties throughout the United States, with probability of selection proportional to population size. Then one of each type of local responder organization (law enforcement, fire departments (paid, volunteer, and combination), EMS agencies, public health agencies, hospitals, and OEMs) was randomly chosen within each county. The sampling plan is described in detail in Appendix C. All the relevant state-level organizations (public health, OEMs, EMSs) were surveyed, including those in Washington, DC. The original 2001 contact database was updated to account for changes over time in personnel, and two of the organizations were found to no longer exist at the time of the third survey. We drew a replacement organization of the same type for each of these in each relevant county.

Table 1.1 shows the number of organizations surveyed in the first and third waves of the survey and their respective response rates.[3] In Wave I, the overall response rate was 65 percent, with 1,068 organizations responding. The response rates varied from 48 percent for local/regional EMS organizations to 80 percent for state public health agencies. The resulting sample of survey respondents in Wave I was representative of local and state responders both geographically and across the different emergency response and health disciplines. Wave I surveys were received from every state in the union and the District of Columbia. For Wave III, the overall response rate was 56 percent, with 918 organizations responding. Because this was the third time we had surveyed these organizations and because the third survey was the longest instrument by far, we expected some attrition in response rates to occur. Our overall aim was to achieve at least a 50 percent response rate for each group. For most organization types, we met or exceeded this goal; four of the organization types had response rates of more than

[3] We present the response rates for Waves I and III for comparison purposes, since the full sample of organizations was surveyed in these two waves. In Wave II (2002), a subset of the original sample was surveyed, namely, those organizations that had replied to Wave I. The Wave II response rates are given in Advisoty Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, 2002.

Table 1.1
Organizations Surveyed and Response Rates for Survey Waves I and III

	Wave I (2001)		Wave III (2003)	
Organization Type	**Number of Organizations Surveyed**	**Response Rate[a] (%)**	**Number of Organizations Surveyed**	**Response Rate (%)**
Local organizations				
Public health	199	74	199	63
Law enforcement	208	71	208	63
OEM	202	71	202	53
Fire department[b]	443	68	440	58
Hospital	208	51	208	49
Local/regional EMS	230	48	229	40
State organizations				
OEM	51	78	51	55
EMS	51	63	51	64
Public health agency	51	80	51	73
Total/overall rate	1,643	65	1,639	56

[a]Percentage of organizations returning completed surveys prior to September 11, 2001.

[b]Includes paid, volunteer, and combination fire departments. Response rates for fire departments are aggregated across all three types of fire service organizations.

60 percent. The response rate for hospitals was similar to that achieved in Wave I, reflecting the fact that these organizations historically tend to be particularly difficult to survey. The local/regional EMS response rate was somewhat lower in Wave III than in Wave I. This group is also historically difficult to achieve high response rates for. We found that since 2001, the responsibility for terrorism preparedness and planning in the EMS community in some states had been assigned to the state-level EMS organization. Therefore, some local/regional EMS organizations elected not to participate in the third survey and instead deferred to their states' EMS organizations.

Unless otherwise indicated, results have been statistically adjusted to represent the entire population in each discipline (e.g., law enforcement).[4] For each result, we include in parentheses an estimate of the standard error. Standard errors are useful for judging the likely range of the true value; that is, the actual value for the entire population is highly likely to lie within the observed survey percentage plus or minus two standard errors.

For the randomly selected organization types (law enforcement, fire departments, local OEMs, local public health agencies, and hospitals), we investigated further weighting the survey responses to reflect identified nonresponse patterns. For example, hospitals in the Northeast were less likely to respond to the third survey than were hospitals in the Midwest. Therefore, we applied additional weight to the responses from the Northeast, so that the results would not be biased toward Midwestern hospitals. The nonresponse weights were generated using logistic regression models to describe the probability of response, based on several county- and organizational-level explanatory variables. No recognizable nonresponse patterns for local OEMs were identified, so no further weighting was applied to this group. For each of the other four organization types, region of the country (Northeast, South, Midwest, and West) was a significant explanatory variable and was factored into the nonresponse weighting. In addition, law enforcement organizations were adjusted for the size of the population they serve and whether their jurisdiction has 911 service; fire departments were adjusted for type of personnel (volunteer, paid, or a combination of paid and volunteer); hospitals were adjusted for the number of full-time-equivalent (FTE) staff they employ; and local public health agencies were adjusted to reflect whether they serve urban areas. Further details regarding the weighting methodology and sampling design are given in Appendix C.

[4] The exception is local/regional EMSs. These organizations represent a convenience sample, so the results are unweighted. Findings pertain to the sample only and are not generalizable to the entire population of EMS organizations.

Organization of This Report

Chapter Two presents the survey results on preparedness activities state and local response organizations have undertaken to counter the threat of terrorism and to shore up areas of vulnerability. Chapter Three presents results on state and local organizations' views about funding and support needs and the relationship between perception of threat, funding, and preparedness activities. Chapter Four provides some conclusions and discusses the implications of the survey results.

Appendix A provides further details on the comparison between funding and support and preparedness activities. Appendix B presents detailed results on organizations' participation in federally sponsored programs. Appendix C discusses in detail the sampling design, nonresponse analysis, and weighting. Appendix D provides further details on the survey methodology. The survey instrument for fire departments is reproduced in Appendix E.

CHAPTER TWO

Preparedness Activities

In this chapter, we examine the preparedness activities state and local organizations have undertaken since 9/11. Survey results report these organizations' (1) intelligence information support needs and coordination activities, (2) preparedness activities undertaken in response to 9/11, (3) types of incidents considered most important to prepare for and their support needs to improve response capabilities, and (4) participation in federally sponsored preparedness programs and expectations of DHS and the federal government, including views regarding the role of the military in terrorism response.

More Intelligence Information About the Terrorist Threat Is Wanted, but Security Clearances Are Lagging

Two-thirds of the law enforcement agencies surveyed and the majority of state organizations reported that they look to DHS for intelligence information and detailed guidance about the terrorist threat within their jurisdiction or state (Table 2.1). These are the organizations one would expect to be primarily responsible for investigating and overseeing response to threats. However, the proportion of law enforcement agencies desiring more intelligence information seems somewhat low given their mission and role. It may be that because law enforcement agencies tend to rely on the Federal Bureau of Investigation (FBI) for intelligence information, they view DHS as a less important source. Nevertheless, between 60 and 70 percent of state and local organizations want the Homeland Security

Table 2.1
Organizations Wanting DHS to Provide More Intelligence Information and Suggestions for Improving the Homeland Security Advisory System

Organization Type	Want DHS to Provide Intelligence Information and More-Detailed Guidance on Terrorist Threats[a] (% of organizations)	Kind of More-Detailed Information Desired[b] (% of organizations)		
		Information on Type of Incident Likely to Occur	Information on Where Threat Is Likely to Occur	Information on Probable Time Period of Threat
Local organizations				
Law enforcement	62 (5)	71 (5)	77 (5)	65 (6)
Local/regional EMS	43 (5)	75 (5)	67 (5)	61 (5)
Local OEM	46 (6)	75 (5)	73 (6)	62 (6)
Paid/combination fire department	45 (7)	67 (7)	80 (4)	69 (5)
Volunteer fire department	35 (8)	69 (8)	59 (9)	49 (9)
State organizations				
State EMS	59 (5)	72 (5)	65 (5)	66 (5)
State OEM	73 (6)	76 (6)	88 (5)	76 (6)
Health organizations				
Hospital	—	75 (5)	60 (8)	63 (8)
Local public health agency	45 (9)	—	—	—
State public health agency	56 (5)	—	—	—

NOTES: Standard error of the estimate is shown in parentheses. Dashes indicate that the organizations were not asked the question or were not given that particular response option.

[a]Organizations were asked how they expected DHS to impact their organization and were given a range of response options. They were asked to mark all that applied. One of the options was "provide intelligence information and more detailed guidance on terrorist threat."

[b]In a separate question, organizations were asked what modifications, if any, they thought would improve the usefulness of the Homeland Security Advisory System for them.

Advisory System to be revised to provide more threat information, including the types of incident likely to occur, where the threat is likely to occur, and the time period in which it is likely to occur to help guide them in responding to changes in the threat level (Table 2.1).

Despite a general desire for more-detailed intelligence information after the 9/11 terrorist attacks, few organizations except state OEMs and state public health agencies had sought security clearances for their personnel (Table 2.2). This finding is likely related to requests by DHS and the Department of Health and Human Services (DHHS) for states to apply for such clearances for their senior officials.[1] Only 7 percent of law enforcement organizations indicated that they had applied for a security clearance. This may reflect law enforcement's primary reliance on the FBI for threat information. We would not expect a security clearance to be important for the rest of the local response organizations, since they tend to rely on local law enforcement and their FBI field offices to provide them with threat information.

As of fall 2003, only about one-half of the state OEMs and one-third of the state public health agencies that applied for security clearances had received them for at least some of their personnel. Most of the law enforcement agencies that applied for security clearances had received them for some or all of their personnel. In general, these results suggest a possible mismatch between organizations' desire for more intelligence information and their ability to access such information.

During the two years following September 11, 2001, about half of the law enforcement organizations and half of the local and state OEMs received guidance from the FBI about the types of information concerning suspected terrorist activity that should be collected and/or passed on to FBI field offices (Table 2.3). In comparison, only one-quarter of the paid/combination fire departments and hospitals and only a

[1] In August 2003, DHS announced that in addition to the state governors, five senior officials within each state would be issued security clearances to receive classified information and to obtain intelligence information from federal agencies about specific threats or targets. These clearances are in addition to the security clearances issued to public health officials (Department of Homeland Security, Office of the Press Secretary, 2003b). However, there is a concern among some state officials that too few security clearances have been allocated to account for all of their needs. This concern is supported by a 2005 Congressional Research Service (CRS) report which found that about 325 state and local government officials possess DHS-sponsored security clearances, and 250 state and local officials are in the process of receiving such clearances. In addition to DHS, other federal departments and agencies also provide security clearances to state and local officials. However, DHS has been unable to provide an accurate count of how many of these clearances are active (Reese, 2005).

Table 2.2
Organizations That Applied for and Received Security Clearances After 9/11

Organization Type	Organizations That Applied for Security Clearance(s) After 9/11 (% of all organizations)	Personnel Receiving Clearances (% of organizations that applied)		
		All	Some	None
Local organizations				
Law enforcement	7 (2)	56 (15)	25 (13)	19 (11)
Local/regional EMS	5 (2)	33 (33)	33 (33)	34 (33)
Local OEM	6 (2)	60 (18)	30 (15)	10 (8)
Paid/combination fire department	2 (1)	89 (10)	6 (8)	5 (4)
Volunteer fire department	0	—	—	—
State organizations				
State EMS	16 (4)	0	40 (23)	60 (23)
State OEM	88 (4)	9 (4)	48 (8)	43 (8)
Health organizations				
Hospital	6 (3)	70 (32)	30 (32)	0
Local public health agency	8 (4)	97 (3)	1 (1)	3 (3)
State public health agency	86 (3)	10 (3)	30 (5)	60 (6)

NOTES: Standard error of the estimate is shown in parentheses. Dashes indicate that organizations were not asked the question or were not given a particular response option. Local/regional EMSs were not selected randomly. Standard errors for local and regional EMSs are given throughout this report to provide a broader sense of the variability of these responses (on the same metric as the other organization types). However, generalizations to a population broader than the organizations that responded to the survey should not be inferred.

few volunteer fire departments indicated that they had received such guidance. This is not surprising, since one would expect the FBI to be interacting primarily with law enforcement and emergency management officials. However, one would expect a greater percentage of law enforcement organizations to have received such guidance, particularly among those located in metropolitan areas or jurisdictions considered to be at higher risk for a terrorist attack.

Table 2.3
Organizations That Received Guidance from the FBI After 9/11 About the Type of Information They Should Collect Regarding Suspected Terrorist Activity

Organization Type	Organizations Receiving FBI Guidance (% of all organizations)
Local organizations	
Law enforcement	47 (6)
Local/regional EMS	—
Local OEM	42 (6)
Paid/combination fire department	23 (5)
Volunteer fire department	2 (1)
State organizations	
State EMS	—
State OEM	50 (7)
Health organizations	
Hospital	25 (6)
Local public health agency	—
State public health agency	—

NOTES: Standard error of the estimate is shown in parentheses. Local/regional and state EMSs and local and state public health agencies were not asked this question.

The majority of state and local organizations would contact law enforcement to pass on threat information (Table 2.4). In turn, the majority of local law enforcement agencies and OEMs would report such information to the FBI field offices. State OEMs would pass on information to both law enforcement and their state homeland security task force. Only state organizations indicated interactions with the state's Homeland Security Office or the federal Anti-Terrorism Task Force (ATTF). State and local health organizations would share such information with law enforcement and also among themselves.

The good news is that threat information is apparently being passed on to the right organizations. Given the central role law enforcement plays in receiving and sharing threat information, however, it is of some concern that only half of the law enforcement agencies reported receiving guidance from the FBI through 2003 on what threat information to collect and pass on (Table 2.3). These results suggest that

Table 2.4
Agencies That Organizations Would Contact to Pass on Threat Information

	Agency They Would Contact (% of organizations)				
Organization Type	**Local FBI Field Office**	**FBI's JTTF**	**City/County Interagency Task Force**	**State's Homeland Security Office**	**U.S.-Led ATTF**
Local organizations					
Law enforcement	81 (5)	25 (5)	25 (5)	22 (5)	14 (4)
Local/regional EMS	39 (5)	4 (2)	29 (5)	9 (3)	1 (1)
Local OEM	69 (6)	8 (2)	35 (6)	33 (7)	5 (2)
Paid/combination fire department	53 (6)	13 (6)	40 (7)	13 (4)	8 (6)
Volunteer fire department	28 (9)	0.5 (0.5)	42 (9)	11 (6)	0
State organizations					
State EMS	38 (5)	3 (2)	9 (3)	47 (5)	6 (3)
State OEM	73 (6)	54 (7)	15 (5)	77 (6)	38 (7)
Health organizations					
Hospital	39 (7)	—	39 (8)	10 (4)	—
Local public health agency	—	—	44 (9)	20 (7)	0.1 (0.1)
State public health agency	—	—	22 (4)	81 (4)	17 (3)

	Law Enforcement (other than FBI)	**Public Health Agencies (CBR-related threats)**	**Other Local Responders**	**Other State Responders**	**Private Sector**
Local organizations					
Law enforcement	66 (5)	15 (4)	30 (5)	22 (5)	6 (2)
Local/regional EMS	78 (4)	30 (5)	21 (4)	10 (3)	7 (3)
Local OEM	74 (5)	55 (6)	52 (6)	29 (6)	14 (4)
Paid/combination fire department	64 (6)	25 (6)	38 (6)	12 (4)	6 (3)
Volunteer fire department	72 (9)	12 (5)	24 (8)	24 (8)	3 (3)
State organizations					
State EMS	69 (5)	66 (5)	13 (4)	41 (5)	6 (3)
State OEM	77 (6)	38 (7)	31 (6)	38 (7)	19 (6)
Health organizations					
Hospital	88 (4)	69 (6)	—	—	—
Local public health agency	82 (5)	57 (10)	49 (9)	34 (7)	13 (5)
State public health agency	67 (4)	72 (4)	36 (4)	47 (5)	17 (3)

NOTES: Standard error of the estimate is shown in parentheses. CBR = chemical, biological, and radiological; JTTF = Joint Terrorism Task Force; ATTF = Anti-Terrorism Task Force.

law enforcement and FBI field offices need to establish closer working relationships, in view of the important role law enforcement plays at the local level in homeland security. Also of concern, very few organizations indicated that they would contact the private sector to share threat information. Given that much of the U.S. critical infrastructure (e.g., utilities, transportation assets) resides within the private sector, these and the other results shown below suggest there is a need for greater coordination between law enforcement and the private sector.

In Response to 9/11, Organizations Undertook Activities to Improve Preparedness

Actions Taken to Improve Preparedness

After 9/11, about half of the local responders and the majority of state and local OEMs updated their mutual-aid agreements and response plans (Table 2.5). The exception was volunteer fire departments, only 13 percent of which updated their response plans. Updating of mutual-aid agreements was primarily for emergency response in general, which is consistent with an all-hazards approach to preparedness. It may be that many organizations consider their mutual-aid support needs for terrorist-related incidents to not differ significantly from those for other types of emergencies. Alternatively, organizations may be uncertain about how to modify their mutual-aid agreements for terrorism-related incidents.

State organizations and health organizations updated response plans primarily to prepare for CBR-related incidents (Table 2.5). Local law enforcement organizations, paid/combination fire departments, and local OEMs updated their response plans to address incidents involving the use of conventional explosives, as well. Between 17 and 36 percent of state public health agencies, state EMSs, and state and local OEMs also updated their response plans to address cyberterrorism attacks. However, few other organizational types have done so.

Table 2.6 shows the percentage of organizations that conducted risk assessments following 9/11 and their support needs for conducting such assessments. Following 9/11, most state and local OEMs and state

Table 2.5
Organizations That Updated Their Mutual-Aid Agreements and Response Plans After 9/11

	Updated Mutual-Aid Agreements (% of all organizations)			Updated Response Plans (% of all organizations)	Purpose (% of those organizations that updated response plans)				
Organization Type	For Emergency Response	For Terrorism	For Both		Updated Bioterrorist	Updated Chemical	Updated Radiological	UpdatedConv. Explosive	Updated Cyberterrorism
Local organizations									
Law enforcement	44 (6)	14 (4)	14 (4)	41 (6)	85 (7)	85 (6)	69 (8)	69 (9)	12 (5)
Local/regional EMS	44 (5)	13 (4)	12 (4)	48 (5)	85 (6)	85 (6)	66 (7)	78 (7)	7 (4)
Local OEM	61 (6)	22 (5)	20 (5)	75 (5)	87 (5)	93 (3)	89 (4)	85 (5)	24 (7)
Paid/combination fire department	38 (6)	13 (3)	10 (3)	39 (6)	76 (6)	86 (5)	72 (7)	72 (7)	28 (9)
Volunteer fire department	49 (9)	9 (4)	9 (4)	13 (6)	32 (21)	100	18 (15)	26 (20)	2 (2)
State organizations									
State EMS	50 (5)	28 (5)	28 (5)	63 (5)	100	79 (8)	79 (8)	58 (9)	21 (8)
State OEM	80 (6)	40 (7)	36 (7)	85 (5)	100	86 (6)	77 (7)	68 (8)	36 (8)
Health organizations									
Hospital	61 (7)	17 (5)	15 (4)	89 (4)	95 (4)	91 (4)	76 (6)	53 (9)	7 (3)
Local public health agency	—	—	—	60 (11)	97 (2)	65 (7)	57 (7)	35 (6)	7 (3)
State public health agency	—	—	—	83 (4)	100	69 (6)	79 (5)	17 (5)	17 (5)

NOTES: Standard error of the estimate is shown in parentheses. Local and state public health departments were not asked about updating of mutual-aid agreements.

public health agencies conducted risk assessments (Table 2.6), as did about two-thirds of law enforcement organizations, paid/combination fire departments, and hospitals. Most organizations desired more-detailed information on threats and on terrorist capabilities to help them in conducting such assessments. For example, about half of the state OEMs and state public health agencies and between 30 and

Table 2.6
Organizations That Conducted Risk Assessments After 9/11 and Additional Support Needed

Organization Type	Organizations That Conducted a Risk Assessment After 9/11 (% of all organizations)	Type of Support Needed to Conduct Future Risk Assessments (% of all organizations)			
		Better Intelligence on Terrorist Threat/ Capabilities	Protocols	Training on How to Conduct Risk Assessments	No Additional Support Needed
Local organizations					
Law enforcement	59 (6)	30 (5)	44 (6)	57 (6)	14 (4)
Local/regional EMS	45 (5)	41 (5)	66 (5)	67 (5)	5 (2)
Local OEM	85 (4)	44 (6)	57 (6)	48 (6)	5 (2)
Paid/combination fire department	65 (7)	41 (7)	55 (7)	57 (7)	8 (3)
Volunteer fire department	18 (6)	34 (8)	65 (8)	75 (7)	7 (5)
State organizations					
State EMS	57 (6)	39 (6)	43 (6)	61 (6)	0
State OEM	92 (4)	54 (7)	50 (7)	38 (7)	8 (4)
Health organizations					
Hospital	70 (8)	36 (7)	56 (8)	61 (7)	5 (3)
Local public health agency	42 (8)	31 (7)	68 (8)	68 (8)	1 (1)
State public health agency	80 (4)	50 (5)	58 (5)	53 (5)	8 (3)

NOTE: Standard error of the estimate is shown in parentheses.

40 percent of local organizations wanted better intelligence in these areas. Table 2.6 also shows the other types of threat-assessment support (other than financial) organizations would like. Few organizations said that no additional support was needed. (For the results regarding the desire for financial support to help conduct risk assessments, see Table 3.1 in Chapter Three.)

Following 9/11, all state and local OEMs and about half of the paid/combination fire departments purchased Levels A, B, or C per-

sonal protective equipment (PPE) (Table 2.7).[2] The results for state and local OEMs reflect in part the fact that first-responder equipment grants are being distributed through OEMs. Also, an important source of funding for equipment for fire departments has been the Assistance to Firefighters grant program. Far fewer law enforcement organizations purchased PPE in the two years following 9/11—only 12 percent acquired Level A PPE and 16 percent acquired Level B PPE. Those organizations that acquired Levels A and B PPE did so to outfit either a portion of their force or specialized units; only a few organizations (not shown) indicated that they had outfitted their entire force.

The small proportion of law enforcement agencies that have acquired PPE since 9/11 in part reflects the fact that most operations

Table 2.7
Organizations That Purchased PPE After 9/11

	Organizations Acquiring PPE (% of all organizations)		
Organization Type	**Level A PPE**	**Level B PPE**	**Level C PPE**
Local organizations			
Law enforcement	12 (4)	16 (4)	20 (4)
Local/regional EMS	13 (4)	23 (5)	47 (6)
Local OEM	100	100	100
Paid/combination fire department	38 (6)	48 (7)	57 (7)
Volunteer fire department	8 (4)	14 (7)	16 (7)
State organizations			
State EMS	8 (3)	16 (5)	36 (6)
State OEM	100	100	100

NOTES: Standard error of the estimate is shown in parentheses. Health organizations were not asked about the acquisition of PPE.

[2] There are four levels of protective clothing to be worn when dealing with hazardous materials. A Level A suit fully encapsulates the body so that no vapor penetrates the suit; respiratory protection is provided through supplied air (e.g., by a self-contained breathing apparatus). A Level B suit is a full-body, chemical-resistant suit that may introduce vapors; respiratory protection and other protection features are normally the same as those of a Level A suit. A Level C suit is a full-body chemical suit with the same properties as a Level B suit, except that an air-purifying respirator is used instead of supplied air. A Level D suit protects against contact exposure only, and no respiratory protection is provided (LaTourrette, Peterson, Bartis, Jackson, and Houser, 2003). The 2002 RAND survey did not ask about Level D suits.

in hazardous-materials (HAZMAT) environments are conducted by firefighters or HAZMAT units. Level A PPE provides the greatest level of protection and is intended for response personnel who must operate in "hot" zones, where law enforcement's primary role and mission would be force protection and perimeter control. Level B PPE is appropriate for conducting force protection missions in "warm" zones, and Level C PPE, which provides the least protection, is more suitable for law enforcement personnel at the outer perimeter. The results shown in Table 2.7 may also reflect the fact that first-responder equipment funds have tended to target firefighters rather than law enforcement personnel.

Following 9/11, two-thirds of the state and local OEMs and half of the paid/combination fire departments purchased monitoring and detection equipment and decontamination equipment (Table 2.8). This equipment was intended primarily for dealing with CBR incidents. As was the case with PPE, state and local OEMs likely purchased this equipment to distribute it to other organizations. One-fourth of the volunteer fire departments also purchased monitoring and detection equipment and decontamination equipment for dealing with chemical incidents. Few law enforcement agencies purchased such equipment, and those that did so intended to use it primarily for chemical or radiological incidents. Consistent with their mission of treating victims who might have been exposed to hazardous materials, three-quarters of the hospitals purchased decontamination equipment.

Planning, emergency response, and preparedness are not solely the responsibility of individual departments. They require the participation of many agencies and organizations, underscoring the importance of coordination between first responders and other key players. We asked survey respondents whether their organizations had participated in joint preparedness activities for terrorism response since 9/11 and, if so, with whom. Many local organizations had participated in such activities with other response organizations within their locality; fewer had participated with state or federal agencies (Table 2.9). The majority of state and health organizations had participated in joint preparedness activities at the local and state levels.

Table 2.8
Organizations That Purchased Monitoring and Detection Equipment or Decontamination Equipment After 9/11

Organization Type	Purchased Any Monitoring or Decontamination Equipment (% of all organizations)	Purpose (% of organizations that purchased equipment): Monitoring and Detection for Chemical	Monitoring and Detection for Radiological	Monitoring and Detection for Biological	Monitoring and Detection for Cyberterrorism	Decontamination of Victims and/or Sites
Local organizations						
Law enforcement	11 (3)	43 (15)	47 (15)	10 (7)	4 (4)	37 (14)
Local/regional EMS	21 (4)	56 (12)	39 (12)	33 (11)	11 (8)	61 (12)
Local OEM	65 (6)	64 (7)	50 (7)	38 (6)	—	83 (5)
Paid/combination fire department	54 (7)	70 (9)	55 (8)	34 (7)	6 (3)	59 (8)
Volunteer fire department	24 (7)	86 (8)	28 (13)	23 (14)	0	38 (15)
State organizations						
State EMS	21 (5)	67 (20)	83 (16)	50 (21)	17 (16)	50 (21)
State OEM	64 (7)	75 (9)	94 (5)	50 (11)	—	75 (9)
Health organizations						
Hospital	76 (6)	9 (5)	9 (4)	11 (6)	1 (1)	97 (2)

NOTES: Standard error of the estimate is shown in parentheses. State and local public health organizations were not asked about the purchase of monitoring and detection equipment or decontamination equipment.

During a public health emergency or a bioterrorist attack, law enforcement and other emergency response organizations might be called upon to enforce quarantines, manage crowds, or participate in joint investigations. A concern expressed by many has been the lack of integration between the public health and medical communities and other local emergency responders to address bioterrorism or other acts of domestic terrorism (Hamburg, 2001). Indeed, the lack of integration of health care organizations with overall WMD preparedness and planning has been characterized by some as a serious flaw of U.S. national strategy (Waeckerle, 2000). We found that following 9/11, only one-quarter of law enforcement agencies and one-third of paid/combination fire departments had participated in joint preparedness

Table 2.9
Organizations That Participated with Other Agencies in Joint Preparedness Activities for Terrorism Response After 9/11

Organization Type	Participated in Any Joint Preparedness Activities (% of all organizations)		Local-Level Organizations with Which They Participated (% of all organizations)					
	With Any Local Organization(s)	With Any State or Federal Organization(s)	Law Enforcement	Fire Department	Local Public Health Agencies	Utilities	Transportation	Mutual-Aid Organizations
Local organizations								
Law enforcement	54 (6)	34 (5)	45 (6)	37 (5)	25 (5)	17 (4)	10 (3)	23 (5)
Local/regional EMS	66 (5)	62 (5)	55 (5)	59 (5)	52 (5)	31 (5)	35 (5)	44 (5)
Local OEM	72 (6)	63 (6)	69 (6)	69 (6)	63 (6)	30 (5)	30 (5)	34 (6)
Paid/combination fire department	74 (5)	44 (7)	59 (6)	62 (6)	37 (6)	21 (5)	20 (5)	45 (7)
Volunteer fire department	28 (7)	13 (5)	10 (4)	24 (7)	7 (3)	1 (1)	2 (2)	9 (3)
State organizations								
State EMS	91 (3)	97 (2)	59 (5)	66 (5)	84 (4)	31 (5)	34 (5)	34 (5)
State OEM	100	100	100	88 (4)	92 (4)	58 (7)	50 (7)	65 (7)
Health organizations								
Hospital	80 (5)	58 (7)	71 (6)	72 (6)	57 (7)	33 (7)	34 (8)	36 (7)
Local public health agency	75 (12)	71 (12)	70 (12)	68 (12)	58 (10)	33 (8)	24 (6)	36 (8)
State public health agency	97 (2)	100	94 (2)	88 (3)	88 (3)	59 (5)	53 (5)	50 (5)

NOTE: Standard error of the estimate is shown in parentheses.

activities with local public health agencies (Table 2.9), suggesting that this remains an area where additional efforts to improve coordination are needed.

Volunteer fire departments have been less engaged than other organizations in joint preparedness activities for terrorism. Overall, only one-fourth of the volunteer fire departments had participated in such activities after 9/11, and this limited participation was primarily with other fire departments (Table 2.9). Only 10 percent had participated in joint activities with law enforcement, local public health agencies, or their mutual-aid network. Given the limited resources of many

volunteer fire departments, one might expect them to focus primarily on their firefighting duties. However, the majority of fire departments in the United States are volunteer departments, so their limited engagement in joint preparedness activities raises possible concerns.

Utilities (e.g., water, power companies) and transportation organizations (public and private) are important components of the U.S. critical infrastructure. Only about 20 percent of law enforcement agencies and paid/combination fire departments had participated in joint preparedness activities for terrorism response with these entities following 9/11 (Table 2.9), and only about one-half of state OEMs and one-third of local OEMs had done so. The pattern was similar when we asked about joint preparedness activities for natural disasters or general emergencies. These results suggest that critical infrastructure protection is an area in which improvements in joint preparedness training may be needed.

At the local level, improvement is also needed in conducting joint preparedness activities with mutual-aid networks. Although nearly half of the paid/combination fire departments had conducted joint training or planning activities with their mutual-aid networks following 9/11, very few volunteer fire departments had done so (Table 2.9). Also, only 20 percent of law enforcement agencies had done so. Only two-thirds of the state OEMs and one-half of the state public health agencies had participated in joint preparedness activities with their regional mutual-aid networks, suggesting a need for improvement here also.

Need for Improved Coordination with the Private Sector

One issue the Advisory Panel found to be important was the role of the private sector in homeland security and in helping to improve preparedness for terrorism. As noted by the Panel in its fourth report to Congress,

> The private sector controls approximately 85 percent of the infrastructure in this country and employs approximately 85 percent of the national workforce. It is also critical to innovations to protect and defend against terrorism. (Advisory Panel to Assess Domestic

Response Capabilities for Terrorism Involving Weapons of Mass Destruction, 2002)

Enhancing coordination with the private sector is seen as critical for ensuring the preparedness of states and localities and for protecting vital infrastructure. Therefore, we asked respondent organizations about their coordination activities with the private sector.

Following the 9/11 attacks, nearly all the state organizations and between one-third and three-quarters of the local organizations created new organizational structures (e.g., positions, units, committees, groups) to address preparedness for terrorism-related incidents (Table 2.10).

Table 2.10
Organizations That Created New Structures to Address Terrorism Preparedness After 9/11

Organization Type	Created New Organizational Structures Following 9/11 (% of all organizations)	Duties of the New Unit or Position Include Liaison with the Private Sector (% of organizations that created new structures)
Local organizations		
Law enforcement	38 (6)	45 (9)
Local/regional EMS	62 (5)	—
Local OEM	62 (6)	48 (8)
Paid/combination fire department	52 (6)	37 (11)
Volunteer fire department	30 (8)	36 (16)
State organizations		
State EMS	91 (3)	—
State OEM	92 (4)	65 (7)
Health organizations		
Hospital	81 (5)	—
Local public health agency	77 (12)	91 (3)
State public health agency	100 (0)	97 (2)

NOTES: Standard error of the estimate is shown in parentheses. Dashes indicate that organizations were not asked the question or were not given a particular response option.

About half of the organizations that created new structures (except for public health) indicated that the duties of the new positions or units included liaison with the private sector. In nearly all local and state public health agencies, the duties of these new positions included liaison with the private sector (e.g., with for-profit hospitals, managed care organizations, or individual health care providers). The cooperative agreements of both the Centers for Disease Control and Prevention (CDC) and the Health Resources and Services Administration (HRSA) encouraged such public/private partnerships, and their grants' crosscutting objectives explicitly addressed improving cooperation between public health and hospitals. Thus, this result appears consistent with the grant requirements.[3]

However, when we asked whether organizations had any formal agreements in place with the private sector about emergency planning or response, many fewer indicated this to be the case. Only about one-third of the local and state OEMs and one-fifth of the other organizations said they had formal agreements with private companies, businesses, or labor unions to share information or resources in the event of an emergency or disaster. These agreements addressed coordination and planning, as well as response. Further, as shown in Table 2.4, few local organizations and only about one-fifth of the state organizations and local OEMs indicated that they would contact the private sector if they had any threat information to pass on about suspected terrorist activities within their jurisdiction or region.

State organizations, in particular, recognize the need for improvement in coordination with the private sector. From one-half to two-thirds of the state organizations expect DHS to help improve integration between public- and private-sector efforts to improve terrorism preparedness and to protect critical infrastructure.

[3] In the CDC and HRSA cooperative agreements for public health preparedness, one of the enhanced capacities called for the strengthening of relationships between the health agency and emergency responders, the business community, and other key individuals or organizations involved in healthcare, public health, or law enforcement (Centers for Disease Control and Prevention, 2003).

Types of Incidents Organizations Consider Most Important to Prepare for Are Consistent with Their Missions, but They Vary in Priority Placement

Organizations were asked to rank the incident types—chemical, biological, radiological, nuclear, or conventional explosives—they considered most important to prepare for. They were asked to rank-order them from 1 to 5, where 1 = most important to prepare for and 5 = least important. Table 2.11 shows the relative ranking of each type of incident by the various organizations, based on the mean scores.

Not surprisingly, the rankings tended to follow organizational mission. Local responders, such as law enforcement and fire departments, tended to rank conventional explosives as being most important to prepare for, with chemical incidents second. State OEMs did the same. Health organizations (state and local public health agencies and state EMSs) focused on bioterrorism preparedness. Hospitals, local/regional EMSs, and local OEMs ranked chemical incidents as most important to prepare for. Radiological and nuclear incidents consistently were at the bottom of organizations' priority lists.

Table 2.11
Ranking of Incident Types by Local and State Responders in Order of Importance

	Rank Order of Incidents, by Organization Type									
Incident Type	Volunteer Fire Department	Paid Fire Department	Law Enforcement	Local OEM	Local/ Regional EMS	State OEM	State EMS	Hospital	Local Public Health Agency	State Public Health Agency
Biological	3	3	3	3	3	3	1	2	1	1
Chemical	2	2	2	1	1	2	2	1	2	2
Radiological	4	4	4	4	4	4	4	4	3	3
Nuclear	5	5	5	5	5	5	5	5	5	5
Conventional explosives	1	1	1	2	2	1	3	3	4	4

However, state and local organizations differed in the priority they assigned to spending departmental resources on preparing for their top-ranked incident type (Table 2.12). For example, of those organizations that ranked conventional explosive incidents as most important, 8 to 16 percent of fire departments and law enforcement agencies considered it a high priority for spending of resources, compared with 56 percent of state OEMs (Table 2.12). In general, about one-half of the local responders and two-thirds of the hospitals considered it only somewhat of a priority for their organization to spend resources on their top-ranked incident type. In contrast, two-thirds of state public health agencies and state OEMs and one-half of state EMSs and local public health agencies considered it a high priority for their organization to do so.

Table 2.12
Priority for Spending Resources to Prepare for Organizations' Top-Ranked Incident Type

	Priority for Spending Resources (% of all organizations)			
Organization Type	**High**	**Somewhat**	**Low**	**No Priority**
Top-Ranked Incident Type: Conventional Explosives				
Law enforcement	16 (5)	38 (5)	33 (5)	13 (4)
Paid/combination fire department	13 (4)	50 (6)	28 (5)	9 (3)
Volunteer fire department	8 (4)	32 (8)	38 (9)	21 (7)
State OEM	56 (7)	40 (7)	4 (3)	0
Top-Ranked Incident Type: Bioterrorism				
Local public health agency	40 (8)	52 (9)	6 (3)	2 (1)
State public health agency	69 (4)	22 (4)	8 (3)	0
State EMS	43 (6)	40 (6)	10 (3)	7 (3)
Top-Ranked Incident Type: Chemical				
Hospital	14 (4)	56 (7)	23 (6)	7 (4)
Local/regional EMS	15 (4)	52 (5)	24 (5)	9 (3)
Local OEM	29 (5)	51 (6)	15 (5)	5 (3)

NOTE: Standard error of the estimate is shown in parentheses.

Organizations were asked to rate their level of readiness for their top-ranked incident type in seven different categories: response plans, knowledge and expertise, equipment, training, exercises, communication and coordination, and overall preparedness. They were asked to use a scale of 1 to 5, where 1 = inadequate and 5 = excellent. Table 2.13 shows the percentage of organizations in each category that indicated their organization's level of readiness was somewhat adequate or better (i.e., 3, 4, or 5 on the scale). The first section of Table 2.13 shows the results for those professional groups (law enforcement, paid/combination fire, volunteer fire, and state OEM) in which conventional

Table 2.13
Percentage of Organizations That Rated Their Level of Readiness Along Different Dimensions as Being Somewhat Adequate or Better (3 or Higher on a Scale of 1 to 5) for Their Top-Ranked Incident Type

	Area in Which Level of Readiness Was Rated Somewhat Adequate or Better (% of organizations)						
Organization Type	Plan	Knowledge	Equipment	Training	Exercises	Comm./ Coord.	Overall Preparedness
Top-Ranked Incident Type: Conventional Explosives							
Law enforcement	69 (5)	59 (6)	28 (5)	42 (6)	27 (5)	64 (6)	53 (6)
Paid/combination fire department	67 (6)	69 (5)	39 (6)	57 (6)	39 (6)	70 (6)	59 (6)
Volunteer fire department	32 (8)	30 (8)	20 (7)	19 (6)	19 (7)	61 (8)	22 (6)
State OEM	100	96 (3)	92 (4)	96 (3)	96 (3)	88 (5)	100
Top-Ranked Incident Type: Bioterrorism							
Local public health agency	65 (11)	61 (11)	43 (9)	58 (11)	40 (8)	81 (5)	56 (10)
State public health agency	83 (3)	94 (2)	83 (3)	81 (4)	78 (4)	92 (3)	92 (3)
State EMS	76 (5)	83 (4)	61 (6)	83 (4)	62 (6)	61 (6)	83 (4)
Top-Ranked Incident Type: Chemical							
Hospital	84 (5)	73 (6)	72 (6)	74 (6)	65 (6)	82 (5)	73 (6)
Local/regional EMS	64 (5)	58 (5)	48 (5)	48 (5)	42 (5)	61 (5)	53 (5)
Local OEM	89 (4)	85 (5)	49 (6)	63 (6)	55 (6)	70 (6)	73 (6)

NOTE: Standard error of the estimate is shown in parentheses; comm./coord. = communication/coordination.

explosives was ranked by the majority of organizations as being most important to prepare for. However, in interpreting these results, one should keep in mind that not all organizations of a particular type may have chosen a particular incident type as most important to prepare for. For example, the mean score for hospitals indicated that chemical was their top-ranked incident type; however, the mean score for bioterrorism was a close second in the overall rankings.

In general, only a little more than half of the local organizations and local public health agencies rated their overall preparedness to respond to their top-ranked incident type as being somewhat adequate or better (the last column in Table 2.13). Fewer local organizations and local public health agencies considered their level of readiness in equipment, training, and exercises to be somewhat adequate or better, suggesting that these are their areas of greatest concern. Except for communication and coordination, only one-third or less of volunteer fire departments considered their level of readiness in each of the areas to be somewhat adequate or better. In contrast, the majority of state organizations and hospitals tended to rate their level of readiness as being adequate or better in each of the categories listed in Table 2.13.

Organizations were then asked to indicate which of their response capabilities for their top-ranked incident type they considered to be the weakest (Table 2.14). First responders (law enforcement, paid/combination fire departments, etc.) were most concerned with protecting response personnel. Given the large number of fatalities that emergency responders experienced in the 9/11 attacks, it is not surprising that this was still very much on everyone's mind at the time of the survey. First responders also were concerned about their capabilities to provide mass care and hazard identification and to decontaminate victims exposed to hazardous substances. This is consistent with their ranking of conventional explosives and chemical incidents as the most important types of incidents to prepare for. Volunteer fire departments in particular identified these areas as their weakest response capabilities, reflecting the lack of preparation these organizations especially feel for these types of incidents.

First responders identified communication and coordination with state and federal agencies as being more problematic than communica-

Table 2.14
Organizations' Reported Weakest Response Capabilities for Their Top-Ranked Incident Type

	Self-Reported Weakest Response Capability (% of all organizations)						
			Comm./Coord.				
Organization Type	Hazard ID and Detection	Protection of Response Personnel	With Local Response Organizations	With State or Federal Organizations	Medical Treatment of Victims	Mass Care	Decontamination of Victims
Local organizations							
Law enforcement	41 (6)	68 (5)	24 (5)	39 (6)	20 (4)	41 (6)	43 (6)
Local/regional EMS	39 (5)	55 (5)	30 (5)	50 (5)	25 (5)	42 (5)	39 (5)
Local OEM	47 (6)	59 (6)	30 (6)	44 (6)	37 (6)	50 (6)	38 (6)
Paid/combination fire department	42 (7)	56 (7)	17 (3)	52 (7)	35 (7)	52 (7)	39 (7)
Volunteer fire department	39 (9)	77 (7)	25 (7)	39 (9)	50 (9)	61 (9)	65 (8)
State organizations							
State EMS	34 (5)	31 (5)	45 (6)	34 (5)	21 (5)	24 (5)	45 (6)
State OEM	28 (6)	12 (5)	36 (7)	36 (7)	40 (7)	24 (6)	16 (5)
Health organizations							
Hospital	47 (8)	40 (7)	16 (5)	30 (8)	13 (5)	—	28 (6)
Local public health agency	48 (9)	54 (9)	17 (5)	24 (6)	24 (6)	48 (10)	60 (8)
State public health agency	21 (4)	18 (4)	24 (4)	9 (3)	48 (5)	58 (5)	27 (4)

NOTES: Standard error of the estimate is shown in parentheses. Organizations were asked to choose all categories that apply. "Decontamination of victims" refers to decontamination of victims exposed to hazardous materials; comm./coord. = communication/coordination.

tion and coordination with local response organizations. This is somewhat surprising given the communications problems first responders experienced during 9/11, which were partly due to interoperability problems, and similar experiences reported for other major disasters. It may be that these organizations were unrealistically confident about their ability to communicate at the local level but felt that inadequate

planning had been done to delineate how they would coordinate with state and federal officials.

Like first responders, local public health agencies were also particularly concerned about protecting response personnel. Their primary concern was their capability to decontaminate victims, followed by their capabilities to do hazard identification and to provide mass care. These results suggest that in 2003, both first responders and health organizations considered local-level response capabilities to be weakest in these areas.

State public health agencies were primarily concerned about mass care and medical treatment of victims. The percentage of state OEMs and state EMSs was roughly equally distributed across the different categories in Table 2.14, with no particular category being singled out as of particular concern.

Table 2.15 shows the types of support that organizations felt was needed to help strengthen response capabilities. State and local organizations wanted training courses and exercises. Most local response organizations wanted new or more up-to-date equipment, while only one-third of state OEMs did. This difference may reflect the fact that state OEMs are the distributors of equipment grant funding received from the federal government. These survey results are consistent with those in an earlier study of emergency responder protection needs (LaTourrette et al., 2003). In structured discussions, representatives from the emergency responder community expressed a common concern with the need for adequate protection against terrorist attacks and the vulnerability of nonspecialist responders. In general, more local response organizations than state organizations desired personnel and technical support to strengthen response capabilities.

Among the health organizations, local public health agencies were more likely to want support in the form of training courses, exercises, new or more up-to-date equipment, and technical support than were hospitals or state public health agencies (Table 2.15).

Table 2.15
Type of Support Considered Most Helpful to Strengthen Response Capabilities

	Desired Type of Support (% of all organizations)				
Organization Type	Training Courses	Exercises	New or More Up-to-Date Equipment	More Personnel	Technical Support
Local organizations					
Law enforcement	88 (3)	76 (5)	85 (4)	63 (6)	61 (6)
Local/regional EMS	—	64 (6)	58 (6)	42 (6)	53 (6)
Local OEM	76 (5)	64 (6)	79 (4)	57 (6)	37 (6)
Paid/combination fire department	87 (3)	74 (5)	73 (5)	64 (7)	45 (6)
Volunteer fire department	74 (11)	66 (10)	68 (10)	35 (9)	42 (9)
State organizations					
State EMS	—	74 (6)	41 (6)	41 (6)	30 (6)
State OEM	52 (8)	67 (8)	33 (8)	57 (8)	10 (5)
Health organizations					
Hospital	64 (8)	55 (8)	34 (6)	27 (6)	32 (6)
Local public health agency	88 (4)	79 (6)	59 (9)	39 (8)	63 (8)
State public health agency	44 (5)	56 (5)	19 (4)	53 (5)	28 (5)

NOTE: Standard error of the estimate is shown in parentheses.

Organizations Differ in Their Participation in Federally Sponsored Programs and Their Expectations of DHS

Participation in Federal Programs

Since September 11, 2001, a larger proportion of state organizations than local organizations have participated in federally sponsored training, equipment, or funding programs (Table 2.16).[4] Moreover, while state organizations have tended to participate across a variety of pro-

[4] A detailed summary of the survey results regarding organizations' participation in federally sponsored programs is given in Appendix B.

Table 2.16
Percentage of Organizations That Participated in Federally Sponsored Programs After 9/11

Organization Type	Participated in Federally Sponsored Programs After 9/11 (% of organizations)
Local organizations	
Law enforcement	42 (6)
Local/regional EMS	46 (5)
Local OEM	83 (5)
Paid/combination fire department	73 (5)
Volunteer fire department	31 (7)
State organizations	
State EMS	87 (4)
State OEM	100
Health organizations	
Hospital	50 (8)
Local public health agency	70 (12)
State public health agency	100

NOTES: Standard error of the estimate is shown in parentheses. Organizations were asked whether they had participated in agency-specific federally sponsored funding, training, or equipment programs since 9/11.

grams, local organizations participated in programs that were specific to their professional community.

Table 2.17 shows which organizations knew about, applied for, or received agency-specific support from the federal government following 9/11 and whether the support received was shared with other organizations within their region or state. All state OEMs, most local OEMs, and most state EMSs either were informed about or applied for and received federal support. In comparison, although between one-half and three-quarters of the local response organizations also were informed about or applied for federal support, only about one-half of them actually received such support. In general, state organizations that participated in federally sponsored programs after the 9/11 attacks shared those resources with other organizations within their state (commensurate with their mission and role as a pass-through for federal support to local communities and response organizations). Local

Table 2.17
Receipt of Support from the Federal Government for Terrorism Preparedness After 9/11

Organization Type	Informed About or Applied for Support from Federal Government (% of all organizations)	Received Funding, Training, Equipment, or Other Support from Federal Government (% of all organizations)	How Federal Support Was Used	
			Shared With Other Organizations in Region (% of organizations receiving support)	Used Only by Their Organization (% of organizations receiving support)
Local organizations				
Law enforcement	52 (6)	24 (5)	69 (13)	31 (13)
Local/regional EMS	55 (5)	36 (5)	78 (7)	22 (7)
Local OEM	95 (3)	79 (5)	88 (5)	12 (5)
Paid/combination fire department	75 (5)	44 (6)	71 (7)	29 (7)
Volunteer fire department	65 (8)	15 (7)	47 (25)	53 (25)
State organizations				
State EMS	84 (4)	72 (5)	96 (3)	4 (3)
State OEM	100	100	100	0
Health organizations				
Hospital	69 (7)	42 (8)	43 (13)	57 (13)
Local public health agency	—	—	—	—
State public health agency	—	—	—	—

NOTES: Standard error of the estimate is shown in parentheses. Public health agencies were not asked about receipt of federal support, since all would have been informed about bioterrorism funding released by the federal government following 9/11.

organizations that received federal support also tended to share it with other organizations within their jurisdiction.

Some state and local organizations differed in their views about whether federal funding was reaching the right communities and organizations. State OEMs and state public health agencies (those organizations responsible for distributing federal funding and/or resources within their state for emergency and bioterrorism preparedness) tended to believe that federal support was reaching the communities and

organizations with the greatest need (Table 2.18). However, state EMS organizations generally disagreed with this statement. The difference in mean scores between state OEMs and state EMSs on this measure was statistically significant.[5]

At the local level, law enforcement organizations in particular felt that federal funding was not reaching the right communities and organizations, regardless of distribution mode. As shown in Table 2.18, law enforcement was less likely than local OEMs and paid/combination fire departments to think that federal support distributed through the states was reaching the right communities and responders. The differ-

Table 2.18
Effect of Distribution Mode of Federal Funding on Perception of Whether Support Reaches Those with Greatest Need

Organization Type	Opinion Regarding Federal Support Distributed Through the State (mean score)	Opinion Regarding Federal Support Distributed Directly to Local Communities and Responders (mean score)
Local organizations		
Law enforcement	2.3 (0.1)	2.3 (0.1)
Local/regional EMS	2.2 (0.1)	2.3 (0.1)
Local OEM	3.0 (0.1)	2.8 (0.1)
Paid/combination fire department	2.6 (0.1)	2.7 (0.1)
Volunteer fire department	2.2 (0.2)	2.3 (0.2)
State organizations		
State EMS	2.7 (0.1)	2.4 (0.1)
State OEM	4.2 (0.1)	2.9 (0.1)
Health organizations		
Hospital	2.6 (0.1)	2.7 (0.1)
Local public health agency	3.0 (0.3)	—
State public health agency	4.0 (0.1)	—

NOTES: Standard error for each point estimate is shown in parentheses. A scale of 1 to 5 was used, where 1 = strongly disagree, 3 = neither agree nor disagree, and 5 = strongly agree.

[5] The p-value for the difference in means t-test between state OEMs and state EMSs on this measure was $p < 0.001$.

ence in mean scores between these organizations for this measure was statistically significant.[6] Law enforcement organizations also felt that federal funding distributed directly to local communities and response organizations was not reaching the communities and organizations with the greatest need (second column in Table 2.18). The difference in mean scores between these organizations for this measure was statistically significant.[7]

State and local organizations held similar views on whether their state or jurisdiction has had to move forward with terrorism preparedness without federal guidance (Table 2.19). None of the differences in mean scores between organizations were statistically significant.

Table 2.19
Perception of Whether Jurisdiction/State Has Had to Move Forward with Terrorism Preparedness Without Federal Guidance

Organization Type	Mean Score
Local organizations	
Law enforcement	3.3 (0.1)
Local/regional EMS	3.4 (0.1)
Local OEM	3.0 (0.1)
Paid/combination fire department	3.2 (0.1)
Volunteer fire department	3.4 (0.2)
State organizations	
State EMS	2.8 (0.1)
State OEM	3.0 (0.2)
Health organizations	
Hospital	3.3 (0.1)
Local public health agency	—
State public health agency	—

NOTES: Standard error for each point estimate is shown in parentheses. A scale of 1 to 5 was used, where 1 = strongly disagree, 3 = neither agree nor disagree, and 5 = strongly agree. Public health organizations were not asked this question.

[6] The p-value for the difference in means t-test between law enforcement and local OEMs on this measure was $p < 0.0019$; the p-value for the difference between law enforcement and paid/combination fire departments was $p < 0.0033$.

[7] The p-value for the difference in means t-test between law enforcement and local OEM organizations on this measure was $p < 0.0242$; the p-value for the difference between law enforcement and paid/combination fire departments was $p < 0.0059$.

Expectations of DHS

States and local response organizations were fairly consistent in their view of the impact they expected DHS to have on their organizations (Table 2.20). Most organizations expected DHS to improve coordination, communication, and information-sharing between the federal, state, and local levels; to standardize and streamline the grant application process across federal programs; and to consolidate multiple grant requirements. A smaller percentage of organizations (30 to 40 percent) expected DHS to help conduct localized threat assessment (in their jurisdiction or region) or to improve the integration between the public and private sectors to improve terrorism preparedness and protect crit-

Table 2.20
Ways in Which Local/State Responders Expect DHS to Impact Them

Percent of Organizations	Expected Impact
70–80% expect DHS to . . .	Improve coordination, information-sharing, and communication between federal, state, and local levels
60–70% expect DHS to . . .	Streamline the grant application process across federal grant programs
50–60% expect DHS to . . .	Standardize the grant application process across federal agencies and consolidate multiple grant application requirements
40–60% expect DHS to . . .	Establish a single point of contact at the federal level for information on available programs
	Provide primary contact at the federal level instead of many contact points on training, equipment, planning, and other critical needs[a]
45–60% expect DHS to . . .	Provide intelligence information and more-detailed guidance on terrorist threats
40–60% expect DHS to . . .	Consolidate numerous training courses/programs and numerous equipment programs[b]
40–60% expect DHS to . . .	Provide better/standardized templates and/or guidance to help with planning
30–40% expect DHS to . . .	Improve integration between public- and private-sectors' efforts to improve terrorism preparedness and protect critical infrastructure
30–40% expect DHS to . . .	Help conduct threat assessment for jurisdiction or region[c]

[a]Health organizations were not given this response option.

[b]Health organizations were not asked about equipment programs.

[c]Hospitals were not given this response option.

ical infrastructure. Where there were some differences in views, the tendency was for some types of organizations to want DHS to undertake a specific activity more than other organization types. For example, between 50 and 60 percent of organizations expected DHS to standardize the grant application process across federal agencies and to consolidate multiple grant application requirements, whereas 80 percent of state OEMs expressed this view.[8] In general, the patterns seen were consistent with the individual organizations' missions and scope of responsibilities.[9]

Views Regarding the Role of the Military in Terrorism Response

State and local organizations had varying views about the roles of the federal military and the National Guard during the response to a terrorism-related incident (Table 2.21). Most local and state EMSs viewed both roles as being to maintain order and provide security. However, only about one-quarter of state OEMs viewed this as being a federal military role, which may reflect a better understanding of such issues as restrictions on the federal military's domestic role under the so-called Posse Comitatus Act.[10]

In addition, as shown in Table 2.21, state and local response organizations and health organizations (public health agencies and hospitals) seem to have different views of the role of the federal military or National Guard in the event of a major disease outbreak. About two-thirds of local organizations felt the federal military and the National Guard should help to enforce quarantines. However, fewer state OEMs and state EMSs considered this to be a role for the federal military, and only half of the local and state public health agencies (compared

[8] The stronger desire by state OEMs for DHS support in these areas is consistent with their mission and their role in helping to distribute federal preparedness funding and support to locals.

[9] The exception was volunteer fire departments, whose pattern of responses was less systematic. For example, fewer volunteer fire departments than paid/combination fire departments or other organizations indicated a desire for DHS to improve coordination, information-sharing, and communication between the federal, state, and local levels or to provide better/standardized templates and/or guidance to assist with planning.

[10] 18 USC, Sec. 1385.

Table 2.21
Differences in Views Regarding the Role of the Federal Military and National Guard During a Response to a Terrorism-Related Incident

	View of Federal Military's Role (% of organizations)		View of National Guard's Role (% of organizations)		
Organization Type	Maintain Order/ Provide Security	Help with Enforce-ment of Quarantine	Maintain Order/ Provide Security	Help with Enforce-ment of Quarantine	Set Up Kitchens, Clinics, and Mass Care Facilities
Local organizations					
Law enforcement	71 (5)	58 (6)	89 (3)	61 (6)	70 (5)
Local/regional EMS	76 (5)	56 (5)	89 (3)	64 (5)	51 (5)
Local OEM	74 (5)	55 (6)	86 (4)	67 (6)	73 (5)
Paid/combination fire department	81 (4)	53 (7)	89 (4)	60 (6)	63 (6)
Volunteer fire department	75 (7)	31 (7)	77 (7)	30 (7)	74 (7)
State organizations					
State EMS	63 (5)	37 (5)	87 (4)	67 (5)	40 (6)
State OEM	27 (6)	42 (7)	77 (6)	65 (7)	58 (7)
Health organizations					
Hospital	—	82 (4)	—	86 (4)	45 (7)
Local public health agency	—	—	95 (2)	52 (10)	51 (9)
State public health agency	—	—	100	53 (5)	53 (5)

NOTES: Standard error of the estimate is shown in parentheses. Dashes indicate that organizations were not asked the question or were not given a particular response option.

with 86 percent of the hospitals) viewed this as a role for the National Guard. The term *quarantine* was not defined in the survey, so it may have been subject to different interpretations by the respondent groups. For example, the differing views of public health agencies and hospitals may reflect differences in their understanding of what enforcement of a quarantine might entail and of the legal restrictions applicable to this

situation. From the public health perspective, the term can encompass a range of interventions, from passive or active monitoring of individually exposed persons and minimal restrictions on movement to restrictions on the movement of large groups of people. The higher rate of response by hospitals may reflect the view that in the event of a large-scale outbreak, the military might be available to help provide security to health facilities as well as to the region.

In some cases, these differences in views also may reflect a lack of knowledge or understanding about the roles and responsibilities of the federal military under the Federal Response Plan or the new National Response Plan, as well as about legal restrictions on the domestic use of the federal military. This suggests that state and local organizations may be doing planning under very different assumptions about the role they can expect the federal military or the National Guard to play during a response to a terrorist-related incident. This appears to be an important area needing greater awareness.

Although not shown in Table 2.21, state and local organizations were in agreement regarding the role of the federal military and the National Guard in the provision of personnel or equipment and in serving in an advisory capacity. Overall, approximately 80 percent of the organizations felt that the federal military and the National Guard should provide personnel and equipment during responses to terrorism-related incidents; between 45 and 60 percent felt that these organizations should serve in an advisory capacity on technical issues during responses to such incidents.

Although expectations of the military were high, only one-quarter of local organizations (with the exception of paid/combination fire departments) had conducted joint preparedness activities for terrorism response with their state's National Guard or the federal military (e.g., local bases) following 9/11, whereas most state organizations had done so (Table 2.22).

Table 2.22
Organizations That Participated with State National Guard or Federal Military in Joint Preparedness Activities After 9/11

Organization Type	Participation with National Guard (% of all organizations)	Participation with Federal Military (% of all organizations)
Local organizations		
Law enforcement	25 (8)	18 (6)
Local/regional EMS	30 (6)	24 (6)
Local OEM	28 (6)	17 (6)
Paid/combination fire department	43 (11)	24 (8)
Volunteer fire department	0	11 (12)
State organizations		
State EMS	84 (4)	32 (5)
State OEM	96 (3)	65 (7)
Health organizations		
Hospital	26 (8)	33 (8)
Local public health agency	13 (4)	16 (6)
State public health agency	91 (3)	57 (5)

NOTE: Standard error of the estimate is shown in parentheses.

CHAPTER THREE

Organizations' Views About Funding Needs and Relationships Between Perceived Threat, Funding, and Preparedness

Organizations' Views About Funding Needs

Most state and local organizations desired funding support from the federal government and DHS, in particular, to help improve their preparedness for dealing with terrorist incidents (Table 3.1). About 20 percent of these organizations also desired funding to help cover overtime and backfill costs associated with sending personnel to training.

Organizations cited limited budgets for training and equipment procurement and competing or higher departmental budget priorities as factors limiting their ability to purchase specialized equipment for terrorism preparedness and to participate in federally sponsored training or equipment programs. State and local organizations were the primary seekers of financial support from DHS.

A majority of state and local organizations cited lack of a budget to pay overtime for staff to attend training courses as a factor that limited their ability to participate in federal training and equipment programs (Table 3.2). Limited budgets for training and equipment procurement also were cited as key factors affecting organizations' participation in such programs.[1]

[1] Although not shown, 84 percent (standard error = 4) of paid/combination fire departments and 58 percent (standard error = 9) of volunteer fire departments also indicated that funding of overtime and backfill costs was needed to help strengthen identified weaknesses in their response capabilities for the type of incident they considered most important to prepare for. The other local and state organizations were not given this response option.

Table 3.1
Desire for Funding Support from the Federal Government to Help Improve Preparedness

Organization Type	Desire Funding Support from the Federal Government to Pay for Overtime/ Backfill Costs for Training (% of organizations)	Desire Direct Financial Support from the Federal Government to Improve Preparedness (% of organizations)	Look Specifically to DHS for Funding Support (% of organizations)
Local organizations			
Law enforcement	19 (5)	62 (6)	89 (3)
Local/regional EMS	22 (4)	55 (5)	82 (4)
Local OEM	20 (5)	66 (6)	95 (3)
Paid/combination fire department	21 (5)	64 (6)	89 (4)
Volunteer fire department	7 (3)	70 (8)	91 (4)
State organizations			
State EMS	20 (5)	37 (5)	88 (4)
State OEM	15 (5)	50 (7)	92 (4)
Health organizations			
Hospital	—	63 (7)	68 (9)
Local public health agency	—	67 (7)	—
State public health agency	—	81 (4)	—

NOTES: Standard error of the estimate is shown in parentheses. Hospitals and public health organizations were not asked about overtime/backfill costs; public health organizations were not asked about the type of support they desire from DHS.

Consistent with the above findings, competing or higher budget priorities was also cited as a key factor limiting organizations' ability to purchase specialized equipment for terrorism preparedness (Table 3.3). To a lesser extent, local organizations and hospitals cited being unsure about what equipment/technology was needed to enhance their preparedness for terrorist incidents; fewer state organizations indicated uncertainty as to their equipment/technology needs. Also, state and local organizations (approximately one-quarter of each organization type) uniformly cited lack of information about what equipment had been certified as a limiting factor.

Table 3.2
Organizations Citing Funding as a Limiting Factor in Their Ability to Participate in Federal Training and Equipment Programs

	Organizations Citing Funding as a Factor Limiting Participation in Federal *Training* Programs (% of organizations)		Organizations Citing Funding as a Factor Limiting Participation in Federal *Equipment* Programs (% of organizations)
Organization Type	Lack of Budget to Pay Staff Overtime to Participate in Training	Limited Training Budget	Limited Equipment Procurement Budget
Local organizations			
Law enforcement	72 (5)	70 (5)	62 (5)
Local/regional EMS	50 (5)	48 (5)	40 (5)
Local OEM	58 (6)	65 (6)	—
Paid/combination fire department	67 (6)	57 (7)	40 (6)
Volunteer fire department	26 (7)	66 (8)	58 (8)
State organizations			
State EMS	40 (6)	66 (8)	17 (4)
State OEM	44 (7)	20 (6)	—
Health organizations			
Hospital	55 (8)	55 (7)	—

NOTES: Standard error of the estimate is shown in parentheses. Public health organizations were not asked about factors limiting their participation in federal training or equipment programs. Health and OEM organizations were not asked about factors limiting their participation in federal equipment programs.

In addition, two-thirds or more of the state and local organizations, with two exceptions, indicated the need for funding and/or personnel to support risk-assessment activities (Table 3.4). The exceptions were hospitals and state public health organizations, only half of which indicated needing such support.

After 9/11, most state organizations increased spending or reallocated resources to improve their response capabilities and indicated that they received external funding and/or resources for this purpose

Table 3.3
Factors Limiting Organizations' Ability to Purchase Specialized Equipment for Terrorism Response

Organization Type	Competing/ Higher Budget Priorities (% of all organizations)	Uncertainty About Organization's Equipment Needs (% of all organizations)	Lack of Information About What Equipment Had Been Certified (% of all organizations)
Local organizations			
Law enforcement	65 (5)	41 (6)	25 (5)
Local/regional EMS	63 (5)	30 (5)	25 (5)
Local OEM	57 (6)	24 (5)	20 (5)
Paid/combination fire department	41 (6)	26 (4)	22 (5)
Volunteer fire department	37 (8)	36 (8)	17 (5)
State organizations			
State EMS	45 (6)	17 (4)	21 (5)
State OEM	36 (7)	16 (5)	20 (6)
Health organizations			
Hospital	66 (8)	39 (7)	30 (6)

NOTES: Standard error of the estimate is shown in parentheses. Public health organizations were not asked about their ability to purchase specialized equipment for terrorism response.

(Table 3.5). In comparison, only one-fifth of law enforcement agencies and one-third of paid/combination fire departments increased spending or reallocated resources to improve response capabilities, and only half of them received external funding. There was greater variation among local organizations. Only 18 percent of the law enforcement agencies and 29 percent of the paid/combination fire departments indicated they had increased spending or reallocated resources following 9/11. In comparison, nearly half of the local OEMs and local/regional EMSs had done so. Organizations that increased spending or shifted resources internally did so to improve planning and training of personnel or to purchase PPE and other equipment. The actions taken by law enforcement agencies are similar to those reported in a separate national survey which found that one-quarter of local law enforcement agencies (particularly those in large counties) increased spending

Table 3.4
Organizations Indicating Need for Funding and/or Personnel to Support Risk-Assessment Activities

Organization Type	Need Funding and/or Personnel to Conduct Future Risk Assessments (% of all organizations)
Local organizations	
Law enforcement	61 (6)
Local/regional EMS	68 (5)
Local OEM	76 (5)
Paid/combination fire department	65 (7)
Volunteer fire department	65 (10)
State organizations	
State EMS	61 (6)
State OEM	77 (6)
Health organizations	
Hospital	51 (8)
Local public health agency	78 (7)
State public health agency	50 (5)

NOTE: Standard error of the estimate is shown in parentheses.

or reallocated resources to focus on terrorism preparedness, and one-quarter reported receiving external funding to support these activities (Davis et al., 2004).

Health organizations fared better than other responders because of the federal government's focus on improving bioterrorism preparedness following 9/11. Almost all state public health agencies and EMSs and two-thirds of local public health agencies and hospitals increased spending (Table 3.5). However, although not shown, while all state public health agencies and 70 percent of state EMSs received federal support for bioterrorism preparedness,[2] only 44 percent of hospitals and 31 percent of local public health agencies indicated that they had received additional funding or resources from their *state government* to support preparedness activities.

[2] Following 9/11, all state public health agencies received funding from the federal government through CDC cooperative grants to improve bioterrorism preparedness. State public health agencies and EMSs also received HRSA funding to improve hospital preparedness.

Table 3.5
Organizations That Increased Spending or Internally Reallocated Resources to Improve Response Capabilities After 9/11

Organization Type	Increased Spending/ Shifted Resources Internally After 9/11 (% of all organizations)	Purpose of Increased Spending/Shifted Resources (% of organizations)			Received External Funding and/ or Resources to Support Activities (% of all organizations)
		Planning	Training	Purchase PPE/ Equipment	
Local organizations					
Law enforcement	18 (4)	9 (3)	14 (3)	8 (2)	13 (4)
Local/regional EMS	46 (5)	69 (7)	31 (5)	17 (4)	35 (5)
Local OEM	42 (6)	30 (5)	32 (6)	28 (5)	62 (6)
Paid/combination fire department	29 (6)	19 (6)	25 (6)	20 (6)	20 (4)
Volunteer fire department	1 (1)	0.10 (0.7)	1 (0.7)	1 (0.7)	0
State organizations					
State EMS	81 (4)	66 (5)	63 (5)	22 (5)	67 (5)
State OEM	85 (5)	81 (6)	58 (7)	38 (7)	92 (4)
Health organizations					
Hospital	66 (7)	32 (6)	60 (7)	47 (8)	44 (7)
Local public health agency	70 (12)	—	—	—	—
State public health agency	94 (2)	—	—	—	—

NOTES: Standard error of the estimate is shown in parentheses. Dashes indicate that a particular organization type either was not asked the question or was not given a particular response option.

The results in Table 3.5 reflect in part the grant mechanisms in place and differences among response communities in the distribution of federal support to the various organizations. Following 9/11, federal funding to the states was initially focused on public health preparedness; state public health agencies and, to a lesser degree, state EMSs received federal support early in 2002 to undertake comprehensive assessments and planning to improve overall preparedness for bioterrorism. Funding to the first-responder community did not begin to flow in any substantial amounts until spring 2003, when the newly cre-

ated DHS announced the release of funding to be distributed to first responders. Our third survey was undertaken in summer 2003, when federal funding for first responders distributed via the states had just begun to reach local response organizations.

The high percentage of state OEMs that received funding (see Table 3.5) does not necessarily mean that these organizations received a disproportionately large amount of external support for their activities. Rather, the state OEMs serve as the distributors of federal funding to local response organizations via such mechanisms as the Federal Emergency Management Agency's (FEMA's) Emergency Management Performance Grants (EMPG) program.[3] This is also true for many state EMSs that received funding following 9/11 through the HRSA cooperative agreements to improve bioterrorism preparedness. In our survey, we did not ask state public health agencies specifically about the receipt of external funding, since we knew that all state public health agencies received federal funding after 9/11 through CDC cooperative grants to improve bioterrorism preparedness.

Relationship Between Receipt of Funding and Organizations' Preparedness Activities

To examine whether receiving an increase in funding or resources following 9/11 was related to taking steps to improve preparedness, we undertook a series of analyses of the relationship between receipt of funding and/or resources and different types of preparedness activities undertaken following 9/11.

We found a strong relationship between the distribution of funding and support mechanisms and the preparedness activities of local organizations. Two separate funding and support questions were asked of all organizations except public health agencies:

[3] In the Office of Domestic Preparedness (ODP) grant program, 80 percent of the funding is designated for localities and 20 percent is designated for states to help assist first responders and to administer the grants.

1. Since September 11, 2001, has your organization received an increase in its funding and/or resources for terrorism preparedness?
2. Since September 11, 2001, has your organization received agency-specific funding, training, equipment, or other terrorism preparedness support from the federal government?

The second question is narrower in that it restricts focus to support received from the federal government, yet it is broader in the categories of support cited (i.e., this question asked about training, equipment, or other preparedness support received from the federal government). Thus, an individual organization could answer "yes" to both questions or to either one individually. The weighted percentages in Table 3.6 indicate which responding local organizations answered the two questions affirmatively.

Almost all the state OEMs and about two-thirds of the local OEMs and state EMSs answered both questions affirmatively (Table 3.6). However, 71 percent of the law enforcement agencies and about one-half of the paid/combination fire departments and local/regional EMSs answered both questions negatively, indicating that they had not received external funding and/or resources *from any source* following 9/11. Also, few volunteer fire departments indicated having received any external funding and/or resources. About one-quarter of the hospitals answered both questions affirmatively, whereas 40 percent answered both questions negatively.

Since all state public health agencies received federal funding under the CDC cooperative agreements following 9/11 and we assumed that this funding would be shared with local-level public health agencies, we asked local public health agencies a single funding and support question: "Since September 11, 2001, has your health department received *from your state government* an increase in funding and/or resources for terrorism preparedness?" Responses are indicated in Table 3.7.

In summary, among local organizations, local OEMs were generally most likely to receive federal support and external funding/resources following 9/11, while law enforcement and volunteer fire

Table 3.6
Receipt of External Funding and/or Resources to Support Preparedness Activities After 9/11

Organization Type	Received an Increase In External Funding and/or Resources from Any Source After 9/11 (% of all organizations)	Received Support from the Federal Government After 9/11 (% of all organizations)	Received Funding and/or Other Support from Federal Government and Other Sources After 9/11 (% of all organizations)	Did Not Receive Any External Funding and/or Resources After 9/11 (% of all organizations)
Local organizations				
Law enforcement	4	16	9	71
Local/regional EMS	10	11	25	54
Local OEM	6	23	56	15
Paid/combination fire department	1	26	18	55
Volunteer fire department	0	16	0	84
State organizations				
State EMS	7	10	60	23
State OEM	0	8	92	0
Health organizations				
Hospitals	17	17	26	40

departments were least likely to do so. A greater proportion of local OEMs have positive associations between receipt of funding/resources and preparedness activities, while the benefit of these associations exists in a smaller proportion for the other organization types.

To examine the relationship between funding distribution and preparedness, we compared responses to these two funding and support questions individually with responses to 21 indicators of preparedness. These indicators, listed in Table 3.8, fell into five broad categories: (1) a shift in budget/spending, (2) updating of written response plans, (3) self-ratings of preparedness, (4) a shift in organizational/personnel structures, and (5) purchase of terrorism-related protective/detection/monitoring equipment.

Table 3.7
Receipt of External Funding and/or Resources by Public Health Organizations from Their State Governments to Support Preparedness Activities After 9/11

Organization Type	Received Increased Funding/Resources (% of health organizations)	Did Not Receive Increased Funding/Resources (% of health organizations)
Local public health agency	69	31
State public health agency	25	75

Comparisons were first made on an exploratory basis via cross-tabulations. Where appropriate, weighted logistic regression models were fitted to test whether an association existed between the preparedness indicators and the funding and support questions.[4]

Results for Relationship Between Funding and Preparedness Activities

Dependencies were observed between responses to the two funding and support questions and the preparedness indicators listed in Table 3.8 for law enforcement agencies, paid/combination fire departments, local OEMs, hospitals, and local public health agencies. For some categories, every preparedness indicator listed in Table 3.8 was significant for a particular organization type; for all combinations of organization types and categories, at least one of the preparedness indicators demonstrated a significant dependency with the receipt of funding or support.[5] For example, within the "shift in organizational/personnel structures" category, paid/combination fire departments demonstrated a significant positive relationship between an increase in funding or

[4] The hypothesis test used was a Wald test, i.e., a determination that all the explanatory logistic regression coefficients are zero. A nonzero coefficient would imply the existence of a relationship between the preparedness indicator and the funding question.

[5] Overall, roughly 200 hypothesis tests were conducted. Typically, conducting this many hypothesis tests creates a multiple testing problem—in general, testing multiple independent hypotheses at the 0.05 significance level, we would expect 5 percent of the tests to reject the null hypothesis randomly, just by chance, when no actual relationship exists. This concern is somewhat mitigated by the fact that the goal of this analysis was to gain a general sense of the relationship between funding and preparedness, not to specifically examine each individual organization-indicator combination.

Table 3.8
Categories of Preparedness Indicators

Shift in budget/spending
How high a priority is spending additional resources for combating terrorism compared to other current needs of your organization?
Since September 11, 2001, has your organization increased its spending or shifted resources internally to address terrorism-related incidents?
Updating of written response plans
Has your organization updated or newly developed a written emergency response plan to specifically address • Chemical incidents? • Biological incidents? • Radiological incidents? • Conventional explosive incidents? • Cyberterrorist incidents? • Attacks on critical infrastructure?
Self-ratings of preparedness
For the incident type your organization selected as most important to prepare for, rate your level of readiness in the following areas on a scale of 1 to 5, where 1 is inadequate and 5 is excellent: (a) written emergency plan, (b) knowledge and expertise, (c) equipment, (d) training, (e) exercises, (f) ability to communicate and coordinate, (g) overall preparedness to respond to this type of incident.
Shift in organizational/personnel structures
Since September 11, 2001, has your organization created a new (a) position, (b) unit, or (c) group to address prevention, preparedness, response or recovery for terrorism-related incidents, or (d) specially assigned personnel for this task?
Since September 11, 2001, has your organization identified or scheduled training opportunities for emergency response to terrorism-related incidents?
Does your organization have any unit(s) specially trained and/or equipped to respond to terrorism-related incidents?[a]
Purchase of protective/detection/monitoring equipment
Since September 11, 2001, has your organization purchased (or is it in the process of purchasing) specialized protective, monitoring, or detection equipment?[a]
Since September 11, 2001, has your organization purchased (or is it in the process of purchasing) monitoring and detection equipment for any chemical, biological, or radiological agents; equipment for cyberdetection; or equipment for decontamination of victims and/or sites? [a]

[a] Question was not posed to hospitals or state or local public health organizations.

resources and having any unit(s) specially trained and/or equipped to respond to terrorism-related incidents, but no relationship with the other indicators in this category was observed. The dependencies were

observed even if an organization benefited from only one type of funding/support.[6] Volunteer fire departments were anomalous in that the direction of the relationship was not always positive, i.e., for some indicators, an increase in support was associated with less preparedness (see Table 3.9). For all other organization types, the observed associations were positive.

In general, we found that local organizations (except volunteer fire departments) that received an increase in funding or resources or agency-specific federal support following 9/11 were more likely than other organizations of their same type to have (1) increased spending or reallocated resources to focus on terrorism preparedness, (2) assigned a higher priority to expending resources on terrorism preparedness, (3)

Table 3.9
Local Organizations That Updated Response Plans for One or More Types of CBRNE Incidents After 9/11

Organization Type	Updated Emergency Response Plans for CBRNE After 9/11 (% of all organizations)	Updated Response Plans and Received Funding or Other Support (% of organizations that updated plans)	Updated Response Plans but Did Not Receive Any Funding or Other Support (% of organizations that updated plans)
Law enforcement	41 (6)	61 (11)	35 (7)
Local/regional EMS	48 (5)	59 (8)	40 (7)
Local OEM	75 (5)	82 (5)	37 (15)
Paid/combination fire department	39 (6)	52 (7)	28 (8)
Volunteer fire department	13 (6)	10 (11)	15 (8)
Hospital	89 (4)	100	71 (10)
Local public health agency	60 (11)	77 (5)	22 (14)

NOTE: Standard error of the estimate is shown in parentheses. CBRNE = chemical, biological, radiological/nucler, and explosives.

[6] That is, an organization either had received an increase in external funding following 9/11 or had received agency-specific support (i.e., funding, training, equipment, or other terrorism preparedness support) from the federal government.

updated response plans for one or more types of CBRNE, (4) created new organizational structures to address terrorism preparedness,[7] (5) identified or scheduled training opportunities for their personnel,[8] (6) purchased terrorism-related detection or protective equipment, and (7) assessed their overall level of preparedness as higher than that of organizations that had not received an increase in funding or resources.[9]

Table 3.9 shows the percentage of local organizations that updated their response plans for CBRNE incidents. Local OEMs and hospitals were more likely than other local organizations to have updated their plans. Within each organization type (except volunteer fire departments), those local organizations that received external funding or support also were more likely to have updated their response plans. Overall, 41 percent of law enforcement agencies updated their response plans for one or more types of CBRNE incidents following the 9/11 attacks. Of those law enforcement agencies that received an increase in funding or support, 61 percent also updated their response plans, whereas only 35 percent of those that did not receive an increase updated their response plans. Of course, these associations do not necessarily imply a causal effect due to the receipt of funding or support. For example, organizations that are more actively engaged in preparedness activities also may be more likely both to apply for funding and/or to be successful in obtaining funding.

In addition, although not shown, on a scale from 1 (inadequate) to 5 (excellent), paid/combination fire departments that received agency-specific federal support were 64 percent more likely to rate their organization's equipment as adequate (a score of 3) or better for responding to the type of CBRNE incident they ranked as most important to prepare for than paid/combination fire departments that had not received agency-specific federal support. And hospitals that received

[7] With the exception of hospitals and paid/combination fire departments.

[8] Although the observed frequency was higher for those paid/combination fire organizations that received an increase in funding or agency-specific support, the difference was not large enough to generate a statistically significant result.

[9] Within the self-rating category, the directional differences for hospitals were ambiguous, with some showing a positive relationship with increased funding or support and others showing a negative relationship.

agency-specific federal support for terrorism preparedness were more likely to purchase specific monitoring and decontamination equipment than were hospitals that had not received an increase in funding or resources (97 percent versus 77 percent, respectively).

Although formal tests of independence were not appropriate for the local/regional EMSs, since they were a convenience sample, patterns of dependence were easily observable here as well for all 21 of the preparedness indicators. For example, rating their organizations' overall level of preparedness to respond to terrorism in general on a scale of 1 (inadequate) to 5 (excellent), 67 percent of those that indicated they had not received an increase in funding or resources for terrorism preparedness gave a rating of 1 or 2, while 63 percent of those that had received such an increase rated their preparedness at 3 or above.

The Relationship Between Perceived Threat, Receipt of Funding, and Preparedness Activities

Assessing the Relationship

Given the observed relationship between receipt of funding and undertaking preparedness activities, we wished to investigate the influence organizations' perceptions regarding the threat of terrorism to their jurisdiction or region have on their preparedness activities and receipt of funding. An organization acting upon potential threats presumably is driven by its understanding of those threats, which may or may not reflect the true threat to their locality or region.

Each surveyed organization was asked to rate the likelihood of several different "types of major terrorism-related incidents (e.g., more than 30 individuals with serious injuries) occurring within their jurisdiction or region within the next five years":

- Terrorism-related chemical incidents
- Terrorism-related biological incidents
- Terrorism-related radiological incidents
- Terrorism-related nuclear incidents
- Conventional-explosive terrorism incidents

- Cyberterrorism incidents
- Terrorism incidents involving the use of military-grade weapons

The organizations were asked to rate each incident type as "very unlikely," "somewhat unlikely," "somewhat likely," or "very likely" to occur. Table 3.10 summarizes the (weighted) ratings of the responding law enforcement organizations. Across all organization types, the modal response for most incident types was in one of the "unlikely" categories. The exceptions were conventional explosives and cyberterrorism, for which the modal response was "somewhat likely."

Creating a Threat Index

Using each organization's responses, we created a single measure to gauge the organization's overall perceived level of threat of terrorism, categorizing the level as "high" or "low." Most states are diverse enough to encompass both high and low threat areas; therefore, we focused our attention on the local organizations.

One option for creating such an overall measure was to map the threat ratings to a natural scale from 1 to 4, sum across an organization's individual ratings, and set a cut-point on the sums to distinguish

Table 3.10
Law Enforcement Organizations' Perceived Likelihood of Different Types of Terrorist Incidents Occurring Within the Next Five Years (% of all law enforcement organizations)

	Perceived Likelihood			
Incident Type	Very Unlikely	Somewhat Unlikely	Somewhat Likely	Very Likely
Chemical	37 (6)	33 (5)	22 (5)	8 (4)
Biological	42 (6)	28 (5)	23 (5)	8 (4)
Radiological	49 (6)	27 (5)	17 (4)	7 (4)
Cyberterrorism	21 (5)	36 (6)	34 (6)	9 (3)
Conventional explosives	20 (5)	29 (5)	39 (6)	13 (4)
Military-grade weapons (e.g., mortars, automatic weapons)	26 (5)	39 (6)	26 (5)	9 (4)
Nuclear	59 (6)	24 (5)	14 (5)	2 (1)

NOTE: Standard error of the estimate is shown in parentheses.

low from high. Ultimately, we opted against this method because it ignored an important facet of variability in the ratings. For example, an organization with two "highly likely" ratings and the rest "highly unlikely" could be determined to have a lower perceived threat level than one with ratings of "somewhat unlikely" on all incident types. Therefore, we chose not to smooth over the responses in the "likely" categories. Instead, we aggregated the individual ratings based on the number of incident types perceived to be likely to occur (either "somewhat likely" or "very likely"). Any organization responding "highly likely" to any incident type was classified in the "high" threat category. Any responding "somewhat likely" to more than two incident types was also classified in the "high" threat category. All other organizations were classified in the "low" threat category.

Threat ratings were generated for a total of 770 local-level organizations that rated their threat levels for at least two incident types. Missing values were imputed as was done in Davis et al. (2004), i.e., on a scale from 1 to 4, using a random effects model:

$$y_{ij} = a_i + b_j + e_{ij}$$

where y_{ij} is the perceived threat of organization i by incident type j, a_i is an organization-level contribution (effect) to the rating, b_j is the contribution (effect) of the incident type, and e is random error.[10]

Table 3.11 shows the distribution of responding organizations classified in the "low" and "high" threat categories.

Results

We explored the relationship between an organization's perceived threat level and receipt of funding or support to combat terrorism after 9/11 by comparing the threat index we constructed to the funding/support survey items examined above in relation to preparedness activities (see Table 3.8). Comparisons were first made on an exploratory basis

[10] a, b, and e are all treated as random variables following a normal distribution. For identifiability, the means of b and e are set to zero.

Table 3.11
Percentage of Responding Organizations Classified as Having Low or High Perceived Threat of Terrorism Occurring Within Their Jurisdiction

Organization Type	Low Threat (% of responding organizations)	High Threat (% of responding organizations)
Law enforcement	57.5	42.5
Local/regional EMS	43.7	56.3
Local OEM	41.3	58.7
Paid/combination fire department	54.6	45.4
Volunteer fire department	82.6	17.4
Hospital	58.6	41.4
Local public health agency	47.7	52.3

via cross-tabulations (Table 3.12). Where appropriate, weighted logistic regression models were fitted to test whether an association exists between the threat indices and the individual funding and support survey items[11] at the organizational level.[12]

Of the local organizations examined, only law enforcement agencies displayed a significant relationship between perceived level of threat and receipt of an increase in funding and/or resources for terrorism preparedness (p-value = 0.008). Of those law enforcement agencies that perceived the threat to be high for their jurisdiction, 25.2 percent received an increase in funding or support following 9/11; of those that perceived the threat to be low, only 6.1 percent received an increase. Of course, this identified association does not necessarily imply a causal effect.

Although the results were not statistically significant, local OEMs and hospitals in the sample that perceived the threat to be high for their jurisdiction were more likely to have received an increase in funding

[11] The hypothesis test used was a Wald test that all the explanatory logistic regression coefficients are zero. A nonzero coefficient would imply the existence of a relationship between the preparedness indicator and the funding question. Test were carried out at the $\alpha = 0.05$ level.

[12] Local EMSs are excluded from this analysis, since the sample is not random. Volunteer fire organizations are also excluded; a low number of responding organizations (74), most classified as low threat, combined to provide cell counts that are too low for the appropriate statistical tests.

Table 3.12
Percentage of Local Organizations Indicating Receipt of Increases in Funding/Support, by Perceived-Threat Index

Organization Type	Low Threat (% of organizations)	High Threat (% of organizations)
Received an Increase in External Funding and/or Resources from Any Source Following 9/11		
Law enforcement[a]	6.1 (2.5)	25.2 (8.4)
Hospital	35.8 (9.4)	56.2 (9.9)
Local OEM	54.4 (10.2)	66.6 (7.4)
Paid/combination fire department	20.0 (5.8)	19.5 (6.4)
Received an Increase in Funding and/or Resources from State Public Health Department Following 9/11		
Local public health agency	51.4 (18.8)	83.9 (6.4)
Received Agency-Specific Federal Support Following 9/11		
Law enforcement	18.7 (6.5)	33.3 (8.8)
Hospital	43.3 (11.6)	39.2 (9.5)
Local OEM	79.6 (7.8)	78.2 (6.1)
Paid/combination fire department	33.9 (6.5)	56.5 (12.3)

[a]Statistically significant at the $\alpha = 0.05$ level.

NOTES: Standard error of the estimate is shown in parentheses. Local public health agencies were asked only if they had received an increase in funding and/or resources from their state public health department following 9/11.

and/or resources following 9/11 than those that perceived the threat to be low (p-values of 0.327 and 0.143, respectively). Similarly, local public health agencies in the sample that perceived the threat of terrorism to be high for their jurisdiction or planning area were more likely to have received an increase in funding from their state health department following 9/11 than were agencies that perceived the threat to be low (p-value = 0.072).

Local law enforcement and paid/combination fire departments demonstrated a higher proportion of the high-perceived-threat organizations received agency-specific federal support (Table 3.12). That is, these organizations were more likely to have received agency-specific funding, training, equipment, or other terrorism preparedness support from the federal government than those that perceived the threat

to be lower. However, neither of these relationships was statistically significant (p-values of 0.107 and 0.183, respectively). These organizations would have received funding from FEMA's EMPG program, which provides states with funds to support all hazards-preparedness activities and emergency management. Other sources of funding would include the Assistance to Firefighters grant program, the ODP's First Responder Equipment Grant program, and Department of Justice (DOJ) programs specifically geared toward the law enforcement community (e.g., the Community Oriented Police Services (COPS) program or the local law enforcement block grant program).

The differences seen in Table 3.12 merit further comment. The high percentage of local OEMs that received agency-specific federal support regardless of threat category reflects in large part the fact that these organizations' mission differs from that of the other organizations. OEMs serve a coordination role and provide support such as assistance with training, distribution of equipment, or other support passed from the federal government to the state government and then down to the local-level response organizations. Therefore, we would not expect to see a significant difference between local OEMs with respect to their threat perceptions and receipt of funding from sources other than their state governments. An initial focus of the federal government following 9/11 was the improvement of states' preparedness for bioterrorism. State public health agencies were given an initial allocation to support development of plans to improve preparedness and, upon approval of their plans, were given the remainder of the funds to implement them. States varied in their approach and in the degree to which funding to respond to bioterrorism was distributed to the local level. The results in Table 3.12 suggest that state health agencies took into account "level of threat" in determining which local public health agencies would receive funding. Alternatively, local public health agencies that perceived the threat to be high for their jurisdiction may have been proactive in seeking bioterrorism funding from the state level. The results for paid/combination fire departments reflect the fact that the federal government is an important source of funding for these organizations, and federal programs such as the EMPG and First Responder

Equipment Grant programs tend to provide support predominantly to the fire service community.

In summary, only one significant relationship was revealed between organizational perception of threat and receipt of additional funding/support: Law enforcement agencies with a high level of perceived threat were more likely to receive an increase in external funding or resources following 9/11. With the available data, we cannot dismiss the possibility that there is no relationship between an organization's perception of threat and its receipt of funding/support. This is not, of course, a verification that no relationship exists. Observed differences within the exploratory analysis summarized in Table 3.12 indicate the possibility that other such relationships may exist. The analysis also implies that no important inverse relationships exist; for no organization types is a lower threat perception associated with a higher likelihood of having received additional funding/support.

Results for Relationship Between Perceived Threat and Undertaking Preparedness Activities

As noted in Table 3.8, indicators of preparedness activities in the survey fell into five broadly related categories. We examined each category for relationships to an organization's perceived threat level.[13] As above, we conducted an exploratory analysis of the survey data and, where appropriate, fitted weighted logistic regression models to test[14] whether any relationships existed between our measure of perceived threat and the

[13] As noted above, local EMSs are excluded from this analysis, since the sample is not random. Volunteer fire organizations are also excluded, because the low number of responding organizations, most classified as low threat, combined to provide cell counts that were too low for the appropriate statistical tests to be conducted.

[14] As above, the hypothesis test used was a Wald test that all the explanatory logistic regression coefficients are zero. Roughly 100 hypothesis tests were performed at the $\alpha = 0.05$ level, meaning we would expect that five of these tests would show significance by chance. This concern is somewhat mitigated by the fact that the goal of this analysis is to gain a general sense of the relationship between threat and preparedness, not to specifically examine each individual organization-indicator combination.

different indicators of preparedness. In this section, we summarize the results of these analyses for each of the five categories.

Relationship Between Perceived Threat and Purchasing of Terrorism-Related Protective/Detection Equipment

For hospitals, the only statistically significant association we found between perceived level of threat and the preparedness indicators had to do with the purchasing of specialized equipment. Hospitals that perceived the threat to be high for their jurisdiction were more likely to purchase monitoring and detection equipment for chemical, biological, or radiological agents or equipment for decontamination of victims and/or sites. The expected odds of hospitals with a perception of high threat purchasing such equipment were roughly seven times greater than those of low-threat hospitals.[15]

Local law enforcement agencies and paid/combination fire departments that perceived the threat to be high for their jurisdiction were more likely to purchase specialized monitoring and detection equipment and decontamination equipment to improve their response capabilities for terrorist-related incidents than were organizations that perceived the threat to be lower. Local OEMs showed evidence of a similar relationship between perceived threat level and the purchase of such specialized equipment.[16]

Relationship Between Perceived Threat and Budget/Spending Indicators

Results from our analysis of shifts in budget/spending encompassed two key questions: (1) Relative to other needs of the organization, how high a priority was given to spending agency or departmental resources

[15] Odds cited are the expected odds calculated from the weighted logistic regression coefficients.

[16] While the Wald test did not reveal nonzero logistic regression parameters (p-values of 0.094 and 0.063), a weighted chi-squared test of independence does indicate a significant relationship between the perceived threat level of local OEMs and both items in the equipment purchase category.

on combating terrorism?[17] (2) Since September 11, 2001, has the organization increased its spending or shifted resources internally to address terrorism-related incidents?

Table 3.13 displays the weighted proportion of organizations responding positively to each of the budget/spending preparedness indices. Local law enforcement, paid/combination fire departments, local OEMs, and local public health agencies all showed a statistically significant relationship between perceived threat level and each of the two indices. That is, those organizations that perceived the threat to be high for their jurisdiction were more likely to assign a higher priority to spending agency or departmental resources on combating terrorism and were also more likely to have increased spending or internally shifted resources to address terrorism preparedness.

Table 3.13
Proportion of Responding Organizations Indicating a Shift in Budget/Spending Indices, by Level of Perceived Threat

	Relative to Other Needs, Spending Additional Resources for Combating Terrorism Is a High or Somewhat High Priority (% of organizations)		After 9/11, Organization Increased Spending or Shifted Resources Internally to Improve Preparedness (% of organizations)	
Organization Type	**Low Threat**	**High Threat**	**Low Threat**	**High Threat**
Law enforcement[a]	12 (4)	54 (11)	10 (3)	28 (8)
Hospital	55 (11)	39 (9)	61 (10)	73 (9)
Local OEM[a]	47 (10)	77 (6)	28 (9)	51 (8)
Local public health agency[a]	45 (16)	95 (3)	47 (17)	92 (4)
Paid/combination fire department[a]	26 (7)	70 (9)	12 (3)	50 (12)

NOTE: Standard error of the estimate is shown in parentheses.

[a]Both relationships are significant at the $\alpha = 0.05$ level.

[17] For this analysis, we created a dichotomous variable. Survey responses of "high priority or somewhat of a priority" were grouped as "higher priority"; survey responses of "low priority" or "not at all a priority" were grouped as "lower priority."

Relationship Between Perceived Threat and Organizations' Self-Ratings of Preparedness

Using a scale from 1 to 5, where 1 = inadequate and 5 = excellent, survey respondents were asked to rate their organization's level of readiness to respond to the incident type the organization considered most important to prepare for in seven different areas (written response plans, knowledge and expertise, equipment, training, exercises, ability to communicate and coordinate with other response organizations, and overall preparedness) (see Table 3.8).

Paid/combination fire departments demonstrated a significant relationship between their perceived level of threat and three of the self-rated categories. Those departments that perceived the threat to be high for their jurisdiction were more likely to rate their level of readiness as being somewhat higher in terms of (1) knowledge and expertise, (2) ability to communicate and coordinate, and (3) overall preparedness to respond to the incident type they considered most important to prepare for.

Law enforcement organizations demonstrated a single association between perceived level of threat and the self-rating items, specifically the rating of their organization's training to respond to the type of incident they identified as being most important to prepare for. Of the law enforcement agencies that perceived the threat to be high for their jurisdiction, 39.5 percent were less likely to rate their training as inadequate or somewhat inadequate, whereas of those that perceived the threat to be lower, 71.8 percent were more likely to consider their training to be inadequate or somewhat inadequate.

Neither local OEMs nor local public health agencies showed an association between their self-ratings of readiness and their organizational perceptions of threat.

Relationship Between Perceived Threat and Organizational/ Personnel Structural Changes

All four of the local organization types examined (law enforcement, paid/combination fire departments, local public health agencies, and local OEMs) demonstrated significant relationships between their per-

ceived level of threat and multiple indicators of changes in organizational/personnel structure. Organizations with a high threat perception were more likely to create or assign an organizational structure (e.g., create a new unit, assign personnel) to address prevention, preparedness, response, or recovery for terrorism-related incidents. Paid/combination fire departments and local OEMs that perceived the threat to be high for their jurisdiction also were more likely to have identified training opportunities for their personnel. Law enforcement agencies and paid/combination fire departments with high threat perceptions also were more likely to have units specially trained and/or equipped to respond to terrorism-related incidents than those within their organization type that perceived the threat to be lower.

Relationship Between Perceived Threat and Updating of Response Plans

None of the five organization types surveyed demonstrated a significant relationship between perceived level of threat and having updated (or newly developed) written emergency response plans to specifically address terrorism. However, local public health organizations in the sample did demonstrate some evidence of such an association.[18] Forty-six percent of the local public health agencies in the low-threat category had updated their written emergency response plans following 9/11, compared with 75 percent of those in the high-threat category.

Summary of Relationships Between Perceived Threat Level and Preparedness Indicators

Table 3.14 summarizes the relationships between organizations' perceived threat level and the preparedness activities they undertook to improve response capabilities and their self-ratings of readiness level. All five of the organization types examined exhibited a significant relationship in at least one of the preparedness categories, although the extent to which threat perception affects preparedness activities differs among the organization types. Law enforcement agencies and paid/

[18] The Wald test produced a p-value of 0.094, which was not significant at the traditional $\alpha = 0.05$ level.

Table 3.14
Relationships Between Categories of Preparedness Activities in Response to Terrorism and Threat Perceptions

Preparedness Category	Law Enforcement	Hospital	Local OEM	Local Public Health Agency	Paid/Combination Fire Department
Budget/spending (2)	X		X	X	X
Response plans (1)				X	
Self-ratings (9)	X				X
Organization/personnel (7)	X		X	X	X
Equipment (2)	X	X	X	N/A	X

NOTE: An X indicates a positive relationship between the organization's perception of the threat of terrorism in its locality and at least one preparedness item in each category. The number of survey indicators in each preparedness category is shown in parentheses.

combination fire departments that perceived the threat to be high were more likely to undertake steps to improve their level of preparedness in each of the categories except for updating of response plans and to rate their level of readiness as being higher (along at least one dimension) than those within their organization type that perceived the threat to be lower.

Local OEMs' mission is to coordinate and provide planning, training, equipment, and technical support to responders, as well as to assist with the distribution of state and federal support. Therefore, the results in Table 3.14 must be interpreted in light of that role. The fact that the self-ratings category was not significantly correlated with local OEMs' threat perceptions makes sense, since local OEMs are not response organizations per se. Local OEMs that perceived the threat to be high for their jurisdiction were more likely to purchase specialized monitoring and detection equipment and decontamination equipment, much of which was probably purchased or acquired to distribute to emergency response organizations in their locality. Like law enforcement and paid/combination fire departments, local OEMs exhibited a correlation between threat perceptions and the undertaking of organizational or personnel structural changes and increasing spending or

reallocation of resources after 9/11, and they also placed a higher priority on investing resources in terrorism preparedness.

Local public health agencies that perceived the threat to be high were more likely to create new organizational structures (e.g., units, positions) or to assign personnel to focus on terrorism preparedness. The duties of these new structures included disseminating information about the threat and liaising with state agencies and private providers. In about half of the local public health agencies that created new organizational structures, the duties of these new entities included training of other public health agencies and personnel, investigating reports of illness that might be terrorism-related, and liaising with federal agencies. Local public health agencies that perceived the threat to be high also were more likely than those that perceived the threat to be low to have trained their personnel. In addition, the health agencies that perceived the threat to be high were more likely to assign a higher priority to investing resources in terrorism preparedness and to have increased spending or reallocated resources following 9/11 to focus on preparedness for terrorism.

For only one organization type did we find a significant relationship between perceived level of threat and the updating of response plans. Forty-six percent of the local public health agencies in the low-threat category had updated their written emergency response plans following 9/11, compared with 75 percent of those in the high-threat category. Between 40 and 50 percent of the other local organizations[19] updated their response plans, which suggests that they may have done so primarily in response to 9/11 rather than because they perceived the threat to be higher for their jurisdiction.

Hospitals were the only type of organization in which perceived level of threat was not significantly associated with the preparedness activities measured in the survey, except for the purchasing of specialized monitoring and detection equipment or decontamination equipment.

[19] The exception was local OEMs, 75 percent of which updated their response plans following 9/11.

CHAPTER FOUR

Conclusions

In this chapter, we step back and take a broader look at what we learned from the survey. Specifically, we look at what the responses tell us about what is going right and what areas could use improvement. In addition, we discuss areas in which the survey responses indicated that state and local organizations need support from DHS, as well as their expectations of DHS.

What Is Going Right and Areas for Improvement

This national survey provides the first comprehensive picture of the actions that have been taken to improve the nation's preparedness to respond to terrorist incidents following the 9/11 attacks. Specifically, it provides a gauge of what is going right and what is going wrong and allows us to identify areas for improvement.

Following 9/11, Preparedness Received a Lot of Attention

After 9/11, state and local response organizations undertook a number of steps to improve their preparedness:

- They updated mutual-aid agreements for emergencies in general and response plans for CBR-related incidents.
- They conducted risk assessments.
- They created new organizational structures (e.g., positions, units, committees, groups) to focus on terrorism preparedness.

- Paid/combination fire departments and state and local OEMs purchased personal protective equipment (PPE), monitoring and detection equipment, and decontamination equipment.
- Many state and local organizations participated in joint preparedness activities (e.g., planning) related to terrorism.

As one might expect, local response organizations focused their preparedness efforts on incidents related to their organizational missions. However, they varied in the priorities they assigned to investing departmental resources in terrorism preparedness.

In light of the catastrophic impact of hurricanes Katrina and Rita, there is some controversy over whether state and local response organizations have overemphasized preparedness for terrorism at the expense of emergency preparedness for natural disasters. Our survey results suggest that the events of 9/11 spurred response organizations not only to undertake preparedness activities for terrorism-related incidents, but also to make general improvements in emergency response that support overall preparedness.

What we cannot tell from the survey is how much better prepared the United States is as a result. Although state and local organizations have undertaken a range of activities to improve their response capabilities, it is difficult to assess how much better prepared they are without standardized measures of organizational and community preparedness. Some survey respondents stated that they are doing more since 9/11, but at the end of the day, they do not know whether their organization (or community) is adequately prepared. DHS and other federal departments currently have various initiatives under way to address preparedness gaps and to develop comprehensive performance measures; however, it will take time to develop and implement those initiatives.

We were not able to determine the extent to which resources may have been diverted from other areas of preparedness (or other agency responsibilities) to focus on terrorism preparedness. There was substantial variation among organizations in their increases of internal spending or reallocation of departmental resources to improve their terrorism preparedness and in whether or not they received external funding to support those activities. The survey results raise the ques-

tion of what other activities may have been forgone in organizations such as paid/combination fire departments and law enforcement agencies as a result of shifting resources and personnel to focus on terrorism. It could be that terrorism preparedness went hand-in-hand with these organizations' other emergency response and public safety duties and that therefore nothing in the system gave. However, the survey results suggest that some local response organizations may have been stretched thin in the years following 9/11. This is an area that warrants further examination.

Threat Information Appears to Be Reaching the Right Organizations

Most state and local organizations pass on threat information to law enforcement. In turn, the majority of local law enforcement agencies indicated that they report such information to the FBI field offices. Most state OEMs also indicated that they pass on threat information to law enforcement, as well as to their state's homeland security task force. State and local health organizations share such information with law enforcement and with other health organizations. Consistent with these findings, both law enforcement organizations and OEMs identified better intelligence information as a key support requirement.

Given the central role law enforcement plays in receiving and sharing threat information, it is of some concern that only half of the law enforcement agencies in 2003 had received guidance from the FBI about what threat information to collect and pass on. Further, very few law enforcement agencies had applied for security clearances, relying instead on the FBI and other sources for threat information. Although the majority of state OEMs did apply for security clearances, by 2003 less than half had received them.

A 2005 study by the Congressional Research Service (CRS) reported that about 325 state and local government officials possessed DHS-sponsored security clearances and that another 250 were in the process of receiving them. Other federal departments and agencies (e.g., FBI, Department of Defense) also provide security clearances to state and local officials. However, DHS was unable to provide an accurate count of how many federally sponsored clearances had been issued to states and localities. In the view of CRS, the limited number of

clearances issued and the uncertainty about how many officials have them could affect the ability of DHS and other federal agencies and departments to provide classified information to states and localities (Reese, 2005).

In addition to the central role it plays in receiving threat information, law enforcement also may play an increasingly important role in investigating terrorist-related incidents (Davis et al., 2004). Although the FBI is designated as the lead agency on terrorist investigations, the large number of leads coming in from a variety of sources suggests that follow-up investigations may increasingly be conducted by local law enforcement agencies at the request of the FBI. In light of the enactment of the USA Patriot Act and other changes made following 9/11, law enforcement may be called on to act more broadly now to fill the gap between what federal agencies are restricted from doing and what local law enforcement can contribute in terms of intelligence collection. Indeed, in another national survey of state and local law enforcement, Davis et al. (2004) found that since 9/11, law enforcement agencies (particularly those in large counties and at the state level) have organized themselves to expand their intelligence function, assigning personnel to liaise with state-level or city/county-level interagency task forces and creating specialized units or other structures to focus on counterterrorism.

These trends underscore the importance of improving coordination between the FBI and law enforcement. At the same time, it will be important for DHS and DOJ to monitor the role and function of specialized terrorism or criminal intelligence units and the intelligence training law enforcement personnel receive.

Organizations That Believe the Threat to Be Higher for Their Jurisdictions Have Been More Proactive in Improving Preparedness

Local response organizations that felt their jurisdiction faced a higher threat of terrorism have been more likely to take action to improve their response capabilities than others who felt the threat was lower. For example, law enforcement agencies and paid/combination fire departments that perceived the threat to be high were more likely to have

- Assigned a higher priority to investing departmental resources in terrorism preparedness.
- Increased spending or shifted resources internally following 9/11 to address terrorism preparedness.
- Purchased specialized monitoring and detection equipment and decontamination equipment.
- Created specially trained units and/or equipped units to respond to terrorism-related incidents.

Local OEMs followed the same trend.

Among health organizations, local public health agencies that perceived the threat to their jurisdiction to be high were more likely to update their response plans for CBRNE incidents and to create new organizational structures or to assign personnel to focus on terrorism preparedness. In addition, health agencies that perceived the threat to be high were more likely to have assigned a higher priority to investing resources in terrorism preparedness and to have increased spending or reallocated departmental resources after 9/11 to focus on terrorism preparedness than departments that perceived the threat to be low. Hospitals that perceived the threat to be high were likewise more likely to have purchased monitoring and detection equipment, as well as decontamination equipment.

Views Vary About Whether Funding Is Reaching the Communities and Organizations with the Greatest Need

Survey results indicated that state OEMs and state public health agencies (those organizations responsible for distributing federal funding and resources within their state for emergency and bioterrorism preparedness) tended to believe that federal support was reaching the communities and organizations with the greatest need. However, at the local level, law enforcement agencies, in particular, did not feel that federal funding was reaching those with the greatest need, regardless of whether the funding was distributed through the state or directly to localities.

These differences of opinion might partly reflect differential receipt of funding from the federal level. For example, initial federal monies

for bioterrorism preparedness targeted public health, while funding for first responders was not as rapidly forthcoming and experienced some delays in distribution.

Funding Appears to Have Gone to Localities That Response Organizations Believe Face a Higher Threat of Terrorism

On the surface, it appears that in 2003, funding was going to the localities that response organizations believed faced a higher threat of terrorism. This was true for law enforcement, in particular. Although the survey results were not statistically significant for the other response groups, a similar trend was seen for hospitals, local public health agencies, and local OEMs. Also, although the differences were not statistically significant, law enforcement agencies and paid/combination fire departments that perceived the threat to be high for their jurisdiction were more likely to report receipt of agency-specific funding or other support than were departments that considered the threat to be low.

We found that receipt of funding, not surprisingly, was positively correlated with being proactive in improving an organization's level of preparedness. That is, local response organizations[1] that received an increase in external funding or resources (or agency-specific federal support) following 9/11 were more likely than other organizations of their same type to have

- Increased spending or reallocated resources to focus on terrorism preparedness.
- Assigned a higher priority to spending resources on terrorism preparedness.
- Updated response plans for one or more types of CBRNE attack.
- Created new organizational structures to address terrorism preparedness.[2]
- Identified or scheduled training opportunities for their personnel.
- Purchased terrorism-related detection or protective equipment.

[1] With the exception of volunteer fire departments.

[2] With the exception of hospitals and paid/combination fire departments.

- Assessed their overall level of preparedness as higher than that of organizations that had not received an increase in funding or resources.

These survey results suggest that in 2003, federal preparedness funding and resources were being appropriately targeted to jurisdictions that local response organizations believed faced a higher threat of terrorism. It is difficult to assess whether targeting was in fact better or whether other factors were influencing this relationship. It could be, for example, that law enforcement agencies and paid/combination fire departments that perceived a higher threat were more proactive about seeking federal funding and assistance and were more successful in obtaining it. Also, these survey findings are based on the self-reports of local organizations. We were therefore unable to verify the differences in federal funding received by different organizations.

Receipt of Funding Has Varied Across Organizations

The reported receipt of funding was highly variable across organization types. In the two years following 9/11, one-fourth of the law enforcement agencies and one-third of the paid/combination fire departments reported increasing spending or reallocating departmental resources to improve response capabilities; however, only half of those organizations reported receiving external funding to support those activities.

In contrast, most state organizations did receive external funding to support their terrorism preparedness activities. However, the situation is more complex than it seems on the surface. State organizations serve as a vehicle for administering federal grants received and as a pass-through of federal funding and support to local organizations. Nearly all state organizations indicated that they had shared the resources they received. Yet, as noted above, local organizations varied in their belief about whether federal funding was reaching those with the greatest need; law enforcement, in particular, believed this had not been the case. Indeed, a common theme expressed was that federal support should be distributed directly to local organizations, bypassing state and county governments.

For health organizations, the funding story is also complex. The initial focus of the federal government was on bioterrorism, and initial funding was targeted primarily at improving public health preparedness (not hospital preparedness).[3] All state health agencies received bioterrorism funding; however, states varied in their approach to improving public health preparedness. Some retained more funding at the state level (e.g., to improve the state's laboratory network) rather than passing it down to the local level to improve local public health capacities. Almost all of the state public health agencies and state EMSs and two-thirds of the local public health agencies and hospitals reported having increased spending following 9/11. However, less than half of the hospitals and only one-third of the local public health agencies reported having received additional funding from their *state government* to improve local capabilities.

To summarize, the differences in reported receipt of funding by state and local organizations partly reflect the grant mechanisms in place and differences among response communities about when federal support was made available to them. While state public health agencies and, to a lesser extent, state EMSs received federal support early in 2002, funding to the first-responder community did not begin to flow in any substantial amounts until spring 2003, when the newly created DHS announced the release of funding to be distributed to the first-responder community. The survey reported here was undertaken in summer 2003, when federal funding for first responders distributed through the states might have only begun to reach local response organizations. As discussed below, distribution of first-responder grant funds encountered a number of obstacles.

Expectations About the Role of the Military in Terrorism Response Differ

In the aftermath of hurricane Katrina, events in Louisiana highlighted the differing expectations that state and local officials have with respect

[3] Following 9/11, all state public health agencies received funding from the federal government through CDC cooperative grants to improve bioterrorism preparedness. State public health agencies and state EMSs also received Health Resources and Services Administration (HRSA) funding to improve hospital preparedness.

to the role of the federal military and the National Guard in responding to a major catastrophe. We similarly found that state and local response organizations varied in their expectations of the role of the federal military in the event of a large-scale terrorist-related incident.

Most local and state EMSs viewed the primary role of both the federal military and the National Guard as being to maintain order and provide security. However, only about one-quarter of the state OEMs considered this to be a federal military role, perhaps reflecting a better understanding of restrictions on the federal military's domestic activities under the Posse Comitatus Act.

State and local response and public health organizations also differed in their views about the role of the federal military or National Guard in the event of a major disease outbreak. About two-thirds of the local organizations felt the federal military and the National Guard should help to enforce quarantines, whereas far fewer state OEMs considered this to be a role for the federal military, and only half of the local and state public health agencies (compared with 86 percent of hospitals) viewed this as a role for the National Guard.

In some cases, these differences may reflect misunderstandings about the roles and responsibilities of the federal military under the Federal Response Plan or the new National Response Plan, as well as a lack of knowledge about legal restrictions on domestic use of the federal military. Regardless, they raise an important question about whether state and local organizations are doing planning under very different assumptions concerning the role of the military during the response to a terrorist-related incident or a major disease outbreak. This is an area that warrants greater awareness training and possibly a reexamination of planning assumptions.

Coordination with the Private Sector Needs Improvement

Enhancing coordination with the private sector is seen as critical for ensuring the preparedness of states and localities and for protecting vital critical infrastructure (e.g., utilities, transportation). As noted by the Advisory Panel in its fourth report to Congress:

> The private sector controls approximately 85 percent of the infrastructure in this country and employs approximately 85 percent of the national workforce. It is also critical to innovations to protect and defend against terrorism. (Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, 2002)

The survey provides several indicators to gauge the extent of coordination between emergency responders and the private sector in 2003.

Less than half of the law enforcement agencies and paid/combination fire departments that created new organizational structures or positions after 9/11 to address terrorism preparedness reported that the duties of the new position or unit included liaison with the private sector. And only one-third of local and state OEMs and one-quarter of local response organizations said they had formal agreements with private companies, businesses, or labor unions to share information or resources in the event of an emergency or disaster.[4]

Survey results concerning participation with the private sector in joint preparedness activities since 9/11 are also not encouraging. Very few of the law enforcement agencies and paid/combination fire departments that participated in joint preparedness activities (e.g., planning, training) reported the involvement of utilities or transportation companies.

Sharing of threat information was another indicator of lack of coordination. Very few state and local organizations reported that they would contact the private sector to share threat information received.

These results suggest that there is significant room for improvement in the area of public/private-sector coordination.

Coordination Between Public Health Agencies and Emergency Responders Needs Improvement

During a public health emergency or a bioterrorist attack, law enforcement and other emergency response organizations might be called on to enforce quarantines, manage crowds, or participate in joint investi-

[4] The agreements that existed addressed coordination and planning, as well as response.

gations with public health agencies. Many respondents expressed concern over the lack of integration between the public health and medical communities and other local emergency responders to address bioterrorism or other acts of domestic terrorism (Hamburg, 2001). Indeed, the lack of integration of health care organizations with WMD preparedness and the planning of the overall community response has been characterized by some as a serious flaw of U.S. national strategy (Waeckerle, 2000). The survey enables us to gauge the extent of coordination between emergency responders and local health agencies in 2003.

We found important differences in the views of health agencies and law enforcement agencies and fire departments concerning this relationship. Specifically, only one-quarter of the law enforcement agencies and one-third of the paid/combination fire departments that had participated in joint preparedness activities since 9/11 indicated that those activities involved local health agencies. At the same time, the majority of local health agencies that reported participation in joint preparedness activities following 9/11 indicated that those activities had involved law enforcement and fire departments.

These survey results clearly suggest a disconnect between the views of emergency responders and those of public health agencies concerning the degree to which they are integrating their preparedness activities. These results may reflect differences in the way these organizations interpreted the question or in what they believe joint activities entail. Nevertheless, public health and emergency responder coordination remains an area in which additional efforts are needed.

Support Needs and Expectations of DHS

Protection of Response Personnel and Training and Equipment Were Identified as Important Support Needs, but Funding Is Viewed as a Limiting Factor

The survey provides an overall picture of the support needs of state and local response organizations. First responders were primarily concerned with protection of response personnel and their ability to decontami-

nate victims and provide mass care. Given the large number of fatalities that emergency responders experienced in the 9/11 attacks, protection of response personnel at the time of the survey may still have been very much on everyone's mind. These results are consistent with emergency responder protection needs reported by LaTourrette et al. (2003). LaTourrette and colleagues reported that a common concern expressed by representatives from the emergency responder community was the need for adequate protection against terrorist attacks and the need to deal with the vulnerability of nonspecialist responders.

A majority of state and local public health agencies also were concerned about protecting response personnel, decontamination of victims, and mass care capabilities. Nearly half of the hospitals and local public health agencies, as well as first responders, considered hazard identification an important concern.

The 9/11 Commission hearings highlighted the communications problems emergency responders encountered in responding to the 9/11 attacks, with lack of interoperability being one of the key factors (Hirschkorn, 2004). Nevertheless, in our survey, only one-third of the first responders cited communications and coordination with other local response organizations as an important concern. This result was somewhat surprising in light of the 9/11 experience and given the numerous examples of communications and coordination problems encountered in recent disasters.

First responders identified support for training and specialized protective equipment as an important need. This is consistent with the concern of these organizations with protecting response personnel. Organizations cited limited training and equipment procurement budgets, as well as competing or higher departmental budget priorities, as factors limiting their ability to purchase specialized equipment for terrorism preparedness and to participate in federally sponsored training or equipment programs. One out of five state and local organizations also desired funding to help cover overtime and backfill costs associated with sending personnel to training.

Among the health organizations, local public health agencies (in contrast to hospitals and state public health agencies) especially desired

support for training courses, exercises, new or more up-to-date equipment, and technical support.

Two-thirds or more of the state and local organizations (with two exceptions, hospitals and state public health agencies) indicated the need for funding and/or personnel to support risk-assessment activities.

Volunteer Fire Departments' Support Needs Merit Closer Examination

The role of volunteer fire departments in homeland security may seem intuitively obvious on the surface. That is, given the limited resources and small size of many volunteer fire departments, it might be argued that they should focus primarily on firefighting duties and leave terrorism preparedness to full-time, professionally staffed fire departments. Indeed, volunteer fire departments reported lower levels of involvement in terrorism-specific preparedness activities.

The majority of volunteer (and paid/combination) fire departments identified protection of response personnel as being their greatest concern, followed closely by decontamination of victims and ability to provide mass care. To strengthen response capabilities, most departments desired more funding for training and specialized equipment.

Volunteer fire departments were generally less engaged in joint preparedness activities than paid/combination fire departments and other response organizations. Only one-third of the volunteer fire departments reported participating in joint preparedness activities at the local level, compared with three-quarters of the paid/combination fire departments. The majority of volunteer departments cited limited training and equipment budgets as important factors affecting their participation in federal preparedness programs. Given that the majority of fire departments in the United States are volunteer rather than paid/combination departments, their limited participation in joint preparedness activities and in training opportunities raises some concerns and suggests that attention needs to be given to ensuring their participation in the future.

Expectations of DHS Are High

In general, survey participants reported high expectations for the newly formed DHS. Most were looking toward DHS for funding support. In addition, state and local organizations desired more information about terrorist threats and expressed a number of views about how to improve DHS's Homeland Security Advisory System. They expected DHS to improve coordination between the federal, state, and local levels; to streamline grant processes and requirements; to consolidate training courses/programs and equipment programs; and to facilitate integration of the private sector.

Since the 2003 survey, some of these expectations have been met and others have been met with only limited success. Many survey participants hoped that DHS would standardize the grant application process across federal agencies and would consolidate multiple grant application requirements. In September 2003, DHS announced that a single point of access for state and local grants would be established, with streamlining of the process being one of the goals (U.S. Department of Homeland Security, 2003c). However, delays in the distribution of grant funding from the federal to the state level and from the state to the local levels have hampered efforts to get funding to state and local response organizations. Soon after 9/11, ODP[5] made available about $800 million in federal preparedness funding to the first-responder community. In addition, many state and local city and county governments also increased spending on terrorism preparedness, with some of the funding going to law enforcement. However, federal preparedness funding through DHS did not begin to flow to the first-responder community until 2003, when DHS announced the availability of approximately $750 million to the states for police, firefighters, and EMS workers, to be used for training, exercises, and equipment purchases (U.S. Department of Homeland Security, 2003a). The evidence suggests that federal-level funding for first-responder preparedness has been slow in coming.

[5] At that time, ODP was located within DOJ. In early 2003, ODP was transferred to DHS.

A 2004 report on the distribution and spending of ODP first-responder grant funds by the DHS Inspector General's Office found that the receipt and spending of these funds had been slow (U.S. Department of Homeland Security, Office of the Inspector General, 2004). The delays resulted from a number of problems. In some instances, states were delayed in developing plans and detailed guidelines for distributing funds to the local level. Some state and local jurisdictions were also delayed in developing detailed spending plans and in completing statewide risk assessments and homeland security strategies needed to inform the distribution of grant funds. ODP grant processing times averaged 292 days for FY 2002 State Domestic Preparedness Program (SDPP) grants.[6] Although ODP later substantially improved processing time, with FY 2003 State Homeland Security Grant Program (SHSGP) grants taking only 77 days on average, the Inspector General's report noted that state and local delays had continued.

In addition, the overall appropriations for federal homeland security assistance have been steadily decreasing, from a total of $3.82 billion in FY 2003 to $3.61 billion in FY 2005; the FY 2006 budget request represents a further reduction, to $3.36 billion (Reese, 2005). As noted by CRS, although the intent was to use federal funding to help create a base for states and localities to build upon, attempts to establish that base may have been inadequate, and further reductions in federal homeland security assistance may impair state and local attempts to implement the National Incident Management System (NIMS) and the National Response Plan (NRP); expand regional homeland security collaboration; improve detection, response, and decontamination capabilities for CBRNE; and strengthen medical surge and mass prophylaxis capabilities, among other areas (Reese, 2005).

These survey results provide a broad national picture of state and local organizations' efforts following 9/11 to improve U.S. preparedness for terrorism. This survey also provides a valuable database and a useful set of baseline measures for tracking improvements in U.S. preparedness over time. However, these data are now more than three

[6] To assess processing time, the DHS Inspector General's report focused on ten states. The average processing time reported refers to the average for these ten states.

years old, and some things have changed since the survey was fielded. An update of the survey and periodic assessments would enable us to assess what has changed in the intervening years. In any case, the issues identified remain relevant today. And so do the challenges.

APPENDIX A

Comparison of Distribution of Funding and Support and Preparedness Activities

The following survey indicators[1] were used to compare the distribution of funding and support and preparedness activities for terrorism-related incidents:

Funding and Support

- Since September 11, 2001, has your organization received an increase in its funding and/or resources for terrorism preparedness?[2] (Question 43, Fire Department Survey)
- Since September 11, 2001, has your organization received agency-specific funding, training, equipment, or other terrorism preparedness support from the federal government? (Question 59, Fire Department Survey)

Preparedness

- How high a priority is spending additional resources for combating terrorism, when compared with other current needs of your organization? (Question 45, Fire Department Survey)
- Since September 11, 2001, has your organization increased its spending or shifted resources internally to address terrorism-related incidents? (Question 41, Fire Department Survey)

[1] Some indicators were constructed by combining categorical responses to individual survey questions.

[2] The local and state public health versions of the survey narrow this question to receipt of funding and/or resources from the state government.

- Has your organization updated or newly developed a written emergency response plan to specifically address the following: chemical, biological, radiological, conventional explosives, or cyberterrorism incidents, or attacks on critical infrastructure? (Mark all that apply) (Question 13, Fire Department Survey)
- How would you rate your organization's overall level of preparedness at present to respond to terrorism in general? (Rate on a scale of 1 to 5, where 1 = inadequate, 5 = excellent) (Question 38, Fire Department Survey)
- How would you rate your organization's overall level of preparedness at present to respond to high-consequence CBRNE terrorism specifically? (Rate on a scale of 1 to 5, where 1 = inadequate, 5 = excellent) (Question 39, Fire Department Survey)
- How would you rate your organization's *written emergency plan* to be used during a response to an event similar to the CBRNE event you selected as most important? (Rate on a scale of 1 to 5)[3] (Question 49, Fire Department Survey)
- How would you rate your organization's *knowledge and expertise* about response to this type of event?[4] (Rate on a scale of 1 to 5) (Question 50, Fire Department Survey)
- How would you rate your organization's *equipment* to respond to this type of event? (Rate on a scale of 1 to 5) (Question 51, Fire Department Survey)
- How would you rate your organization's *training* to prepare for this type of event? (Rate on a scale of 1 to 5) (Question 52, Fire Department Survey)

[3] Where scales of 1 to 5 are indicated, the organization is asked to chose a whole number between 1 and 5, where 1 = inadequate and 5 = excellent.

[4] "This type of event" refers to the CBRNE event the organization identified as most important.

APPENDIX B

Participation in Federally Sponsored Programs Since 9/11

Tables B.1 through B.3 show the percentages of state and local organizations that have participated in federally sponsored funding, training, or equipment programs since 9/11 and the primary federal programs they have participated in. Care should be taken in interpreting these results in that the responses are highly dependent on how knowledgeable the individual who filled out the questionnaire for his or her organization was regarding the numerous federal programs available and which ones the organization may have actually participated in. For example, a law enforcement officer filling out the survey with knowledge about training programs may be less knowledgeable about his or her organization's participation in equipment programs. Also, because federally sponsored training, equipment, and funding programs are numerous, it was not possible to list all of them in the questionnaire. Although we gave respondents the option of writing in "other programs," relatively few did so. Thus, the results provide only an approximate idea of the differences in participation rates and the range of programs that different organization types have participated in.

Table B.1
Percentages of Local Response Organizations That Have Participated in Any Federally Sponsored Funding, Equipment, or Training Programs Since 9/11

Organization Type (% of all organizations)	Primary Federal Program(s) Participated in Since 9/11
Law enforcement 42 (6)	Between 10 and 13% (4) have participated in • FEMA Emergency Management Institute course(s) • ODP/DHS State and Local Preparedness Equipment programs • ODP/DHS State Homeland Security Grant programs • BJA/OJP Local Law Enforcement Block Grants programs 58% (6) participated in no federally sponsored programs
Local/regional EMS 46 (5)	Between 8 and 16% (3) have participated in • ODP/DHS State Homeland Security Grant programs • FEMA Emergency Management Institute course(s) • National Fire Academy Emergency Response to Terrorism course(s) • ODP/DHS State and Local Preparedness Equipment and Exercise programs • ODP/DHS State and Local Preparedness Exercise programs 54% (5) participated in no federally sponsored programs
Local OEM 83 (5)	Between 8 and 11% (4–6) have participated in • EPA Emergency Response Training Program (ERTP) • DOE Training for Radiological Emergencies • Other national domestic preparedness consortium training courses Between 15 and 25% (4–6) have participated in • ODP/DHS State and Local Preparedness Exercise programs • OJP State and Local Anti-Terrorism Training (SLATT) grants • National Fire Academy Emergency Response to Terrorism courses • NM Tech's Incident Response to Terrorist Bombings course Between 31 and 55% (4–6) have participated in • FEMA Emergency Management Institute course(s) • Assistance to Firefighters Grant programs • ODP/DHS State and Local Preparedness Exercise programs • ODP/DHS State and Local Preparedness Equipment programs • ODP/DHS State Homeland Security Grant programs 17% (5) participated in no federally sponsored programs

Table B.1 (continued)

Organization Type (% of all organizations)	Primary Federal Program(s) Participated in Since 9/11
Paid/combination fire department 73 (5)	Between 5 and 6% (5) have participated in • EPA Emergency Response Training Program (ERTP) • DOE Training for Radiological Emergencies • NM Tech's Incident Response to Terrorist Bombings course • Other national domestic preparedness consortium training courses • ODP/DHS State and Local Preparedness Exercise programs • ODP/DHS State and Local Domestic Preparedness Training and Technical Assistance programs Between 10 and 13% (5) have participated in • ODP/DHS State Homeland Security Grant programs • OJP State and Local Anti-Terrorism Training (SLATT) grants Between 20 and 24% (5) have participated in • FEMA Emergency Management Institute course(s) • National Fire Academy Emergency Response to Terrorism courses • ODP/DHS State and Local Preparedness Equipment programs 46% (7) have participated in • Assistance to Firefighters Grant programs 27% (5) participated in no federally sponsored programs
Volunteer fire department 31 (7)	Between 4 and 6% (2–3) have participated in • ODP/DHS State Homeland Security Grant programs • National Fire Academy Emergency Response to Terrorism course(s) • ODP/DHS State and Local Preparedness Equipment programs Between 15 and 20% (5–6) have participated in • Assistance to Firefighters Grant programs • FEMA Emergency Management Institute course(s) 69% (7) participated in no federally sponsored programs

NOTE: Standard error of the estimate is shown in parentheses. BJA/OJP = Bureau of Justice Assistance/Office of Justice Programs; EPA = Environmental Protection Agency; DOE = Department of Energy.

Table B.2
Percentages of State Organizations That Have Participated in Federally Sponsored Funding, Equipment, or Training Programs Since 9/11

Organization Type (% of all organizations)	Primary Federal Program(s) Participated in Since 9/11
State EMS 87 (4)	23% (5) have participated in ODP/DHS State and Local Domestic Preparedness Training and Technical Assistance programs
	40% (6) have participated in ODP/DHS State Homeland Security Grant programs
	7% (3) have participated in Assistance to Firefighters Grant programs
	30% (5) have participated in ODP/DHS State and Local Preparedness Exercise programs
	27% (5) have participated in ODP/DHS State and Local Preparedness Equipment programs
	10% (3) have participated in EPA Emergency Response Training Program (ERTP)
	27% (5) have participated in other National Domestic Preparedness Consortium training courses
	7% (3) have participated in NM Tech's Incident Response to Terrorist Bombings course
	7% (3) have participated in DOE Training for Radiological Emergencies
	24% (5) have participated in National Fire Academy Emergency Response to Terrorism course(s)
	43% (6) have participated in FEMA Emergency Management Institute course(s)
	20% (5) have participated in OJP State and Local Anti-Terrorism Training (SLATT) grants
	37% (5) have participated in other programs
	13% (4) have participated in no federally sponsored programs
State OEM 100 (0)	65% (7) have participated in ODP/DHS State and Local Domestic Preparedness Training and Technical Assistance programs
	38% (7) have participated in ODP/DHS Urban Areas Security Initiative (2003)
	81% (6) have participated in ODP/DHS State Homeland Security Grant programs
	4% (3) have participated in BJA/OJP Local Law Enforcement Block Grants programs
	23% (6) have participated in BJA/OJP Byrne Formula Grant programs
	23% (6) have participated in Assistance to Firefighters Grant programs

Table B.2 (continued)

Organization Type (% of all organizations)	Primary Federal Program(s) Participated in Since 9/11
State OEM 100 (0)	88% (4) have participated in ODP/DHS State and Local Preparedness Exercise programs
	92% (4) have participated in ODP/DHS State and Local Preparedness Equipment programs
	12% (4) have participated in FBI Hazardous Devices School
	23% (6) have participated in EPA Emergency Response Training Program (ERTP)
	65% (7) have participated in other National Domestic Preparedness Consortium training courses
	58% (7) have participated in NM Tech's Incident Response to Terrorist Bombings course
	50% (7) have participated in DOE Training for Radiological Emergencies
	15% (5) have participated in U.S. Army Chemical School Training Program (USACLMS)
	46% (7) have participated in National Fire Academy Emergency Response to Terrorism course(s)
	77% (6) have participated in FEMA Emergency Management Institute course(s)
	38% (7) have participated in OJP Anti-Terrorism State and Local Training (SLATT) grants
	8% (4) have participated in NDPO Equipment Research and Development programs
	8% (4) have participated in other federal programs

NOTE: Standard error of the estimate is shown in parentheses. NDPO = National Domestic Preparedness Office.

Table B.3
Percentages of Health Organizations That Have Participated in Any Federally Sponsored Training Programs or Academic Conferences Since 9/11

Organization Type (% of all organizations)	Primary Federal Program(s) Participated in Since 9/11
Hospitals 51 (8)	37% (7) have participated in CDC satellite broadcasts or conferences 16% (4) have participated in CDC's MMWR Continuing Medical Education program 32% (6) have participated in CDC training modules 16% (4) have participated in FEMA Emergency Management Institute course(s) 5% (3) have participated in U.S. Army Chemical School (USACLMS) training programs 3% (2) have participated in DOE Training for Radiological Emergencies 8% (3) have participated in other federally sponsored programs 49% (8) have participated in no federally sponsored training programs or conferences
Local public health agencies 70 (12)	5% (2) have participated in U.S. Army Chemical School (USACLMS) training programs 27% (7) have participated in CDC's MMWR Continuing Medical Education Program 59% (11) have participated in CDC training modules 64% (11) have participated in CDC satellite broadcasts or conferences 13% (5) have participated in other federally sponsored programs 30% (12) have participated in no federally sponsored training programs or conferences
State public health agencies 100 (0)	97% (2) have participated in CDC satellite broadcasts or conferences 97% (2) have participated in CDC training modules 54% (5) have participated in CDC's MMWR Continuing Medical Education Program 51% (5) have participated in FEMA Emergency Management Institute course(s) 37% (5) have participated in DOE Training for Radiological Emergencies 23% (4) have participated in other federally sponsored programs 0% have participated in no federally sponsored training programs or conferences

NOTES: Standard error of the estimate is shown in parentheses. Health organizations were asked different questions than local response or state organizations and were given fewer response options. MMWR = Morbidity and Mortality Weekly Report.

APPENDIX C

Weighting and Sampling Design

This appendix describes the construction of sampling and nonresponse weighting used in the analysis of responses to Wave III of the survey. Together, these adjustments permit findings from the survey to be generalized to the larger population of response organizations nationwide. Participants in the Wave III survey were the same organizations that responded to Wave I. The writeup of the sampling design and weighting methodology are based on *Sampling Design, Respondent Selection, and Construction of Survey Weights for the Federal Weapons of Mass Destruction Preparedness Programs Survey,* unpublished RAND research, by Jerry Jacobson, Ronald Fricker, and Lois Davis.

Updating the Sample

An effort was made to update all addresses and points of contact for the organizations that responded to Wave I prior to placing Wave III into the field. This effort was necessary because the sample organizations may have had personnel turnover—in particular, a change in the employee most appropriate to fill out the survey—or may have moved to a new address. Additionally, some organizations might have gone out of existence and would therefore need to be replaced.

Two organizations—one law enforcement organization and one fire department—were found to no longer exist. Each of these was

replaced by another qualified organization in the same county.[1] The implications of these replacements on the probability of selection of these organizations for the survey are described in the next section. The replacement of these two organizations did not impact the probability of selection of organizations in other counties or other organization types in the same county.

Several local EMSs forwarded their surveys to their respective state organizations for response. Since these events occurred after the survey was in the field and the set of local EMSs constituted a convenience sample, no attempt was made to replace these organizations.

Constructing the Survey Sampling Weights

Survey weights account for differential probability of being sampled among strata and for nonresponse. These statistical adjustments allow the analysis to properly infer back to the correct population.

The overall survey weight applied to any respondent can be expressed as $W_{igj} = 1/P_{igj}$, where P_{igj} is the probability that respondent i in group g (e.g., hospitals) in county j was selected and completed the survey. Because organizations were selected from within counties, this overall probability is really threefold: It depends on (1) the probability county j was selected in the first stage; (2) the probability organization i was selected from among the eligible organizations in group g in the second stage, given county j was selected in the first stage; and (3) the probability organization i completed and returned the survey, given organization i was selected. If we call these probabilities π_j, π_{igj}, and π^R_{igj}, respectively, then the overall probability of response, which is all that is needed to calculate a particular respondent's survey weight, is their product:

$$P_{igj} = \pi_j * \pi_{igj} * \pi^R_{igj} \quad (1)$$

[1] Each replacement was chosen randomly from a compiled list of similar organizations in the same county. The associated sampling weights described in this appendix were adjusted accordingly.

The first terms above, π_j and π_{igj}, are referred to as the *probabilities of selection*, and their derivation depends only on the sampling methodology employed for each group of respondents. The final term, π^R_{igj}, has a different meaning: It is an adjustment to account for the fact that some organizations that were asked to participate in the survey were more likely than others to actually complete and return it. The term π^R_{igj} is referred to as the *probability of response*; it accounts for observed patterns of response that can be determined only after all surveys have been returned and processed. For example, we observed that, on average, hospitals with fewer FTE physicians than the median FTE were less likely to complete and return the survey than their larger counterparts were. In this case, the adjustment is necessary to ensure that smaller hospitals' views are not underemphasized because of differences in response rates when results from hospitals of all FTE sizes are aggregated.

The next sections derive the right-hand-side probabilities in Equation 1 separately for each respondent group. The separate derivations are necessary because differences in groups' organizational structure and in the data available to construct sampling frames generated different sampling rules. The impact of these differences on each term in Equation 1 is described below. The derivation of the probabilities of selection is also described below.

Weights were not constructed for EMS respondents, since the EMSs constitute a convenience sample. Therefore, findings from the local and regional EMS samples cannot be generalized to the larger EMS population.

Weights also have not been constructed for state-level respondents, since the state surveys are censuses rather than randomly selected samples.

Probability of Selection for Counties

The sample of n = 200 counties was drawn without replacement from the N = 3,105 counties in the contiguous United States, Alaska, and Hawaii, with probabilities of selection proportional to the square root

of each county's population.[2] If we call county *j*'s population ρ_j, then the probability of selection for the jth county was[3]

$$\pi_j = \frac{n\sqrt{\rho_j}}{\sum_{k=1}^{N}\sqrt{\rho_k}} \tag{2}$$

Later sections will describe adjustments to the π_j required for public health, OEM, and hospital respondents.

Probability of Selection for Organizations

Apart from the exceptions described under "County Weighting Details" below, only one representative from each group was selected per county. Therefore, the probability of selection for any organization *i* in group *g* and county *j*, given county *j* was selected in the first stage, was

$$\pi_{igj} = \frac{1}{N_{gj}} \tag{3}$$

where N_{gj} is the number of organizations from group *g* eligible for sampling within county *j*.

Adjustment for OEMs and Public Health Respondents

A number of public health departments and OEMs have jurisdiction over neighboring counties that have no such organizations within their borders. For these (which we term *regional* organizations), the county probability of selection given in Equation 2 must be augmented to account for the fact that if *any* county under their jurisdiction had been selected in the first-stage sample of counties, then the regional

[2] Population estimates were taken from the February 2000 release of the DHHS's Area Resource File. Sampling was carried out using the Statistical Analysis System (SAS) SURVEYSELECT procedure.

[3] The assumptions necessary for Equation 2 to represent true probabilities are described below.

organization in question would have been selected into the sample in the second stage. Let π_R be the adjusted probability of selection for a public health department or OEM in county R that has $N_R > 1$ counties under its jurisdiction. Then,

$$\pi_R' = \pi_R + \sum_{c=1}^{N_R} \pi_c \tag{4}$$

where the right-hand side π's are the π_j's from Equation 2.

Twenty-five of the 200 counties sampled were served by regional OEMs, and ten were served by regional public health agencies. None of the counties in the survey were served only by the state OEM or public health agency, with no similar authority at the regional, county, or municipal level.

Most counties had only one major public health authority and one OEM, although many urban counties had a number of subordinate city agencies as well. In these cases, the county authority was selected in order to provide a countywide perspective of federal programs. For counties that contained municipal OEMs or public health agencies but no county-level authority, one of the municipal entities was randomly chosen to participate in the survey.[4]

Adjustment for Hospitals

Hospitals with trauma centers were oversampled in order to ensure selection of an adequate number of hospitals involved in emergency response. In each county, a sampling procedure was constructed to ensure at least a 70 percent chance of selecting a hospital with a trauma

[4] The organization of public health at the local level varies across states. Particularly in New England, local health boards, departments, or districts can have a more limited set of public health functions than other states' county or city health departments have, with responsibility for overall public health preparedness residing primarily in the regional health office or state health department. For purposes of these analyses, we treat each of these local health offices as a community's public health department, with weight equal to that of the county or city health departments of other states in the sample. For an alternative view of how to treat these local health offices, see Davis et al., 2006.

center.[5] Essentially, the list of trauma center hospitals was replicated an integer Z number of times until trauma center hospitals comprised at least 70 percent of all hospitals. Let T_j and NT_j be the number of hospitals with and without trauma centers, respectively, in county j. Then Z is $ceil(0.7NT_j/0.3T_j)$, where the *ceil* operator rounds its argument to the next highest integer.

This procedure results in a probability of selection for each trauma center hospital t in county j of

$$\pi_{t,hj} = \frac{Z_j}{Z_j * T_j + NT_j} \tag{5}$$

and for each hospital nt that does not have a trauma center, a probability of selection of

$$\pi_{nt,hj} = \frac{1}{Z_j * T_j + NT_j} \tag{6}$$

where h in the subscripts indicates the hospital respondent group. Equations 5 and 6 replace Equation 3 for hospitals in the calculation of survey weights.

One final adjustment to the hospital weights is necessary to account for the "nearest neighbor" selection rule that was employed when no hospital could be identified within a county. This adjustment results in an expression similar to the regional adjustment for public health departments and OEMs in Equation 4 in the sense that it does not affect the adjustments given in Equations 5 and 6 but instead replaces the hospitals' county probabilities of selection given in Equation 2.

When no hospital could be identified within a county c, a hospital from the county nearest to c was selected at random. Consequently, hospitals in the sample could have been selected either because they were located within a sample county or because they were in a county,

[5] In counties with no trauma center hospital, the usual selection mechanism was employed, i.e., one hospital was selected at random from all of the eligible hospitals.

call it *R*, that *did* have a hospital within its borders and happened to be the county closest to *c*. Thus, an adjustment to each hospital's probability of selection is required. In this case, it is more straightforward to make the adjustment to each hospital's county probability of selection, π_j, than to the organizational probability of selection, π_{ihj}. Let N_R be the number of counties surrounding *c* that contain no hospital and for which R is the nearest county that does contain a hospital. If we interpret R and N_R in this manner, Equation 4 gives the correctly adjusted π_j for hospitals.

Table C.1 summarizes the above discussion. For each respondent group, it lists the number of the equation used to form the county probability of selection and the organizational probability of selection, respectively. These equations give the correct inputs to Equation 1, adjusted as necessary for the different sampling rules required for each group. The derivation of survey weights for fire departments is more involved and appears in the section below entitled "Probabilities of Selection for Fire Departments."

Table C.1
Equation References for Adjusted Probabilities of Selection Due to Special Weighting Considerations

Respondent Group g	π_j	π_{igj}	Reason for Weighting Adjustment
Law enforcement	(2)	(3)	No adjustment necessary
Fire department	(2)	(a)	Stratification by HAZMAT; paid, volunteer, combination departments
EMS	(2)	π_{igj} =1	Convenience sample
Public health agency	(4)	(3)	Regional, multicounty jurisdictions
OEM	(4)	(3)	Regional, multicounty jurisdictions
Hospital	(4)	(5)/(6)	Oversampling of trauma centers; "nearest neighbor" rule

[a]See the section on "Probabilities of Selection for Fire Departments" below.

Constructing the Survey Nonresponse Weights

Probability of Nonresponse

Nonresponse was accounted for by using the propensity-score method of Little and Rubin (1987) to determine the probability, π^{R}_{igj}, from Equation 1, that organization *i* in group *g* in county *j* responded, given that organization *i* was sampled. This probability was calculated by fitting a separate logistic regression model for each respondent group of the form

$$\pi^{R}_{igj} = \frac{\exp(\beta_g + \mathbf{X}_i + \mathbf{Y}_j)}{1 + \exp(\beta_g + \mathbf{X}_i + \mathbf{Y}_j)} \tag{7}$$

where β_g is the intercept coefficient for the respondent group (e.g., hospitals), and X_i and Y_j are vectors of organization-specific and county-specific characteristics, respectively.

At both the county level and organization level, covariates were candidates for inclusion in the model if they were predictive of observed patterns of nonresponse[6] or willingness to respond (e.g., urbanicity of the respondent's county). Data availability also restricted the covariates available for inclusion in Equation 7: Only variables from the datasets used to construct the sampling frame—with few missing values for all respondents in the sample—could be included, since the variables, defined on the population, must be available for both survey respondents and nonrespondents alike.[7]

[6] The influence of each covariate was a standard z-test within the logistic framework.

[7] Where possible, missing values were inferred from the survey responses (to any of the waves in which such information was solicited). The number of FTE physicians, used in the nonresponse model for hospitals, was missing in the American Hospital Association (AHA) database for several hospitals that completed surveys. Since the survey asked hospitals a similar question, values were imputed from it in prediction of the nonresponse model for these respondents. The survey values were found to be well within the range of values reported for this variable in the AHA dataset.

For a county *j*, the following factors, hypothesized to influence a respondent's willingness to respond, were considered for inclusion in the model:

- $region_j$, a categorical variable indicating whether the county is in the Midwest, Northeast, South, or West.
- pop_j, the county's 1998 population (on the natural logarithm scale).
- $land_j$, the land area of the county (on the natural logarithm scale).
- $density_j$, the population density, $pop_j/land_j$, of the county in 1998 (on the natural logarithm scale).
- $urban_j$, an indicator for urban versus rural.[8]

Except for the *region* variable, all of the above are proxies for a county's size or its urbanicity. As we would expect, these variables are often collinear. While this poses a problem in other settings, it does not do so here because the purpose of our nonresponse models is prediction, not evaluating the statistical significance of any particular coefficient.

Population, land area, and density all possess a skew in the positive direction. To improve model fit, these variables were transformed to the natural logarithm scale, which shifts their distribution much closer to a Normal distribution.

In addition to the county-level characteristics above, variables specific to the individual organization types were also included when appropriate. Additional details on the sources of the variables are given under "County Weighting Details" below.

For each respondent group, a number of models were identified whose covariates satisfied the criteria described above. Individual t-tests were used to identify variables with strong explanatory potential. However, relying only on these tests poses a multiple testing problem. For example, the seven county-level coefficients (three region coefficients and one each for the four quantitative variables) occur in each of the

[8] These variables were provided by the DHHS's Area Resource File, which contains projections for 1998 based on the 1990 Census.

five organizational nonresponse models, for a total of 35 individual t-tests. Using the standard level 0.05 significance test (a more liberal threshold was actually employed in the analysis), we should expect two of the coefficients to demonstrate an effect when no effect is actually present, just by the luck of the draw. For this analysis, the final model presented was chosen using the Akaike Information Criterion (AIC) (Akaike, 1973), which characterizes overall model fit on a likelihood basis while penalizing for overparameterization.

Law Enforcement

In addition to the county-level characteristics, the size of law enforcement organizations and other indicators of emergency response capabilities were considered for inclusion in the nonresponse model. For a law enforcement organization *i*,

- $have\_911_i$ is an indicator corresponding to whether organization *i* participates in a 911 emergency dispatch system.
- $officers_i$ is the organization's number of sworn officers.

The presence of a 911 emergency dispatch system proved to be informative about nonresponse—those without a 911 system were more likely to respond to the survey. As in Wave I, region of the country and county population were found to be good predictors. Law enforcement organizations in the West were more likely to complete the survey than respondents in any other region, as were respondents in counties with relatively large populations. Law organizations in the Midwest and South were more likely to respond than those in the Northeast. The values of the estimated logistic coefficients (β_j's), along with the estimated β's for the other respondent groups, are given under "Description of the Data Files" below.

Fire Departments

Factors considered for the fire department nonresponse model included measures of organizational size, structure, and emergency response capabilities. For fire department *i*,

- *fire_type*$_i$ is a categorical variable classifying personnel at department *i* as all *volunteer*, all *paid*, or a *combination*.
- *hazmat*$_i$ is an indicator corresponding to whether department *i* has HAZMAT capability.
- *have_911*$_i$ is an indicator corresponding to whether department *i* participates in a 911 emergency dispatch system.

The National Public Safety Information Bureau's (NPSIB's) variable for number of personnel was excluded from the analysis because it was inconsistent with values provided by respondents in Wave I of the FWMDPPS. Other variables from the NPSIB were found to be more consistent (agreement on 80 percent or more of the observations).

A pooled model with indicators for *vol* and *combination* was used (*paid* was used as the reference category). The final pooled model indicates that volunteer fire departments were least likely to respond. Paid and combination fire departments were almost equally likely to respond, with paid fire departments being slightly less likely. Departments with HAZMAT capability were also more likely to respond, as were departments in the Midwest, followed by the West, then the South and Northeast.

Hospitals

Covariates considered for inclusion in the hospital nonresponse model were organizational size and management structure. For hospital *i*,

- *Hosp_type*$_i$ is a categorical variable classifying the organizational type of hospital *i* as *government or federal, not-for-profit,* or *for-profit*.
- *hosp_bed*$_i$ is the number of staffed hospital beds.
- *fte*$_i$ is the number of FTE medical staff.
- *trauma*$_i$ is an indicator corresponding to whether the hospital has a trauma center.

Of these covariates, only FTE was predictive of response. Like the county-level continuous variables, FTE had a heavy positive skew (i.e., there were some atypically large hospitals). A correction to the natural

logarithm scale was not successful in compensating for the skew, so the variable was parsed into four categories, one for each quartile of the sample distribution. The hospitals with the fewest FTE physicians (those in the first quartile) were least likely to respond, followed by the second and then the fourth quartiles; the hospitals in the third quartile were most likely to respond.

Region of the country was also a strong predictor of hospital response. Hospitals in the Midwest were most likely to respond. Those in the South and West were next and equally likely to respond. Northeastern hospitals were least likely to respond.

Public Health Departments

The datasets, described later, do not provide reliable organization-level data for public health organizations (recall that they were used primarily to obtain contact information for these respondents). Therefore, only the county-level covariates were considered for these organizations

The final model for public health agencies indicates that public health agencies in the Midwest were most likely to respond, with the likelihood of response for the other three regions being almost equal. Urban health agencies were more likely to respond than rural health agencies.

Offices of Emergency Management

Reliable organization-level data for OEMs were also not available from the datasets. Among the county-level covariates, none proved to be predictive of response. Therefore, no adjustment for nonresponse was made for these organizations.

County Weighting Details

The sample of $n = 200$ counties was drawn without replacement from the $N = 3{,}105$ counties in the contiguous United States, Alaska, and Hawaii, with probabilities of selection proportional to the square root of each county's population. Population estimates were taken from

the February 2000 release of the DHHS's Area Resource File. Sampling was based on population size to allow for a representative number of larger counties to be included in the sample. The square roots of the actual population values were used, however, because if we used the actual values, the sample would be skewed too heavily in favor of the larger counties, and the number of smaller counties in the sample would be too small to be representative. Transforming to the square root provided a means for balancing the number of counties sampled across the various county sizes.

If we call county *j*'s population ρ_j, then the probability π_j of selection of the *j*th county into the sample is

$$\pi_j = \frac{n\sqrt{\rho_j}}{\sum_{k=1}^{N}\sqrt{\rho_k}} \tag{8}$$

where

$$\max_j \sqrt{\rho_j} \leq \frac{\sum_{k=1}^{N}\sqrt{\rho_k}}{n} \tag{9}$$

Equation 8 implies that the square root of the population of the largest U.S. county must be no greater than the sum of the square roots of the population in each U.S. county, divided by the sample size.

Sampling was carried out using SAS's SURVEYSELECT procedure, which utilizes the Hanurav-Vijayan algorithm (Vijayan, 1968; see also Fox, 1989) for probability proportional to size (PPS) selection without replacement. Provided the assumption of Equation 9 holds, this algorithm produces a sample with probabilities of selection as displayed in Equation 8. If we had attempted to use the actual county populations for sampling instead of their square roots, the assumption of Equation 9 would fail to hold, because the skew is too heavily in favor of the larger counties in this case.

Probabilities of Selection for Fire Departments

This section describes the construction of the probabilities of selection, π_{ifc}, for a fire department i in a county c; π_{ifc} is required to compute survey weights for fire departments.

Determining the Sampling Scheme

We followed one of two schemes in each county to select departments for the sample, depending on the distribution of departments with HAZMAT capability across the departments' organizational strata: all volunteer, all paid, and combination. From this point on, department stratum refers to this classification. Which scheme is used will affect how the weights are computed in the county.

Let N_c be the total number of fire departments in county c. For each department $i \in \{1 \ldots Nc\}$ in county c, define

v_{ic} = 1 if the department is volunteer, else 0

p_{ic} = 1 if the department is paid, else 0

c_{ic} = 1 if the department is a combination, else 0

h_{ic} = 1 if the department has HAZMAT capability, else 0

Then the number of HAZMAT departments in each stratum, respectively, in county c is

$$HV_c = \sum_{i=1}^{Nc} v_{ic} h_{ic} \tag{10}$$

$$HP_c = \sum_{i=1}^{Nc} p_{ic} h_{ic} \tag{11}$$

$$HC_c = \sum_{i=1}^{Nc} c_{ic} h_{ic} \tag{12}$$

Now, the number of *strata* of departments in county c with HAZMAT capability is

$$HT_c = \min(1, HV_c) + \min(1, HP_c) + \min(1, HC_c)$$

We chose the sampling scheme $S_c \in \{1,2\}$ for county c according to

$$Sc = \begin{cases} 1 & if \quad HT_c < 2 \\ 2 & if \quad HT_c \geq 2 \end{cases}$$

More Definitions

We need a few more definitions before we can write the expressions for weighting under each scheme in each county c:

$V_c = \sum_{i=1}^{N_c} v_{ic}$ = number of volunteer departments

$P_c = \sum_{i=1}^{N_c} p_{ic}$ = number of paid departments

$C_c = \sum_{i=1}^{N_c} c_{ic}$ = number of combination departments

$H_c = HV_c + HP_c + HC_c$ = number of HAZMAT departments

Sampling Scheme I

Sampling scheme I was used if at most one of the three department strata in a county had any fire departments with HAZMAT capability. In this case, we considered volunteer, paid, and combination departments separately and randomly selected one respondent from each group so that the probability of selection, π_{ifc}, for a department just depends on its stratum.

Thus, for a county with $S_c = 1$,

$$\pi_{ifc} = \begin{cases} \frac{1}{V_c} & if \quad v_{ic} = 1 \\ \frac{1}{P_c} & if \quad p_{ic} = 1 \\ \frac{1}{C_c} & if \quad c_{ic} = 1 \end{cases} \tag{13}$$

or just

$$\pi_{ifc} = \frac{1}{p_{ic}P_c + v_{ic}V_c + C_c c_{ic}} \tag{14}$$

Sampling Scheme II

Sampling scheme II had two stages. First, one department was selected randomly from all HAZMAT departments, irrespective of its stratum. We then ruled out the stratum of the selected department from further sampling in the county. This left either one or two strata of departments, depending on the county. In the second stage, one department was randomly selected from each of the remaining strata.

For HAZMAT departments, then, π_{ifc} is determined by the chance of getting selected in the first round, $1/Hc$, plus the likelihood of getting selected in a subsequent round, given *i*'s stratum was not the same as that of the department chosen in the first round. For example, for a volunteer department *i*, the chance *i*'s stratum was not chosen in the first round is $1-(HVc/Hc)$—that is, one minus the chance a HAZMAT of *i*'s stratum, volunteer, *was* selected from among all HAZMATs.

So, if $S_c = 2$ and $h_{ic} = 1$,

$$\pi_{ifc} = \begin{cases} \frac{1}{Hc} + (1 - \frac{HVc}{Hc})\frac{1}{Vc} & if\ v_{ic} = 1 \\ \frac{1}{Hc} + (1 - \frac{HPc}{Hc})\frac{1}{Pc} & if\ p_{ic} = 1 \\ \frac{1}{Hc} + (1 - \frac{HCc}{Hc})\frac{1}{Cc} & if\ c_{ic} = 1 \end{cases} \tag{15}$$

The last case is that of $h_{ic} = 0$, a non-HAZMAT department in a county, using sampling scheme II. Here, there is no chance of selection in the first round, but the chance of selection in a subsequent round is the same.

Thus, if $S_c = 2$ and $h_{ic} = 0$,

$$\pi_{ifc} = \begin{cases} \left(1 - \frac{HVc}{Hc}\right)\frac{1}{Vc} & if \quad V_{ic} = 1 \\ \left(1 - \frac{HPc}{Hc}\right)\frac{1}{Pc} & if \quad P_{ic} = 1 \\ \left(1 - \frac{HCc}{Hc}\right)\frac{1}{Cc} & if \quad C_{ic} = 1 \end{cases} \tag{16}$$

Estimated coefficients for nonresponse models are given in Table C.2.

Table C.2
Estimated Coefficients for Nonresponse Models (dependent variable is response = 1 (i.e., yes))

Variable	Law Enforcement	Fire Departments	Hospitals	Public Health Agencies
County-level variables				
Northeast	–0.93	–0.60	–1.24	–0.92
South	–0.09	–0.55	–0.39	–0.87
West	0.79	–0.24	–0.39	–0.87
pop	0.20	—	—	—
urban	—	—	—	0.69
Organizational variables				
have_911	–0.76	—	—	—
paid	—	0.11	—	—
volunteer	—	–1.14	—	—
hazmat	—	0.39	—	—
fte Q2	—	—	0.22	—
fte Q3	—	—	1.17	—
fte Q4	—	—	0.86	—
β_{g0}	–1.15	0.93	–0.28	0.42
N*	208	443	208	202

NOTES: N* refers to observations in the nonresponse model, which include organizations drawn from the two-stage random sample and purposively added "sensitized" organizations; a small number of observations were excluded from some models because of incomplete data in the datasets used to construct the sampling frame.

Dashes indicate that the variable was excluded from the model.

The variables fte Q2, fte Q3, and fte Q4 are indicators of the second, third, and fourth quartiles of the sample distribution of FTE physicians.

The Midwest region, combination fire departments, and first quartile of FTE were all used as reference categories for identifiability of the logistic regression models (i.e., the effects of the Northeast, South, and West regions are all relative to the Midwest).

Description of the Data Files

Law Enforcement

The National Public Safety Information Bureau's (NPSIB's) 2000 National Directory of Law Enforcement Administrators provides contact information for more than 36,600 law enforcement organizations throughout the United States, including descriptions of personnel, size of population served, type of department, and department specializations. The directory was used previously in an earlier RAND study, the 2000 Law Enforcement Technology Survey, where no serious questions were encountered regarding the completeness or bias of the data.

Fire Departments and Emergency Medical Services

The National Public Safety Information Bureau's (NPSIB's) 2000 National Directory of Fire Chiefs and EMS Administrators provides contact information for the administrators of more than 28,700 fire departments and 6,000 EMS departments throughout the United States. In 1991, the Bureau compiled its initial list of departments by requesting a listing from state agencies. Each year since 1991, it has contacted each department in the directory to verify and update data for each entry, including contact information, size of population served, number of emergency response personnel, type of department, specializations, and financial structure. New entries are added to the list passively as updated information is provided by various agencies or word of new departments is obtained at trade shows and other events.

Unfortunately, the Bureau does not attempt to summarize the quality of its data or estimate the fraction of departments unaccounted for, so the completeness of sampling frames based on these data is unknown. However, the directory is the most comprehensive listing available and is the only nationwide listing that claims comprehensiveness with respect to volunteer departments.

Hospitals

The American Hospital Association's (AHA's) 1997 Annual Survey of Hospitals profiles a universe of more than 6,000 hospitals throughout the United States. The survey is mailed in October of each year to the

administrator of every hospital in the country. Estimates are generated for missing data on the basis of their values in previous years. Individual hospitals are contacted for clarification and verification of specific responses that fail edit tests. Seven separate subject areas are presented in the data: reporting period, classification, facilities and services, beds and utilization by inpatient service, total beds and utilization, financial data, and hospital personnel. Although the AHA survey provides the most comprehensive sampling frame of hospitals available, the frame is incomplete to the extent that hospitals do not respond to the survey. In 1997, the AHA achieved a response rate of 85 percent for the subset of general medical and surgical hospitals.

Public Health Departments

The National Association of City and County Health Organizations' (NACCHOs') membership list for 2001 provided contact information for 2,948 public health organizations throughout the United States. The list does not include all city and county public health organizations, but instead lists those organizations that have chosen to become members of the Association. The sampling frame is incomplete to the extent that organizations do not choose to become members.

Offices of Emergency Management

We were unable to identify any current and comprehensive list of OEMs or emergency managers. The most relevant list we identified was compiled in 1987 by the National Association of Emergency Managers (NAEM). As expected, because of its age, its contact information was largely inaccurate. Therefore, nearly all county OEMs were identified through calls to other county agencies and state OEMs.

APPENDIX D

The Survey Instrument

Survey Format

The information collected from the various local and state response organizations followed a similar format, as shown in Table D.1. The survey instrument for Wave III contained seven sections: (1) Emergency Response Planning Activities, (2) Resourcing Preparedness Activities, (3) Responding to Specific Terrorist Incidents, (4) Assessment of Federal Programs, (5) Intelligence Information and Warning, (6) Other Homeland Security Issues; and (7) Organizational Information.

In addition to the seven sections, several questions at the end collected information on the individual completing the survey and provided an opportunity for the respondent to share additional, open-ended comments and suggestions regarding changes or improvements to federal and state programs for terrorism preparedness, or other issues of importance to his or her organization that the survey had not addressed.

Pretesting the Survey Instrument

Once the initial draft instrument was ready, the surveys were reviewed and pretested over a period of three months to refine the draft questionnaire. Individuals pretesting the surveys included members of the Advisory Panel and experts in each survey field. Survey instruments were revised according to feedback between rounds of pretest and/or review. This iterative testing process was essential in helping

Table D.1
Survey III Instrument Outline

Section 1. Emergency Response Planning Activities
• Organizational participation in emergency response planning activities • Changes made to emergency response plans since September 11, 2001 • Joint preparedness activities • Training and exercises • Equipment acquisition or purchasing since September 11, 2001 • Creation of new organizational structures since September 11, 2001 • Communications interoperability issues
Section 2. Resourcing Preparedness Activities
• Changes in spending or reallocation of resources made following September 11, 2001 • Receipt of external funding and/or resources to support preparedness activities • Priority assigned by organizations to expending resources in this area
Section 3. Responding to Specific Terrorist Incidents
• Ranking incident types according to importance to the organization to prepare for • Self-assessed ratings of preparedness to respond to top-ranked incident type • Self-assessed areas of weaknesses and support needs to improve response capabilities
Section 4. Assessment of Federal Programs
• Participation in federal programs since September 11, 2001 • Factors that limit participation in federal programs • Views and expectations of federal preparedness programs • Expectations of the Department of Homeland Security
Section 5. Intelligence Information and Warning
• Intelligence warning and application for security clearances • Views regarding the Homeland Security Advisory System
Section 6. Other Homeland Security Issues
• Organizational experience since September 11, 2001, with actual terrorist hoaxes and/or incidents • Risk-assessment and support needs • Views regarding the role of the federal military and the state National Guard • Organizational experience with call-ups of reserve personnel
Section 7. Organizational Information
• Organizational characteristics, including type of organization, size of organization, size of jurisdiction, and size of population served

to pinpoint instrument problems, streamline questioning, and reduce respondent burden.

Overview of the Fielding Process

The data collection process for this survey followed the model designed for Wave I in 2001; that is, it was fielded as a mail survey (with telephone follow-up), with individually crafted questions for each responder population. An advance letter was sent to prospective respondents, accompanied by a one-page summary of how previous survey results had helped inform the Advisory Panel's third and fourth reports to Congress; a motivating cover letter signed by the Chairman of the Panel, James S. Gilmore, III, was enclosed with the survey packet itself. Telephone follow-up was performed to verify arrival of the survey and to emphasize the importance of the study. A toll-free 800 number was established to facilitate receipt of respondent questions. Follow-up postcard reminders were mailed two weeks after the initial survey mailing; replacement surveys were mailed if necessary. A final round of telephone follow-up was performed and, finally, an endorsement letter signed by designated Panel members representing each of the responder communities was sent to the groups with low response rates (EMSs, hospitals, public health agencies, and volunteer fire departments).

While survey research has shown that incentive gifts mailed along with a survey instrument can positively affect response rates by elevating the perceived importance of the study and by conveying appreciation and recognition of the respondent's time (Fowler, 1993), the study's budget did not afford us this luxury. In Wave I, we had enclosed a commemorative project coin for each respondent, and in Wave II we enclosed a certificate of appreciation signed by Chairman Gilmore for each respondent's participation, but we had no funds for these types of incentives in Wave III. To communicate appreciation without incurring consequential cost, we devised the one-page summary of how previous survey results had helped inform the Panel's third and fourth reports to Congress. We decided to include this with

the advance letter rather than with the survey mailing, so that the reading of the summary report and its findings would be less likely to influence the organizations' responses.

Fielding of the Survey

Data collection for the survey was conducted primarily between July and September 2003. To better manage the fielding process, the nine types of organizations were divided into groups, or "waves." The data-collection schedule for the groups was staggered by approximately six days to allow the telephone survey staff adequate time to contact each respondent during the various phases of telephone follow-up. Each survey wave opened with an advance letter to the respondent indicating the importance of the survey and alerting him or her to its imminent arrival. With the advance letter was enclosed the one-page summary described above. The advance letters were printed on RAND stationery and were signed by both the RAND study director and former Virginia Governor and Panel Chairman James S. Gilmore, III. Seven days following the advance letter mailing, the survey was sent out with a cover letter printed on Panel stationery and signed by Chairman Gilmore. As in the previous survey waves, the cover letter gave the addressee the option of assigning a knowledgeable designee if he or she deemed it appropriate. The survey itself was bound in the same brightly colored cover used in Wave I, designed to attract attention once removed from its envelope.

Seven days following the survey mailing, reminder postcards were sent out to all cases. The postcard thanked them if they had already filled out and returned the survey and prodded those who had not done so to complete the survey. The importance of the study and their participation in it was again communicated.

Approximately four weeks following the initial mailing of the survey packet, a replacement survey was mailed to all candidates for whom a returned survey was not on file (the exception being state OEMs, whose second packets were mailed five weeks after the initial survey mailing). In an effort to draw greater attention to the second

packet and to mitigate the possibility of it getting lost in an inbox, brightly colored labels printed with "A Request from the Gilmore Commission" were affixed to the front of each envelope, except those to law enforcement organizations and fire departments (whose second mailings had already been completed when this idea was conceived) and to hospitals (to which we mailed all second surveys via FedEx, based on our previous outreach experiences with this hard-to-reach population). A total of 171 second survey packets were mailed to the hospital sample via FedEx; 64 hospital responses were attributed to that FedEx mailing, which comprised 65 percent of the total hospital cases returned.

One week following this second survey mailing, second-round telephone follow-up began, with interviewers intensifying their efforts to convert survey nonrespondents. This telephone follow-up was most intensive and lengthy for the hospital group, as their response rates were substantially lower than those of the other groups. Hospital respondents also proved to be the most difficult to reach by telephone, so particular emphasis was placed on reaching the potential respondents' assistants and managing nurses.

While the response rates for the majority of the groups were above 50 percent as the fielding period drew to a close, rates for EMSs, hospitals, public health agencies, and volunteer fire departments remained low. We therefore decided to send out a final "endorsement" letter on RAND letterhead to these groups. This endorsement letter (or, in the case of OEMs, endorsement announcement) was sent after the second survey had been mailed and before the second round of phone follow-up had been completed. Each endorsement was made by the appropriate Advisory Panel member in each field: The letter to hospitals was sent out under the signature of Kenneth Shine, MD, former President of the Institute of Medicine; for public health, it was signed by Patricia Quinlisk, MD, MPH, Medical Director and State Epidemiologist, Iowa Department of Public Health; for volunteer fire departments, it was signed by Deputy Chief A. D. Vickery, Seattle Fire Department; and for EMSs, it was signed by Paul Maniscalco, MPA EMT/P, past President, National Association of Emergency Medical Technicians, and Ellen Gordon, current President of the National Association of Emergency Managers (NAEM), who made an announcement at the

NAEM conference on the study's behalf, asking OEM managers at their annual meeting to please complete the survey and return it to RAND.

APPENDIX E

Survey III of Federal Preparedness Programs for Combating Terrorism: Fire Department Instrument

BAR CODE LABEL

SURVEY III OF FEDERAL PREPAREDNESS PROGRAMS FOR COMBATING TERRORISM

Conducted by

RAND

on behalf of

The Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction

INSTRUCTIONS

1. Please use a dark colored pen to fill out the survey.
2. Mark only **one box** or circle **one number per item,** unless otherwise instructed.
3. As the designated representative of your organization, please fill out all questions, to the best of your ability, from the perspective of your organization as a whole.

BATCH: | | | | |

DEFINITIONS

For the purposes of this study, we ask you to keep the following definitions and their scope in mind when answering the remainder of the survey.

- ***Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives (CBRNE)*** – CBRNE incidents are typically defined as involving chemical, biological, radiological, or nuclear devices or high-yield explosives.

- ***Terrorism*** – A criminal act of violence, or threat of violence, designed to create an atmosphere of fear and alarm and to achieve maximum publicity in order to coerce others into actions they otherwise would not undertake, or into refraining from actions that they desire to take. Terrorists are motivated by political aims, may be either lone actors or members of a group, and seek to produce effects beyond the immediate physical damage that they cause. Terrorist incidents may involve the use of CBRNE to cause mass casualties or higher probability/lower consequence attacks involving conventional explosives or chemical, biological, or radiological agents.

- ***Cyber-Terrorism*** – A criminal act involving computer systems or networks designed to cause massive disruption of physical or electronic services in order to intimidate or coerce others. Examples of cyber-terrorism include:
  - An attack against an industrial facility's communications or control systems, resulting in the release of a toxic substance
  - An attack against local responder communications and other computer systems that impairs response, in coordination with a conventional weapons attack
  - Infiltration or corruption of critical data systems (at a hospital or bank, for example) in order to impair normal operations resulting in a lack of public confidence and societal disruption.

- *In this survey, we ask the respondent to keep in mind while answering the following questions that "preparedness" encompasses awareness, prevention, preparedness, response, and recovery.*

Acronyms Used in this Survey

ATTF	Anti-terrorism Task Force
BJA/OJP	Bureau of Justice Assistance/Office of Justice Programs
BW	Biological Weapon
CB	Chemical/Biological
CBIAC	Chemical and Biological Information Analysis Center
CBRN	Chemical, Biological, Radiological, Nuclear
CDC	Centers for Disease Control and Prevention, Department of Health and Human Services
CMI	Consequence Management Interoperability
CW	Chemical Weapon
DoD	Department of Defense
DOE	Department of Energy
DOJ	Department of Justice
DOT	Department of Transportation
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
Epi-X	Epidemic Information Exchange
ER	Emergency Room
ERTP	Emergency Response Training Program, Environmental Protection Agency
FBI	Federal Bureau of Investigation, Department of Justice
FEMA	Federal Emergency Management Agency
FInCEN	Financial Crimes Enforcement Network
HAN	Health Alert Network
HAZMAT	Hazardous Materials
HHS	Department of Health and Human Services
ICS	Incident Command System
IRP	Improved Response Program
JTTF	Joint Terrorism Task Force
LEPC	Local Emergency Planning Committee or Commission
NDPO	National Domestic Preparedness Office, Federal Bureau of Investigation
NEIC	National Enforcement Investigation Center, Environmental Protection Agency
ODP/DHS	Office of Domestic Preparedness/Department of Homeland Security
OEP	Office of Emergency Preparedness, Department of Health and Human Services
OJP	Office of Justice Programs, Department of Justice
OSLDPS	Office for State and Local Domestic Preparedness Support, Office of Justice Programs, Department of Justice
PPE	Personal Protection Equipment
RRIS	Rapid Response Information System
SBCCOM	U.S. Army Soldier and Biological Chemical Command
SOP	Standard Operating Procedure
USACLMS	U.S. Army Chemical School
2-PAM	Pralidoxime chloride

Section 1:
EMERGENCY RESPONSE PLANNING ACTIVITIES

1. **Does your organization have any individuals specifically assigned (full-time or part-time) to do emergency management or response planning?**
   (Mark One)

   1 ☐ Yes

   2 ☐ No

2. **Since September 11, 2001, has your organization created a new position, unit, or group to address prevention, preparedness, response or recovery for terrorism-related incidents, or specially assigned personnel for this task?**

   (Mark All That Apply)

   1 ☐ Created a special unit or position to address emergency preparedness for terrorism-related incidents

   2 ☐ Assigned individual(s) (full-time or part-time) to specifically address emergency preparedness for terrorism-related incidents

   3 ☐ Created an internal task force to address emergency preparedness for terrorism-related incidents within our organization

   4 ☐ Assigned personnel to serve as liaisons to other responder agencies and/or task forces that are addressing emergency planning for terrorism-related incidents

   5 ☐ Other *(please specify)*: _____

   _____

   6 ☐ **No, no such new positions, units, or groups have been created or assigned for terrorism-related purposes since September 11, 2001** → ***Skip to Question 4, Next Page***

3. **Which of the following duties does this new position, unit, group, or specially assigned personnel perform?**
   (Mark All That Apply)

   1☐ Analysis and dissemination of information

   2☐ Training of other fire departments' personnel

   3☐ Training of our own fire department personnel

   4☐ Liaison with other local fire departments

   5☐ Liaison with local law enforcement agencies

   6☐ Provide logistical support to other fire departments in our jurisdiction or region

   7☐ Liaison with state agencies

   8☐ Liaison with federal agencies

   9☐ Liaison with the private sector (e.g., business, industry, nongovernmental organization)

   10☐ Investigate specific terrorist incidents (e.g., arson-related)

   11☐ Other (specify): _____

4. **Is your organization a member of an interagency disaster preparedness committee, task force, or working group in your jurisdiction or region?**
   (Mark One)

   1☐ Yes → ***Continue to Question 5***

   2☐ No → ***Skip to Question 7, Next Page***

5. **Does this interagency disaster preparedness committee, task force, or working group address local planning for terrorism-related incidents?**
   (Mark One)

   1☐ Yes

   2☐ No

6. **Does this interagency disaster preparedness committee, task force, or working group address regional (i.e., multi-jurisdictional) planning for terrorism-related incidents?**
   (Mark One)

   1☐ Yes

   2☐ No

7. **Numerous task forces have been established to address terrorism prevention, preparedness, response and/or recovery. Of the following task forces, which ones does your organization participate in, liaison with, or are you an official member of?**

   (Mark All That Apply)

   1☐ Your State's homeland security office task force

   2☐ County/city-level interagency task force

   3☐ Other (specify): _____

   4☐ **None of the above**

8. **Does your organization have formal agreements with other fire departments or response agencies for mutual aid?**

   (Mark One)

   1☐ Yes

   2☐ No

9. **Since September 11th, 2001, has your organization updated existing mutual aid agreements, or established new ones, with other city, county, state, or regional organizations for disaster and emergency response?**

   (Mark All That Apply)

   1☐ Yes, for disaster and emergency response in general

   2☐ Yes, for terrorism-related incidents in general

   3☐ No new changes have been made to such agreements since 9/11

   4☐ **No mutual aid agreements exist**

FIRE DEPARTMENTS

10. Does your organization have formal agreements with private companies, businesses, or labor unions in your jurisdiction or region to share information or resources in the event of an emergency or disaster?

(Mark One)

1 ☐ Yes, for coordination purposes

2 ☐ Yes, for response purposes (i.e., specialized equipment and/or personnel)

3 ☐ Yes, for planning purposes

4 ☐ No

11. Does your organization have a written emergency response plan?

(Mark One)

1 ☐ Yes → ***Continue to Question 12, Next Page***

2 ☐ No → ***Skip to Question 14, page 8***

FIRE DEPARTMENTS

12. Does your organization's written emergency response plan . . .

(Mark One Box Per Question)

a. Address operational areas and jurisdictional boundaries? .... 1 ☐ Yes 2 ☐ No

b. Include a plan for communicating with the public and / or the media? ..... 1 ☐ Yes 2 ☐ No

c. Address how your organization would communicate with other first responders (e.g., law enforcement, fire, EMS, HAZMAT organizations) within your jurisdiction? ..... 1 ☐ Yes 2 ☐ No

d. Address how your organization would communicate with health responders (e.g., hospitals, public health agencies) within your jurisdiction? ..... 1 ☐ Yes 2 ☐ No

e. Address procedures for mass decontamination of victims? .. 1 ☐ Yes 2 ☐ No

f. Address procedures for individual decontamination?..... 1 ☐ Yes 2 ☐ No

g. Address procedures for decontamination of an area or site? 1 ☐ Yes 2 ☐ No

h. Address how your organization would coordinate with other agencies outside your jurisdiction? ..... 1 ☐ Yes 2 ☐ No

i. Address integration with other local response plans? ..... 1 ☐ Yes 2 ☐ No

j. Address integration with state response plans? ..... 1 ☐ Yes 2 ☐ No

k. Address integration with the Federal Response Plan? ..... 1 ☐ Yes 2 ☐ No

l. Address recovery phase and/or post-incident remediation ... 1 ☐ Yes 2 ☐ No

m. Address coordination with hospitals for multi-casualty incidents?..... 1 ☐ Yes 2 ☐ No

13. Has your organization updated or newly developed a written emergency response plan to specifically address . . .

(Mark All That Apply)

1 ☐ Biological incidents?

2 ☐ Chemical incidents?

3 ☐ Radiological incidents?

4 ☐ Conventional explosives terrorism incidents?

5 ☐ Cyber terrorism incidents?

6 ☐ Attacks on critical infrastructure?

7 ☐ **No, none of the above**

14. Has your jurisdiction developed a contingency plan to accommodate (e.g., provide shelter to) large numbers of people seeking refuge from a nearby community or jurisdiction as a result of a terrorism-related incident?

(Mark One)

1 ☐ Yes, and we have exercised this contingency plan

2 ☐ Yes, but we have not yet exercised this contingency plan

3 ☐ No

4 ☐ Don't know

15. In the table below, please mark the appropriate boxes to indicate whether your organization has participated since September 11, 2001, in joint preparedness activities for natural disasters and/or terrorism-related incidents with any of the local organizations listed.

Since September 11, 2001, our organization has participated in *joint preparedness* activities with . . .

(Please Mark All That Apply)

	Natural disasters and emergencies with:	***Terrorism-related incident response*** *with:*
A. Local law enforcement organizations	1 ☐	2 ☐
B. Other fire departments	1 ☐	2 ☐
C. Free-standing HAZMAT organizations	1 ☐	2 ☐
D. Local hospitals or other medical institutions	1 ☐	2 ☐
E. Emergency Medical Services (EMS)	1 ☐	2 ☐
F. Local health departments	1 ☐	2 ☐
G. Public or private utilities (e.g., water, power)	1 ☐	2 ☐
H. Public or private transportation organizations	1 ☐	2 ☐
I. Local office of emergency management or preparedness	1 ☐	2 ☐
J. Surrounding mutual aid agencies	1 ☐	2 ☐
K. Local military installations	1 ☐	2 ☐

0 ☐ **Our organization has not participated in joint preparedness activities with any of the above local organizations since September 11, 2001.**

FIRE DEPARTMENTS RAND

16. In the table below, please mark the appropriate boxes to indicate whether your organization has participated in the past year in joint preparedness activities for natural disasters and/or terrorism-related incidents with any of the following state or federal organizations listed.

Our organization has participated (since September 11, 2001), in *joint preparedness* activities with . . .

(Please Mark All That Apply)

	Natural disasters and emergencies with:	*Terrorism-related incident response with:*
A. State law enforcement agencies	1☐	2☐
B. National Guard	1☐	2☐
C. State office of emergency management	1☐	2☐
D. State public health department	1☐	2☐
E. State emergency medical services (EMS)	1☐	2☐
F. Federal military	1☐	2☐
G. Federal Bureau of Investigation (FBI)	1☐	2☐

0☐ **Our organization has not participated in joint preparedness activities with any of the above state or federal organizations since September 11, 2001.**

17. What formal protocol for command and control does your organization use for emergency incidents?

(Mark All That Apply)

1☐ Incident Command System (ICS) as taught by the National Fire Academy

2☐ Incident management system (IMS)

3☐ Other standardized incident command and control or management system

4☐ None of the above

18. Does your organization participate in a statewide adopted incident command system?

(Mark One)

1☐ Yes

2☐ No, our organization does not participate in the statewide adopted incident command system

3☐ No, our state does not currently have a statewide adopted incident command system

Now we'd like to ask you some questions about communications interoperability.

By interoperability, we mean the ability of responders involved in an emergency to communicate in real-time within their organization and across agencies and/or jurisdictions via radio or telephone, in order to mount a well-coordinated response.

19. In the event of a large-scale emergency involving multiple agencies or jurisdictions, how would you rate your organization's ability to communicate with other responding units or organizations?

(Circle One Number For Each Line)

	INADEQUATE				EXCELLENT
Within your organization	1	2	3	4	5
Within your jurisdiction	1	2	3	4	5
Across multiple jurisdictions	1	2	3	4	5

20. Please indicate below if your organization has experienced communications interoperability problems with any of the following groups since September 11, 2001.

(Please Mark All That Apply)

	Within Your Jurisdiction	*Outside Your Jurisdiction*
A. Fire departments	1☐	2☐
B. Police	1☐	2☐
C. EMS	1☐	2☐
D. Medical organizations	1☐	2☐
E. Public health agencies	1☐	2☐
F. County agencies	1☐	2☐
G. National Guard	1☐	2☐
H. State agencies	1☐	2☐
I. Federal military	1☐	2☐
J. Other Federal agencies	1☐	2☐
K. Other (please specify): _____	1☐	2☐

0☐ **Yes, interoperability problems exist, but we've been able to find work-arounds (such as co-locating staff from different agencies in the emergency operations center).**

FIRE DEPARTMENTS

21. What factors, if any, limit efforts to improve the interoperability of your organization's communications system?

(Mark All That Apply)

1 ☐ Aging communications system and hardware

2 ☐ Lack of information or guidance on what technologies to purchase

3 ☐ Uncertainty surrounding the availability of spectrum for public safety use

4 ☐ Frequency incompatibility between emergency response organizations in our region

5 ☐ Lack of funding

6 ☐ Inter-agency politics / disagreements

7 ☐ Differences between jurisdictions in rules and regulations

8 ☐ Differences between jurisdictions or agencies in resource priorities

9 ☐ Differing technologies due to different brands of communications equipment

10 ☐ Other *(please specify)* _____

11 ☐ **No limits to improvement encountered**

22. Has any portion of your organization been trained in the following areas?

(Mark <u>One Box</u> for Each Item)

a. Incident command management	1 ☐ Yes	2 ☐ No
b. Threat and risk assessment	1 ☐ Yes	2 ☐ No
c. Decontamination procedures	1 ☐ Yes	2 ☐ No
d. Emergency response to biological incidents	1 ☐ Yes	2 ☐ No
e. Emergency response to hazardous materials incidents (e.g., chemical)	1 ☐ Yes	2 ☐ No
f. Emergency response to radiological/nuclear incidents	1 ☐ Yes	2 ☐ No
g. Use of personal protection equipment (PPE)	1 ☐ Yes	2 ☐ No
h. Detection of release of chemical or biological agents	1 ☐ Yes	2 ☐ No
i. Detection of release of radiological/nuclear agents	1 ☐ Yes	2 ☐ No
j. Prevention of terrorism-related incidents	1 ☐ Yes	2 ☐ No

FIRE DEPARTMENTS

23. What specific training courses have your personnel taken since September 11, 2001?

1 ☐ Name of training course(s): *(please specify)* _____

_____

_____

_____

24. What percentage of your response personnel are trained in the following areas?

(Please give your best estimate)

	Percent of Response Personnel Trained
a. Incident command or incident management	☐☐☐ %
b. Personal Protective Equipment Level A	☐☐☐ %
c. Personal Protective Equipment Levels B or C	☐☐☐ %
d. Hazardous Materials technician / specialist	☐☐☐ %
e. Certified Emergency Medical Technician - Intermediate	☐☐☐ %
f. Certified Emergency Medical Technician - Paramedic	☐☐☐ %
g. CBRNE awareness or response	☐☐☐ %

25. Since September 11th, 2001, has your organization . . .

(Mark One Box for Each Item)

a. Increased (or shifted over) the number of staff dedicated to addressing emergency preparedness for terrorism-related incidents	1 ☐ Yes	2 ☐ No
b. Identified training opportunities for emergency response to terrorism-related incidents?	1 ☐ Yes	2 ☐ No
c. Scheduled training for terrorism-related incidents?	1 ☐ Yes	2 ☐ No
d. Trained personnel on emergency response for terrorism-related incidents (or are personnel in the process of being trained)?	1 ☐ Yes	2 ☐ No

FIRE DEPARTMENTS

26. Since September 11, 2001, has your organization participated in any table-top exercises? ***(Mark One)***

1 ☐ Yes, and we received funding to participate in the exercise(s)

2 ☐ Yes, but we did not receive any funding for this purpose

3 ☐ No → ***Skip to Question 29, Next Page***

27. Since September 11, 2001, has your organization participated in any field exercises? ***(Mark One)***

1 ☐ Yes, and we received funding to participate in the exercise(s)

2 ☐ Yes, but we did not receive any funding for this purpose

3 ☐ No → ***Skip to Question 29, Next Page***

28. If so, please indicate for which type(s) of incidents and with what type of organizations.

(For Each Row, Mark All That Apply)

	With Local Organizations	*With State Organizations*	*With Federal Organizations*
In the past year, our organization has participated in exercises for:			
A. Chemical incidents	1 ☐	2 ☐	3 ☐
B. Biological incidents	1 ☐	2 ☐	3 ☐
C. Radiological incidents	1 ☐	2 ☐	3 ☐
D. Cyber-terrorism incidents	1 ☐	2 ☐	3 ☐
E. Conventional explosives incidents	1 ☐	2 ☐	3 ☐
F. Natural disasters	1 ☐	2 ☐	3 ☐
G. Critical infrastructure protection	1 ☐	2 ☐	3 ☐
H. Other *(please specify)*: _____	1 ☐	2 ☐	3 ☐

FIRE DEPARTMENTS RAND

Equipment Issues

29. Since September 11th, 2001, has your organization purchased (or is it in the process of purchasing) any of the following types of equipment? If so, please indicate how much of your total force is being outfitted.

(Check One Choice For Each Line)

	All of the Force	*A Portion of the Force*	*Specialized Units Only*	*None of the Force*
Personal Protective Suits (PPE) A. PPE Level A: fully encapsulated	1☐	2☐	3☐	4☐
B. PPE Level B: liquid splash resistant	1☐	2☐	3☐	4☐
C. PPE Level C: liquid splash resistant	1☐	2☐	3☐	4☐
Respiratory protection D. N95 Respirator Masks	1☐	2☐	3☐	4☐
E. Self-contained breathing apparatus	1☐	2☐	3☐	4☐
F. Powered air purifying respirator	1☐	2☐	3☐	4☐
G. Closed-circuit breathing apparatus	1☐	2☐	3☐	4☐
H. Air purifying respirator	1☐	2☐	3☐	4☐
Additional equipment I. In-suit communications system	1☐	2☐	3☐	4☐
J. Personnel alert safety system (PASS)	1☐	2☐	3☐	4☐
K. Personal cooling system	1☐	2☐	3☐	4☐

30. Since September 11, 2001, has your organization purchased (or is it in the process of purchasing) any of the following types of equipment?

(Mark All That Apply)

1☐ Monitoring and detection equipment for chemical agents

2☐ Monitoring and detection equipment for radiological agents

3☐ Monitoring and detection equipment for biological agents

4☐ Monitoring and detection equipment for cyber detection

5☐ Equipment for decontamination of victims and/or sites

6☐ **No, we have not purchased any of these types of equipment since September, 11, 2001.**

31. Have antidotes for chemical or nerve agents been issued to your organization's response personnel?

(Mark One)

1☐ Yes

2☐ No

32. What funding sources were used to purchase the equipment listed in Questions 29 & 30?
(Mark All That Apply)

1☐ Used department's existing equipment budget to purchase the new equipment

2☐ Received additional funding from the city or county to purchase the new equipment

3☐ Received funding from our state government to purchase the new equipment

4☐ Received a federal grant to purchase the new equipment *(please specify name of the grant programs):* _____

5☐ We did not purchase ourselves the equipment indicated in Questions 29 & 30, but rather acquired some or all of it through another group (e.g., the military) that had received grant funding to purchase new equipment.

6☐ We did not purchase ourselves the equipment indicated in Questions 29 & 30, but rather acquired some or all of it through another group (e.g., the military) that gave our organization excess equipment they no longer needed.

7☐ We have not purchased nor are in the process of purchasing any of the equipment listed in Questions 29 & 30.

33. Is your organization coordinating its equipment/technology procurement process for terrorism-related needs with any other organizations?
(Mark All That Apply)

1☐ Coordinating with *similar* types of response organizations inside or outside of your jurisdiction or region (e.g., other fire departments)

2☐ Coordinating with *other* types of response organizations (e.g., police, EMS) within your jurisdiction or region

3☐ Coordinating with other response organizations within your mutual aid network

4☐ Coordinating with your local emergency planning group (or inter-agency task force)

5☐ Coordinating with a *multi-county* emergency planning group

6☐ Coordinating with your state's emergency planning group

7☐ Other *(please specify)*: _____

_____

8☐ **We are not coordinating our equipment procurement process with any other organization.**

34. Does your organization address both annual recurring maintenance costs and have a timetable for replacement of equipment needed to address terrorism?
(Mark One)

1☐ Yes

2☐ No

35. What factors, if any, limit your organization's ability to purchase equipment or technology for terrorism-related needs?
(Mark All That Apply)

1☐ Lack of standardization as to what equipment is available

2☐ Lack of information as to what equipment has been certified for use by our responder community

3☐ Available equipment is not appropriate for our concept of operations

4☐ Unsure as to what equipment/technology is needed to ensure our organization's preparedness for terrorism

5☐ Unsure what specific terrorism threats are most important for our organization to prepare for

6☐ Competing/higher priorities for spending our organization's equipment budget

7☐ Lack of sufficient funding

8☐ Other *(please specify)*: _____

_____

9☐ **No limits to purchasing ability**

36. Does your organization have any unit(s) specially trained and/or equipped to respond to terrorism-related incidents?
(Mark One)

1☐ Yes → ***Continue to Question 37***

2☐ No, but other organizations we work with in our jurisdiction have such units → ***Continue to Question 37***

3☐ No → ***Skip to Question 38, Next Page***

37. What types of terrorism-related incidents are they trained to respond to?
(Mark All That Apply)

1☐ Chemical

2☐ Biological

3☐ Radiological

4☐ Cyber-terrorism

5☐ Large-scale conventional explosives

6☐ Nuclear

7☐ Other *(please specify)*: _____

38. How would you rate your organization's overall level of preparedness at present to respond to terrorism in general?

(Circle One Number)

INADEQUATE				EXCELLENT
1	2	3	4	5

39. How would you rate your organization's overall level of preparedness at present to respond to high consequence CBRNE terrorism, specifically?

(Circle One Number)

INADEQUATE				EXCELLENT
1	2	3	4	5

40. Since September 11, 2001, has your organization or jurisdiction used FEMA's Local Capability Assessment for Readiness (LCAR) tool to assess your community's readiness and emergency response capabilities?

(Mark One)

1 ☐ Yes

2 ☐ No

Section 2:
RESOURCING PREPAREDNESS ACTIVITIES

41. Since September 11th, 2001, has your organization increased its spending, or shifted resources internally, to address terrorism-related incidents?
(Mark All That Apply)

1 ☐ Yes, internally increased spending → ***Continue to Question 42***

2 ☐ Yes, internally shifted resources → ***Continue to Question 42***

3 ☐ No → ***Skip to Question 43, Next Page***

42. If so, for what purpose(s)?
(Mark All That Apply)

1 ☐ Additional security for your organization
2 ☐ Staff overtime
3 ☐ Additional training of personnel
4 ☐ Purchase of personal protective equipment or other equipment (e.g., sensor equipment) specific to terrorism response
5 ☐ Planning activities specific to terrorism response
6 ☐ Additional security for your airport
7 ☐ Conduct or participate in tabletop and/or field exercises
8 ☐ Develop emergency response or contingency plans
9 ☐ Support interagency planning and coordination activities
10 ☐ Conduct a needs assessment for your organization
11 ☐ Create an anti-terrorism position, unit, or division
12 ☐ Assign personnel (full-time or part-time) to the local terrorism-related task force
13 ☐ Assign personnel (full-time or part-time) to the state terrorism-related task force
14 ☐ Other *(please specify)* _____

_____

43. Since September 11th, 2001, has your organization received an increase in its funding and/or resources for terrorism preparedness?
(Mark One)

1☐ Yes → ***Continue to Question 44***

2☐ No → ***Skip to Question 45***

44. What was the source(s) of this increase?
(Mark All That Apply)

1☐ From the City or County

2☐ From the State Office of Emergency Management (or equivalent in your state)

3☐ From other State agencies

4☐ From the Federal government

5☐ Other *(please specify)* _____

45. How high a priority is spending additional resources for combating terrorism, when compared to the other current needs of your organization?
(Mark One)

1☐ High priority

2☐ Somewhat of a priority

3☐ Low priority

4☐ Not at all a priority

Section 3:
RESPONDING TO SPECIFIC TERRORIST INCIDENTS

46. In what ways is your organization better or worse prepared today to respond to terrorism-related incidents as compared to September 11, 2001?

(Mark One Box for Each Line)

	Our organization is... Better Prepared	Worse Prepared
a. Adequate equipment for terrorism related incidents involving hazardous agents (e.g., chemical, biological, radiological)	1☐	2☐
b. Personnel trained in terrorism-related response	1☐	2☐
c. Personnel trained in incident command/management	1☐	2☐
d. Resources (e.g., personnel, funding) to address terrorism-related preparedness	1☐	2☐
e. Planning for terrorism-related incidents	1☐	2☐
f. Coordination of preparedness activities with other local response organizations and/or interagency task forces	1☐	2☐
g. Integration of preparedness activities with that of State and/or Federal agencies	1☐	2☐
h. Personnel dedicated to addressing terrorism-related preparedness	1☐	2☐
i. Other *(please specify)*: _____	1☐	2☐

1☐ Additional comments: _____

47. For the following types of incidents, please rank order to indicate how important it is for your organization to prepare for them, where 1=most important and 5=least important.

Please rank in order of importance, 1 – 5.

_____ **Biological**
_____ **Chemical**
_____ **Radiological**
_____ **Nuclear**
_____ **Conventional explosives**

48. How high a priority is it for your organization to expend resources preparing for the type of incident you ranked as most important in Question 47?
(Mark One)

1 ☐ High priority

2 ☐ Somewhat of a priority

3 ☐ Low priority

4 ☐ Not at all a priority

Considering the type of incident you ranked as most important in Question 47, please rate your organization's level of readiness on a scale of 1 to 5, with 1 being INADEQUATE and 5 being EXCELLENT.

Please circle one number for each question on the 5-point scale given below.

49. Your organization's written emergency **plan** to be used during a response to an event similar to the one you selected is:

INADEQUATE				EXCELLENT
1	2	3	4	5

50. Your organization's **knowledge and expertise** about response to this type of event are:

INADEQUATE				EXCELLENT
1	2	3	4	5

51. Your organization's **equipment** to respond to this type of event is:

INADEQUATE				EXCELLENT
1	2	3	4	5

52. Your organization's **training** to prepare for this type of event is:

INADEQUATE				EXCELLENT
1	2	3	4	5

53. Your organization's **exercises** to prepare for this type of event are:

INADEQUATE				EXCELLENT
1	2	3	4	5

54. Your organization's ability to **communicate and coordinate** with other organizations likely to be involved in a response to this type of event is:

INADEQUATE				EXCELLENT
1	2	3	4	5

55. How would you rank your organization's **overall preparedness to respond** to this type of event?

INADEQUATE				EXCELLENT
1	2	3	4	5

56. Again, for the type of incident you ranked as most important in Question 47, which of your response capabilities do you think are the weakest?

(Mark All That Apply)

1 ☐ Hazard ID and detection

2 ☐ Protection of response personnel from exposure to harmful agents

3 ☐ Medical treatment of victims

4 ☐ Mass care (e.g., bulk distribution of food, shelter, and basic necessities)

5 ☐ Decontamination of victims

6 ☐ Communication / coordination with local response organizations

7 ☐ Communication / coordination with state and Federal agencies

8 ☐ Media and information management

9 ☐ Coordination with local hospitals

10 ☐ Coordination with local public health agencies

11 ☐ Basic operations during this kind of incident

12 ☐ None of the above → ***Skip to Question 58, Page 24***

57. What item(s) would be <u>most</u> helpful to strengthen the response capabilities you indicated as weaknesses in Question 56?

(Mark All That Apply)

1 ☐ New or more up-to-date equipment

2 ☐ Training courses for personnel (including "train the trainers")

3 ☐ Exercises

4 ☐ Better integration of preparedness activities with local response organizations

5 ☐ Better integration of preparedness activities with state agencies

6 ☐ Better integration of preparedness activities with Federal agencies

7 ☐ Information and reference materials about responding to this kind of incident

8 ☐ Improved facilities

9 ☐ Personnel

10 ☐ Technical support

11 ☐ Funding of overtime/backfill costs to send personnel to training

12 ☐ Other *(please specify)*:

_____

_____

Section 4:
ASSESSMENT OF FEDERAL PROGRAMS

In answering Questions 58-60, please also keep in mind applications submitted, but for which funding has not yet been received.

58. Since September 11, 2001, has your organization been informed about or applied for agency-specific funding, training, equipment, or other terrorism preparedness support available from the Federal government, regardless of whether or not you received it?

(Mark One)

1☐ Yes

2☐ No

59. Since September 11, 2001 has your organization received agency-specific funding, training, equipment, or other terrorism preparedness support from the Federal government?

(Mark One)

1☐ Yes → ***Continue to Question 60***

2☐ No → ***Skip to Question 61, Next Page***

60. How were the Federal terrorism resources that your organization received used?

(Mark One)

1☐ Shared with other organizations in your region

2☐ Used only by your organization

61. Since September 11, 2001, has your organization participated in any Federally-sponsored programs for funding, equipment, or training to improve terrorism preparedness? If so, please indicate which ones:

(Mark All That Apply)

1 ☐ NDPO Equipment Research and Development Program

2 ☐ OJP Anti-Terrorism State and Local Training Grants (SLATT)

3 ☐ FEMA Emergency Management Institute course(s) (terrorism-related only)

4 ☐ National Fire Academy Emergency Response to Terrorism course(s)

5 ☐ U.S. Army Chemical School (USACLMS) Training Program

6 ☐ DOE Training for Radiological Emergencies

7 ☐ New Mexico Tech's Incident Response to Terrorist Bombings course

8 ☐ Other National Domestic Preparedness Consortium training courses

9 ☐ EPA Emergency Response Training Program (ERTP)

10 ☐ FBI Hazardous Devices School

11 ☐ ODP/DHS State and Local Domestic Preparedness Equipment program

12 ☐ ODP/DHS State and Local Domestic Preparedness Exercise program

13 ☐ Assistance to Firefighters Grant Program

14 ☐ ODP/DHS State Homeland Security Grant Program (2003)

15 ☐ ODP/DHS Urban Areas Security Initiative (2003)

16 ☐ ODP/DHS State and Local Domestic Preparedness Training and Technical Assistance Program

17 ☐ Other *(please specify)* :_____

19 ☐ **We have not participated in any such Federally-sponsored programs.**

62. Which of the above programs have been the most helpful to your organization?

Name of Program: _____

_____

63. Since September 11, 2001, has your organization used or obtained information or technical assistance for terrorism preparedness or response from any of the following Federally-sponsored resources?

(Mark All That Apply)

1 ☐ Chemical Weapons Improved Response Program (CW IRP)

2 ☐ Biological Weapons Improved Response Program (BW IRP)

3 ☐ CDC's Health Alert Network (HAN)

4 ☐ CDC's Epidemic Information Exchange (Epi-X)

5 ☐ FBI's National Domestic Preparedness Office (NDPO)

6 ☐ FEMA Rapid Response Information System (RRIS)

7 ☐ Chemical and Biological (CB) Hotline

8 ☐ DOT Emergency Response Guidebook

9 ☐ DoD Chemical and Biological Information Analysis Center (CBIAC)

10 ☐ DoD Consequence Management Interoperability Services (CMI)

11 ☐ ODP Technical Assistance Program

12 ☐ ODP State and Local Domestic preparedness Support Helpline

13 ☐ SBCCOM technical evaluation and information program

14 ☐ Interagency Board (IAB)

15 ☐ Other *(please specify)*: _____

16 ☐ **We have not used or obtained information or technical assistance from any of the above sources since September 11, 2001.**

Please indicate how much you agree or disagree with the following statements:

64. **Federal terrorism preparedness funding that is being distributed through state governments is reaching local organizations and communities with the greatest need.**

(Mark One Box)

Strongly Disagree	*Disagree*	*Neither Agree Nor Disagree*	*Agree*	*Strongly Agree*
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

65. **Terrorism preparedness funding being distributed by the Federal government directly to local communities and local responders is reaching the organizations and communities with the greatest need.**

(Mark One Box)

Strongly Disagree	*Disagree*	*Neither Agree Nor Disagree*	*Agree*	*Strongly Agree*
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

66. **Our jurisdiction has had to move forward on its own with measures to improve local preparedness for terrorism without guidance from the Federal level.**

(Mark One Box)

Strongly Disagree	*Disagree*	*Neither Agree Nor Disagree*	*Agree*	*Strongly Agree*
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

67. **Information and guidance from the Federal government about terrorism preparedness is adequate for helping local responders prepare for terrorism.**

(Mark One Box)

Strongly Disagree	*Disagree*	*Neither Agree Nor Disagree*	*Agree*	*Strongly Agree*
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

FIRE DEPARTMENTS RAND

68. Federal Government programs for improving local responder terrorism preparedness . . .

(Circle One Choice for Each Line)

	Strongly Disagree		*Neither Agree Nor Disagree*		*Strongly Agree*
a. are carefully coordinated and well-organized	1	2	3	4	5
b. are flexible enough to allow our organization to use Federal funding and resources as we see fit	1	2	3	4	5
c. are taking funding and resources away from more important priorities	1	2	3	4	5
d. are focused on highly unlikely scenarios at the expense of more likely scenarios	1	2	3	4	5
e. should provide threat and risk assessment information to local response organizations	1	2	3	4	5
f. are so numerous that we have difficulty in figuring out what is relevant to our organization	1	2	3	4	5
g. are of little use to our organization	1	2	3	4	5
h. fit well with our community's local preparedness strategy	1	2	3	4	5
i. should involve dedicated Federal assets so that local response organizations can concentrate on their primary mission	1	2	3	4	5
j. should provide intelligence about terrorist activities to local response organizations	1	2	3	4	5
k. should promote research and development of new technologies to combat terrorism	1	2	3	4	5
l. should involve better coordination between the Federal Government and local responders	1	2	3	4	5
m. should help our organization strengthen the security of our computer systems against cyber-terrorist attacks	1	2	3	4	5
n. provide insufficient time between notices of funding opportunities and grant submittal deadlines	1	2	3	4	5

69. What is the *single most important* way that the Federal government can support the efforts of local organizations like yours to improve their terrorism preparedness?

(Mark ONE Box Only)

1 ☐ Direct financial support

2 ☐ Equipment procurement

3 ☐ Training or training aids

4 ☐ Exercise coordination and support

5 ☐ Distribution of terrorism technical information

6 ☐ Research and development on terrorism preparedness and response

7 ☐ Outreach to state and local organizations

8 ☐ Dissemination of intelligence data

9 ☐ Evaluation of new technologies and equipment

10 ☐ Setting standards for equipment and training

11 ☐ Perform technical evaluation

12 ☐ Provide venues for information sharing

13 ☐ Provide guidance on benchmarks for measuring or assessing organizational preparedness

14 ☐ Provide funding to pay for overtime/backfill costs for sending personnel to training courses

15 ☐ Other *(please specify)*: _____

16 ☐ **No improvement needed**

70. In general, what factors limit your organization's ability to participate in Federally-sponsored training programs?

(Mark All That Apply)

1 ☐ Not eligible to participate in these programs

2 ☐ Unaware of what Federal training programs are available

3 ☐ Content is not relevant to our organization's needs

4 ☐ Time commitment is excessive

5 ☐ Training is not scheduled during times when our personnel can attend

6 ☐ Backfill requirements to send personnel for training are burdensome

7 ☐ Personnel shortages do not allow our organization to free up personnel for training

8 ☐ Lack dollars to pay staff overtime to attend training (or to pay backfill)

9 ☐ Programs are poorly organized and/or difficult to understand

10 ☐ Limited training budget

11 ☐ Application process is too involved

12 ☐ We do not have an individual dedicated to researching and/or training opportunities to filling out applications for our organization

13 ☐ Uncertain as to what training programs would be most beneficial for our organization to improve preparedness for terrorism

14 ☐ Training is not conducted at locations convenient to our organization

15 ☐ Other *(please specify)*: _____

_____

16 ☐ We have other more important training priorities to worry about

17 ☐ Our organization's preparedness would not be improved through participation

18 ☐ **We have not been limited in our ability to participate in Federally-sponsored training programs.**

71. In general, what factors limit your organization's ability to participate in Federally-sponsored equipment programs?

(Mark All That Apply)

1 ☐ Not eligible to participate in these programs

2 ☐ Unaware of what Federal equipment programs are available

3 ☐ The equipment made available is not relevant to our organization's needs

4 ☐ Application process is too involved

5 ☐ Programs are poorly organized and/or difficult to understand

6 ☐ Limited equipment procurement budget

7 ☐ We do not have an individual dedicated to researching equipment program opportunities and/or to filling out applications for our organization

8 ☐ Uncertain as to what equipment programs would be most beneficial for our organization to improve preparedness for terrorism

9 ☐ Other *(please specify)*: _____

_____

10 ☐ We have other more important equipment procurement priorities to worry about

11 ☐ Our organization's preparedness would not be improved through participation

12 ☐ **We have not been limited in our ability to participate in Federally-sponsored equipment programs.**

72. In the event of a terrorist-related incident, what type of support do you expect the Federal government to provide for your locality?

(Mark All That Apply)

1☐ Provide technical expertise during the event

2☐ Assist with crisis management

3☐ Assist with consequence management

4☐ Provide technical information during the event in an actionable form

5☐ Assist our organization or locality in obtaining specialized equipment, personnel or units to augment local response capabilities

6☐ Assist with intelligence gathering

7☐ Provide logistical support

8☐ Other *(please specify)*: _____

_____

73. Setting aside incident-specific support, what other type of ongoing support would you like the Federal government to provide to your locality?

(Mark One)

1☐ Threat assessment intelligence information (information as to what type of threat your locality should be preparing for)

2☐ Technical information on ways of preparing for terrorism (e.g., certification, standardization)

3☐ Information as to what resources are available to your organization

4☐ Information on training and equipment grant programs

5☐ Information on best practices for terrorism-related preparedness

6☐ Other *(please specify)*: _____

Now we are going to ask you specifically about the new Department of Homeland Security (DHS).

74. What type of support are you looking specifically to the new Department of Homeland Security to provide to local responders?

(Mark All That Apply)

1☐ Funding

2☐ Training

3☐ Assistance with planning

4☐ Standardization and certification of equipment and training

5☐ Research and development

6☐ Testing of new equipment

7☐ Assistance with emergency response

8☐ Guidance on benchmarks that can be used to measure or assess organizational preparedness

9☐ Other *(please specify)*: _____

75. In what way(s) do you expect the new Department of Homeland Security to impact your organization?

(Mark All That Apply)

1 ☐ Improve coordination between the federal/state/local levels in terrorism preparedness

2 ☐ Improve information-sharing between the federal/state/local levels

3 ☐ Improve communications among federal/state/local levels

4 ☐ Provide better/standardized templates and/or guidance to assist with planning

5 ☐ Improve integration between the public and private sectors' efforts to improve terrorism preparedness and to protect critical infrastructure

6 ☐ Establish a single point of contact at the federal-level for information on available programs (including means for state and local response organizations to provide feedback on programs)

7 ☐ Establish a primary contact at the federal-level instead of many on training, equipment, planning, and other critical needs

8 ☐ Consolidate the numerous training courses and programs being offered to local responders

9 ☐ Consolidate the numerous equipment programs

10 ☐ Streamline the grant application process for federally-sponsored training and/or equipment programs

11 ☐ Provide intelligence information and more detailed guidance on terrorist threat

12 ☐ Assist in the conduct of threat assessments for your jurisdiction or region

13 ☐ Standardize the grant application process across federal agencies

14 ☐ Consolidate multiple grant application requirements into a single set of requirements

15 ☐ Other *(please specify)*: _____

Section 5:
INTELLIGENCE INFORMATION AND WARNING

76. What organizations does your organization contact if it has threat information to pass on regarding suspected terrorist activities within your jurisdiction or region?

(Mark All That Apply)

1 ☐ Local FBI field office

2 ☐ FBI's Joint Terrorism Task Force (JTTF)

3 ☐ County/city-level interagency task force

4 ☐ Your State's Homeland Security Office

5 ☐ U.S.-led Attorney General Anti-Terrorism Task Force (ATTF) within your State

6 ☐ Other law enforcement agencies (state or local)

7 ☐ Private sector groups (e.g., businesses, airlines, utilities, etc.)

8 ☐ Public health agencies (if a biological, radiological, or chemical threat)

9 ☐ Bureau of Immigration and Customs Enforcement

10 ☐ U.S. Department of Homeland Security (DHS)

11 ☐ U.S. Department of Energy (DoE)

12 ☐ Other local responders

13 ☐ Other state responders

14 ☐ Other *(please specify)*: _____

77. Since September 11, 2001, has your organization received any guidance from the FBI regarding what type of information about suspected terrorist activity should be collected by local fire departments and/or passed onto FBI field offices?

(Mark One)

1 ☐ Yes

2 ☐ No

78. Since September 11, 2001, has your organization <u>applied for</u> government security clearances for its personnel?

(Mark One)

1 ☐ Yes → ***Continue to Question 79, Next Page***

2 ☐ No → ***Skip to Question 81, Next Page***

79. If yes, for how many personnel?

(Please give your best estimate)

Number of personnel that have applied for government security clearances: _____

80. How many of these personnel have <u>received</u> their government clearance?

(Mark One)

1 ☐ All of the personnel that have applied

2 ☐ Some of the personnel that have applied

3 ☐ None that have applied since 9/11 have received their government clearances

The following questions are about the Homeland Security Advisory System (5-colored system), where the five threat conditions represent differing levels of risk of terrorist attacks.

81. When the threat-level increases from elevated (yellow) to high (orange), does your organization make changes to its normal operations?

(Mark One)

1 ☐ Yes → ***Continue to Question 82***

2 ☐ No → ***Skip to Question 83, Next Page***

82. If yes, what changes are made?

(Mark All That Apply)

1 ☐ Increase the security for your organization

2 ☐ Stand-up the emergency operations center

3 ☐ Mobilize specialized units (e.g., anti-terrorism teams)

4 ☐ Redirect personnel from non-essential areas

5 ☐ Increase overtime

6 ☐ Increase length of work shifts

7 ☐ Cancel staff vacations and leave

8 ☐ We investigate first whether the threat is relevant to our jurisdiction before making any changes (e.g., contact our local FBI field office or colleagues)

9 ☐ Other *(please specify)*: _____

_____

83. In your opinion, what modifications, if any, would improve the usefulness of the Homeland Security Advisory System for your organization?

(Mark All That Apply)

1 ☐ Use a regional alert system to notify emergency responders about threats specific to their jurisdiction or region

2 ☐ Provide more detailed information through existing communications channels (not the media) as to what type of incident is likely to occur

3 ☐ Provide more detailed information as to where the threat is likely to occur

4 ☐ Provide more detailed information as to during what period of time the threat is likely to occur

5 ☐ Provide training to emergency responders as to what protective actions are necessary at different threat levels

6 ☐ After an increase in threat-level, have the DHS follow-up on what additional actions ought to be undertaken

7 ☐ Other *(please specify)*:_____

_____

8 ☐ **No improvements are necessary to the Homeland Security Advisory System.**

Section 6:
OTHER HOMELAND SECURITY ISSUES

84. Since September 11th, 2001, have any incidents of terrorism (including hoaxes) occurred, been attempted, or threatened within your jurisdiction or region that required a response by your organization?

(Mark One)

1 ☐ Yes → ***Continue to Question 85***

2 ☐ No → ***Skip to Question 86, Next Page***

85. Did any of these terrorist incidents and/or hoaxes involve the use (or threat of use) of the following?

(Mark All That Apply)

1 ☐ Anthrax

2 ☐ Other biological agent

3 ☐ Toxic industrial materials

4 ☐ Toxic industrial chemicals

5 ☐ Other chemical agents

6 ☐ Radiological agent

7 ☐ Conventional explosives

8 ☐ Cyber-terrorism

9 ☐ Military-grade weapons (e.g., automatic weapons, rifles, mortars)

10 ☐ Agroterrorism

11 ☐ Arson and/or incendiary devices

12 ☐ Attacks on critical infrastructure

13 ☐ Other *(please specify)*: _____

14 ☐ **None of the above**

86. Since September 11, 2001, has your organization conducted a risk assessment to identify key threats or vulnerabilities within your jurisdiction or region?

(Mark One)

1☐ Yes, a risk assessment was conducted specifically for terrorism

2☐ Yes, a risk assessment was conducted for a wide range of contingencies including terrorism

3☐ No, a risk assessment was not conducted → ***Skip to Question 88***

87. Who conducted the risk assessment?

(Mark All That Apply)

1☐ Our fire department

2☐ Jointly conducted by our fire department and local law enforcement

3☐ An inter-agency task force

4☐ FBI

6☐ Other *(please specify)*: _____

7☐ Don't know

88. What type of support does your organization need in order to conduct future risk assessments?

(Mark All That Apply)

1☐ Protocols for conducting and/or evaluating risk assessments

2☐ Training on how to conduct risk assessments

3☐ Better intelligence and terrorist threat/capability information from the Federal government

4☐ Outside consultant expertise to assist with risk assessment

5☐ Funding and/or personnel to conduct the assessment

6☐ Other (briefly describe): _____

_____

7☐ **No additional support is needed.**

B. Role of the Military

89. What roles do you feel would be appropriate for the Federal military to play during a response to a domestic terrorism-related incident?

(Mark All That Apply)

1 ☐ Maintain order and/or provide security

2 ☐ Advise other response organizations on technical and/or logistical matters

3 ☐ Conduct a rapid needs assessment to determine what kind of response is required

4 ☐ Provide personnel and equipment to support local, State, and/or Federal agencies

5 ☐ Set up kitchens, clinics, and mass care facilities for victims and relief workers

6 ☐ No form of participation by the military would be appropriate

7 ☐ Enforcement of quarantine

8 ☐ Other *(please specify)*: _____

90. What roles do you feel would be appropriate for the State National Guard military to play during a response to a domestic terrorism-related incident?

(Mark All That Apply)

1 ☐ Maintain order and/or provide security

2 ☐ Advise other response organizations on technical and/or logistical matters

3 ☐ Conduct a rapid needs assessment to determine what kind of response is required

4 ☐ Provide personnel and equipment to support local, State, and/or Federal agencies

5 ☐ Set up kitchens, clinics, and mass care facilities for victims and relief workers

6 ☐ No form of participation by the military would be appropriate

7 ☐ Enforcement of quarantine

8 ☐ Other *(please specify)*: _____

91. Does your organization keep records on the military reserve status (Federal Reservists or State National Guard) of its personnel?

(Mark One)

1☐ Yes → ***Continue to Question 92***

2☐ No → ***Skip to Question 93***

92. How many call-ups of personnel who are military reservists has your organization experienced since September 11, 2001?

(Please give your best estimate)

1☐ **Number of Response Personnel:** _____

2☐ **Number of Senior Staff:** _____

3☐ **Number of Total Staff:** _____

4☐ **None of our personnel were called-up → *Skip to Question 94***

93. To what extent did these call-ups impact the ability of your organization to respond to emergencies?

(Mark One)

1☐ Greatly impacted our ability to respond to emergencies

2☐ Moderately impacted our ability to respond to emergencies

3☐ Mildly impacted our ability to respond to emergencies

4☐ No impact on our ability to respond to emergencies

94. Does your organization have a plan in place to backfill personnel who are mobilized as part of a call-up of military reservists (Federal reservists or State National Guard)?

(Mark One)

1☐ Yes

2☐ No

95. How would you rate the likelihood of the following types of major terrorism-related incidents (e.g., more than 30 individuals with serious injuries) occurring within your jurisdiction or region in the next 5 years?

Please keep in mind that "cyber-terrorism" is defined as the disruption of critical infrastructure or key information systems for more than one day.

(Mark One Box on Each Row)

	Very Unlikely	*Somewhat Unlikely*	*Somewhat Likely*	*Very Likely*
a. Terrorism-related chemical incident ...	1 ☐	2 ☐	3 ☐	4 ☐
b. Terrorism-related biological incident ..	1 ☐	2 ☐	3 ☐	4 ☐
c. Terrorism-related radiological incident	1 ☐	2 ☐	3 ☐	4 ☐
d. Terrorism-related nuclear incident	1 ☐	2 ☐	3 ☐	4 ☐
e. Conventional explosives terrorism incident	1 ☐	2 ☐	3 ☐	4 ☐
f. Cyber-terrorism incident	1 ☐	2 ☐	3 ☐	4 ☐
g. Terrorism incident involving the use of military-grade weapons (e.g., automatic weapons, rifles, mortars) ...	1 ☐	2 ☐	3 ☐	4 ☐
h. Attack on critical infrastructure	1 ☐	2 ☐	3 ☐	4 ☐
i. Arson and/or incendiary device	1 ☐	2 ☐	3 ☐	4 ☐
j. Other *(please specify)*: _____	1 ☐	2 ☐	3 ☐	4 ☐

Section 7:
ORGANIZATIONAL INFORMATION

96. Does your organization specialize in any of the following functions, in addition to your core fire department role?

(Mark All That Apply)

1☐ Hazardous materials containment and/or clean-up (HAZMAT)

2☐ Emergency Medical Services (EMS)

3☐ Specialized rescue response capabilities

4☐ Other *(please specify)*: _____

5☐ **None of the above → *Skip to Question 98***

97. Which of the following services does your organization provide regionally or to another jurisdiction as part of a mutual aid agreement?

(Mark All That Apply)

1☐ Hazardous materials containment and/or clean-up (HAZMAT)

2☐ Emergency Medical Services (EMS)

3☐ Specialized rescue response capabilities

4☐ Other *(please specify)*: _____

5☐ **We do not provide any of the above services regionally or to other jurisdictions**

98. Which of the following categories best describes your agency?

(Mark One)

1☐ Volunteer department only

2☐ Paid department only

3☐ Combination department (both paid and volunteer personnel)

99. What is the size of your organization? ***(Please give your best estimate)***

- Number of paid firefighter personnel: ..... ☐☐,☐☐☐
- Number of volunteer firefighter personnel: ..... ☐,☐☐☐
- Number of HAZMAT personnel: ..... ☐,☐☐☐
- Number of EMS personnel: ..... ☐,☐☐☐

100. What is the size of the population your organization serves?
(Mark One)

1 ☐ 1 – 15,000

2 ☐ 15,001 – 30,000

3 ☐ 30,001 – 65,000

4 ☐ 65,001 – 250,000

5 ☐ 250,001 – 1,000,000

6 ☐ 1,000,001 +

101. What type of jurisdiction does your organization serve?
(Mark One)

1 ☐ City

2 ☐ City/County

3 ☐ County

4 ☐ Multi-county or regional (within your state)

5 ☐ State

6 ☐ Other *(please specify)*: _____

ADDITIONAL COMMENTS

102. Do you personally serve a specific terrorism-related role within your organization?

(Mark One)

1❒ Yes *(briefly describe)* : _____

_____

2❒ No

Thank you for taking the time to complete this survey. If this questionnaire did not address all of the terrorism-related issues of importance to your organization, please use this space or attach additional pages to add comments or clarifications.

103. Does your organization have other suggestions for changes or improvements in *Federal programs* for terrorism preparedness that this survey has not covered?

_____

_____

_____

_____

_____

_____

_____

104. Does your organization have other suggestions for changes or improvements in *State programs* for terrorism preparedness that this survey has not covered?

_____

_____

_____

_____

_____

_____

_____

105. Has your organization's experiences or challenges in preparing for domestic terrorism incidents resulted in other lessons learned that were not addressed in this survey?

_____

_____

_____

_____

_____

Point of contact for matters related to this survey:

Your Name: _____

Position Title: _____

Title of organization: _____

Address: _____
Street

_____
City *State* *Zip Code*

E-Mail: _____

Phone: (_____) _____-_____

Fax: (_____) _____-_____

Thank you for completing this important survey. Please return your completed survey in the business reply envelope provided. If you have any questions regarding this study, please call Dr. Lois Davis at RAND, tel. 877-287-4995, or feel free to e-mail me at Lois_Davis@rand.org).

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