



*Annex 12:*

# 2009 Sector CIKR Protection Annual Report for the Healthcare and Public Health Sector

*June 1, 2009*



Homeland  
Security



Department of Health  
and Human Services

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## Executive Summary

The 2009 Healthcare and Public Health (HPH) <sup>1</sup> Sector Annual Report summarizes the numerous activities that have taken place over the past year to improve the preparedness of the HPH sector. In the past year, the HPH sector has been impacted by threats, ranging from the 2009-H1N1 influenza outbreak to natural disasters and cyber attacks. The sector has responded to protect HPH infrastructure and the public's health while continuing to plan for future threats. This report was written through a collaborative process between the HPH Sector Coordinating Council (SCC) and Government Coordinating Council (GCC), with the Department of Health and Human Services (HHS) coordinating the process as the Sector-Specific Agency (SSA).

## Sector Risks, Goals, Objectives, Risk Mitigation Activities, and Research Priorities

Following the National Infrastructure Protection Plan (NIPP) Risk Management Framework, this report is structured around the primary risks to the sector. These risks are categorized as threats to continuity of services, workforce, physical assets, and cyber systems. The report articulates four updated goals and 12 objectives related to these risk categories. Elements of the sector have engaged in Risk Mitigation Activities (RMA) to advance these goals and objectives. This report prioritizes ten of these as key RMAs and links them to specific sector goals. The goals are also supported by research and development (R&D) priorities that the sector's Research and Development/Modeling, Simulation, and Analysis (R&D/MS&A) Joint Advisory Work Group (JAWG) has identified.

## Continuity of Services

The HPH sector is highly reliant on its workforce and on its increasingly interdependent supply chain in order to deliver services. During emergencies, the sector must not only sustain but also increase its capacity. The sector's goal for service continuity is to maintain the ability to provide essential health services during and after disasters or disruptions in the availability of supplies or supporting services (e.g., water, power). It advances this goal through objectives related to Health Care Continuity, Supply Chain Continuity, Supporting Services Continuity, and Workforce Family Member Protection. Among the sector's key RMAs addressing these objectives are the HHS Hospital Preparedness Program; The Joint Commission's Accreditation Programs; RxResponse; preparedness and response activities of the Centers for Disease Control and Prevention (CDC) Public Health Emergency Preparedness Cooperative Agreement; Project Public Health Ready; and the U.S Food and Drug Administration's Drug, Biologic, and Medical Device Shortage Program. The JAWG has developed R&D/MS&A priorities in this area under the categories of Medical Surge Management, Continuity of Operations Planning (COOP), Medical Supply Chain Management, and Policy and Legal Considerations.

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<sup>1</sup> Attachment A provides a list of acronyms used in this report.

### Workforce

The sector is highly reliant on its workforce for response, and that workforce faces a high likelihood of being exposed to disease agents during an emergency. When the 2009-H1N1 flu emerged in 2009, the potential for viral transmission within healthcare facilities highlighted the need to keep healthcare workers safe. Anticipating risks such as these, the report *Federal Guidance on Antiviral Drug Use During an Influenza Pandemic*, released in December 2008, provided recommendations related to antiviral prophylaxis for healthcare workers during a pandemic. The sector's goal for workforce protection is to protect the sector's workforce from the harmful consequences of all hazards that may compromise their health and safety and limit their ability to carry out their responsibilities. It advances this goal through objectives related to Mass Prophylaxis and Health Surveillance. Among the sector's key RMAs addressing these objectives are the CDC Public Health Emergency Preparedness Cooperative Agreement (Disease Detection, Investigation Activities, and Mass Prophylaxis) and the Cities Readiness Initiative. The JAWG has developed R&D/MS&A priorities in this area under the categories of Workforce Sustainability and Biosurveillance.

### Physical Assets

Internationally, the sector has faced threats to physical assets in recent years, including this year's attack on Cama Hospital in Mumbai, India. Sector facilities are often vulnerable to physical attack due to their open nature, and some contain select agents<sup>2</sup> that invite theft. The sector's goal for physical asset protection is to mitigate the risks posed by all hazards to the sector's physical assets. It advances this goal through objectives related to Biosafety Level (BSL)-3 and BSL-4 Facility Protection, Countermeasure Facility Security, Healthcare and Public Health Protection, and Research Facility Protection. Among the sector's key RMAs addressing these objectives are the CDC Select Agent Program, the HHS Biomedical Advanced Research and Development Authority Program Office, and Hospital Protection Activities. The JAWG has developed R&D/MS&A priorities in this area under the category of Healthcare Facility Security (HFS).

### Cyber Systems

The rapid expansion of health information technology and high reliance on these systems for sensitive health and claims data make the sector increasingly vulnerable to the consequences of cyber attacks. The sector's goal for cybersecurity is to mitigate the risks to the sector's cyber assets that may result in disruption to or denial of health services. It advances this goal through objectives related to Cyber Network, System, and Data Protection. Section 5.4 of this report details several activities the sector has undertaken to advance cybersecurity.

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<sup>2</sup> Select agents are defined by CDC as biological agents and toxins that pose a severe threat to public health and safety.

## Past Year Priorities and Accomplishments

The sector established three cross-cutting priorities for the past year: information sharing, response coordination, and expanding partner awareness of and participation in Critical Infrastructure Protection (CIP) activities. A key to advancing all three priorities was the redesign and re-launch of the sector's portal on the Homeland Security Information Network (HSIN). The SSA expanded the portal with additional information of relevance to the sector and developed special pages to share information during emergencies.

Through presentations at meetings and other venues, the GCC expanded outreach to State and local partners, and the SCC expanded outreach with the private sector. These partners were given the opportunity to enroll in HSIN and take part in sector activities such as a new series of informational Webinars. The sector also started a new private sector Liaison Officer program so that a select group of State, local, and private sector partners may participate directly in the SSA's response to emergencies. A new Information Sharing Work Group (ISWG) was developed to provide additional guidance on information sharing within the sector.

The HPH sector has made progress in recent years against the metrics outlined for key RMAs. For example, the medical supply chain program RxResponse increased the number of participating jurisdictions from three States in 2007 to 21 States and two Metropolitan Statistical Areas (MSAs) by the end of 2008. Also over the past year, the number of MSAs that meet Cities Readiness Initiative criteria for distributing medical countermeasures increased by 30 percent, and the number of security site audits at medical countermeasure facilities doubled.

## Sector Challenges and Path Forward for Coming Year

The past year has seen many changes for the HPH sector. Although most of these changes have been positive, adapting to some of these changes may create challenges for the coming year. New sharing mechanisms will require processes to ensure security of information for the purposes of national security and privacy. It will also require the development of rational information sharing processes that prevent "information overload" among partners. The sector's ISWG will play a key role in the coming year in helping the sector develop processes to address these challenges. Likewise, the expansion of healthcare and public health preparedness activities across all levels of government and the private sector over the past decade has yielded significant progress. A challenge of the coming year will be identifying the best way to sustain this progress in the face of mounting pressure on private sector profit margins.

Other challenges have existed in previous years and will continue to be addressed. The prioritization of assets has always been a challenge to the sector because of its diversity and dispersion across a wide geographic area. The sector will continue to work through its Risk Analysis Work Group to develop improved mechanisms for prioritizing sector assets based on risk. The sector will also continue to implement its cross-cutting priorities of information sharing, response coordination, and awareness and expansion in order to marshal a wide range of partners to join in the sector's CIP efforts.

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## Section 1: Introduction

The Healthcare and Public Health (HPH) sector is pleased to provide the U.S. Department of Homeland Security (DHS) with the 2009 HPH Sector Annual Report. The sector has continued to make progress over the current reporting period of May 1, 2008 to April 30, 2009, both within the sector and across sectors as a result of its partnerships. This report reflects the state of the HPH sector, highlighting the work the sector has initiated and activities that have been completed in support of the sector's vision, mission, and goals. The report highlights the sector's accomplishments and successes, details sector priorities, identifies areas that require focused attention, and spells out activities that the sector anticipates initiating or accomplishing in the coming year.

### 1.1 Sector Overview and Challenges

The HPH sector provides a diverse array of goods and services that are distributed widely across the country. It includes not only acute care hospitals and ambulatory healthcare, but also the vast and complex public-private systems that finance that care. It includes population-based care provided by health agencies at the local, State, and Federal levels, as well as other public health and disease surveillance functions. It incorporates a large system of private sector enterprises that manufacture, distribute, and sell drugs, biologics, and medical devices, as well as a network of small businesses that provide mortuary services. All these goods and services are provided within and by means of a complex environment of research, regulation, finance, and public policy.

For the HPH sector, Critical Infrastructure Protection (CIP) is ultimately defined by the extent to which the sector has been able to mitigate interruptions in healthcare and public health services to the individual. Among the CIP challenges faced by the sector since the beginning of this program have been the breadth and diversity of the sector and the overlap between the sector's CIP role and its emergency response role. The scope of the sector's reach described in the 2007 Sector-Specific Plan (SSP) included approximately 13 million healthcare personnel, 5,500 hospitals, 300,000 ambulatory facilities (including office practices and dental offices), 70,000 long-term care facilities, 7,000 home health agencies, 70,000 pharmacies, 3,000 State and local health agencies, 172,000 health-related laboratories, and 2,500 pharmaceutical manufacturers.

Preventing healthcare and public health service interruptions requires coordination with a wide range of public and private sector partners with unique areas of expertise, influence, and authority. For example, while most services in the area of clinical care are provided by the private sector, the public sector also provides many clinical services and finances many of the

#### Highlights of the 2009 Healthcare and Public Health Sector Annual Report

- *Updated Goals, Objectives, and Priorities*
- *Placed priority on information sharing, response coordination, and expanding partner awareness of and participation in sector CIP activities*
- *Developed list of key risk mitigation activities and progress indicators*
- *Incorporated lessons from 2009-H1N1 flu; Hurricanes Gustav, Hannah, and Ike; the Mumbai terrorist attack; and the Conficker worm*

services provided by the private sector. In the area of public health, most programs are financed and operated by Federal, State, local, territorial, and tribal health agencies, but such functions as disease surveillance are performed in conjunction with private sector healthcare providers. Medical products, including drugs, biologics, and medical devices, are produced almost entirely by the private sector but are regulated by government agencies. Thus, the sector must focus infrastructure protection efforts on service continuity across the full range of healthcare and public health services within the private sector and multiple levels of government.

Another characteristic that the HPH sector shares with few other sectors is that its efforts to protect critical infrastructure often overlap with its emergency response functions. The most important component of HPH critical infrastructure is its workforce. From healthcare professionals to public health workers, people – not equipment and technology – are the most important element for delivering healthcare and public health services. The HPH workforce faces a high likelihood of being exposed to disease threats during health emergencies and must be protected. The tools that the sector uses to protect its own workers during a public health emergency – including disease surveillance, isolation and quarantine, drug and vaccine delivery, and risk communication – are the same tools that are used to protect the population at large.

The HPH sector spans many diverse agencies and organizations. Because CIP measures for the sector must be coordinated with a large number of emergency preparedness and response activities, their scope is extremely broad and very challenging. This year the sector took a renewed approach to the challenges of scope, redefining its goals, objectives, and priorities accordingly. There is increased emphasis this year on strengthening partnerships and information sharing to facilitate CIP efforts through maximum engagement.

### 1.2 Report Development Process

This report was developed through a joint effort of the Sector Coordinating Council (SCC) and the Government Coordinating Council (GCC) of the HPH sector. The Department of Health and Human Services (HHS), serving as the Sector-Specific Agency (SSA) for the HPH sector, coordinated this effort based on guidance provided to all SSAs by DHS. HHS assembled a work group of GCC and SCC members to guide the development of this report and produced draft sections based on comments and discussion provided by the work group. Over a period of eight weeks, work group members reviewed drafts of SAR sections and provided their comments, edits, and guidance through weekly conference calls.

The work group used the 2007 SSP and the 2008 Sector Annual Report as starting points for the writing process, but found the need to make several key adjustments to address the issues of scope mentioned above. The work group structured its report around the sector's risk profile, goals, objectives, and priorities. To address issues of scope, the sector consolidated several goals from the 2008 Sector Annual Report into four overarching goals: service continuity, workforce protection, physical asset protection, and cybersecurity. Consolidating the goals provided improved focus for the sector's activities and simplified the sector's approach. In support of its goals, the sector developed twelve objectives.

The work group developed three priorities – information sharing, response coordination, and awareness and expansion – to assist the sector in advancing all goals and objectives in the most efficient way possible. The sector’s priorities are cross-cutting and based on partnership activities. They reflect a renewed emphasis on partnerships as a means to address the broad needs of the sector.

With input from the work group, the SSA identified and prioritized risk mitigation activities (RMAs) for the sector. The SSA sought to identify measurable RMAs that are national in scope and address the sector’s goals and objectives. To find data for the RMAs, the SSA contacted the organizations responsible for the programs and activities. A standing work group on metrics assisted the sector in identifying the most appropriate progress indicators for some of the RMAs.

### 1.3 Sector Developments over the 2009 Reporting Cycle

During the 2009 reporting cycle, the SSA, SCC, and GCC focused on increasing information sharing and engagement within the sector. This effort was carried out through activities including outreach to State, local, and private sector partners and the enhancement and re-launch of the Homeland Security Information Network (HSIN) Web portal. Increased involvement of sector members in CIKR activities has led to improvements in risk assessment methodology, identification and funding of research and development priorities, and greater collaboration during emergency response.

External developments over the year have also influenced the ongoing work of the HPH Sector. They have led to adjustments to the sector’s priorities and activities over the past year and have also influenced the content of several sections of this report.

Emergency responses to events influenced the sector’s continuing development of information sharing processes. During Hurricanes Gustav, Ike, and Hannah, the SSA began a new, successful initiative to share information with non-Federal agency sector partners during an emergency response. Experience with the hurricanes proved that the information provided by the SSA was helpful to sector partners and that these partners possessed valuable information to share back with the SSA and with the sector as a whole. It demonstrated the need to develop a more standardized process for information sharing and led to the creation of the sector’s Information Sharing Work Group (ISWG).

External events also highlighted sector threats. For example, on November 6, 2008, Cama Hospital was a target of gunmen in terrorist attacks in Mumbai, India. This event demonstrated the vulnerability of healthcare facilities to terrorism, as well as the intent of some terrorist groups to target these facilities specifically. These types of attacks have influenced the sector risk profile for this report, as well as the sector’s objectives for physical asset protection and cybersecurity. In addition, the 2009-H1N1 flu has reinforced the importance of protecting the workforce and maintaining continuity of the medical supply chain.

Policy developments from the past year are likely to have effects on the sector in coming years. Health reform was a major topic of discussion and debate in 2008 and 2009. In February 2009, the American Recovery and Reinvestment Act became law, providing additional funds for healthcare as part of an economic stimulus package. The bill called for \$147.7 billion for healthcare, including investments in workforce and infrastructure. Health information technology received \$19 billion from the Act, creating both the opportunity to accelerate the implementation of cyber systems within the sector as well as the challenge of protecting those systems from attack. The sector will continue to monitor policy developments and their impact on CIP closely.

## Section 2: Sector Risk Considerations

The HPH sector encompasses a wide range of organizations with a broad range of associated risks. Shared characteristics across these organizations that contribute to the sector's risk profile include the sector's high reliance on the workforce for sustained operation, the close proximity of workforce members to disease agents during events, and the importance of the sector's assets for human health and safety. The following sections describe risks to the sector's continuity of services, workforce, physical assets, and cyber systems.

### 2.1 Continuity of Services

HPH facilities face continuity of service challenges resulting from a wide range of all-hazards scenarios. Many of these challenges are the result of interdependencies with other sectors that provide supporting products and services.

### 2.2 Workforce

Indirect threats arise from the sector's response role, which may leave workforce members exposed to threat agents resulting from Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) events. These same types of risks to the healthcare workforce may also be associated with naturally occurring disease outbreaks, such as the 2009-H1N1 flu.

### 2.3 Physical Assets

Direct threats include terrorist attacks and natural disasters that impact facilities and cyber systems. Internationally, HPH facilities have experienced direct threats in recent years from small arms attacks, improvised explosive devices (IEDs), and vehicle-borne improvised explosive devices (VBIEDs).

### 2.4 Cyber Systems

The use of health information technology (HIT) within the HPH sector is rapidly expanding. Investments in electronic health records (EHRs), e-prescribing applications, and computer-based order entry systems are leading to improvements in the quality of care and efficiency of many HPH functions. Unfortunately, the rapid deployment of these technologies is increasing the vulnerability of healthcare networks, systems, and data, and the consequences of cyber attacks that exploit these vulnerabilities.

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## Section 3: Sector Risk Mitigation Goals, Objectives, and Additional Priorities

HPH is a services-based sector. Its capabilities are reliant on specialized personnel, dedicated treatment environments, unique supplies and equipment, and resources from outside the sector. The sector must be prepared for both the direct impact of an event and the simultaneous surge in demand for its goods and services resulting from an event. To fulfill its mission (table 3-1), the sector must maintain service continuity, protect its workforce, and mitigate risks to its physical and cyber assets.

Table 3-1: Healthcare and Public Health Sector CIKR Vision/Mission Statement and Goals

| Sector Vision/Mission Statement   |   |
|---|---|
| <p><b>Vision:</b> <i>The HPH sector will achieve overall resiliency against all hazards. It will prevent or minimize damage to, or destruction of, the Nation's healthcare and public health infrastructure. It will strive to protect its workforce and preserve its ability to mount timely and effective responses, without disruption to services in non-impacted areas, and its ability to recover from both routine and emergency situations.</i></p> <p><b>Mission:</b> <i>The mission of the HPH sector is to sustain the essential functions of the Nation's healthcare and public health delivery system and to support effective emergency preparedness and response to nationally significant hazards by implementing strategies, evaluating risks, coordinating plans and policy advice, and providing guidance to prepare, protect, prevent, and, when necessary, respond to attacks on the Nation's infrastructure and ensure the necessary resiliency in infrastructure to recover and reconstitute healthcare and public health.</i></p> |   |
| Sector Goals  |   |
| <b>Goal 1</b>   | <b>Service Continuity:</b> Maintain the ability to provide essential health services during and after disasters or disruptions in the availability of supplies or supporting services (e.g., water, power).       |
| <b>Goal 2</b>   | <b>Workforce Protection:</b> Protect the sector's workforce from the harmful consequences of all hazards that may compromise their health and safety and limit their ability to carry out their responsibilities. |
| <b>Goal 3</b>   | <b>Physical Asset Protection:</b> Mitigate the risks posed by all hazards to the sector's physical assets.  |
| <b>Goal 4</b>   | <b>Cybersecurity:</b> Mitigate risks to the sector's cyber assets that may result in disruption to or denial of health services.  |

### 3.1 Updates to Vision and Goals

The sector updated its vision statement to reflect the increased emphasis of the 2009 National Infrastructure Protection Plan (NIPP) on resiliency and protection from all hazards. The sector also consolidated its goals to increase focus on the importance of service continuity, workforce protection, physical asset protection, and cybersecurity. The goals were refined collaboratively by a Critical Infrastructure Partnership Advisory Council (CIPAC) work group, giving greatest consideration to the need for service continuity and protecting the workforce. While it is recognized that the HPH Sector could be subject to a direct attack such as the one that occurred

in Mumbai, the greater likelihood is a naturally occurring event or a collateral effect from a chemical, biological, or radiological event not directly targeting the sector. Therefore, emphasis is placed on protecting the workforce, physical assets, and cyber assets in order to respond to events and continue to provide service to the community.

### 3.2 Objectives

The HPH sector has identified a series of objectives that support its service continuity, workforce protection, physical asset protection, and cybersecurity goals (table 3-2). These objectives serve to direct efforts within the sector to improve critical infrastructure and key resources (CIKR) protection.

Table 3-2: Healthcare and Public Health Sector CIKR Objectives

| Service Continuity        |  |
|---------------------------|--|
| <b>Objective 1</b>        | <b>Health Care Continuity:</b> Enhance the ability of healthcare facilities to provide care during all-hazards events.   |
| <b>Objective 2</b>        | <b>Supply Chain Continuity:</b> Mitigate the threat of disruptions in the supply of drugs, biological products, medical devices, and other critical supplies.  |
| <b>Objective 3</b>        | <b>Supporting Services Continuity:</b> Mitigate risks to the sector of disruptions in supporting services including water, power, transportation, telecommunications, and waste management.  |
| <b>Objective 4</b>        | <b>Workforce Family Member Protection:</b> Plan for the protection of the sector's workforce family members to increase the availability of the workforce for emergency response.  |
| <b>Objective 5</b>        | <b>CIKR Essential Personnel Protection:</b> Assist other CIKR sectors in the protection of their essential personnel through public health measures.   |
| Workforce Protection      |  |
| <b>Objective 6</b>        | <b>Mass Prophylaxis:</b> Enhance protection of the sector's workforce through the availability and rapid delivery of countermeasures and protective equipment.   |
| <b>Objective 7</b>        | <b>Health Surveillance:</b> Improve and maintain health surveillance systems to enable the rapid and accurate detection of all-hazards events and monitoring of the associated health consequences.  |
| Physical Asset Protection |  |
| <b>Objective 8</b>        | <b>BSL 3 and 4 Facility Protection:</b> Mitigate risks posed to Biosafety Level 3 and 4 facilities that utilize select agents so that harmful biological agents and toxins are secured and laboratory services are available for response. |
| <b>Objective 9</b>        | <b>Countermeasure Facility Security:</b> Enhance the security of facilities involved in the development and stockpiling of medical countermeasures.  |
| <b>Objective 10</b>       | <b>Healthcare and Public Health Facility Protection:</b> Improve the sector's ability to protect against direct threats to healthcare and public health facilities posed by all hazards.   |
| <b>Objective 11</b>       | <b>Research Facility Protection:</b> Mitigate risks posed by all hazards to the sector's critical research facilities.   |

Table 3-2: (Cont.)

| Cybersecurity       |  |
|---------------------|--|
| <b>Objective 12</b> | <b>Cyber Network, System, and Data Protection:</b> Protect against cyber attacks that disrupt or compromise critical information technology networks, systems, and data supporting the sector. |

### 3.3 Priorities

The HPH sector has identified three priorities that span the full range of the sector’s goals and objectives. These priorities are information sharing, response coordination, and awareness and expansion.

#### 3.3.1 Information Sharing

Information sharing is critical to allowing partners at all levels of government and the private sector to work together to achieve shared objectives. The sector will increase the sharing of information among Federal, State, local, tribal, and territorial governments and the private sector. The sector will rely on the HSIN as its primary information-sharing platform and will seek to expand relevant content on HSIN and the number of HSIN users within the sector. The sector will also expand the availability of both classified and unclassified threat briefings to non-Federal partners as appropriate to assist them in their preparedness planning. These briefings will be held in conjunction with national meetings where key partners are present.

#### 3.3.2 Response Coordination

There continues to be a need for greater integration of public and private sector response to emergencies. The sector will institute a Private Sector Liaison Officer (LNO) program to increase the connection between government and private sector entities during response. The SSA will work with the SCC chairs to select a representative group of SCC members to take part in this program. They will receive training and be called upon as needed to represent the sector within the HHS Emergency Management Group during events. Private Sector LNOs will provide their expertise to inform the Federal response and will assist in disseminating information to the rest of the sector. General SCC and GCC members will be kept informed of relevant response information through e-mail and the HSIN Portal.

#### 3.3.3 Awareness and Expansion

The sector will increase awareness of the critical infrastructure protection mission, and it will support critical infrastructure efforts at all levels of government and the private sector. As part of this effort, the SSA and its Federal partners will leverage relationships with State and local health agencies. These agencies are able to reach a much wider range of private sector entities than the Federal government alone can do. Some States have developed or are beginning to develop their

own CIP initiatives. The SSA will seek to support and expand these efforts. The sector will also reach out to non-sector partners at the local, State, Federal, and private sector levels to demonstrate the important cross-cutting role played by the HPH sector. As part of this effort, the sector will expand efforts to discuss CIP at key national meetings.

## Section 4: Key Risk Mitigation Activities

The HPH sector conducts numerous activities to improve its ability to maintain service continuity and to mitigate risks to its workforce, physical assets, and cyber systems.

The majority of the sector's RMAs are focused on service continuity. The sector has made significant investments in programs that improve its ability to continue delivering healthcare during and immediately following all-hazards events. These investments have considerably improved the ability of hospitals and other healthcare facilities to communicate during all-hazards events, manage surges in the number of patients, and evacuate when necessary. These investments have also improved the sector's ability to continue delivering medicines to people who need them after an all-hazards event has occurred through public and private partnerships.

The sector has invested heavily in programs that better prepare the Nation's public health system for handling all-hazards events. As a result of these investments, public health departments at the State, local, tribal, and territorial levels have emergency preparedness plans and improved communications infrastructure. The public health departments exercise their plans and test their communications infrastructure on a regular basis to enable continuous improvement.

The sector has continued to devote resources to programs that protect its workforce by improving health surveillance and mass prophylaxis capabilities. As a result, the sector has improved its ability to detect chemical and biological agents that threaten the workforce and the population at large more rapidly. The sector has also forged partnerships and developed processes to quickly deliver antivirals, vaccines, and other medical countermeasures to its workforce and the general population when needed.

The sector has increased its emphasis on protecting critical physical assets, with a focus on bio-safety laboratories, hospitals, and sites where medical countermeasures are stockpiled. Over the past year, the sector conducted more frequent site visits to identify vulnerabilities and provide guidance to the owners and operators of these sites for improving their security posture.

Cyber assets within the sector are becoming increasingly vulnerable as a result of increased systems interconnectivity. The sector is taking steps to mitigate the risks associated with these vulnerabilities. These steps are discussed in detail in section 5.4 of this document.

### Key RMA Accomplishments/Important Progress

- *Increased participation in RxResponse from 3 states to 21 states and 2 metropolitan statistical areas (MSAs).*
- *Increased the number of MSAs that meet Cities Readiness Initiative criteria for effectively distributing medical countermeasures by 30 percent.*
- *Doubled the number of security site audits at medical countermeasure facilities.*

## 4.1 Goal 1: Service Continuity

### 4.1.1 HHS Hospital Preparedness Program

- **Description of Activity.** The Hospital Preparedness Program (HPP), administered under the Assistant Secretary for Preparedness and Response (ASPR) of HHS, is a Federal cooperative agreement program operated by HHS and administered through State, local, tribal, and territorial health agencies. HPP enhances the ability of hospitals and health care systems to prepare for and respond to bioterrorism and other public health emergencies. Program priority areas include interoperable communication systems, bed tracking, personnel management, fatality management planning, and hospital evacuation planning. HPP funds have also improved bed and personnel surge capacity, decontamination capabilities, isolation capacity, pharmaceutical supplies, training, education, and drills and exercises.<sup>3</sup>
- **Progress Indicators.** As of August, 2008, 59 of the 62 participating States, localities, and territories report that 4,907 of the 5,907 hospitals (83 percent) within their borders participate in the Hospital Preparedness Program. The following metrics indicate the level of capability for these participating hospitals:
  - 92 percent have demonstrated the ability to report available beds to their State, locality, or territory within 60 minutes during an exercise or event (up from 85 percent reported in February 2008);
  - 91 percent have demonstrated dedicated, redundant communications capability during an exercise or incident (up from 71 percent reported in February 2008);
  - 77 percent have developed improvement plans based on after-action reports (up from 44 percent reported in February 2008);
  - 79 percent have evacuation plans (consistent with 79 percent reported in February 2008); and
  - 61 percent have fatality management plans (up from 48 percent reported in February 2008).

### 4.1.2 The Joint Commission Healthcare Facility Accreditation Programs

- **Description of Activity.** The Joint Commission offers hospital, ambulatory care, behavioral health care, home care, long-term care, and office-based surgery accreditation programs. These programs include standards that require healthcare facilities to plan for all hazards. While accreditation is voluntary,

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<sup>3</sup> The report *Hospitals Rising to the Challenge: The First Five Years of the U.S. Hospital Preparedness Program and Priorities Going Forward*, which discusses progress in healthcare preparedness (available at: [www.upmc-biosecurity.org/HPPreport](http://www.upmc-biosecurity.org/HPPreport)).

The Joint Commission accredits 80 percent of the Nation's hospitals, comprising 90 percent of the Nation's hospital beds. The hospital accreditation program, in particular, requires hospitals (including critical access hospitals) to establish response procedures for times when they cannot be supported by the local community in their efforts to provide patient care for at least 96 hours. The Joint Commission requires hospitals to have emergency operations plans based on hazard vulnerability assessments that identify potential emergencies affecting the ability to provide services. Within the plans, hospitals need to consider how they will manage communications, staff, patients, utilities, security, safety, and other elements during an emergency.

- **Progress Indicators.** The Joint Commission created a new standards chapter dedicated to Emergency Management (EM) that became effective in January 2009. This chapter was introduced for the hospital, critical-access hospital, home care, ambulatory care, and office-based surgery accreditation programs. The EM chapter combines and restructures two lengthy and complex standards from the Environment of Care chapter and two standards that previously resided in the Medical Staff and Human Resources chapters into a set of 12 EM standards and 111 corresponding elements of performance, providing clearer guidance to institutions seeking accreditation. This change highlights an all-hazards approach that supports key organizational capabilities (such as communications, resources, and patient care) regardless of the type of emergency faced by the organization. The new chapter also requires collaborative emergency planning throughout the organization and with other healthcare and response partners in the community.

### 4.1.3 RxResponse

- **Description of Activity.** RxResponse is a not-for-profit, private sector initiative to support the medical supply chain during emergencies. RxResponse partners work with Federal, State, and local officials as well as volunteer organizations to help support the continued delivery of medicines to people who need them in the event of an emergency – whether it is caused by a natural disaster, terrorist incident, or health emergency (such as a pandemic). RxResponse is a single point of contact for the entire pharmaceutical supply system and relies on a robust network that allows Federal and State emergency management officials to communicate with RxResponse regarding pharmaceutical needs and other issues that may impact the supply system. The communications are actively monitored by all segments of the pharmaceutical supply system to ensure the fastest possible resolution. Partners include the American Hospital Association, American Red Cross, Biotechnology Industry Organization, Generic Pharmaceutical Association, Healthcare Distribution Management Association, National Association of Chain Drug Stores,

National Community Pharmacists Association, and Pharmaceutical Research and Manufacturers of America.

- **Progress Indicators.** RxResponse made significant strides over the past year through its awareness and outreach activities. RxResponse expanded the number of participating jurisdictions from three States in 2007 to 21 States and two MSAs by the end of 2008. The organization participated in one Federal and five State exercises in 2008, up from two State exercises in 2007. During 2008, RxResponse entered “engaged” status for Hurricanes Gustav, Hannah, and Ike, holding daily conference calls with its leadership, generating frequent situation reports, and reaching out to its resource groups as needed.

In addition to outreach activities, exercise participation, and event activations, RxResponse beta-tested automated pharmacy status reporting in collaboration with the National Council for Prescription Drug Programs, Inc. This status reporting leverages normal business operations to enhance continued provision of healthcare to the public by making information on open pharmacies available to them, as well as by providing valuable situational awareness to public health, emergency management, and clinical care providers.

#### 4.1.4 Centers for Disease Control and Prevention’s Public Health Emergency Preparedness Cooperative Agreement – Preparedness and Response Activities

- **Description of Activity.** The Public Health Emergency Preparedness (PHEP) Program is a Federal cooperative agreement program operated by HHS and administered through State, local, tribal, and territorial health agencies. The PHEP cooperative agreement provides funding to enable public health departments to have the capacity and capability to respond effectively to the public health consequences of all hazards. These emergency preparedness and response efforts are designed to support the National Response Framework (NRF) and the National Incident Management System (NIMS) and are targeted specifically for the development of emergency-ready public health departments.

Within the PHEP program, some funds are dedicated to initiatives that enhance disease surveillance and mass prophylaxis capabilities. These initiatives are described in more detail as key RMAs within the workforce protection section for Goal 2.

- **Progress Indicators.** The most recent performance data for the preparedness and response activities funded by PHEP indicates significant accomplishments since its inception:

- All State public health departments now can receive and evaluate reports of urgent health threats 24/7/365, whereas in 1999 only 12 could do so. Previously, it was often difficult for clinicians to reach a public health professional after normal work hours.
- All States now have plans to receive, store, and distribute from the Strategic National Stockpile (SNS), a national repository of antibiotics, other life-saving medications, and medical supplies.
- Seventy-three percent of States reviewed have satisfactorily documented their SNS planning efforts.
- In 2005, public health departments in 50 States and the District of Columbia (D.C.) trained public health professionals about their roles and responsibilities during an emergency as outlined by the Incident Command System, while in 1999 public health departments in only 14 States did so.
- All States now participate in the Health Alert Network, which allows for the rapid exchange of critical public health information.

#### 4.1.5 Project Public Health Ready

- **Description of Activity.** Project Public Health Ready (PPHR) is a competency-based training and recognition program that assesses preparedness and assists local health departments or groups of local health departments working collaboratively as a region to respond to emergencies. The program is funded by the Centers for Disease Control and Prevention (CDC) and administered by the National Association of County and City Health Officials (NACCHO). It builds preparedness capacity and capability through a continuous quality improvement model. Each of the three PPHR project goals – all-hazards preparedness planning, workforce capacity development, and demonstration of readiness through exercises or real events – has a comprehensive list of standards that must be met in order to achieve PPHR recognition.
- **Progress Indicators.** Since 2005, 158 local health departments have been recognized as meeting all the PPHR requirements. In 2008, PPHR assessed the twelve original pilot PPHR jurisdictions to identify preparedness improvements that could be attributed to the PPHR program. Before PPHR, approximately half the jurisdictions had an all-hazards emergency response plan; after PPHR they all had all-hazards plans. After PPHR, participating jurisdictions reported having drills and exercises that had increased participation of staff and partners, that were more complex and comprehensive, and that resulted in the identification of fewer corrective actions. In 11 of the 12 jurisdictions, public health preparedness is now integrated into a continuous quality improvement process.

#### 4.1.6 Food and Drug Administration's Drug, Biologic, and Medical Device Shortage Programs

- **Description of Activity.** The Drug, Biological Product, and Medical Device Shortage Programs of the Food and Drug Administration (FDA) address potential or actual shortages that have a significant impact on public health. Through communication, facilitation, and negotiation, these programs work with medical manufacturers to plan for and manage shortages.

The Drug Shortage Program (DSP) addresses potential or actual shortages of prescription and over-the-counter medications on the U.S. market and works with pharmaceutical manufacturers, other government agencies, and professional organizations to plan for and manage drug shortages. DSP prioritizes drug products needed for serious diseases or medical conditions for which there are no alternatives. DSP maintains the Critical Products Database, which includes information collected for drug products needed for emergency preparedness, counterterrorism activities, and life-threatening diseases and medical conditions. These products are continually monitored for inventory, surge capacity, sources of raw material, and locations of manufacturing facilities in order to ensure the ability to respond to federally declared disasters/emergencies and potential shortages. The manufacturers provide data voluntarily with the understanding that the information is considered confidential in nature. The manufacturers agree to report any potential shortage issues involving these products so that they can be addressed expeditiously by DSP.

The FDA's Center for Biologics Evaluation and Research (CBER) manages the Biological Product Shortage Program. The goal of this program is to help prevent or alleviate shortages of biological products. CBER works with all parties involved to ensure that medically necessary products are available within the United States. During emergency operations (e.g., natural disasters) the CBER Biological Product Shortage Program works with the CBER Emergency Operations Coordinator (EOC) and other Federal entities such as the CDC as needed.

The FDA's Center for Devices and Radiological Health (CDRH) acquires and maintains detailed data on domestic inventory, manufacturing capabilities, distribution plans, and raw material constraints for medically necessary medical devices. CDRH works with medical device manufacturers and distributors to plan for and manage shortages.

The FDA uses the information collected by these programs to support risk assessment, help inform risk mitigation strategies, and support real-time decision-making by HHS during actual emergencies or emergency preparedness exercises.

- **Progress Indicators.** In 2008, DSP managed 110 shortages. The CBER Biological Product Shortage Program reported five shortages during 2008. The program will continue to address shortages that occur and will continue to monitor all products listed as current shortages.

## 4.2 Goal 2: Workforce Protection

### 4.2.1 CDC Public Health Emergency Preparedness Cooperative Agreement – Disease Detection and Investigation Activities

- **Description of Activity.** Within the PHEP program, funds are set aside to improve the ability for public health departments to detect and investigate diseases and increase their laboratory testing capacity for bioterrorism agents. Through these funds, public health departments have increased the number of epidemiologists working in emergency response, the number of public health professionals using health surveillance systems, and the number of laboratories capable of testing for biological and chemical agents.
- **Progress Indicators.** The most recent performance data for the disease detection and investigation activities funded by PHEP indicate significant accomplishments since the program's inception:
  - The number of epidemiologists in public health departments working in emergency response has doubled from 115 in 2001 to 232 in 2006. Epidemiologists detect and investigate health threats and disease patterns and work to minimize the negative effects of a health threat in a community.
  - The number of users for the Epidemic Information Exchange (Epi-X), a secure CDC-based communications system that helps track disease outbreaks, has increased to 4,646 in 2006, up from 890 in 2001. Users are primarily from State and local health departments (75 percent).
  - The number of State and local public health laboratories able to detect biological agents has increased to 110 in 2007 (up from 83 in 2002).
  - The number of State and local public health laboratories able to detect chemical agents has increased to 47 (up from none in 2001).
  - More than twice the number of State public health laboratories are conducting exercises to test their ability to handle, confirm, and report results for chemical agents (from 16 in 2003 to 38 in 2006).

### 4.2.2 CDC Cities Readiness Initiative

- **Description of Activity.** The Cities Readiness Initiative (CRI) is funded through CDC's PHEP Program. The goal of CRI is to prepare major

U.S. MSAs to respond effectively to a large-scale bioterrorist event by dispensing countermeasures to the affected population within 48 hours. By providing technical assistance to grant recipients, CRI has strengthened points of dispensing (PODs) infrastructures; increased planning that includes alternate modalities for dispensing; enhanced communication and engagement with partners from all levels of government, private sector, military installations, academia, and community-based organizations; and improved the ability to identify capabilities, strengths, and shortcomings through preparedness planning, exercises, modeling, and assessments.

- **Progress Indicators.** In 2004, there were 21 U.S. MSAs participating in CRI. As of 2009, there are 72 CRI MSAs, representing more than 57 percent of the U.S. population.

CDC personnel conduct reviews of each of the local jurisdictions within the CRI MSAs each year. These reviews measure capability for 12 functions considered critical to planning for countermeasure distribution and dispensing. CDC also reviews training on and exercising of these plans. Each of the 12 functions receives a weighted score. The sum of these weighted scores results in an overall score for the reviewed CRI area. The review scores from each area within a CRI MSA are aggregated to arrive at a single CRI MSA score.

Over the past year, the percentage of CRI MSAs operating within the acceptable range (those receiving a score of 69 or higher on the technical assistance review) increased by 30 percent. Additionally, each of the 12 functions has seen an improved score. All but one function showed double-digit increases over the past year (ranges of 9–27 percent).

The largest aggregate percent increase over the past year has been in those areas involving engagement of external partners. Examples include working with hospitals and alternate care facilities and those companies, agencies, or individuals assisting with distribution and inventory control activities.

The CDC, in conjunction with its Federal, State, tribal, territorial, and local partners, continues to forge new partnerships, explore innovative venues, and seek alternate methods to continue to reduce the time it takes to deliver life-saving countermeasures to affected populations in the effort to reduce mortality and morbidity during a public health emergency.

## 4.3 Goal 3: Physical Asset Protection

### 4.3.1 CDC Select Agent Program

- **Description of Activity.** The CDC Select Agent Program regulates the possession, use, and transfer of biological agents and toxins that could pose a severe threat to public health and safety (known as select agents). This program has enhanced the Nation's oversight of the safety and security of select agents. The Select Agent Program promotes laboratory safety and security by developing, implementing, and enforcing the select agent regulations, providing guidance to the regulated community, and inspecting facilities working with select agents. CDC works closely with the Criminal Justice Information Services Division (CJIS) in the U.S. Department of Justice to conduct security risk assessments of nongovernmental entities and personnel needing access to select agents.
- **Progress Indicators.** CDC proactively works with registered entities in advance of natural disasters and national events to ensure that all select agents and toxins are properly secured to protect them from theft, loss, or release. CDC took such actions for the California earthquake in July 2008, Hurricanes Gustav, Ike, and Hannah in 2008; the Democratic and Republican National Conventions; the Presidential Inauguration; and the 2009 Super Bowl. To aid States in emergency preparedness planning, CDC established a policy whereby State officials can receive information about CDC-registered select agent entities in their States.

In addition to these accomplishments, CDC hosted a workshop for all of its registered entities and partners to inform individuals of their legal responsibilities for implementing the select agent regulations. CDC also released guidance documents with information on security and theft, loss, or release; inspection checklists; and training videos on the facility inspection process.

In fiscal year 2008, CDC had the following operational accomplishments:

- Responded to 1,025 inquiries from the public as part of outreach efforts regarding the Select Agent Regulations (95% of inquiries were handled within one business day); and
- Processed 2,681 reports of identifications of select agents and toxins.

#### 4.3.2 HHS Biomedical Advanced Research and Development Authority Program Protection Office

- **Description of Activity.** The HHS Biomedical Advanced Research and Development Authority (BARDA) Program Protection Office (PPO) establishes security standards, provides guidance, and ensures compliance throughout the complete life-cycle acquisition process of critical vaccines, diagnostics, and drugs acquired under Project BioShield (PBS) and the Pandemic Influenza and Emerging Infectious Diseases (PIEID) Program. PPO administers and ensures compliance with comprehensive security practices relating to physical security, operations security, personnel security, information security, and transportation security, and it conducts security awareness programs at all contractor facilities supporting PBS and PIEID. PPO participates in DHS-sponsored Enhanced Critical Infrastructure Protection (ECIP) visits and conducts security assistance visits at critical domestic and international contractor facilities. PPO is also actively involved in coordinating on behalf of BARDA with Federal, State, local, and foreign law enforcement agencies to share appropriate information, including ways to minimize the potential impact of an emergency situation on contracted acquisition operations.
- **Progress Indicators.** BARDA PPO greatly increased its activities and impact in 2008. PPO security officers partnered with DHS Protective Security Advisors (PSAs) to conduct five joint ECIP visits at facilities supporting BARDA's Chemical, Biological, Radiological and Nuclear (CBRN) and Influenza and Emerging Infectious Disease (IEID) Medical Countermeasures Programs. PPO security officers provided DHS PSAs with a holistic understanding of the current security posture of the facilities and with copies of previous vulnerability assessments. During the visits, each facility was made aware of resources including HSIN, State Intelligence Fusion Centers, the Protected Critical Infrastructure Information (PCII) Program, Vulnerability Assessments, and Surveillance Detection and Soft Target Awareness Courses.

#### 4.3.3 Hospital Protection Activities

- **Description of Activity.** The Federal government funds programs designed to improve the ability of hospitals to protect against direct attacks and natural disasters. The Buffer Zone Protection Program (BZPP) supports the implementation of preventive and protective measures outside the perimeter of selected hospitals. For hospitals that meet the criteria buffer zone protection, BZPP provides funding to responsible jurisdictions to purchase equipment to extend the zone of protection, expand preparedness capabilities, and enhance the security of surrounding communities. The Protective Security Advisor Program offers ECIP visits to critical sector facilities to identify

vulnerabilities and recommend protective measures. The sector is in the process of refining ECIP standards that are specific to healthcare and public health.

- **Progress Indicators.** Over the past year, DHS has increased the number of ECIP site visits to hospitals. Specific information on the number of visits conducted during the reporting period was not available at the time this report was written.

#### 4.4 Goal 4: Cybersecurity

Section 5.4 of this document describes the sector's RMAs that address cybersecurity.

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## Section 5: Special Areas of Emphasis

### 5.1 Implementation of the NIPP Risk Management Framework

This year, the HPH sector began the process of implementing the NIPP risk management framework by identifying risks to the sector through participation in DHS’s Strategic Homeland Infrastructure Risk Assessment (SHIRA) process. Using this process, the HPH sector identified the most likely threat scenarios it faces. With the threat scenarios as a guide, the sector improved upon criteria to identify critical assets and systems. The threat scenarios and criteria for identifying critical assets formed the foundation for revising the sector’s goals and objectives. Taken in combination, the threat scenarios, critical asset criteria, and goals and objectives provide focus for the sector’s CIP activities. Accomplishments are discussed below and summarized in table 5-1.

#### 5.1.1 Assess Risks

In September 2008, the SSA formed a CIPAC Risk Assessment Work Group (RAWG) composed of members from government, the private sector, and academia to support risk analysis activities. This group developed and assessed threat, vulnerability, and consequence scenarios for the sector. This analysis yielded several new scenarios that help provide focus for the sector’s CIP efforts. The themes for some of the new scenarios include contamination, insider threat, domestic terrorism against medical information systems, and supply chain disruptions resulting from international terrorism. Section 2 of this document provides more detail on these themes.

Table 5-1: Significant Accomplishments in Implementing the NIPP Risk Management Framework

| Chevron  | Significant Accomplishment   |
|--|--|
| Set goals and objectives                       | Collaboratively established four goals, twelve supporting objectives, and three cross-cutting priorities for the sector  |
| Identify assets, systems, and networks         | Improved critical asset/system criteria to include select hospitals  |
| Assess risks                                   | Established a CIPAC work group that developed a more thorough set of threat, vulnerability, and consequence scenarios  |
| Prioritize                                     | Engaged state public health officials to identify top priority critical assets and systems   |
| Implement programs (and resiliency strategies) | Doubled the number of security site audits at medical countermeasure facilities  |
| Measure effectiveness                          | Implemented a performance management system for the Hospital Preparedness program that bases funding decisions on grantee performance against a set of performance metrics |

### 5.1.2 Identify Assets, Systems, and Networks

Following the completion of the SHIRA threat, vulnerability, and consequence scenarios, the RAWG developed and refined criteria for the identification of sector critical assets and systems. The RAWG developed the criteria across multiple asset types, including strategic national stockpiles of medical countermeasures, biosafety laboratories, manufacturers and processors of medically necessary products, storage and distribution facilities, research facilities, and hospitals. In prior years, hospitals were not considered to be critical assets. This year, members of the RAWG focused on hospitals in the context of the support they provide to other CIKR sectors. RAWG members also narrowed the scope by focusing on only those hospitals that could provide significant level-1 trauma center services. This year, for the first time, the HPH sector will recognize select hospitals as critical assets. This is a major milestone for the sector and has been enthusiastically recognized by DHS's Homeland Infrastructure Threat and Risk Analysis Center (HITRAC).

### 5.1.3 Set Goals and Objectives

In February 2009, the HPH Sector refined its goals, objectives, and priorities as the initial step in developing its Sector Annual Report. The SSA established a CIPAC Sector Annual Report Writing Group composed of representatives from the SCC and GCC to accomplish this task. The work group reviewed the prior year's goals, objectives, and priorities; the sector's risk profile; and the sector's critical asset criteria. Based on this information, the work group established four goals, 12 supporting objectives, and three cross-cutting priorities. These goals, objectives, and priorities are described in section 3 of this document.

### 5.1.4 Prioritize

The HPH sector uses its critical asset criteria to prioritize sector assets and systems. The sector has engaged Federal agencies and partnered with DHS to reach out to State homeland security advisors and public health officials and identify assets and systems that meet the criteria. This year, the SSA will convene the RAWG to review the proposed assets and systems and determine which of these meet the criteria.

### 5.1.5 Implement Programs

Section 4 of this document and the following sub-sections of Section 5 provide a detailed summary of the CIKR protection and resiliency programs implemented by the sector. Please refer to these sections for a description of these efforts.

### 5.1.6 Measure Effectiveness

Section 5.3.2 of this document provides a detailed summary of the sector's activities to measure effectiveness. Please refer to this section for a description of these efforts.

## 5.2 Partnerships

The NIPP partnership model provides a foundation of processes, procedures, and policies for sector collaboration. HHS serves as the SSA responsible for coordinating CIKR activities within the sector. The SSA works closely with the SCC and GCC to set goals and objectives, identify priorities, and implement activities to protect the sector's CIKR.

### 5.2.1 HPH Sector Coordinating Council and Government Coordinating Council

The HPH SCC and GCC have continued to meet over the course of the last year. Each has supported the SSA in reaching sector goals and meeting sector requirements.

The sector held a joint SCC/GCC meeting in October 2008. At that meeting, the SCC selected three co-chairs and consolidated its nine sub-councils into six in order to streamline operations and increase participation. The six sub-councils are:

- Direct Health Care;
- Health Plans and Payers;
- Pharmaceuticals, Laboratories, and Blood;
- Medical Materials;
- Mass Fatality Management; and
- Health Information and Medical Technology.

Since the joint SCC/GCC meeting, the sub-council chairs have held conference calls every two months, and the full SCC has met by conference call in the intervening months. The three SCC co-chairs have also attended monthly HPH CIP team meetings with staff from HHS and DHS. These meetings actively involve SCC representatives in the programmatic planning of sector activities.

The SCC and GCC continue to maintain a work group to identify Research & Development/Modeling, Simulation, and Analysis (R&D/MS&A) needs, and they have formed new work groups for risk analysis and information sharing. These work groups have developed a number of products including capability gap statements (CGSs), SHIRA threat scenarios, and criteria for identifying critical assets. The SCC co-chairs have facilitated cross-sector planning and information sharing through participation in Partnership for Critical Infrastructure Security (PCIS) and Information Sharing and Analysis Center (ISAC) Council meetings. The sector has also participated in several other cross-sector CIP initiatives, including the State, local, tribal, and territorial GCCs and cross-sector work groups on cybersecurity and R&D/MS&A.

#### Significant Partnership Accomplishments

- *Increased information sharing during the 2008 hurricanes.*
- *Used partnerships to obtain resources to keep a healthcare distribution warehouse open during Hurricane Ike.*
- *Launched Information Sharing Workgroup and Private Sector Liaison Officer Program.*
- *Expanded and re-launched the HSIN portal.*

### 5.2.2 Information Sharing

Information sharing is one of three sector priorities listed in section 3 of this report and is the SSA's primary activity for building and maintaining partnerships. Over the course of the past year, the sector demonstrated enhanced information sharing during natural disasters and other events. During Hurricanes Gustav, Hannah, and Ike, the SSA maintained regular contact with SCC and GCC members to disseminate information related to the response. Situation reports and other materials kept SCC and GCC members informed and assisted them in providing support to the impacted regions. Following the hurricanes, the Pharmaceuticals, Laboratories, and Blood SCC sub-council held an after-action meeting to evaluate the sector's response.

For one healthcare distribution warehouse in Texas, partnerships formed through the SCC were critical to being able to maintain operations during Hurricane Ike. At this warehouse, maintaining power was critical to ensure the safety of medications and vaccines that require constant temperature control. Through sector partnerships, the warehouse was able to obtain the resources necessary to allow continued delivery of critical medicines and healthcare products to an area hospital in time for it to reopen to patients in need.

During the 2009 ice storms, private sector organizations shared information with the HPH Sector through programs including RxResponse and ICERx. For example, RxResponse launched and made available to the sector a new Web page displaying open retail pharmacies in Kentucky. Over the course of this year, the sector will continue to improve its information-sharing capabilities. The SCC will complete a crisis communications binder with information on engaging the sector during an emergency. The sector will improve its information-sharing processes through the implementation of after-action report recommendations and participation in the 2009 National Level Exercise (NLE).

To increase information-sharing ties during emergencies, the SSA initiated an LNO program with the private sector and State and local government. The SSA will provide a group of 6–10 non-Federal LNOs from the SCC and GCC with the necessary training to support the HHS Emergency Management Group response when the need arises. During a national emergency, National Security Special Event, or other significant event, the SSA will ask one or more of the trained participants to serve in an LNO role. The SSA will select participants based on the needs of the specific event, and it will expect them to provide both guidance to the Federal response and outreach to other non-Federal partners. The SSA activated this program for the first time in response to the 2009-H1N1 flu outbreak. Two private sector LNOs and two LNOs representing State and local public health agencies participated with HHS in the response. The SSA will continue to implement improvements to the program as they are identified by after-action analysis.

The sector's information-sharing efforts are directed by the new ISWG, which held its first meeting in March 2009. The ISWG's initial focus has been on improving information-sharing processes and defining information requirements based on the sector's experience responding to the 2009-H1N1 flu outbreak. In the coming year, the ISWG will examine the information needs and processes for other all-hazards event scenarios. The ISWG will also identify information needs and processes for steady-state operations.

The sector has increased outreach to partners and has taken steps to eliminate barriers to information sharing among Federal and non-Federal entities. The sector has enabled access to information deemed For Official Use Only (FOUO) through HSIN. The SSA updated and expanded the sector's HSIN portal in order to provide new sources of information relevant to the sector's CIP efforts.

The sector has also increased the number of SCC and GCC members with security clearances. The SSA plans to provide classified and unclassified threat briefings at least twice per year through national conferences that bring together non-Federal partners. These briefings will highlight the threats against which members of the sector should prepare in their efforts to protect critical infrastructure.

In the coming year, the SSA will take additional steps to facilitate information sharing by non-Federal partners with the Federal government. The SSA has taken the initial steps to establish a PCII Office within HHS, which will allow secure handling of information provided by the private sector. The SSA signed a Memorandum of Agreement with DHS to establish the PCII program; the SSA also identified and trained a PCII Officer and Deputy PCII Officer. In the coming months, the SSA will finalize the PCII accreditation process and develop plans for the types of PCII that will be collected and shared through the program.

### 5.3 Owners and Operators

Within the HPH sector, owners and operators exist at all levels of government, within academic and not-for-profit organizations, and in the private sector. These owners and operators conduct a myriad of risk mitigation activities to maintain service continuity, protect their workforce, protect their physical assets, and enhance cybersecurity.

#### 5.3.1 Description/Status

##### *5.3.1.1 Service Continuity*

Owners and operators within the sector conduct a number of programs and activities to maintain healthcare services (Healthcare Continuity) and sustain their ability to manufacture, distribute, and receive equipment and supplies (Supply Chain Continuity). A number of service continuity activities are described in section 4 as key RMAs. They include the Hospital Preparedness Program; CDC's Public Health Emergency Preparedness Cooperative Agreement Preparedness and Response Activities; the Joint Commission Healthcare Facility Accreditation Programs; RxResponse; Project Public Health Ready; and FDA's Drug, Biological Product, and Medical Device Shortage Programs. See section 4 for additional information on these activities.

### *Healthcare Continuity*

- The Emergency Prescription Assistance Program (EPAP), a joint program between the Federal Emergency Management Agency (FEMA) and HHS, provides an efficient way for pharmacies to process claims for prescription medications and limited durable medical equipment for individuals who are from a disaster zone and do not have health insurance coverage.
- The AABB, formerly known as the American Association of Blood Banks, coordinates with government and the private sector to ensure that blood needs will be met in the event of a disaster.
- ICERx.org is a secure, online service that allows licensed doctors and pharmacists anywhere in the United States to access information about an individual's prescription medications during a disaster. ICERx.org was created by collaboration among national charities; private businesses; the American Medical Association; and Federal, State, and local governments.
- The Pharmacy Data Transaction Service (PDTs) is a centralized data repository that allows the U.S. Department of Defense (DoD) to build a common patient medication profile for all DoD beneficiaries regardless of the point of service they use. PDTs has been used to assist people displaced by a disaster in obtaining their medications.
- Both FEMA's Emergency Management Institute and The National Disaster Life Support Education Consortium provide training to health professionals and emergency responders to prevent, prepare for, respond to, and recover from disasters and emergencies.
- In 2008, CDC awarded \$10.9 million to seven accredited schools of public health for the establishment of Preparedness and Emergency Response Research Centers (PERRC). These seven schools will conduct research evaluating the structure, capabilities, and performance of public health systems for preparedness and emergency response.
- The Business Executives for National Security (BENS) Organization helps create public and private partnerships to aid in dealing with catastrophic events. BENS has successfully organized partnerships to mitigate risks, respond to disasters and public health emergencies, and help communities recover from disasters through the joint efforts of government and private organizations. One of the most successful BENS initiatives is the Safeguard Iowa Partnership. Safeguard Iowa is a not-for-profit corporation whose mission is to strengthen the capacity of the State to prevent, prepare for, respond to, and recover from disasters through public-private collaboration. During the recent floods in Iowa, the Safeguard Iowa Partnership coordinated donations as tasked by State officials.

- The Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP) is a Federal program to establish and implement guidelines and standards for the registration, credentialing, and deployment of medical professionals in the event of a large-scale national emergency. The program is administered under ASPR. The ESAR-VHP standards are mandated to States and territories, enabling an enhanced national interstate and intrastate system for using and sharing medical professionals.
- The National Disaster Medical System (NDMS) is a federally coordinated system that augments the Nation's medical response capability. The overall purpose of NDMS is to supplement an integrated national medical response capability for assisting State and local authorities in dealing with the medical impacts of major peacetime disasters and to provide support to the military and the Department of Veterans Affairs medical systems in caring for casualties evacuated back to the United States from armed conventional conflicts overseas. In addition to sending personnel, supplies, and equipment into a disaster area to support the community, NDMS also provides patient movement from a disaster site to an unaffected area and provides definitive medical care at participating hospitals in unaffected areas.
- The Uniform Emergency Volunteer Health Practitioners Act (UEVHPA) has been enacted in seven states and introduced for consideration in seven more states. The act allows for a robust and redundant system that quickly and efficiently facilitates the deployment and use of licensed practitioners to provide health and veterinary services in response to declared emergencies and provides limitations on the exposure of volunteer health practitioners to civil liability. It also states that a volunteer health practitioner who provides health or veterinary services during an emergency and who is not otherwise eligible to receive workers' compensation benefits from the host or sending State may elect to be deemed an employee of the host State for the purpose of receiving such benefits.

### *Supply Chain Continuity*

- The Association for Healthcare Resource and Materials Management (AHRMM) of the American Hospital Association published the *Disaster Preparedness Manual for Healthcare Materials Management Professionals*. This document provides materials managers with an overview of the expanded leadership role they can play in the planning, mitigation, response, and recovery phases in the sector's disaster preparedness efforts. Additionally, AHRMM provides emergency readiness advisory services to hospitals.
- The Aidmatrix Foundation, Inc., is a 501(c)(3) not-for-profit headquartered in Dallas, Texas, with offices in Germany and India. Aidmatrix builds and operates technology hubs that support security partner groups in their efforts

to solve humanitarian crises. More than 35,000 corporate, not-for-profit, and government partners leverage their resources to mobilize more than \$1.5 billion in aid annually, much of which supports people affected by disasters. Aidmatrix has been recognized internationally for its supply chain management during disasters.

- The National Funeral Directors Association and the International Cemetery, Cremation and Funeral Association work within their industry to help develop and support mass fatality plans. The plans take into account stresses on the supply chain that are caused by disasters and the associated consequences on the just-in-time inventory approach used within the mortuary services industry.

### *5.3.1.2 Workforce Protection*

In an effort to improve workforce protection, owners and operators within the sector have developed capabilities to provide mass prophylaxis and conduct health surveillance. The CDC's Public Health Emergency Preparedness Cooperative Agreement – Disease Detection and Investigation Activities and CDC's CRI are key risk mitigation activities for protecting our workforce. Additional information can be found in section 4.

#### *Mass Prophylaxis*

- HHS has actively promoted pandemic preparation and mitigation activities ahead of a possible outbreak. In 2008 HHS issued guidance on antiviral drug use during a pandemic. The guidance suggests in part that businesses strongly consider antiviral prophylaxis for critical workers as part of comprehensive pandemic preparedness planning, especially those workers who are individually critical and whose absence would jeopardize provision of essential services. Other employers may consider antiviral prophylaxis for workers to maintain business continuity or protect employees. HHS has issued guidance on vaccine prioritization and allocation to support planning an effective and consistent pandemic response by States and communities.
- Some States have developed programs to protect their workforce:
  - The Michigan Emergency Drug Delivery and Resource Utilization Network (MEDDRUN) provides standardized caches of medications and supplies strategically located throughout the State of Michigan. These caches are located with Michigan's rotary air and selected ground emergency medical services (EMS) agencies to minimize deployment time during an event. MEDDRUN's intent is to rapidly deliver medications and supplies to hospitals and other sites within one hour of request.
  - The Florida Department of Health distributed cyanide poisoning treatment kits to Advanced Life Support (ALS) Ground EMS agencies statewide.

The goal of the cyanide antidote distribution is to enhance the EMS agencies' ability to treat first responders and their patients in the event of a potential cyanide exposure.

- HHS established the Federal and State antiviral stockpiling program several years ago. As of September 30, 2008, States had stockpiled almost 23 million courses of antivirals by making use of a combination of Federal and State funds.
- The HPP cooperative agreements specifically require each healthcare facility receiving an award to develop an operational plan that ensures storage, rotation, and distribution of critical medications to healthcare providers and their families during an emergency.
- The SNS is a national repository of antibiotics, chemical antidotes, antitoxins, life-support medications, intravenous (IV) administration supplies, airway maintenance supplies, and medical/surgical items. The SNS is designed to supplement and re-supply State and local public health agencies in the event of a national emergency within the United States or its territories. The SNS is organized for flexible response. The first line of support is the provision of 12-hour push packages – caches of pharmaceuticals, antidotes, and medical supplies designed to provide rapid delivery of a broad spectrum of assets for an ill-defined threat in the early hours of an event. These push packages are positioned in strategically located and secure warehouses and are ready for immediate deployment to a designated site within 12 hours. If an incident requires additional pharmaceuticals and/or medical supplies, follow-on managed inventory supplies will be shipped to arrive within 24 to 36 hours. If the agent is well defined, managed inventories can be tailored to provide pharmaceuticals, supplies, and/or products specific to the suspected or confirmed agent(s).
- Two major antiviral manufacturers have established programs to assist private sector entities in purchasing and managing antivirals for pandemic preparedness. Both manufacturers give businesses several options including the option of purchasing antivirals now at a discounted rate or of reserving, for a nominal annual fee, quantities of the product for future use to be purchased at a capped rate.

### *Health Surveillance*

- The Early Warning Infectious Disease Surveillance (EWIDS) Program facilitates the early detection, identification, and reporting of infectious diseases associated with potential bioterrorism agents and other major threats to public health in states that border Canada and Mexico.

- The National Retail Data Monitor (NRDM) tracks sales of over-the-counter (OTC) healthcare products to assist in the identification of disease outbreaks as early as possible. More than 21,000 stores from among the Nation's top 13 chains participate in the program, providing health surveillance information to more than 800 public health officials across the country.
- A number of Internet companies are engaged in monitoring social networking sites and public health sites to gather comments and feedback indicating a potential disease outbreak. SickCity.org and Google Health are two examples of these activities.

#### *5.3.1.3 Physical Asset Protection*

Owners and operators within the sector have developed risk assessment tools and implemented protective measures to better safeguard their physical assets. In addition to the activities below, key RMAs listed in section 4 include the CDC Select Agent Program, the HHS BARDA PPO, the BZPP, and the ECIP visits offered by the Protective Security Advisor Program.

- The Johns Hopkins Office of Critical Event Preparedness and Response has developed a free Web-based tool to predict the impact of a flu epidemic, bioterrorist attack, flood, or plane crash on individual hospitals. The tool accounts for such elements as number of victims, pathogen-carrying wind patterns, available medical resources, bacterial incubation periods, and bomb size. Called EMCAPS, for Electronic Mass Casualty Assessment & Planning Scenarios, the software program generates the anticipated outcomes of disaster-planning scenarios developed by DHS.
- The ER One project is a federally funded initiative that identifies risk mitigation strategies that should be employed when renovating or planning new hospital emergency facilities. The design study focuses on three areas: medical consequence management, scalability, and threat mitigation.

#### *5.3.1.4 Cybersecurity*

Owners and operators within the sector conduct many activities to better secure their cyber assets. Section 5.4 of this report describes these activities.

### 5.3.2 Owner and Operator Metrics

In March 2008, the HPH sector launched a CIPAC work group to develop its sector-specific metrics. This work group comprised members from the HPH SCC and GCC.

The Sector-Specific Metrics Work Group identified several challenges to developing and implementing metrics:

- **Voluntary Reporting.** The sector-specific metrics construct relies on public and private sector owners and operators voluntarily reporting their progress on assessing risks to their critical infrastructure and on implementing protective programs.
- **Sensitive Data.** Information about the level of critical infrastructure protection within an organization is sensitive in nature. Owners and operators are reluctant to share this information for fear that it could negatively impact their organizations if that information were to become publicly available.
- **Complexity and Size of the HPH Sector.** The HPH sector is composed of several distinct sub-sectors, each with unique functions. There are hundreds of thousands of organizations within the sector, including hospitals, laboratories, medical product manufacturers, and public health agencies, among others. Developing metrics and collecting data from this wide variety and large number of organizations presents a challenge.

Given these challenges, the work group concluded that developing new metrics and placing an additional data collection burden on owners and operators was not a viable approach. Instead, the work group decided to leverage existing sector metrics and data. The work group reviewed the sector's CIP objectives and identified accreditation bodies and industry associations as potential sources of metrics data. The work group invited subject matter experts (SMEs) from these accreditation bodies and industry associations to share information about their organizations and the data they collect. Unfortunately, while these organizations were able to provide much useful information, they were not able to provide the specific metrics and data needed for the purposes of this activity.

As an alternative, the work group explored Federal sources of metrics and data relevant to the sector. The work group identified the HPP performance measures as useful for measuring some aspects of CIP for healthcare facilities. Working closely with HPP staff, the work group selected a set of metrics, obtained the supporting data, evaluated their usefulness, and confirmed their value in communicating progress made by the sector.

In its 2009 Sector Annual Report guidance, DHS significantly changed the metrics program to focus on measuring the progress of key RMAs. HPP is a key RMA for the HPH Sector; thus, the metrics selected by the work group have become progress indicators for HPP and are now listed in section 4 of this document.

Going forward, the HPH Sector will focus performance measurement efforts on its key RMAs. This approach best suits the sector, given its complexity, diversity, and size.

## 5.4 Cybersecurity

The HPH Sector is increasing its reliance on technology to advance healthcare priorities. Government and private organizations are funding initiatives that will improve the quality of care, enhance public health surveillance capabilities, ensure resiliency in health systems, and reduce healthcare costs through the development of robust, secure, interoperable health information technologies. Examples of these initiatives include standardizing electronic health records; improving health IT security, privacy, and interoperability; and promoting and adopting common specifications for improved workflow functionality. While these initiatives hold significant promise, they also require increased vigilance in cybersecurity.

Over the past several years, HPH has progressively become a target for cyber threats. Once perceived as having few financial incentives for hackers, the sector is now experiencing an escalation in the theft of patient and provider identities. To address these threats, the sector is investing in technologies and strategies to improve information security and reduce network and system vulnerabilities. The sector has established public-private partnerships to develop standards for the secure exchange of health information, supporting the growing need for interoperability across systems. Some segments of the sector have adopted robust technologies to secure their cyber infrastructure, leveraging solutions such as public key infrastructure, multifactor authentication, and identity management products to mitigate the risk of unauthorized users accessing sensitive information systems. The sector also participates in overarching Federal cybersecurity programs, including the Cross-Sector Cyber Security Working Group (CSCS WG).

The HPH Sector leads a number of cybersecurity initiatives unique to the sector. These initiatives are focused on developing standards for the secure exchange of health information across organizational boundaries. Descriptions of these initiatives are provided in the following sections.

### 5.4.1 HHS Nationwide Privacy and Security Framework

HHS published the Nationwide Privacy and Security Framework for Electronic Exchange of Individually Identifiable Health Information in December 2008. This framework establishes a baseline of national privacy and security standards that apply to Individually Identifiable Health Information (IIHI) held by Federal, State, local, public, and private healthcare providers, plans, and clearinghouses (referred to as “covered entities” as defined under the legislation). The principles outlined in the Nationwide Privacy and Security Framework for Electronic Exchange of IIHI take into consideration the Health Insurance Portability and Accountability Act (HIPAA), as well as standards and practices identified, for example, through the Markle Foundation,<sup>4</sup> the Federal Trade Commission, and the European Union Data Protection Directive. This framework

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<sup>4</sup> Markle Foundation’s Connecting Consumers: Common Framework for Networked Personal Health Information; available at <http://www.connectingforhealth.org/phti/#guide>.

serves as a guide for public and private sector entities that hold or exchange electronic IHHI to implement security and privacy standards. Additionally, these principles are designed to complement and work with existing Federal, State, local, territorial, and tribal laws and regulations.

### 5.4.2 The Health Information Technology Standards Panel (HITSP)

The mission of HITSP is to serve as a cooperative partnership between the public and private sectors for the purpose of achieving a commonly accepted and useful set of standards to enable and support widespread interoperability, security, and privacy among healthcare software applications. These applications will interact in a local, regional, and national health information network for the United States. The Panel is sponsored by the American National Standards Institute (ANSI) in cooperation with the Health Information Management and Systems Society (HIMSS) and the Advanced Technology Institute (ATI). Within HITSP, the Security, Privacy, and Infrastructure (SP&I) Technical Committee identifies, evaluates, and recommends security, privacy, and infrastructure constructs to address interoperability needs and requirements. The SP&I Technical Committee reviews, validates, and integrates these constructs into formal documents created by other HITSP technical committees to address interoperability and security.

### 5.4.3 National Institute of Standards and Technology Health Information Exchange Standards

The HPH sector has been working collaboratively with the National Institute of Standards and Technology (NIST) to identify and establish standardized security controls for the exchange of Protected Health Information as defined under HIPAA and to develop a methodology to support the security architecture design of HIEs and Health Information Networks (HINs). These exchanges and networks share data for both primary and secondary uses, including research, treatment, healthcare operations, and public health.

### 5.4.4 Integrating the Healthcare Enterprise

Integrating the Healthcare Enterprise (IHE) is a global initiative that creates the framework for passing vital health information seamlessly – from application to application, system to system, and setting to setting – across multiple healthcare enterprises. IHE brings together healthcare information technology security partners to implement standards for communicating patient information efficiently throughout and among healthcare enterprises by developing a framework for interoperability. IHE is organized by clinical and operational domains. In each domain, users with clinical and operational experience identify integration and information-sharing priorities, and then vendors of relevant information systems develop consensus, standards-based solutions to address them. The IHE Information Technology Infrastructure (ITI) domain addresses the implementation of standards-based interoperability solutions to improve information sharing, workflow, and patient care. In July 2008, the IHE ITI technical committee released a public draft of a whitepaper on IHE Security and Privacy that identifies security and privacy policies and

controls. This whitepaper provides guidance to organizations that wish to share patient information in a secure manner.

#### 5.4.5 The U.S. Food and Drug Administration, Center for Devices and Radiological Health; Cybersecurity for Networked Medical Devices Containing Off-the-Shelf (OTS) Software

A growing number of medical devices are designed to be connected to computer networks, often sharing data real-time across enterprise applications. The vulnerabilities that result from these devices may represent a risk to their safe and effective operation. Typically, an ongoing maintenance effort is required throughout the product life cycle to assure an adequate degree of protection. FDA guidance clarifies how existing regulations, including the Quality System (QS) Regulation, apply to such cybersecurity maintenance activities.

Going forward, the HPH Sector will continue to invest resources into cybersecurity initiatives at an increasing rate as it undergoes its technological transformation.

### 5.5 Education, Training, and Outreach

The SSA has reached out to all levels of government and the private sector to raise awareness of the sector's CIP mission. The SSA has promoted HPH CIP at the national, State, local, territorial, and tribal levels, while States have implemented their own infrastructure protection efforts and private sector partners have performed outreach within their industries. In addition to education and training activities, the sector has engaged partners through State and local outreach, use of the Internet, outreach during emergency response, SCC and GCC outreach, and other activities.

#### 5.5.1 Education and Training

Education and training are essential components of public health and medical preparedness. As discussed previously in this report, the HPH Sector is highly dependent upon its workforce for preparedness and response. The workforce requires training in order to respond quickly and effectively within the response structures established by the NRF and NIMS.

Many of the federally funded public health and medical preparedness programs – including those listed as key RMAs in section 4 – feature an education and training component. State and local public health agencies rely on funds from the CDC's PHEP cooperative agreement program to educate and train their staffs and to conduct exercises. Partnerships with schools of public health and medicine and continuous quality improvement programs such as Project Public Health Ready further support these efforts. State health agencies and hospitals receive funding from HHS's HPP that may be applied in part toward education and training activities.

The HPH Sector entities rely on a variety of no-cost education and training resources. Included among these are independent study courses offered by FEMA's Emergency Management Institute (EMI). Many of EMI's on-line independent study courses, such as *IS-100.HC: Introduction to the Incident Command System for Healthcare/Hospitals*, are either tailored specifically for the HPH Sector or are directly applicable to the sector. CDC and HHS ASPR have also offered free Webcasts and information materials on a variety of preparedness topics. The SSA has announced training opportunities from HHS, CDC, and DHS to the SCC, GCC, and other sector partners.

### 5.5.2 State and Local Outreach

The SSA has recognized the need to enhance partnerships at the State and local levels. This past year, the SSA took steps to strengthen State and local partnerships by raising awareness, sharing information, and providing support for State and local CIP efforts. The SSA gave presentations on CIP at the 2008 Directors of Public Health Preparedness (DPHP) Annual Meeting and at the 2009 Public Health Preparedness Summit, the two key events for State and local preparedness directors. The goal of these presentations was to demonstrate the value of the national HPH CIP program to State and local health agencies.

The SSA has worked with several State health agencies that have initiated their own CIP programs. These States recognize the value of CIP at the State level and are working with other State agencies and the private sector to implement programs that mirror Federal CIP efforts. The SSA has shared information, lessons learned, and various governance documents from Federal CIP programs to assist States with their efforts. The SSA has also gathered model practices from the States to expand its ability to provide technical assistance.

As the Federal government announces and implements new initiatives, the SSA communicates with State and local partners to keep them informed and to seek their participation. For example, when DHS sent a letter to State Homeland Security Advisors (HSA) announcing the Tier 1/Tier 2 and Critical Foreign Dependencies Initiative (CFDI) data calls, the SSA provided State health agencies with information about how to participate in the data call in coordination with the HSAs. The SSA also provided a list of State health agency contacts to the HSAs, along with the data call announcement, in order to assist them in identifying SMEs for the adjudication of submitted HPH assets.

The SSA also assisted DHS in promoting ECIP visits within the States. Information on ECIP visits has been included in SSA presentations to State and local partners. As new ECIP visits related to sector assets are scheduled, the SSA will continue to facilitate notification and engagement of the appropriate State health agency partners in the visit. The SSA has initiated work with DHS to develop tools to assist States in performing their own CIP site visits and will reach out in the coming year to pilot and promote those tools.

### 5.5.3 Internet Outreach

The sector expanded its use of Web tools to increase the availability of CIP information. The SSA updated the public HPH CIP Web site to provide additional information on the program to increase public awareness. The SSA redacted the 2007 SSP and 2008 Sector Annual Report and shared both documents publicly through this Web site. The SSA also redesigned the HSIN HPH portal in order to provide valuable new information to sector members. The HSIN HPH portal now provides access to many Federal documents that were not formerly available to most State, local, and private sector partners. Among the types of documents added to the HPH portal were:

- Common vulnerabilities, potential indicators of terrorist activity, and protective measures;
- Policy analysis and research reports;
- Cybersecurity information;
- Situation reports from current emergency operations;
- Threat and intelligence reporting; and
- Links to additional resources.

The SSA re-launched HSIN with the expanded content in March 2009. Through e-mail announcements, the SSA asked current users to re-visit the site and potential new users to register for login credentials. The SSA began working with the ISWG to evaluate and improve upon the revised portal. The ISWG will examine the appropriateness and utility of the new content on the portal and identify gaps in the available information that need to be addressed. The ISWG will also make recommendations to ensure that information sharing with sector partners is both targeted and efficient.

The SSA is using a new Webinar series to share information on sector activities and other items of interest. The Webinar format is valuable for reaching a wide audience beyond the formal membership of the SCC and GCC. The first Webinar was held in February 2009 and focused on the activities of the R&D/MS&A Joint Advisory Work Group (JAWG). Participants gained a better understanding of past and current JAWG priorities, sector capability gaps and mission needs, and research activities currently under way. In April 2009, the SSA sponsored a joint Webinar with the National Nuclear Security Administration to inform sector partners about the Global Threat Reduction Initiative. Future Webinars will address other timely issues and initiatives of broad interest to the sector.

#### 5.5.4 Emergency Response Outreach

In the past, it has been difficult to share timely information with non-Federal agency sector partners during an emergency response. Security issues have hindered the sharing of some sensitive information, and the lack of standardized information sharing processes has led to inefficiencies. This year, the SSA is developing mechanisms to use the HSIN portal to provide access to information that can assist partners in their own response activities. The portal houses Federal information and information that is provided by State, local, and private sector partners. For example, the private sector organization RxResponse used the HSIN HPH portal to post situation reports detailing the pharmaceutical industry's response to natural disasters that occurred in 2008 as well as the 2009-H1N1 flu.

#### 5.5.5 Other Outreach Activities

Sector representatives have presented on CIP during major sector meetings and conferences and have contributed articles to sector journals. One of the SCC co-chairs presented twice in the past year to the Institute of Medicine (IOM) Forum on Medical and Public Health Preparedness for Catastrophic Events. The SSA presented at the Security Analysis and Risk Management Association (SARMA) annual conference in May 2008. Sector partners also contributed several articles to the *CIP Report* of the George Mason University School of Law. The August 2008 edition of the newsletter was dedicated specifically to the HPH Sector and contained seven articles from sector members. The September 2008 edition contained an additional three articles from sector members. The August and September articles addressed the following topics:

- The Healthcare and Public Health Sector Overview,
- Sector-Specific Metrics Work Group,
- R&D/MS&A JAWG,
- Mass Fatalities Management in the Context of Disaster Planning,
- Creating a Regional Healthcare Response Capability,
- The Medical Materials Supply Chain and Its Impact on Disaster Preparedness,
- The National Association of County and City Health Officials,
- Best Practices in Hospital Antiterrorism,
- RxResponse, and
- Institute for Biosecurity and Disaster Preparedness.

The sector will continue to expand its education, training, and outreach activities to increase awareness of the HPH CIP Program and engagement in its activities.

### 5.6 International Coordination

International coordination is of special importance to the HPH sector. Diseases travel easily across international borders, and many of the products and services upon which the sector relies are supplied by foreign countries. For example, a nationwide influenza vaccine shortage in 2004 resulted from the closure of a manufacturing facility in the United Kingdom due to problems

with regulatory compliance. The 2008 contamination of heparin originating in China also had rippling effects in the access to this critical anticoagulant.

In addition to disease threats, there are also significant infrastructure dependencies across international borders. In many Canadian border states, healthcare personnel travel across the border daily for work. In the event of an emergency, the sustainability of the HPH Sector would depend in part on ensuring that these workers are able to cross the border freely. State and local governments and the private sector have found that they must work closely with authorities at the border to address this issue. All elements of the sector have worked with international partners over the past year to address this matter and similar concerns.

### 5.6.1 Disease Surveillance and Containment

Protection of the workforce is a key goal of CIP for the sector. The sector achieves this goal through public health measures that include disease surveillance, isolation and quarantine, sanitation, risk communication, and mass prophylaxis.

The Federal government continues to operate and provide funding for international disease surveillance efforts through a variety of initiatives. The Security and Prosperity Partnership provides a platform for coordinating these efforts among the United States, Canada, and Mexico. In 2007, the three parties signed a Trilateral Declaration of Cooperation for Public Health Emergencies. As an extension of these efforts, in 2008 HHS assigned its first liaison in Canada for public health emergencies. During the 2009-H1N1 flu response, strong trilateral relationships facilitated the sharing of information and clinical samples to support the epidemiological investigation of the outbreak.

Additional activities are taking place along the northern and southern U.S. borders. The U.S.-Mexico Border Health Commission provides a platform for coordination of disease control efforts. Along the Canadian border, a number of interstate regional initiatives link State public health departments with their Canadian counterparts. These initiatives include the Eastern Border Health Initiative, the Great Lakes Border Health Initiative, and the Pacific Northwest Emergency Management Agreement. The EWIDS program provides funds for disease detection along the U.S. borders with Canada and Mexico. EWIDS is administered by CDC and provides funding for State activities through the PHEP cooperative agreement program.

At the same time, the United States is working with international partners to develop systems to track the spread of potential pandemic strains overseas. The Federal government has assisted in the development of laboratory capacity in key foreign countries and is collaborating with the World Health Organization on international disease surveillance. The CDC and the government of Panama are in the process of developing a joint program for disease surveillance and workforce protection in the critical Panama Canal Zone.

The sector has been especially focused this past year on cross-border infectious disease threats, particularly pandemic influenza. The CDC Division of Global Migration and Quarantine (DGMQ) operates quarantine stations at U.S. ports of entry to limit the introduction and prevent

the spread of infectious diseases into the United States. Over the past year, DGMQ and other Federal agencies have continued a series of planning activities with State and local health agencies to develop and refine strategies for screening passengers at U.S. ports of entry during the early stages of a pandemic. In the event of a pandemic originating overseas, this activity would require augmentation of the routine border screening currently performed by quarantine stations and the establishment of processes to handle large numbers of potentially infected or exposed individuals.

### 5.6.2 Foreign Dependencies

The sector is increasing efforts to identify critical sector infrastructure overseas. The SSA sent all State DPHPs information on the CFDI data call. The DPHPs were asked to work with their State HSAs to identify critical foreign dependencies in the HPH Sector. The SSA will assist DHS in its efforts to compile and prioritize this list. In addition, the FDA's Drug, Biological Product, and Medical Device Shortage Programs continue to examine both domestic and international threats to the availability of medically necessary products. Many private sector organizations in the HPH Sector are undertaking similar initiatives on a company-by-company basis.

The sector's JAWG for R&D/MS&A identified and defined three capability gaps relevant to foreign dependencies, which were submitted to DHS for funding consideration. These CGSs are described in detail in the R&D section of this report. The CGS titled "Vulnerabilities in International Supply Chain Manufacturing" deal most directly with foreign dependencies. Two other CGSs, "U.S. Manufacturing Incentives" and "Identifying Sole or Limited Source Dependencies," address foreign dependencies within the broader theme of supply chain sustainability. DHS selected the latter CGS as a focus for future R&D funding.

### 5.6.3 International CIP Partnerships

The HPH SSA participated in a seminar with various Caribbean nations to address CIP-related activities that would be needed during an influenza pandemic. The session was conducted in collaboration with partners in DHS, DoD, and the State Department. Discussions included public health and medical infrastructure impacts prior to, during, and after a pandemic. Steady-state CIKR protective actions, tools, and public-private partnership activities were also discussed. The seminar will be followed up with other activities to link CIP operations in the United States with our Caribbean partners.

### 5.6.4 International Lessons Learned

The sector has learned about the vulnerability of healthcare facilities to terrorism from the experiences of international partners in responding to threats to the HPH Sector. The attacks in Mumbai highlighted the desire of some terrorist organizations to target healthcare facilities

specifically. It also highlighted the vulnerability of these facilities to such attacks. The sector has interacted with counterparts in Israel, the United Kingdom, and other countries to learn more about the risks to the HPH Sector from direct attacks. In future years, further coordination with international partners may assist the sector in identifying best practices in preparing for these threats.

## Section 6: R&D and Other CIKR Protection and Resiliency Mission Needs

The HPH Sector continues to invest resources to identify R&D/MS&A initiatives to improve the efficacy of emergency preparedness and response functions. The CIPAC JAWG for R&D/MS&A is the formal body representing the sector's primary research interests under CIP. The HPH Sector formed the CIPAC JAWG in the fall of 2007 to fulfill DHS's NIPP requirement that each CIKR Sector formally address its unique R&D needs. The JAWG provides a collaborative forum in which to study such requirements.

Since the group's inception, the JAWG has evolved to be an operational body whose agenda serves the interests of both DHS and HPH. Current JAWG R&D priorities are led by private sector members, strengthening the public-private partnership. The JAWG's private sector members have significant involvement with other forums such as the IOM, The National Center for the Study of Preparedness and Catastrophic Event Response (PACER), and DHS's Science and Technology Division (S&T). These and other cross-cutting relationships serve to further collaboration, enabling the JAWG to have a voice on the direction of priority initiatives and to provide thought leadership on matters of national and strategic importance.

In fiscal year (FY) 2008, the JAWG, together with members of the SCC and GCC, assessed the scope of medical supply chain vulnerabilities across a myriad of dimensions. Stability of the medical supply chain during an event is provisional at best because of the complexity of its functions. Additionally, the significant role that the supply chain plays across other themes such as Medical Surge Management – as well as the interdependencies that exist across other sectors in relation to Emergency Support Services and Transportation – must also be considered. As such, the medical supply chain necessitates comprehensive analysis as a distinct theme. In 2008, several medical supply chain gaps were identified and were subsequently selected by DHS as potential research projects; however, several of the gaps remain. Given that the medical supply chain will play a vital role at the onset of a major flu epidemic, HPH has resubmitted these CGSs for consideration by DHS S&T as well as DHS Centers of Excellence. The following list represents this year's priorities aligned with their associated themes:

- Medical Surge Management
  - Healthcare Facility Security (HFS)
  - Continuity of Operations Planning (COOP)
- Workforce Sustainability
  - Workforce Typing
  - Behavioral Health
- Biosurveillance
  - Public Health Surveillance Tools
  - Analytic Training and Workforce Development
- Medical Supply Chain Management
  - Vulnerabilities in International Supply Chain Manufacturing
  - U.S. Manufacturing Incentives
  - Medical Devices Sustainability

To facilitate more in-depth analysis, the JAWG formed sub-work groups for select priorities. The sub-work groups met independently between February and June 2009 to assess the scope of their respective priorities, analyze current sector capabilities, identify capability gaps, and assist in the development of White Papers where appropriate.

## 6.1 R&D and MS&A Capability Gaps/Mission Needs

While several capability gaps from last year's Sector Annual Report were accepted and developed into project proposals by the National Institute of Hometown Security (NIHS), many capability gaps and mission needs remain to be addressed. This section describes gaps from last year's Sector Annual Report that persist and new gaps that the JAWG identified this year. The gaps are organized by research theme and priority area. For more detailed information concerning these gaps, please refer to attachment C.

### 6.1.1 Medical Surge Management

This area poses perhaps the most difficulties for sector mission fulfillment; it is widely understood that the sector routinely operates at or above maximum capacity, rendering preparedness and planning for an emergency or disaster significantly more challenging.

The ability to carry out HPH functions under unanticipated circumstances that render additional strain on the sector requires an integrated approach to managing resources, infrastructure, operations, and patients. The research priorities under medical surge seek to address the complexities of developing an integrated approach that is sustainable (to the degree practicable) and predictive and that offers a scientific basis for sound decision making. The HPH communities recognize that as circumstances escalate and the continuum of response functions is maximized, the ability to provide care will be stressed, requiring a reduction in services and limiting the options for applying optimal clinical standards. Research into medical surge must take into consideration phases beyond response into recovery to reflect a focus on sustainability. Additionally, each of the core components of medical surge should be analyzed to expose inaccurate assumptions and potential failures in the application of surge management. Aspects such as command, control, and communications; resource needs and availability; standards of care; monitoring of the healthcare infrastructure; understanding of the risk posture as intensity escalates; and the transition of operations from steady-state to crisis-state are uniquely important to an integrated surge framework. Achieving an understanding of the conditions under which each aspect would be employed will require significant modeling and analysis.

While the study of surge has progressed in recent years as a result of incidents such as Hurricane Katrina, the science and quantitative data to support decision making across varying disaster scenarios are both lacking. Developing and testing planning documents require data that enables predictive analysis to support incident command structures and decision making at the local level. Situational awareness and a common operating picture will form the basis for reliable, consistent, and actionable decisions. As a scenario evolves, it must be possible to achieve sustainability of services and infrastructure. For example, the ability to extend the triage model

(diverting patients along with identifying facility diversion) to facilitate surge capacity needs will require knowledge regarding how to identify alternate sites of care, what process to implement for diverting patient flow to these facilities, and how to facilitate that process. Methods for effecting medical surge will need to promote access to care and the awareness among the general population that care is accessible – taking into consideration the role of public health, the needs of vulnerable populations, and the necessary technologies or capabilities required for accessing care. There exist many opportunities for advancement in medical surge management, all of which can be realized through security partner collaboration and rigorous analysis.

The capability gap statements submitted for FY 2008 were prioritized by DHS S&T and project proposals have been finalized. Development of research and tools associated with these gaps is currently under way. Upon re-examination of medical surge management, the JAWG identified two additional priorities that significantly impact the Nation's ability to manage surge capacity: HFS and COOP.

#### *6.1.1.1 Healthcare Facility Security*

The JAWG determined that HFS is an increasingly important topic area that needs to be addressed through R&D and MS&A. The HFS Sub-Work Group has identified three sub-priorities: personnel security, design guidelines, and aging infrastructure.

##### *Personnel Security*

There is an erroneous assumption among many healthcare facility owners and operators that, in the event of a disaster or an emergency impacting the facility (either directly or indirectly), local law enforcement officers and other public safety officials will sustain security needs for the facility. Rather, it is more likely that local law enforcement will be involved in other response functions, rendering the healthcare facility security staff responsible for addressing security needs. The HFS Sub-Work Group has identified several gaps, including:

- An analysis of staff, visitor, and patient perceptions of increased security measures and the possible effects on the healthcare delivery environment;
- Training programs to better equip healthcare facility security staff to adequately sustain security needs during day-to-day operations as well as during a response; and
- The need to develop a mechanism to identify, track, and mobilize an auxiliary security staff made up of retired military personnel, public safety officers, and other law enforcement personnel.

### *Design Guidelines*

Many healthcare facilities (in particular hospitals) have adopted the guidelines of the American Institute of Architects (AIA) and the Joint Commission. While the guidelines are revised and improved upon continually, a large gap remains. Healthcare facility security – particularly regarding considerations of emergency preparedness and response, as well as the safe handling of biologics/radiologicals/chemicals and other dangerous substances housed in facilities – is not addressed sufficiently in any of the existing guidelines. The HFS Sub-Work Group is reviewing the current guidelines and will make recommendations on what level of detail should be included in future guidelines.

### *Aging Infrastructure*

DHS has included aging infrastructure as a part of the all-hazards preparedness and response perspective. This inclusion cuts across all CIKR Sectors. The JAWG has identified several R&D/MS&A needs that respond to the gaps:

- Analysis to determine when a facility will fail to withstand impacts of daily wear and tear based on specific variables of the facility (e.g., age, physical architecture, traffic, internal and external environment);
- Analysis to determine how a facility will withstand damage during and after an event (e.g., floods, hurricanes, heavy winds, fires, blasts, other natural and man-made disasters); and
- Research into new cost-effective construction materials that serve as dual-use solutions, addressing both cost-cutting for facility owners/operators as well as facility security and resiliency in the face of all hazards.

#### *6.1.1.2 Continuity of Operations Planning*

The JAWG identified COOP as a new mission need for 2009. Please see section 6.3.2 for more information regarding COOP.

#### *6.1.2 Workforce Sustainability*

The JAWG refined the requirements and objectives necessary to achieve workforce sustainability by conducting analysis to determine the “ideal” situation for protecting and sustaining the HPH workforce during steady-state operations, as well as during and after a disaster or an emergency.

### 6.1.2.1 Workforce Typing

This gap has been carried over from 2008 and expanded. While the FEMA NIMS Resource Typing of Medical Professionals and Medical Care Teams initiative has examined the medical care capabilities of various deployable teams, gaps persist. R&D is required to develop and implement a standardized methodology that will rapidly validate skill sets and determine appropriate response roles for HPH workforce members and volunteers. The suggested approach is to:

- Develop psychological tests to identify workers and volunteers most likely to follow through in a real event; and
- Study methods for engaging retired and non-practicing workers in emergency response, identifying processes and mechanisms to make full use of their capabilities and defining the scope of requirements necessary to enable them to function as fully as possible.

### 6.1.2.2 Behavioral Health

This gap area stems from 2008 discussions regarding the psychological and behavioral health of the HPH workforce. Behavioral Health in the context of the JAWG research priority is a broad term meant to cover two interrelated concepts:

- Behavioral health factors:
  - What motivates HPH workforce members to respond in a disaster?
  - What factors correspond to HPH workers' ability to follow instructions?
  - What motivates HPH workers to fulfill their duties during and after a response?
  - What motivates HPH workers either to carry out duties or not carry out duties during dangerous conditions (which conditions correspond to which actions)?
  - What incentives, if any, have caused workforce members to adjust their decision making?
- Psychological impacts and mental health of HPH workforce members:
  - What is the level of psychological health of HPH workforce members prior to a response?
  - What are the psychological impacts on HPH workforce members during a response?
  - What are the psychological impacts on HPH workforce members after a response (e.g., Post-Traumatic Stress Disorder [PTSD])?

A scan of current and past research regarding these two behavioral health concepts shows that while some attention has been paid to psychological impacts and mental health of *victims* during and after a response, little attention has been paid to the psychological impacts and mental health of responders. Even less attention has been paid to behavioral health factors affecting whether or

not HPH workers will respond during a disaster and what factors correspond to and affect their decision making during a disaster.

The JAWG invited SMEs from the behavioral/psychological health field to present information on topics ranging from encouraging community preparedness to assessing and protecting the mental health of HPH workforce members before, during, and after an all-hazards event. Interactions with these SMEs led to the identification of the following R&D mission needs:

- **Communication.** There is a need for research into effective methods of risk communications tailored to specific populations. There is currently a requirement for education and training tools available at the Federal level to promote effective risk communication practice.
- **Tracking Deployed Responders.** There is an R&D need for a tool to track and monitor the behavioral health of deployed first responders during and after an event. Research has shown that first responders can develop symptoms of PTSD several years after an event. There is a requirement for a mechanism to ensure that responders have access to behavioral health support for a prolonged period of time.
- **Training.** There is a need to provide behavioral health support training to HPH workforce members to broaden the base of trained professionals available to provide mental health support before, during, and after an event.
- **Retention of HPH Workforce.** As a result of the trauma experienced by many deployed medical forces, the retention rate of these workforce members is negatively affected. Addressing the gaps identified above may positively affect the retention rate; further R&D is necessary regarding the various aspects of behavioral health to design more effective education, training, and outreach programs as well as tools aimed at filling these gaps.

The JAWG supported the following recommendations:

- Maintain current behavioral health projects as priorities on the national research agenda.
- Research identified gaps regarding HPH workforce members and the behavioral health factors associated with emergencies and disasters in order to better understand what training and support is required to protect and sustain the workforce.
- Consider novel research studies to address the questions identified above; existing studies and initiatives may be leveraged to further research toward the development of behavioral health solutions for the HPH workforce.

### 6.1.3 Biosurveillance

This year, the scope of biosurveillance was broadened to identify gaps in the capabilities of public health surveillance tools and the workforce's ability to use these tools effectively.

#### *6.1.3.1 Public Health Surveillance Tools*

Emerging diseases and the growing risk of biological weapons have made the need for standardized public health surveillance more important than ever. Many groups, both domestically and internationally, have attempted to create systems to monitor health trends and provide near real-time capabilities to identify outbreaks. As more and more surveillance systems are created and employed, it becomes important to understand their capabilities and to assess their efficacy. A thorough review of these systems will lend itself to recommendations for improved functionality and standardization.

#### *6.1.3.2 Analytic Training and Workforce Development*

As public health surveillance systems become more common and more complex, the need for more advanced training and education arises. Computers process the data and produce findings, but people are ultimately responsible for inputting and validating the data, analyzing the findings, and acting on them appropriately. It is important that healthcare and public health workforce members are able to understand the systems and how to work with them, as well as how to continue to develop and refine them.

- Currently, there are few established course offerings specifically focused on the topic of biosurveillance.
- Current research, including a review of medical, veterinarian, nursing, and physician assistant programs, does not reveal any informatics training programs for professionals not working in public health.
- The identification of core biosurveillance and informatics competencies is necessary in order to determine which training programs would be most effective toward fulfilling biosurveillance functions.

### 6.1.4 Medical Supply Chain Management

All HPH functions rely on the integrity of the supply chain, which involves the manufacture, distribution, and consumption of medical materials. The range of medical materials includes both durable and non-durable goods, from radiological equipment to latex gloves. The diversity of the supply chain accounts for the large number of gaps faced by the sector in terms of protection and preparedness, as well as in carrying out its mission during a steady state. While domestic influences have become more visible as a result of such factors as contaminated products, what is

perhaps less obvious is the upsurge of international interdependencies that currently exist to sustain domestic healthcare and public health operations on a daily basis.

#### *6.1.4.1 Vulnerabilities in International Supply Chain Manufacturing*

Both R&D and MS&A are needed to identify and assess the vulnerabilities in the international medical supply chain. The resulting analysis will be leveraged by the sector to address gaps and develop activities to reduce the weaknesses in the supply chain.

#### *6.1.4.2 U.S. Manufacturing Incentives*

Medical materials that are not typically produced in high volume or that are mainly produced outside of the United States (e.g., medical gloves, syringes, IV tubing) may render the HPH Sector unable to fulfill its mission if a disruption in international manufacturing occurs. Examining incentives for the private sector to invest in manufacturing medical materials in the United States is critical.

#### *6.1.4.3 Medical Devices Sustainability*

Potential gaps exist between demand for key medical devices (e.g., devices that would be required in order to respond to a range of specific events) and the ability of the medical device manufacturing industry to meet such demands, as well as the availability of medically trained staff in sufficient numbers to use certain devices even if enough devices are supplied.

- Research is needed to determine which devices that laypersons can be trained to use and which require trained medical personnel. Further research is then needed to determine the availability of these necessary personnel in a major all-hazards event and to develop strategies for rapidly supplementing their numbers should the need arise.
- Research is needed to identify new resources for producing vulnerable supplies. Consideration should also be given to developing more durable materials to extend the life of products, thereby reducing manufacturing costs and minimizing environmental impacts.
- In the event of a supply chain disruption or medical surge, MS&A is needed to address how to use limited resources most effectively and how to identify when the sector may be reaching the limit of resource availability.

## 6.2 Updates and Progress

Please refer to attachment D for progress-and-updates tables.

## 6.3 Other Mission Needs

### 6.3.1 Policy and Legal Frameworks

Through the examination of such past events as 9/11 and Hurricane Katrina, the need to address obstacles to response activities due to existing policy frameworks is clear. For example, the function of privileging to provide vaccinations is State regulated. However, if a response is regional – that is, it crosses State boundaries – the privileging of various healthcare professionals may be restricted, hindering a response function that may be critical. The R&D/MS&A CIPAC JAWG made the following recommendations to address these obstacles:

- Conduct policy research regarding existing logistics, mobilization, and distribution practices in the face of major disasters or disruptions. The focus should be on State and Federal laws and processes that influence the supply chain during a disaster.
- Research the effectiveness of temporary suspension of certain Federal, State, and local laws, rules, and regulations governing response functions. The results of this research could be best demonstrated by leveraging modeling and simulation tools to predict the successes and/or failures of a response under the “temporary suspension” framework.
- Research methods for implementing the logistical, communication, vaccination, personal protective equipment (PPE), and liability-exemption requirements of volunteers during an emergency.

### 6.3.2 Continuity of Operations Planning: Identifying Mission Critical Functions

COOP is a critical aspect of medical surge management. The JAWG focused on COOP this year and developed the following framework to guide the research that the COOP sub-group members are conducting now and in the coming months.

The Pandemic and All Hazards Preparedness Act of 2007 highlighted the importance of COOP as an integral part of the National Security Strategy (NSS). The NSS identified COOP as one of six preparedness goals under Section 2802(b)(6) and emphasized that “vital public health and medical services must strive to be maintained to allow for optimal Federal, [S]tate, local, tribal, and territorial operations in the event of a public health emergency.” The foundation of continuity planning revolves around a prioritized list of “mission essential” or “mission critical” functions and services with clearly identified recovery time objectives that are congruent to the standards established in the business continuity or COOP industry. Further description of these fundamental requirements can be found in the *National Strategy for Pandemic Influenza Implementation Plan*, which defines essential functions as those that “enable organizations to provide vital services, exercise civil authority, maintain the safety and well being of the general populace, and sustain the industrial/economic base in an emergency.”

There are a number of difficulties identified in this arena as it pertains to the delivery of healthcare services that warrant additional attention. These include:

- The impact of maintaining essential services on the financial stability of an organization under increased demand or changing standards of care;
- The effects of surge demands on sustainability and recovery of impacted services;
- The importance of organizational preparedness to meet organizational objectives;
- The need to ensure healthcare facility staff, patient, vendor, and visitor safety; and
- The importance of household/individual preparedness for workforce sustainability.

These are all important aspects requiring additional research consideration, which will support the ability of an organization to meet its “mission critical” needs and maintain its services to the affected community.

### *6.3.3.1 Brief Description of Impediments to COOP Planning*

Within the HPH Sector, COOP and business continuity management have been insufficiently addressed as sustainable, comprehensive programs. While there are certainly a number of healthcare organizations that have incorporated such principles into their business models, many more facilities, particularly those not aligned with large academic institutions or national healthcare organizations, lack such planning. The Joint Commission requires several areas of “continuity”-related planning within its 2009 emergency management chapter requirements; however, a number of these elements are omitted when examined through the business continuity and COOP standards. In the event of a severe or catastrophic disaster, traditional facility emergency management and medical surge planning will not adequately address the requirements of business continuity management or for sustaining operations. The methods by which healthcare organizations currently prepare for catastrophic disruptions neither clearly identify a prioritized list of all mission-essential functions, nor establish sound recovery time objectives for restoring impacted services. Current planning may be ineffective in providing medical system resiliency, fiscal viability, or sustainment of healthcare continuity within the community following an event. A failure in any one of these areas has the potential to create a public health crisis, insolvency, and permanent closure of healthcare services – ultimately contributing to potential regional economic failure.

Throughout our society, there is a resolute expectation by the public that healthcare organizations will remain open and capable of providing healthcare services regardless of the size or scale of a disastrous event. Consequently, healthcare organizations have tended to focus on the tactical

matters related to emergency response and medical surge planning, with less attention paid to the strategic planning required for long-term sustainment and survival. This focus is in large part driven by the combination of fragile, complex interdependencies required to support a “just in time” healthcare industry seeking to reduce expenses and limit excess capacities.

Whereas public health agencies are integrated elements of State and local governments, benefiting from the requirement that COOP planning for governmental activity needs to be implemented, privately owned healthcare facilities are under no such obligation. Within the healthcare delivery sub-sector, there is a gap in defining the mission critical or minimum essential functions of a healthcare facility. As a result of this gap, there is the lack of a comprehensive, validated set of prioritized mission-critical functions for sustained healthcare delivery addressing all aspects of healthcare facility operations (e.g., business, IT systems, medical surge, patient care services, infrastructure).

There currently exists no standard method to:

- Clearly define or categorize a “minimum” requirement to provide essential services;
- Identify a healthcare facility’s essential functions that align with regulatory priorities, National Fire Protection Association (NFPA) 1600, business continuity management, or COOP-established standards;
- Establish objective guidelines regarding recovery time for operational functions (e.g., patient care services, business operations, reporting requirements, infrastructure recovery); and
- Include the concepts of traditional emergency management planning, business continuity/IT disaster recovery, and medical surge planning to establish comprehensive medical system resiliency.

### *6.3.3.2 Recommendations*

Although numerous documents and standards exist that provide guidance in the COOP and business continuity arena, none of these materials has specifically addressed defining healthcare continuity standards in a clear, concise manner. Some of these standards, regulations, and best practices include:

- NFPA 1600,
- Continuity Guidance Circular 1 (CGC 1): Continuity Guidance for Non-Federal Entities,
- Federal Continuity Directive-1 (FCD-1): Federal Executive Branch National Continuity Program and Requirements,

- DHS Critical Infrastructure Key Resources Pandemic Influenza Guidance – HPH Sector Annex,
- United States Navy Bureau of Medicine and Surgery Directive 3440.20 (BUMED 3440.20),
- Navy Installation Emergency Management Program Manual; Appendix P: Continuity of Operations (COOP) Planning Guide (CNI 3440.17),
- Disaster Recovery Institute (DRI) Standards, and
- Joint Commission 2009 Emergency Management Standards.

The IT industry has been participating in IT continuity and disaster recovery planning (DRP) for several years and has experience in defining essential systems and functions. However, when examining the core missions of healthcare facilities, it becomes much more challenging to define what is a mission critical function or minimum essential function for patient care delivery. Both for-profit and not-for-profit hospitals must sustain the same business-related functions (e.g., payroll, accounts payable, accounts receivables, purchasing, human resources, and billing). The difficulty arises with defining the minimum mission essential patient-centric, healthcare delivery services. Indeed, given the many complexities involved in providing healthcare services, it may be that no one set of priorities can be identified, given the interdependencies required to support healthcare operations.

In order to identify and validate “mission essential” functions, the following study of services and operations performed within hospitals and healthcare facilities should be conducted in order to:

- Develop a comprehensive list of all functions performed by departments within these facilities,
- Produce a prioritized list of services and functions that must be implemented within the recovery time objectives established by national standards for COOP and business continuity planning,
- Identify how essential functions and services impact the financial solvency of the institution,
- Determine the impact that medical surge concepts will have on providing essential services in relation to the increased resource demands and duration of continued operations,
- Identify methods of conserving resources that would need to be applied to ensure essential functions can be maintained based on developing crisis standards of care,

- Consider the potential impact of surge demand on the recovery time objectives for restoration of normal operations within the current standards of care, and
- Identify which standards of care will dramatically affect COOP or business continuity standard recovery times and what the appropriate service recovery times should be (e.g., remain identical to industry standards or adjust for the critical nature of certain hospital functions).

In summary, the opportunity to conduct a comprehensive review of the subject matter should demonstrate the importance of the partnership between public health and the private sector; the significance of organizational preparedness to sustain organizational objectives (e.g., financial, community, education); the importance of healthcare facility staff, patient, vendor, and visitor safety; and the impact of household/individual preparedness as it relates to workforce sustainability. All of these are important aspects necessary for supporting the ability of a healthcare organization to meet its “mission critical” needs.

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## Section 7: Sector CIKR Challenges and Path Forward

### 7.1 Summary of Sector Challenges

The past year has seen the persistence of some pre-existing sector challenges and the emergence of new ones. Three primary challenges that currently impact the sector relate to information sharing, asset prioritization, and resource allocation.

#### 7.1.1 Information-sharing

The sector has determined that information sharing is a critical priority. This presents both opportunities and challenges. Much of the information that is helpful to non-Federal agency partners in their CIP efforts is sensitive. It may relate to sector vulnerabilities or intelligence gathering and must therefore be kept secure. Much of this information is controlled under the FOUO designation, while other information is PCII or Classified information. Some information relevant to the HPH sector is also protected under HIPAA.

The sector must share information efficiently and effectively while keeping it secure. Valuable information should be easily accessible to individuals who need it. However, not all information is valuable to all individuals; its dissemination must be targeted to reduce information overload. When information is shared through mechanisms such as HSIN, it must be categorized in a way that makes it easy to retrieve. During an emergency response, this categorization becomes especially critical due to the urgency of the situation and time sensitivity of incident-related information. The sector must ensure that it shares targeted information without imposing an overly burdensome information collection process that slows information sharing.

#### 7.1.2 Sector Asset Prioritization

The sector has encountered challenges related to the prioritization of assets through the Tier 1/Tier 2 and CFDI processes. These challenges emerge primarily because of the unique characteristics of the sector. Although the sector as a whole is critically important to protecting the life and health of every American, it is distributed geographically and across functional areas in such a way that it is rare for any one component to rise to the level of national criticality. For example, a large urban hospital might be critically important for a specific large city, but its criticality as part of the national healthcare infrastructure is much less clear. Any impact on a particular hospital would have a negligible effect on the delivery of healthcare in other parts of the country, and local impacts could be mitigated through mutual aid.

Some HPH infrastructure assets are critical because of the secondary consequences they prevent. For example, vaccine manufacturers are critical in the prevention of death and disease from seasonal influenza, as well as by providing protection from tropical diseases and biological weapons to military personnel. The criticality of other assets varies depending on circumstances. For example, the destruction of a sole-source manufacturer of a countermeasure to pandemic

influenza would not in itself have a catastrophic, immediate impact on lives and health. However, the national impacts would be catastrophic if this were to happen in conjunction with an actual pandemic. To prioritize assets of this type most accurately requires an additional level of analysis that remains to be fully developed.

### 7.1.3 Resource Allocation

The government and private sector partners within the HPH sector face a number of competing demands on resources. The healthcare industry must find ways to serve patients in an increasingly challenging business environment. Government public health agencies must continue to develop preparedness and response capabilities in an environment of diminishing resources. While some sector partners embrace the value of the sector's CIP efforts, those efforts must be prioritized against important patient service and emergency response missions that continue to demand more time and resources.

## 7.2 Path Forward to Address Challenges

The HPH sector has worked toward addressing many of the challenges outlined above throughout the past year. They are complex challenges and are likely to remain with the sector in some form in the future. The sector is using the NIPP partnership model as a framework for addressing these issues in a collaborative manner across Federal, State, local, and private sector security partners.

In the past year, the sector used new and existing work groups to address these issues. The sector formed a joint ISWG that met for the first time in March 2009. The ISWG's initial focus has been on improving information-sharing processes and defining information requirements based on the sector's experience responding to the 2009-H1N1 flu outbreak. The processes include alerting and notifying members of the sector, posting information on the HSIN portal, and using other mechanisms to share timely information with the sector. In the following months, the work group will examine a wider range of information-sharing process issues, including the organization of information on HSIN and the development of new, targeted information products for the sector.

The RAWG has worked over the past year to define criteria for the prioritization of sector assets. The work group recently developed a new set of criteria for Tier 1 and Tier 2 assets that addresses some of the prioritization challenges. In 2009, the work group will participate directly in the adjudication of HPH assets for the Tier 1/Tier 2 process.

Policy issues such as health reform and the increased use of information technology will evolve over time and will require additional focus by the sector. They are likely to impact several of the sector's work groups, including the R&D/MS&A JAWG, the RAWG, and the ISWG. The sector will continue to gather data regarding the effectiveness of HPH sector CIP efforts to assist in resource allocation decisions. It will also continue its outreach and awareness efforts to demonstrate the importance of protecting the HPH Sector from evolving threats.

## Attachment A: Acronym List

|         |  |
|---------|--|
| ACEP    | American College of Emergency Physicians                     |
| AHRMM   | Association for Healthcare Resource and Materials Management |
| AHRQ    | Agency for Healthcare Research and Quality                   |
| AIA     | American Institute of Architects                             |
| ALS     | advanced life support  |
| ANSI    | American National Standards Institute                        |
| APHIS   | Animal Plant Health Inspection Service                       |
| ASPR    | Assistant Secretary for Preparedness and Response            |
| ATI     | Advanced Technology Institute                                |
|         |  |
| BARDA   | Biomedical Advanced Research and Development Authority       |
| BENS    | Business Executives for National Security                    |
| BSL     | Biosafety Level  |
| BZPP    | Buffer Zone Protection Program                               |
|         |  |
| CBER    | Center for Biologics Evaluation and Research                 |
| CBRN    | chemical, biological, radiological, and nuclear              |
| CBRNE   | chemical, biological, radiological, nuclear, and explosive   |
| CDC     | Centers for Disease Control and Prevention                   |
| CDRH    | Center for Devices and Radiological Health                   |
| CEO     | Chief Executive Officer                                      |
| CFDI    | Critical Foreign Dependencies Initiative                     |
| CGS     | Capability Gap Statement                                     |
| CIKR    | critical infrastructure and key resources                    |
| CIP     | critical infrastructure protection                           |
| CIPAC   | Critical Infrastructure Partnership Advisory Council         |
| CJIS    | Criminal Justice Information Services                        |
| COOP    | Continuity of Operations Planning                            |
| CRI     | Cities Readiness Initiative                                  |
| CSCS WG | Cross-Sector Cyber Security Working Group                    |
|         |  |
| DGMQ    | Division of Global Migration and Quarantine                  |
| DHS     | Department of Homeland Security                              |
| DMAT    | Disaster Medical Assistance Team                             |
| DoD     | Department of Defense  |
| DPHP    | Directors of Public Health Preparedness                      |
| DRP     | disaster recovery planning                                   |
| DSP     | Drug Shortage Program  |
|         |  |
| ECIP    | Enhanced Critical Infrastructure Protection                  |
| EHR     | electronic health record                                     |
| EM      | emergency management   |
| EMAC    | Emergency Management Assistance Compact                      |
| EMCAP   | Electronic Mass Casualty Assessment & Planning Scenarios     |

|          |   |
|----------|---|
| EMI      | Emergency Management Institute  |
| EMS      | emergency medical services  |
| EOC      | Emergency Operations Coordinator  |
| EPAP     | Emergency Prescription Assistance Program                                   |
| Epi-X    | Epidemic Information Exchange   |
| ESF      | Emergency Support Function  |
| ESAR-VHP | Emergency System for Advance Registration of Volunteer Health Professionals |
| EWIDS    | Early Warning Infectious Disease Surveillance                               |
|          |   |
| FCD-1    | Federal Continuity Directive-1  |
| FDA      | Food and Drug Administration  |
| FEMA     | Federal Emergency Management Agency   |
| FOUO     | For Official Use Only   |
| FRAC     | First Responder Authentication Credential                                   |
| FY       | fiscal year   |
|          |   |
| GCC      | Government Coordinating Council   |
|          |   |
| HFS      | Healthcare Facility Security  |
| HHS      | Department of Health and Human Services                                     |
| HIE      | health information exchange   |
| HIMSS    | Health Information Management and Systems Society                           |
| HIN      | Health Information Network  |
| HIPAA    | Health Insurance Portability and Accountability Act                         |
| HIT      | health information technology   |
| HITRAC   | Homeland Infrastructure Threat and Risk Analysis Center                     |
| HITSP    | Health Information Technology Standards Panel                               |
| HPH      | Healthcare and Public Health  |
| HPP      | Hospital Preparedness Program   |
| HRSA     | Health Resources & Services Administration                                  |
| HSA      | Homeland Security Advisors  |
| HSDB     | Homeland Security Database  |
| HSIN     | Homeland Security Information Network                                       |
| HSPD     | Homeland Security Presidential Directive                                    |
|          |   |
| IED      | improvised explosive device   |
| IEID     | Influenza and Emerging Infectious Disease                                   |
| IHE      | Integrating the Healthcare Enterprise                                       |
| IIHI     | Individually Identifiable Health Information                                |
| INCMCE   | International Nursing Coalition for Mass Casualty Education                 |
| IND      | improvised nuclear device   |
| IOM      | Institute of Medicine   |
| ISAC     | Information Sharing and Analysis Center                                     |
| ISWG     | Information Sharing Work Group  |
| ITI      | Information Technology Infrastructure                                       |
| IV       | intravenous   |

|         |   |
|---------|---|
| JAWG    | Joint Advisory Work Group   |
| KCI     | Kentucky Critical Infrastructure Protection Institute Program     |
| LRN     | Laboratory Response Network                                       |
| LNO     | Liaison Officer   |
| MEDDRUN | Michigan Emergency Drug Delivery and Resource Utilization Network |
| MMRS    | Metropolitan Medical Response System                              |
| MS&A    | modeling, simulation, and analysis                                |
| MSA     | Metropolitan Statistical Area                                     |
| NACCHO  | National Association of County and City Health Officials          |
| NDMS    | National Disaster Medical System                                  |
| NFPA    | National Fire Protection Association                              |
| NHPPC   | National Health Professions Preparedness Consortium               |
| NIH     | National Institutes of Health                                     |
| NIHS    | National Institute of Hometown Security                           |
| NIMS    | National Incident Management System                               |
| NIPP    | National Infrastructure Protection Plan                           |
| NIST    | National Institute of Standards and Technology                    |
| NLE     | National Level Exercise   |
| NRDM    | National Retail Data Monitor                                      |
| NRF     | National Response Framework                                       |
| NWCG    | National Wildfire Coordination Group                              |
| OMB     | Office of Management and Budget                                   |
| OTC     | over-the-counter  |
| OTS     | off-the-shelf   |
| PBS     | Project BioShield   |
| PCII    | Protected Critical Infrastructure Information                     |
| PCIS    | Partnership for Critical Infrastructure Security                  |
| PDTS    | Pharmacy Data Transaction Service                                 |
| PERRC   | Preparedness and Emergency Response Research Centers              |
| PHEP    | Public Health Emergency Preparedness                              |
| PHIN    | Public Health Information Network                                 |
| PIEID   | Pandemic Influenza and Emerging Infectious Diseases               |
| POD     | Point of Dispensing   |
| PPE     | personal protective equipment                                     |
| PPHR    | Project Public Health Ready                                       |
| PPO     | Program Protection Office   |
| PSA     | Protective Security Advisor                                       |
| PTSD    | Post-Traumatic Stress Disorder                                    |

|        |  |
|--------|--|
| QS     | quality system                                       |
| R&D    | research and development                             |
| RAWG   | Risk Assessment Work Group                           |
| RFP    | Request for Proposals                                |
| RMA    | Risk Mitigation Activity                             |
| S&T    | Science and Technology                               |
| SARMA  | Security Analysis and Risk Management Association    |
| SAR WG | Sector Annual Report Writing Group                   |
| SCC    | Sector Coordinating Council                          |
| SHIRA  | Strategic Homeland Infrastructure Risk Analysis      |
| SME    | subject matter expert                                |
| SNS    | Strategic National Stockpile                         |
| SP&I   | Security, Privacy, and Infrastructure                |
| SSA    | Sector-Specific Agency                               |
| SSP    | Sector-Specific Plan                                 |
| UEVHPA | Uniform Emergency Volunteer Health Practitioners Act |
| VA     | Department of Veterans Affairs                       |
| VBIED  | vehicle-borne improvised explosive device            |

## Attachment B: 2009 Healthcare and Public Health Sector Additional Risk Mitigation Activities

Table B-1 lists the HPH Sector's other RMAs. The HPH Sector's key RMAs and associated descriptive data, output data, and outcome metrics, if available, are listed in section 4.

Table B-1: Other RMAs

### **ER One**

The ER One project is a federally funded initiative that identifies risk mitigation strategies that should be employed when renovating or planning new emergency facilities. The design study focuses on three areas: medical consequence management, scalability, and threat mitigation. The ER One Institute is housed at the major receiving hospital in the National Capital Region, and provides expert consultants for the training and education of hospital providers to respond to conventional and unconventional events. The ER One Institute has over 400 on-line learning modules, including 3-D imaging, hands-on Hospital Disaster Life Support (HDLS) courses, HDLS Update courses (HDLS II), Hospital Security Preparedness (HSP) courses, and four Annual Conferences. The ER One Institute also provides expertise in Hospital Incident Command System (HICS) management.

### **Early Warning Infectious Disease Systems (EWIDS)**

The Early Warning Infectious Disease Systems (EWIDS) program focuses on early detection, identification, and reporting of infectious diseases associated with both potential bioterrorism agents and other major threats to public health. EWIDS activities are intended to strengthen critical capacities in surveillance and epidemiology, laboratory capacity for biological agents, surveillance related communication and information technology, and surveillance/epidemiology related education and training. Focused in 21 border states with Canada and Mexico, four regional cooperatives have formed to jointly address shared concerns and programs.

### **Emergency Blood Supply**

The AABB (formerly American Association of Blood Banks) Inter-organizational Task Force on Domestic Disasters and Acts of Terrorism coordinates federal government and private sector efforts to ensure that blood needs will be met in the event of a disaster.

### **FDA Adverse Event Reporting System (AERS)**

The Adverse Event Reporting System (AERS) is a computerized information database designed to support the FDA's post-marketing safety surveillance program for all approved drug and therapeutic biologic products. The FDA uses AERS to monitor for new adverse events and medication errors that might occur with these products. Based on an evaluation of the potential safety concern, FDA may take regulatory actions to improve product safety and protect the public health, such as communicating new safety information to the public or removing a product from the market.

### **HHS Biomedical Advanced Research and Development Authority (BARDA) Project BioShield (PBS)**

BARDA's Project BioShield (PBS) Program accelerates the research, development, purchase, and availability of effective medical countermeasures against biological, chemical, radiological, and nuclear (CBRN) agents.

Table B-1: (Cont.)

**National Retail Data Monitor**

The National Retail Data Monitor (NRDM) monitors sales of over-the-counter (OTC) healthcare products to identify disease outbreaks as early as possible. The goal of the NRDM project has been to bring this new type of public health surveillance into existence as quickly as possible to meet the nation's need for the early detection of bioterrorism as well as naturally occurring disease outbreaks.

**Public Health Information Network (PHIN)**

The CDC Public Health Information Network (PHIN) is a national initiative to improve the capacity of public health to use and exchange information electronically by promoting the use of standards by defining functional and technical requirements. PHIN strives to improve public health by enhancing research and practice through best practices related to efficient, effective, and interoperable public health information systems.

**The National Disaster Life Support Education Consortium™ (NDSLCEC)**

The goal of NDSLCEC is to establish nationally recognized, standardized, and multidisciplinary curricula to train health professionals to respond to disasters and other public health emergencies in an effective and coordinated manner using an all-hazards approach.

## Attachment C: Sector R&D Capability Gaps/Mission Needs Statements

### C.1 Medical Surge Management

Medical Surge Management capability gaps submitted this year are under the priority area of Healthcare Facility Security.

Healthcare facility security is composed of components including design guidelines, infrastructure security measures, infrastructure soundness, personnel, customers/patients, supply trafficking, and entry and access points. While healthcare facilities such as hospitals have been targets of civil unrest, terrorism, and warfare in many countries, most hospital owners and operators in the United States do not consider their facilities to be likely targets of attack.

Not all healthcare facility vulnerabilities are linked to terrorism. Examples of other vulnerabilities include violence against hospital employees by angry or unstable patients; drug-addicts attempting to gain unauthorized access to pharmacies or drug storage areas; or a hurricane powerful enough to destroy all or part of a healthcare facility, rendering it unable to fulfill its mission.

R&D and MS&A on owner/operator perceptions of security, security force training, auxiliary security force capability, and facility design are necessary to guide future improvements to healthcare facility security.

Table C-1: Survey of Healthcare Facility Security Perceptions

| Question  | Response   |
|---|--|
| <b>CGS Tracking Number</b>  | 2009-002-Health  |
| <b>2009 Priority Number</b>   | N/A (see Preface)  |
| <b>Is this submission a Modeling, Simulation, and Analysis (MS&amp;A) Capability Gap?</b> | No   |
| <b>Proposed Title of Capability Gap</b>   | Healthcare Facility Security: Assessing Staff, Patient, and Visitor Perceptions      |
| <b>Goal/Objective/Driver to which the Capability Gap Responds</b>                         | Physical Asset Protection; Workforce Protection.                                     |
| <b>Theme</b>  | Protection and Prevention Systems; Human and Social Issues; Entry and Access Portals |

Table C-1: (Cont.)

| Question  | Response  |
|---|---|
| <p><b>Description of the Required Operational Capability</b></p>            | <p>The desired operational capability is a tool that allows for:</p> <ol style="list-style-type: none"> <li>1. A broad-based survey of patients, staff, and visitors to gain an understanding of their attitudes toward increased security measures in hospitals and other healthcare facilities:                             <ol style="list-style-type: none"> <li>a. The survey must protect patient, staff, and visitor anonymity.</li> <li>b. The survey must be inclusive of healthcare facilities, clinics, and public health organizations in rural, urban, and suburban areas, as well as in high-crime zones and small and large facilities.</li> <li>c. The survey must be vetted and validated by psychological and sociological experts.</li> <li>d. The survey must meet the requirements of the e-Gov Paperwork Reduction Act and be published in the <i>Federal Register</i>.</li> </ol> </li> <li>2. The ability to design and/or implement security solutions – leveraging the patient, staff, and visitor data – that may be used to elevate healthcare facility security as a priority for owners and operators as well as patients and visitors (e.g., taking into consideration budgetary restrictions and patient/visitor needs)                             <ol style="list-style-type: none"> <li>a. The results of this data may be used to show how disregarding healthcare facility security may be devastating given a particular disaster or emergency scenario.</li> </ol> </li> </ol> |
| <p><b>Identification of the End User</b></p>                                | <p>Direct End User: Private sector owners/operators of healthcare facilities; staff members of healthcare facilities</p> <p>Indirect End User: Patients and visitors to hospitals and other healthcare facilities; staff members of healthcare facilities</p>   |
| <p><b>Identification of Existing Related Capabilities or Technology</b></p> | <p>While AHRQ and the Joint Commission have surveys distributed regularly to hospitals and other healthcare facilities, these surveys are not comprehensive.</p>  |
| <p><b>Identification of Possible Approaches/Solutions</b></p>               | <p>Leverage existing surveying capabilities and build upon them to include this requirement.</p>  |

Table C-2: Security Personnel Training

| Question  | Response  |
|---|---|
| <b>CGS Tracking Number</b>  | 2009-003-Health   |
| <b>2009 Priority Number</b>   | N/A (see Preface)   |
| <b>Is this submission a Modeling, Simulation, and Analysis (MS&amp;A) Capability Gap?</b> | Yes   |
| <b>Proposed Title of Capability Gap</b>   | Managing Healthcare Facility Security Under All-Hazards conditions: Assessment and Training of Security Personnel   |
| <b>Goal/Objective/Driver to which the Capability Gap Responds</b>                         | Physical Asset Protection; Service Continuity; Workforce Protection.  |
| <b>Theme</b>  | Protection and Prevention Systems; Response, Recovery, and Reconstitution Tools   |
| <b>Description of the Required Operational Capability</b>                                 | <ol style="list-style-type: none"> <li>1. An analysis of past disasters and/or emergencies (e.g., Katrina, Mumbai attack on hospital) and other response-related functions to determine the minimum set of capabilities that healthcare facility security personnel should be required to possess so as to adequately address security needs during a disaster; this material should include an analysis of day-to-day/steady-state HPH facility violence to determine the minimum set of capabilities that security personnel should be required to possess so as to adequately address the daily protection of staff and patients.</li> <li>2. The establishment of training programs and/or leveraging of existing related training programs and tools based upon the set of minimum security capabilities required during a response; training programs and tools should enable security personnel to be self-reliant and to perform security-related response functions during a disaster or an emergency.               <ol style="list-style-type: none"> <li>a. These training programs should address steady-state security improvements to protect against daily hospital and other healthcare or public health facility violence.</li> <li>b. These training programs should also be periodic and ongoing; it will not be sufficient to have large gaps between training intervals or to focus training as a reaction to an event.</li> <li>c. The training programs should include scenario-based modeling (e.g., gaming tools) to simulate an event response for security personnel to use.</li> </ol> </li> <li>3. A standard method for assessing readiness and the general attitude of facility leadership toward preparedness (their attitudes toward investments in security/preparedness); basic standard of readiness.</li> </ol> |
| <b>Identification of the End User</b>   | Private hospital and other healthcare facility owners and operators; healthcare facility security managers; security personnel; safety and emergency management personnel   |
| <b>Identification of Existing Related Capabilities or Technology</b>                      | Unknown   |
| <b>Identification of Possible Approaches/Solutions</b>                                    | VA has well-developed modules used for training (e.g., mass decontamination training) that are readily available to private healthcare facilities. These modules can be leveraged and perhaps modified to be transferable across healthcare facility security needs.  |

Table C-3: Auxiliary Security Force

| Question  | Response   |
|---|--|
| <b>CGS Tracking Number</b>  | 2009-004-Health  |
| <b>2009 Priority Number</b>   | N/A (see Preface)  |
| <b>Is this submission a Modeling, Simulation, and Analysis (MS&amp;A) Capability Gap?</b> | No   |
| <b>Proposed Title of the Capability Gap</b>   | Healthcare Facility Security: Identification and Mobilization of an Auxiliary Security Force   |
| <b>Goal/Objective/Driver to which the Capability Gap Responds</b>                         | Physical Asset Protection; Service Continuity; Workforce Sustainability.   |
| <b>Theme</b>  | Response and Recovery Tools; Human and Social Issues   |
| <b>Description of the Required Operational Capability</b>                                 | <ol style="list-style-type: none"> <li>1. Data Collection – The ability to identify and locate the retired security, military personnel, law enforcement, and public safety officers in order to augment and enhance sustainability of healthcare facility security during a disaster or an emergency response. The identification of an auxiliary security force should take into account certain characteristics of the volunteers (e.g., availability, loyalty, dedication, and experience).</li> <li>2. System Development (registry) – The ability to capture credentials, experience, and other personal information in a tracking and organizational database once volunteers for an auxiliary security force are identified. This database should be integrated within existing registries to ensure an efficient utilization of limited resources.</li> <li>3. Strategies and guidance documents supporting the integration of auxiliary forces with current healthcare facility security personnel. These materials should ensure that each individual is prepared with up-to-date information, training, and/or policies and legal considerations for each particular facility within a locality/region.</li> <li>4. Identification and implementation of safety and security measures for auxiliary security force members must be elevated as a priority. Many liability issues are covered under ESAR-VHP and Red Cross volunteer registries; the coordination of security force volunteers will require similar considerations to include consideration of their safety and security (worker’s compensation).</li> <li>5. The security and safety of families of auxiliary security forces must be considered in order to remove any psychological or behavioral health barriers to mobilizing for response and recovery needs. Provisions made for regular staff members in extenuating circumstances should also be provided for volunteers.</li> </ol> |
| <b>Identification of the End User</b>   | Private hospital/public health institutions and other healthcare facility owners and operators; State and local government; healthcare facility security managers; security personnel.   |
| <b>Identification of Existing Related Capabilities or Technology</b>                      | Volunteer registries:<br>ESAR-VHP<br>Red Cross<br>MRC<br>EMAC  |

Table C-3: (Cont.)

| Question  | Response  |
|---|---|
| <p><b>Identification of Possible Approaches/Solutions</b></p> | <p>Possible approaches/solutions include:</p> <ol style="list-style-type: none"> <li>1. Leverage existing Federal volunteer coordination efforts (e.g., ESAR-VHP, MRC) to federalize the volunteer effort to provide healthcare facility security.</li> <li>2. Compare potential model (of the security workforce) to other models that mobilize retired workforce “assets.”</li> <li>3. Local hospital councils may leverage their social services or human resources departments, which are trained to do community outreach, in order to help in the identification of potential auxiliary security force members.</li> <li>4. Consideration should be given to launching this effort on a local and regional basis to ensure effective recruitment; it is perceived that if each individual hospital attempts to coordinate the recruitment and integration of an auxiliary security force, the effort may fail to produce the desired results. Alternatively, it may be more challenging to attempt to coordinate this effort on a local and regional basis; it may be challenging to familiarize the auxiliary security force to a specific medical center if their support is spread over several facilities.</li> </ol> |

Table C-4: Design Guidelines: Facility Assessment Tool

| Question  | Response   |
|---|--|
| <b>CGS Tracking Number</b>  | 2009–005–Health  |
| <b>2009 Priority Number</b>   | N/A (see Preface)  |
| <b>Is this submission a Modeling, Simulation, and Analysis (MS&amp;A) Capability Gap?</b> | Yes  |
| <b>Proposed Title of the Capability Gap</b>   | Healthcare Facility Security: Scenario-Based Security Assessment Tool  |
| <b>Goal/Objective/Driver to which the Capability Gap Responds</b>                         | Physical Asset Protection; Service Continuity; Workforce Protection.   |
| <b>Theme</b>  | Advanced Infrastructure Architectures; Analysis and Decision Support Systems; Response, Recovery, and Reconstitution Tools   |
| <b>Description of the Required Operational Capability</b>                                 | <p>Research is necessary to determine each facility's critical data elements to guide how the assessments should be conducted and what data should be collected. This process is sure to evolve; as MS&amp;A is conducted, the critical data elements will be more accurately defined.</p> <p>The MS&amp;A tool when developed should:</p> <ol style="list-style-type: none"> <li>1. Identify the data elements needed to identify security vulnerabilities, to determine which aspects of the facility need improvement, and to help facility management develop plans to implement security design features.</li> <li>2. Apply risk scenarios simulating a disaster or an emergency (MS&amp;A) specific to a healthcare facility in order to predict the consequences based upon previously populated data elements.</li> <li>3. Provide detailed analysis of vulnerabilities highlighted through the simulated event.</li> <li>4. Provide healthcare facility managers with sufficient information to help institute an effective plan for implementation of security measures; in conjunction with local/community planners (sensitivity at the local level that the facility is not going to operate in a vacuum; each individual facility's capability is connected to what the community can provide).</li> <li>5. Test retrofitting implementation (adjust features/data input based on improvements); this functionality requires that a capability to re-simulate each scenario with varying inputs is built into the tool.             <ol style="list-style-type: none"> <li>a. This feature would be used to demonstrate the value of implementing (as well as the costs of not implementing) safety measures/design changes prior to the onset of an event.</li> <li>b. This feature allows for a cost-benefit analysis of implementing safety/design changes in a healthcare facility.</li> </ol> </li> </ol> |

Table C-4: (Cont.)

| Question   | Response   |
|--|--|
| <b>Identification of the End User</b>                                | The end users of this product would be: <ol style="list-style-type: none"> <li>1. Healthcare facility chief executive officers (CEOs) and/or decision-making management.</li> <li>2. Community planners to ensure integration of hospital/healthcare facility emergency preparedness and response plans with those of the community.</li> <li>3. Other (non-healthcare) facility managers wishing to address all-hazards consequence reduction and emergency preparedness and response planning (direct cross-sector implications).</li> </ol> |
| <b>Identification of Existing Related Capabilities or Technology</b> | Existing guidelines for buildings (not specific to healthcare facilities) are not exclusively from the security perspective but give consideration to other aspects of safety, design, etc.  |
| <b>Identification of Possible Approaches/Solutions</b>               | Leverage existing guidelines and assessments and adjust them to be more inclusive of security and emergency preparedness and response features.<br><br>Existing MS&A tools developed by Los Alamos National Laboratory for predicting the damaging impact of a particular scenario on a locale or region can be leveraged and used to inform technology needs particular to this requirement.  |

## C.2 Workforce Sustainability

HPH functions are critical to the Nation’s stability. This sector is wholly responsible for ensuring the health and safety of the population, making advancements in research, developing new medical technologies and preventive diagnostics, and maintaining vigilance with regard to international events that may give rise to domestic outbreaks or require nationally significant policy changes. At all levels of the HPH continuum, the workforce is the most critical asset, and if the workforce were to be compromised, HPH functions could not be sustained. The sector mission would fail without the support of the workforce to carry out disease management, disease surveillance, response and recovery during an event, and the general provision of care. Currently, the sector operates at maximum or nearly maximum capacity on a day-to-day basis. Coupling this fact with the potential for a disease outbreak, a disaster, and a diminishing workforce, the sector’s mission could be brought to a halt if its most important asset were negatively affected.

The HPH workforce is exposed daily to pathogens and environmental hazards. Workers are often exposed to the consequences of an event even before the event has been identified. They are on the front lines of every response, risking their health and that of their families. These are the aspects of workforce sustainability that are unique to HPH and which the CGSs in this section intend to address. The problem lies in the sector’s ability to maintain the necessary level of essential healthcare personnel over an extended period of time in order to carry out the HPH mission effectively. The process by which we sustain the numbers of active HPH workers for the provision of care under all hazards (before, during, and following an event), including the effectiveness of institutions or organizations in which they work, has received little attention.

Workforce protection during an event has received a great deal of attention, giving rise to training scenarios, research, and modeling. However, the task of protecting the workforce prior to an event, including protection of the family, is still not well studied. Moreover, few are asking the question of “which” workforce members the sector can afford to do without during an event in the context of medical and non-medical workers. Is there a need, for instance, to protect cafeteria workers in the same way as physicians and clinicians? Is the reality that anybody performing healthcare and public health functions (including volunteers and support staff) needs to be monitored, provided preventive countermeasures, and included in the totality of the HPH workforce model?

In addition to these questions, if we regard sustainability of the workforce<sup>5</sup> as a critical priority, then we need to identify the total numbers of HPH workers, know what types of training they have received, and know how and where to locate them, as well as to conduct assessments of their psychological status in order to determine which individuals are best suited to support certain types of disasters.

Methods by which we can sustain and maintain the greatest numbers of effective workforce include:

- Monitoring (prior to, during, and after an incident),
- Protection in advance of an incident (prevention),
- Protection during and after an incident,
- Psychological training,
- Post-incident surveillance (note that after the anthrax incidents, there was no surveying team to follow-up with the known victims, limiting analysis), and
- Analytic training and development to extend the reach of a skilled workforce and to improve the skill of those who are untrained or non-practicing.

R&D, MS&A, and increased collaboration among all HPH stakeholders are necessary to increase the capacity and sustain the HPH workforce, as well as to reduce vulnerabilities for a more resilient, sustainable sector.

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<sup>5</sup> In this context, the HPH workforce includes individuals that are known trained, unknown-previously trained, not currently practicing, trained volunteers, untrained volunteers, and retirees.

Table C-5: Workforce Mobilization

| Question   | Response  |
|--|---|
| <b>CGS Tracking and Priority Number</b>                              | 2008–006–Healthcare and Public Health   |
| <b>Is this submission an MS&amp;A requirement?</b>                   | No  |
| <b>Proposed Title of Requirement</b>                                 | HPH Workforce Sustainability: Mobilizing Inactive Workers During a Response   |
| <b>Goal/Objective to which the Requirement Responds</b>              | Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event.   |
| <b>Theme</b>   | Response, Recovery, and Reconstitution Tools; Human and Social Issues   |
| <b>Description of the Required Operational Capability</b>            | <p>The desired operational capabilities are:</p> <ol style="list-style-type: none"> <li>1. The ability to locate the retired and non-practicing HPH workforce in order to enhance sustainability during a crisis response.</li> <li>2. The ability to quickly mobilize non-practicing and retired healthcare and public health workforce members.</li> </ol>  |
| <b>Identification of Existing Related Capabilities or Technology</b> | ESAR-VHP, while not standardized across all States and only addressing volunteers, would be ideal as a starting point for establishing a framework for including retired and non-practicing HPH workers as valuable assets during a response. Expanding the capabilities of ESAR-VHP and Disaster Medical Assistance Teams (DMAT) should be carried out by incorporating new requirements within these existing frameworks. |
| <b>Identification of Possible Approaches/Solutions</b>               | Ensure that other ongoing initiatives in this area include retired and non-practicing workforce members.  |

Table C-6: Workforce Typing

| Question  | Response   |
|---|--|
| <b>CGS Tracking and Priority Number</b>                   | 2009-001-Healthcare and Public Health  |
| <b>Is this submission an MS&amp;A requirement?</b>        | Yes  |
| <b>Proposed Title of Requirement</b>                      | HPH Workforce Typing   |
| <b>Goal/Objective to which the Requirement Responds</b>   | <p>Workforce Sustainability: Ensuring that adequate training and requisite skills are available to support response and recovery functions during an event through the standardization of fundamental skill sets; this capability would include the ability to rapidly identify and validate credentials prior to or during an event.</p> <p>Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event.</p>   |
| <b>Theme</b>  | Response, Recovery, and Reconstitution Training and Credential Validation Tools  |
| <b>Description of the Required Operational Capability</b> | <ol style="list-style-type: none"> <li>1. Develop a standardized process for validating skill sets and competencies to determine the appropriate response roles.               <ol style="list-style-type: none"> <li>a. Use the scenario method to determine the minimum skill sets required for given response capabilities.</li> <li>b. Identify alternate methods for utilizing resources where skills have not been validated or are no longer current.</li> </ol> </li> <li>2. Identify and validate credentials prior to or during an event in a confidential environment compatible with State ESAR-VHP systems.</li> <li>3. Augment the response capability of the sector by maximizing the effectiveness of the inactive workforce (training, exercising, and education).</li> <li>4. Develop and execute a repeatable demonstration program in locations that are more likely to experience an event (e.g., flood, hurricane, earthquake) and various high-impact, low-probability scenarios (IED, chemical and biological terrorism) that demonstrates efficiencies and inefficiencies of verification and validation of credentials and skills in a large volunteer health professional workforce. Demonstrations must produce:               <ol style="list-style-type: none"> <li>a. Evidence-based reports for education and training.</li> <li>b. Reports on skill sets required based on the scenario presented.</li> <li>c. Collection of data based on past events and share information in the demonstration.</li> </ol> </li> <li>5. Assess or document issues relating to volunteer laws and regulations (temporary suspension of policy/restrictive laws).</li> </ol> |

Table C-6: (Cont.)

| Question  | Response  |
|---|---|
| <p><b>Identification of Existing Related Capabilities or Technology</b></p> | <p>FEMA NIMS Resource Typing of Medical Professionals and Medical Care Teams: NIMS work in resource typing has examined the medical care capabilities of various deployable teams and categorized workforce personnel with regard to their need in the response function. Training and minimum requirements are part of the NIMS discussion and typing efforts, although not at the convergent volunteer level. However, minimal standardized skill sets have not been established to support the NIMS efforts. The work addressing aspects of the resource typing criteria should be leveraged; the HPH Sector should focus on broader healthcare community-based capabilities for the workforce's current and future providers.</p> <p>National Wildfire Coordination Group (NWCG)<sup>6</sup> of the USDA Forest Services uses Position Task Books for firefighter credentials, skills, and capabilities. These books are maintained by the trainee responder and record the training, competency, and skill sets obtained in direct observation of a certified evaluator. This "certifies" that the trainee is capable of performing tasks, operating equipment, or assuming leadership roles.<sup>7</sup></p> <p>Several HHS and CDC initiatives have been undertaken to provide healthcare and public health providers with the resources for training and education. These efforts meet the clinicians' desire for more information through State and local cooperative agreements, partnerships with academic institutions and community partners, direct provider education, just-in-time training, and other methods. Non-contiguous workforce training was also investigated under an AHRQ-sponsored project focused on developing competency-based training. The work examined military models for training a non-contiguous force; the training was designed to disseminate knowledge and skills prior to a disaster drill, making the drill more effective.<sup>8</sup> However, training competencies have not been clearly identified or standardized.</p> <p>The USDA's Animal Plant Health Inspection Service (APHIS) credentialing and resource typing process was undertaken to identify a standard set of credentials and skill sets pertinent to each</p> |

<sup>6</sup> The National Wildfire Coordinating Group (NWCG) is made up of the USDA Forest Service; four Department of the Interior agencies (Bureau of Land Management [BLM], National Park Service [NPS], Bureau of Indian Affairs [BIA], and the Fish and Wildlife Service [FWS]); and State forestry agencies through the National Association of State Foresters. The purpose of the NWCG is to coordinate programs of the participating wildfire management agencies so as to avoid wasteful duplication and to provide a means of constructively working together. Its goal is to provide more effective execution of each agency's fire management program. The group provides a formalized system to agree upon standards of training, equipment, qualifications, and other operational functions; available at [http://www.nwcg.gov/nwcg\\_admin/organize.htm](http://www.nwcg.gov/nwcg_admin/organize.htm).

<sup>7</sup> National Wildfire Coordination Group. *Position Task Books and Evaluation Forms*. Accessed March 5, 2009 at <http://www.nwcg.gov/pms/taskbook/taskbook.htm>.

<sup>8</sup> *Surge Capacity—Education and Training for a Qualified Workforce*. Bioterrorism and Health System Preparedness, Issue Brief No. 7. AHRQ Publication No. 04-P028, October 2004. Agency for Healthcare Research and Quality, Rockville, MD; available at <http://www.ahrq.gov/news/ulp/btbriefs/btbrief7.htm>.

Table C-6: (Cont.)

| Question | Response   |
|----------|--|
|          | <p>specialized position. This effort is to permit typing of these resources for response under NIMS criteria.</p> <p>First Responder Authentication Credential (FRAC), developed as a result of H.R. 1 Requirement, Title IV of the "Implementing Recommendations of the 9/11 Commission Act of 2007," directs FEMA to develop standardized credentials, provide real-time awareness and accountability, provide medical surge capacity, and provide credentialing and typing technical expertise and written guidance to State and local governments. This credential may relay information on:</p> <ul style="list-style-type: none"> <li>• Proof of identity;</li> <li>• Proof of attribute (qualification, certification, authorization, privilege) or affiliation (CIKR); and</li> <li>• Source authorization for deployment (mission assignment, Emergency Management Assistance Compact [EMAC], mutual aid agreement, etc.).</li> </ul> <p>This credential may assist with medical surge capacity through a vetted credential for responders meeting the designated criteria and reinforces the Nation's distributed all-hazards incident management structure. All State and local healthcare participants are certified and licensed healthcare professionals categorized under the NRF ESF 8 attribute as public health and healthcare officials with HHS/FEMA approved sub-category skill sets. It has been difficult for this program to determine which qualifications should be included since different sectors define the qualifications differently. This system could benefit from a minimum standardized skill set to identify and credential personnel.</p> <p>Some of the work regarding identifying credentialed and/or licensed individuals is currently being examined under ESAR-VHP; the requirements identified in this CGS may need to be carried over to ESAR-VHP to create a holistic solution.* Data from State and regional credentialing or licensing board databases and NDMS capabilities for acquiring necessary data and skill set or competency identification needs to be leveraged.</p> <p><i>*NOTE: Legal liabilities. Credentialing and privileging are distinct hurdles; advance privileging is not possible – legal impediments to this capability regarding privileging have proven to be a significant factor in past crises governed by State regulations and facility-specific requirements. This is still an area of research. While a small group of legal experts and a few States are addressing this issue, significant work remains.</i></p> |

Table C-6: (Cont.)

| Question  | Response  |
|---|---|
| <b>Identification of End User</b>                       | FEMA <sup>9</sup> , HHS Regional Coordinators, VA/DoD incident commanders, Metropolitan Medical Response System (MMRS) coordinators, Medical Reserve Corps, state public health officials, local public health officials, hospital incident commanders, emergency departments, and emergency managers   |
| <b>Identification of Possible Approaches/ Solutions</b> | <p>Leverage the existing guidance, “typing” criteria, and methodologies used for the validation of volunteers; NIMS resource typing efforts; and NWCG Position Task Books for models of training and technical skills.</p> <p>Use modeling based on the national threat scenarios to identify common skill requirements across all hazards and the specialized competency skill set requirements for the low-probability, high-impact scenarios necessary for these responses to formulate a national standard curriculum for disaster and mass casualty response, recovery, and mitigation specific to provider disciplines.</p> <p>Evaluate the relevance and incorporate the applicable research and curricula recommendations developed by the National Health Professions Preparedness Consortium (NHPPC), the International Nursing Coalition for Mass Casualty Education (INCMCE), and the American College of Emergency Physicians (ACEP)<sup>10</sup> to provide standardized medical professional disaster and mass casualty training curricula.</p> <p>Develop and execute a demonstration program in States; in a locations that are more likely to experience an event (e.g., flood, hurricane, earthquake) and various high-impact, low-probability scenarios (IND, chemical and biological terrorism) demonstrating efficiencies and inefficiencies of verification and validation of credentials and skills in a large volunteer health professional workforce. Develop:</p> <ol style="list-style-type: none"> <li>1. Evidence-based reports for education and training.</li> <li>2. Reports on skill sets required based on scenario presented.</li> </ol> <p>Collect data based on past events and share information in the demonstration.</p> |

<sup>9</sup> FEMA NIMS Resource Management Web site has completed credentialing for 44 HPH Sector professionals. Credentialing stops short of providing a list of minimum competencies and skill sets required for a various response requirements; available at <http://www.fema.gov/emergency/nims/ResourceMngmnt.shtm#item3>.

<sup>10</sup> American College of Emergency Physicians – NBC Task Force, “Developing Objectives, Content, and Competencies for Training of Emergency Medical Technicians, Emergency Physicians, and Emergency Nurses to Care for Casualties from Nuclear, Biological or Chemical (NBC) Incidents,” Final Report, *Ann. Emerg. Med.*, June 2001; 37(6):587–601.

Table C-7: Protection of Family and Dependents

| Question   | Response  |
|--|---|
| <b>CGS Tracking and Priority Number</b>                              | 2008–008–Healthcare and Public Health   |
| <b>Is this submission an MS&amp;A requirement?</b>                   | No  |
| <b>Proposed Title of Requirement</b>                                 | Ensuring the Health and Safety of Workforce Members' Families and Dependents  |
| <b>Goal/Objective to which the Requirement Responds</b>              | <p>Sector Workforce Sustainability Goal: Protect the workforce from the harmful consequences of hazards that could compromise their health and safety while they are carrying out their HPH roles and responsibilities. Under certain circumstances, the consideration of health and safety should be extended to the families of those workforce members required during emergency response and recovery functions.</p> <p>Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event.</p>   |
| <b>Theme</b>   | Response, Recovery, and Reconstitution Tools; Human and Social Issues   |
| <b>Description of the Required Operational Capability</b>            | <ol style="list-style-type: none"> <li>1. Determination of the triggers that might cause workforce members to remain with their families instead of fulfilling their medical responsibilities (leverage studies that have already been performed).</li> <li>2. Delineation of the scenarios that would cause the greatest impacts to workforce family members (physical or psychological).</li> <li>3. Identification of the requirements necessary to protect the health and safety of workforce family members during a disaster. This objective cannot be accomplished in isolation; it must be integrated into the community response involving other sectors such as the Emergency Services Sector.</li> <li>4. Requirements for the protection of workforce family members that could be integrated into a decision support tool.</li> <li>5. Identification of policies that can affect the protection of workforce family members.</li> <li>6. Awareness regarding workforce members as vectors for the (bilateral) transmission of infectious disease and sources of cross-contamination (e.g., radioactive agents) (arising within the family unit).</li> </ol> |
| <b>Identification of Existing Related Capabilities or Technology</b> | A recent NIH study about pandemics and the response to them revealed that one of the greatest impediments to a response is the lack of infection control precautions. Two factors were identified as barriers to individuals attending work: (1) transportation and (2) child care (e.g., if schools close, there is an even greater potential for members of the workforce to remain at home to care for their children).  |

Table C-7: (Cont.)

| Question  | Response  |
|---|---|
| <b>Identification of Possible Approaches/ Solutions</b> | <p>Statistical research to determine what percentage of the HPH workforce has family members or dependents requiring support.</p> <p>Existing decision support tools may be useful for statistical analysis.</p> <p>Education of the HPH workforce and their families and dependents can also promote awareness of the threats related to the transmission of infection and the appropriate actions to undertake in a disaster to alleviate consequences.</p> <p>Any approach to addressing these issues needs to consider multiple scenarios. There may be some generic scenario data that can be leveraged, but ultimately scenarios will need to be modeled.</p> |

### C.3 Medical Supply Chain Gaps

All HPH functions rely on the integrity of the supply chain, which involves the manufacturing, distribution, and consumption of medical materials. The range of medical materials includes both durable and non-durable goods, from radiological equipment to latex gloves. The diversity of the supply chain accounts for many of the gaps faced by the sector in carrying out its mission.

There has been an upsurge of international interdependencies necessary to sustain domestic healthcare and public health operations on a daily basis. While the diversion of medical material production to locations abroad may reduce costs, these dependencies render the supply chain, and therefore the sector, vulnerable to events outside of U.S. control. Before these vulnerabilities can be addressed by preparedness and prevention initiatives, the vulnerabilities in the international supply chain must be identified and analyzed to determine the extent of their implications. The vulnerability of the international medical material supply chain poses a significant gap in the existing capabilities that can be addressed in a few intersecting ways: modeling, simulation, and analysis; cost-benefit analyses to incentivize private industry to produce products locally; and research into the development of alternate resources for manufacturing essential medical materials.

R&D, MS&A, and increased collaboration among all HPH security partners are necessary to develop standardized and efficient processes for the management of the supply chain and to reduce vulnerabilities for a more resilient, sustainable sector.

Table C-8: Vulnerabilities in International Supply Chain Manufacturing

| Question   | Response   |
|--|--|
| <b>CGS Tracking and Priority Number</b>                              | 2008–009–Healthcare and Public Health  |
| <b>Is this submission an MS&amp;A requirement?</b>                   | Yes  |
| <b>Proposed Title of Requirement</b>                                 | Vulnerabilities in International Supply Chain Manufacturing  |
| <b>Goal/Objective to which the Requirement Responds</b>              | Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event.  |
| <b>Theme</b>   | Advanced Infrastructure Architecture; Emerging Threats and Vulnerabilities Analysis Aids   |
| <b>Description of the Required Operational Capability</b>            | <ol style="list-style-type: none"> <li>1. The ability to identify where vulnerabilities exist in the international medical supply chain.</li> <li>2. The ability to assess vulnerabilities and leverage predictive analysis to understand the consequences of disruptions to the international medical supply chain and the impact domestically on the provision of care.</li> <li>3. The ability to identify through scientific analysis specific resources for which there may be a need to develop alternative raw materials and production processes.</li> </ol> |
| <b>Identification of Existing Related Capabilities or Technology</b> | FDA CDRH is piloting an initiative to identify and address international supply chain vulnerabilities.   |
| <b>Identification of Possible Approaches/ Solutions</b>              | Leverage existing research with FDA and other sector partners to address supply chain issues specific to this identified gap.  |

Table C-9: Medical Device Sustainability

| Question   | Response   |
|--|--|
| <b>CGS Tracking and Priority Number</b>                              | 2008–010–Healthcare and Public Health  |
| <b>Is this submission an MS&amp;A requirement?</b>                   | Yes  |
| <b>Proposed Title of Requirement</b>                                 | Medical Device Sustainability  |
| <b>Goal/Objective to which the Requirement Responds</b>              | Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event.  |
| <b>Theme</b>   | Advanced Infrastructure Architecture; Response, Recovery, and Reconstitution Tools   |
| <b>Description of Required Operational Capability</b>                | <p>The desired outcome is development that:</p> <ol style="list-style-type: none"> <li>1. Promotes new raw materials for application in producing essential medical materials with a focus on reuse, extended life of the raw material, reduced cost to produce, and shortened time to market.</li> <li>2. Generates cost-effective medical products for use by both patients and responders, specifically in disaster settings.</li> <li>3. Promotes manufacturing of essential medical resources within the United States.</li> </ol> <p>Additional capabilities include scientific analysis of limited resources – understanding depletion rates, making the most effective use of limited resources, and identifying alternate resources that may be used.</p> |
| <b>Identification of Existing Related Capabilities or Technology</b> | Unknown  |
| <b>Identification of Possible Approaches/ Solutions</b>              | FDA may have some work in this area along with HRSA.   |

Table C-10: U.S. Manufacturing Incentives

| Question   | Response  |
|--|---|
| <b>CGS Tracking and Priority Number</b>                              | 2008–012–Healthcare and Public Health   |
| <b>Is this submission an MS&amp;A requirement?</b>                   | No  |
| <b>Proposed Title of the Requirement</b>                             | U.S. Manufacturing Incentives   |
| <b>Goal/Objective to which the Requirement Responds</b>              | Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event; prevent or mitigate the consequences of disruptions to the supply chain or a diversion of supplies that could significantly impair continuity of sector operations. |
| <b>Theme</b>   | Advanced Infrastructure Architecture; Protection and Prevention Systems; Response, Recovery, and Reconstitution Tools   |
| <b>Description of the Required Operational Capability</b>            | The desired operational capability is rigid analysis identifying incentives (grants, tax benefits, etc.) for the private sector to begin to invest in the domestic manufacture and production of medical materials, in particular those products that are used in high volumes but are produced in either limited quantities or not produced at all in the United States.   |
| <b>Identification of Existing Related Capabilities or Technology</b> | Unknown   |
| <b>Identification of Possible Approaches/ Solutions</b>              | Unknown   |

Table C-11: Medical Supply Chain: Maintenance of Stockpiles

| Question   | Response  |
|--|---|
| <b>CGS Tracking and Priority Number</b>                              | 2008–014–Healthcare and Public Health   |
| <b>Is this submission an MS&amp;A requirement?</b>                   | Yes   |
| <b>Proposed Title of Requirement</b>                                 | Medical Supply Chain: Maintenance of Stockpiles   |
| <b>Goal/Objective to which the Requirement Responds</b>              | Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event; prevent or mitigate the consequences of disruptions to the supply chain or a diversion of supplies that could significantly impair continuity of sector operations. |
| <b>Theme</b>   | Advanced Infrastructure Architecture; Response, Recovery, and Reconstitution Tools; Protection and Prevention Systems   |
| <b>Description of the Required Operational Capability</b>            | <ol style="list-style-type: none"> <li>1. Empirical data from MS&amp;A to measure the efficacy of stockpiling, to measure the risks, and to develop planning guidance.</li> <li>2. The ability to make recommendations regarding requirements, limitations, costs, risks, and effective management of stockpiles.</li> </ol>  |
| <b>Identification of Existing Related Capabilities or Technology</b> | Some tools may exist as a component of predicting mass prophylaxis requirements. AHRQ has worked on some modeling tools to support effective surge management.  |
| <b>Identification of Possible Approaches/Solutions</b>               | Leverage existing research and modeling tools to address efficient and effective maintenance of stockpiles.   |

Table C-12: Logistics, Mobilization, and Distribution Policy

| Question   | Response   |
|--|--|
| <b>CGS Tracking and Priority Number</b>                              | 2008–016–Healthcare and Public Health  |
| <b>Is this submission an MS&amp;A requirement?</b>                   | No   |
| <b>Proposed Title of Requirement</b>                                 | Supply Chain Logistics: Policy and Legal Coordination  |
| <b>Goal/Objective to which the Requirement Responds</b>              | Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event; prevent or mitigate the consequences of disruptions to the supply chain or a diversion of supplies that could significantly impair continuity of sector operations.  |
| <b>Theme</b>   | Advanced Infrastructure Architecture; Human and Social Issues  |
| <b>Description of the Required Operational Capability</b>            | <ol style="list-style-type: none"> <li>1. Analysis of State and Federal requirements, with a focus on conflicting requirements.</li> <li>2. Recommendations for improving the legal framework to fully incorporate requirements that support logistics, movement of medical materiel, volunteers (practicing, non-practicing, retired), restoration of services, and transportation across State lines.</li> </ol> |
| <b>Identification of Existing Related Capabilities or Technology</b> | Unknown  |
| <b>Identification of Possible Approaches/ Solutions</b>              | Review analysis of Homeland Security Presidential Directive (HSPD) 21<br>Research under AHRQ   |

## C.4 Cyber Capability Gaps

As the HPH Sector undergoes major changes in response to new legislation mandating the adoption of EHRs, issues relating to cyber technology and security within the sector have become nationally significant. Vulnerabilities exist across the sector due to a combination of factors that are not widely understood. More specifically, the potential consequences and/or cascading consequences that may face the sector if a cyber system is attacked or compromised, as well as the magnitude of such consequences, remain generally unknown and have not been analyzed. The importance of analyzing cyber disruptions and the consequences of these disruptions will continue to increase as the sector’s use of technology increases.

Table C-13: Cyber Disruptions

| Question   | Response  |
|--|---|
| <b>CGS Tracking and Priority Number</b>                              | 2008–021–Healthcare and Public Health   |
| <b>Is this submission an MS&amp;A requirement?</b>                   | Yes   |
| <b>Proposed Title of the Requirement</b>                             | Cyber Disruptions to Healthcare and Public Health   |
| <b>Goal/Objective to which the Requirement Responds</b>              | Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event.   |
| <b>Theme</b>   | Advanced Infrastructure Architecture; Response, Recovery, and Reconstitution Tools  |
| <b>Description of the Required Operational Capability</b>            | The desired outcome is an analysis that: <ol style="list-style-type: none"> <li>1. Provides key attributes of systems or infrastructure likely to be targets of cyber attacks.</li> <li>2. Yields scientific data that details the potential vulnerabilities in HPH systems that are likely to be exploited for purposes of infiltrating health systems.</li> <li>3. Supports planning for IT investments and security.</li> <li>4. Offers recommendations for improvements to medical systems or information management processes.</li> <li>5. Supports situational awareness and incident response requirements.</li> </ol> |
| <b>Identification of Existing Related Capabilities or Technology</b> | Unknown   |
| <b>Identification of Possible Approaches/Solutions</b>               | Work with health information management associations.<br><br>Leverage analysis from FDA and HIMSS on medical devices system security.   |

Table C-14: Cyber: Cross-Sector Cascading Consequences

| Question  | Response   |
|---|--|
| <b>CGS Tracking Number</b>  | 2009-006-Health  |
| <b>2009 Priority Number</b>   | N/A (see Preface)  |
| <b>Is this submission a Modeling, Simulation, and Analysis (MS&amp;A) Capability Gap?</b> | Yes  |
| <b>Proposed Title of the Capability Gap</b>   | Cyber Interdependencies: Cascading Consequences  |
| <b>Goal/Objective/Driver to which the Capability Gap Responds</b>                         | HPH Sector Cyber Goals; FISMA, HSPD 7, HSPD 23.  |
| <b>Theme</b>  | Analysis and decision support systems; protection and prevention systems.  |
| <b>Description of the Required Operational Capability</b>                                 | <p>The sector requires the operational capability to simulate and examine the potential effects of both cascading consequences and direct attacks on sector systems and infrastructures in order to:</p> <ul style="list-style-type: none"> <li>▪ Identify weaknesses/vulnerabilities in current technologies and practices.</li> <li>▪ Estimate consequences to HPH services, programs, and individuals resulting from disruptions.</li> <li>▪ Quantify impacts to sector assets resulting from the loss of data, service capabilities, identity theft, etc.</li> <li>▪ Provide Agencies and the private sector with scientific data to support IT investment dollars related to technical security.</li> <li>▪ Develop strategies to mitigate infrastructure vulnerabilities.</li> <li>▪ Develop/recommend guidelines to improve mission assurance.</li> <li>▪ Work with appropriate standards boards and technologists to identify mitigation strategies to improve system security.</li> </ul> |
| <b>Identification of the End User</b>   | CEOs, Chief Information Officers, Chief Technology Officers, Chief Information Security Officers, Information Security Officers/Professionals  |
| <b>Identification of Existing Related Capabilities or Technology</b>                      | Check with DHS Science and Technology (S&T)/NCSD.  |
| <b>Identification of Possible Approaches/Solutions</b>                                    | Check with DHS S&A/NCSD.   |

## C.5 Additional Capability Gap Statements

The JAWG identified several other gaps through the various analyses of the R&D priority areas that are broadly related to all capabilities of the HPH Sector. If these gaps are addressed effectively, the ability of the sector to fulfill its mission will be enhanced.

Table C-15: Interdependency Analysis

| Question   | Response   |
|--|--|
| <b>CGS Tracking and Priority Number</b>                              | 2008–018–Healthcare and Public Health  |
| <b>Is this submission an MS&amp;A requirement?</b>                   | Yes  |
| <b>Proposed Title of the Requirement</b>                             | Cross-Sector Interdependency Analysis  |
| <b>Goal/Objective to which the Requirement Responds</b>              | Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event.  |
| <b>Theme</b>   | Advanced Infrastructure Architecture; Response, Recovery, and Reconstitution Tools   |
| <b>Description of the Required Operational Capability</b>            | The desired outcome is an MS&A tool that: <ol style="list-style-type: none"> <li>1. Prioritizes interdependencies based on importance to the sector.</li> <li>2. Identifies alternate strategies for service continuity in the event that a key resource is lost or degraded.</li> <li>3. Provides quantitative data for crisis scenarios to be leveraged for planning, preparedness, and response activities.</li> <li>4. Leverages exercise data to aid in the development of mitigation and alternate resource strategies in support of preparedness and response.</li> </ol> |
| <b>Identification of Existing Related Capabilities or Technology</b> | Unknown  |
| <b>Identification of Possible Approaches/Solutions</b>               | Leverage other studies that have been performed related to dependency analysis.<br><br>NISAC MS&A data on pandemic influenza may be used to inform this topic.   |

Table C-16: Cascading Consequence Analysis

| Question   | Response   |
|--|--|
| <b>CGS Tracking and Priority Number</b>                              | 2008–019–Healthcare and Public Health  |
| <b>Is this submission an MS&amp;A requirement?</b>                   | Yes  |
| <b>Proposed Title of the Requirement</b>                             | Compound Threat: Cascading Consequence Analysis  |
| <b>Goal/Objective to which the Requirement Responds</b>              | Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event.  |
| <b>Theme</b>   | Advanced Infrastructure Architecture; Response, Recovery, and Reconstitution Tools   |
| <b>Description of the Required Operational Capability</b>            | <ol style="list-style-type: none"> <li>1. Empirical data on economic or loss-of-life impacts resulting from cascading effects of all hazards.</li> <li>2. Scientific analysis that can be integrated into a decision-support tool for purposes of situational awareness and incident command and control.</li> <li>3. Development of a decision-support tool that can be leveraged at the local and regional levels from planning, response, and recovery operations.</li> </ol> |
| <b>Identification of Existing Related Capabilities or Technology</b> | Unknown  |
| <b>Identification of Possible Approaches/Solutions</b>               | Unknown  |

Table C-17: Long-Term Disruptions

| Question   | Response   |
|--|--|
| <b>CGS Tracking and Priority Number</b>                              | 2008-020-Healthcare and Public Health  |
| <b>Is this submission an MS&amp;A requirement?</b>                   | Yes  |
| <b>Proposed Title of the Requirement</b>                             | Response and Recovery – Long-Term Disruptions  |
| <b>Goal/Objective to which the Requirement Responds</b>              | Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event.  |
| <b>Theme</b>   | Advanced Infrastructure Architecture; Response, Recovery, and Reconstitution Tools   |
| <b>Description of the Required Operational Capability</b>            | <p>The desired outcome is a tool that:</p> <ol style="list-style-type: none"> <li>1. Supports planning at the tactical and strategic level.</li> <li>2. Identifies alternate strategies for service continuity in the event that a key resource is lost or degraded.</li> <li>3. Provides quantitative data of crisis scenarios to be leveraged for planning, preparedness, and response activities.</li> <li>4. Supports situational awareness and incident response requirements.</li> </ol> |
| <b>Identification of Existing Related Capabilities or Technology</b> | Unknown  |
| <b>Identification of Possible Approaches/Solutions</b>               | Unknown  |

Table C-18: Volunteers: Liability Exemption

| Question   | Response   |
|--|--|
| <b>CGS Tracking and Priority Number</b>                              | 2008-022-Healthcare and Public Health  |
| <b>Is this submission an MS&amp;A requirement?</b>                   | No   |
| <b>Proposed Title of the Requirement</b>                             | Volunteers: Liability Exemption  |
| <b>Goal/Objective to which the Requirement Responds</b>              | Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event.  |
| <b>Theme</b>   | Human and Social Issues; Response, Recovery, and Reconstitution Tools  |
| <b>Description of the Required Operational Capability</b>            | <ol style="list-style-type: none"> <li>1. National standards regarding volunteer logistics.</li> <li>2. Implementable liability exemptions for volunteers.</li> <li>3. Standardized communications, vaccinations, and issuance of PPE to volunteers prior to execution of response and recovery requirements.</li> </ol> |
| <b>Identification of Existing Related Capabilities or Technology</b> | ESAR-VHP   |
| <b>Identification of Possible Approaches/Solutions</b>               | Virginia Volunteers Act<br>The Volunteer Protection Act of 1997<br>Public Entity Risk Institute (PERI)   |

Table C-19: Mass Fatalities – Temporary Suspension of Laws

| Question   | Response   |
|--|--|
| <b>CGS Tracking and Priority Number</b>                              | 2008–023–Healthcare and Public Health  |
| <b>Is this submission an MS&amp;A requirement?</b>                   | No   |
| <b>Proposed Title of the Requirement</b>                             | Temporary Suspension of Laws to Support Mass Fatalities  |
| <b>Goal/Objective to which the Requirement Responds</b>              | Service Continuity Goals: Continue the provision of essential services (e.g., patient care, public health) and facilitate essential response and recovery functions both during and following an event. Prevent or mitigate the consequences of disruptions to the supply chain or diversion of supplies that could significantly impair continuity of sector operations.  |
| <b>Theme</b>   | Human and Social Issues  |
| <b>Description of the Required Operational Capability</b>            | <ol style="list-style-type: none"> <li>1. Develops a policy or legal framework that allows for the temporary suspension of certain Federal, State, and local laws, rules, and regulations governing the conduct or practice of mass fatalities operations, including the recovery and storage of bodies, funeral arrangements, and cemetery/crematory operations.</li> <li>2. Establishes metrics to measure the effectiveness of suspending regulations, laws, policies, or standards.</li> <li>3. Develops a decision support tool to assist in identifying the triggers that indicate a need to relax the legal framework, as well as the triggers to re-institute the legal framework.</li> <li>4. A process for communicating a change in the legal framework during an event.</li> </ol> |
| <b>Identification of Existing Related Capabilities or Technology</b> | Unknown  |
| <b>Identification of Possible Approaches/ Solutions</b>              | Review of HSPD 21 analysis.  |

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## Attachment D: Progress on 2008 Capability Gap/Mission Need Statements

In 2008, the HPH Sector submitted 23 CGSs as part of the Sector Annual Report. The Sector Annual Report categorized CGSs based on the R&D themes of Medical Surge Management, Workforce Sustainability, and Medical Supply Chain Management.

### D.1 Medical Surge Management

The four CGSs falling under the theme of Medical Surge Management identified in the 2008 Sector Annual Report reflect only a sub-set of priorities recommended for further examination. All four of the statements accepted by the DHS S&T Division and Requests for Proposals (RFPs) have been submitted to the Kentucky Critical Infrastructure Protection Institute Program (KCI), a program managed by NIHS and funded by DHS. Proposals for each of these gap statements are currently under review; funding decisions will be made at a later date. The accepted capability gaps are:

- Informatics: Secure Information Exchange for Medical Surge Capacity Management,
- Crisis Standards of Care,
- Situational Awareness: Incident Command Decision Support Tool, and
- Health Systems Capacity Management.

### D.2 Workforce Sustainability

The CGS submitted in the 2008 Sector Annual Report, titled *HPH Workforce Protection: Ensuring Mental Health Before, During, and After a Crisis*, is currently being funded as a research project by KCI. This CGS addresses the broad mental health needs of the HPH workforce, with particular attention to those workforce members who are on the “front lines” of a response.

To further address other aspects of behavioral health, the JAWG has extended its analysis of workforce sustainability to include broader topics for 2009 under the Behavioral Health research priority (see section 6.1.2).

### D.3 Medical Supply Chain Management

Of the eight Supply Chain Management CGSs submitted as part of the 2008 Sector Annual Report, DHS S&T revisited three (011, 013, and 015). The NIHS selected these three statements for proposal writing. DHS S&T was to finalize funding decisions by the end of May 2009.

Table D-1: Progress on 2008 Capability Gap/Mission Need Statements

|                                       |   |
|---------------------------------------|---|
| <b>Capability Gap Tracking Number</b> | 2008-001-Health   |
| <b>Requirement Title</b>              | Informatics: Secure Information Exchange for Medical Surge Capacity Management  |
| <b>Action</b>                         | Submitted to S&T for NIHS RFP. The NIHS RFP combines 2008-001-Health, 2008-002-Health, 2008-004-Health, 2008-005-Health, and 2008-002-Emergency Services Sector into one RFP. |
| <b>Status</b>                         | Proposal is currently being reviewed by SSA.  |
| <b>Capability Gap Tracking Number</b> | 2008-002-Health   |
| <b>Requirement Title</b>              | Crisis Standards of Care  |
| <b>Action</b>                         | Submitted to S&T for NIHS RFP. The NIHS RFP combines 2008-001-Health, 2008-002-Health, 2008-004-Health, 2008-005-Health, and 2008-002-Emergency Services Sector into one RFP. |
| <b>Status</b>                         | Proposal is currently being reviewed by SSA.  |
| <b>Capability Gap Tracking Number</b> | 2008-003-Health   |
| <b>Requirement Title</b>              | Situational Awareness: Incident Command Decision Support Tool   |
| <b>Action</b>                         | Submitted to S&T for NIHS RFP.  |
| <b>Status</b>                         | Proposal is currently being reviewed by SSA.  |
| <b>Capability Gap Tracking Number</b> | 2008-004-Health   |
| <b>Requirement Title</b>              | Health Systems Capacity Management  |
| <b>Action</b>                         | Submitted to S&T for NIHS RFP. The NIHS RFP combines 2008-001-Health, 2008-002-Health, 2008-004-Health, 2008-005-Health, and 2008-002-Emergency Services Sector into one RFP. |
| <b>Status</b>                         | Proposal is currently being reviewed by SSA.  |
| <b>Capability Gap Tracking Number</b> | 2008-005-Health   |
| <b>Requirement Title</b>              | HPH Workforce Protection: Ensuring Mental Health  |
| <b>Action</b>                         | Submitted to S&T for NIHS RFP. The NIHS RFP combines 2008-001-Health, 2008-002-Health, 2008-004-Health, 2008-005-Health, and 2008-002-Emergency Services Sector into one RFP. |
| <b>Status</b>                         | Proposal is currently being reviewed by SSA.  |
| <b>Capability Gap Tracking Number</b> | 2008-006-Health   |
| <b>Requirement Title</b>              | HPH Workforce Sustainability: Mobilizing Inactive Workers   |
| <b>Action</b>                         | Gap requires a non-material solution that R&D cannot provide. Recommend that sector work this item through symposium, workshops, etc.   |
| <b>Status</b>                         | N/A   |

Table D-1: (Cont.)

|                                       |   |
|---------------------------------------|---|
| <b>Capability Gap Tracking Number</b> | 2008-007-Health   |
| <b>Requirement Title</b>              | HPH Workforce Typing  |
| <b>Action</b>                         | Gap requires a non-material solution that R&D cannot provide. Recommend that sector work through symposiums, workshops, etc.  |
| <b>Status</b>                         | N/A   |
| <b>Capability Gap Tracking Number</b> | 2008-008-Health   |
| <b>Requirement Title</b>              | Ensuring the Health and Safety of HPH Workers' Families and Dependents  |
| <b>Action</b>                         | Submitted to Infrastructure Protection Capstone Integrated Product Team.  |
| <b>Status</b>                         | S&T has adjudicated the capability gap as "Accepted, In Queue (priority order)," and it is unfunded. IP has assessed the capability gap as having low priority.                               |
| <b>Capability Gap Tracking Number</b> | 2008-009-Health   |
| <b>Requirement Title</b>              | Vulnerabilities in International Supply Chain Manufacturing   |
| <b>Action</b>                         | Submitted to Infrastructure Protection Capstone Integrated Product Team.  |
| <b>Status</b>                         | S&T has adjudicated it as "Not an S&T R&D requirement. Recommend the Health sector conduct this analysis as a part of their risk assessment process or through a Center of Excellence study." |
| <b>Capability Gap Tracking Number</b> | 2008-010-Health   |
| <b>Requirement Title</b>              | Medical Device Sustainability   |
| <b>Action</b>                         | Gap is not R&D, in that it is a manufacturing capacity issue, or perhaps an issue with raw materials.   |
| <b>Status</b>                         | N/A   |

