



NATIONAL HEALTH SECURITY
STRATEGY
of
THE UNITED STATES OF AMERICA

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Our Nation, like all countries, faces many threats with the potential for large-scale health consequences, including disease outbreaks, natural disasters, and terrorist attacks. Preparing for and responding to these and other threats requires the commitment of, and cooperation among, all segments of society: government, the private sector, local communities, and international partners.

This document presents the Nation's first National Health Security Strategy (NHSS), which is intended to help galvanize efforts to minimize the health consequences associated with significant health incidents.¹ The NHSS was developed in consultation with a broad range of stakeholders, including representatives from local, state, territorial, tribal, and federal government; community-based organizations; private-sector firms; and academia. The statutory authority and requirements for the NHSS are provided under section 2802 of the Public Health Service Act.

The vision for health security described in the NHSS is built on a foundation of community resilience—healthy individuals, families, and communities with access to health care and with the knowledge and resources to know what to do to care for themselves and others in both routine and emergency situations.² Communities help build resilience by implementing policies and practices to ensure the conditions under which people can be healthy, by assuring access to medical care, building social cohesion, supporting healthy behaviors, and creating a culture of preparedness in which bystander response to emergencies is not the exception but the norm.

Community resilience is not possible without strong and sustainable public health, health care, and emergency response systems. This means that the health care infrastructure is capable of meeting anticipated needs and able to surge to meet unanticipated ones; ready to prevent or mitigate the spread of disease, morbidity and mortality; able to mobilize people and equipment to respond to emergencies; capable of accommodating large numbers of people in need during an emergency; and knowledgeable about its population—including people's health needs, culture, literacy, and traditions—and therefore able to communicate effectively with the full range of affected populations, including those most at risk, during an emergency.

Securing our Nation's health is a formidable task and must be a responsibility that is broadly shared among virtually all segments of society. The NHSS reflects current approaches and priorities for improving our Nation's ability to prevent, prepare for, respond to, and recover from a major health incident. However, the NHSS also acknowledges that achieving national health security is a long-term proposition, one that requires a process of continuous learning and improvement, strict accountability, a willingness to engage domestic and global partners, and an on-going commitment to measuring, evaluating, and improving our collective ability to recognize, confront, and resolve existing and emerging threats to our Nation's health.

Kathleen Sebelius
Secretary
Department of Health and Human Services
December 2009

¹ The term "health incident" is used throughout this document to refer to a wide range of natural and man-made phenomena that may have health consequences, including, but not limited to, infectious disease outbreaks, hurricanes, earthquakes, storms, tornadoes, tsunamis, hazardous material spills, nuclear accidents, biological and other terrorist attacks, and fires.

² Preparedness will be part of the *Healthy People 2020* outcomes (accessed online 9/30/09 at <http://www.healthypeople.gov>).

Table of Contents

Introduction	1
A Vision of National Health Security	2
National Security and National Health Security	3
A Framework for the National Health Security Strategy	4
Goals and Strategic Objectives	5
Goals	5
Strategic Objectives	7
Implementation and Evaluation	17
Initial Implementation Activities	17
Roles and Responsibilities	18
Appendices	19
Appendix A. Capabilities for National Health Security	20
Appendix B. Content of National Health Security Strategy Related to Statutory Requirements	28
Appendix C. Glossary of Key Terms	36
Appendix D. Annotated Bibliography	41

Introduction

Over the past decade, our Nation has renewed its efforts to address large-scale incidents that have threatened human health, such as natural disasters, disease outbreaks, and terrorism, including the use of weapons of mass destruction (WMD). The responses to incidents such as the September 11, 2001, attacks and the 2001 anthrax attacks; the outbreak of Severe Acute Respiratory Syndrome (SARS); multiple hurricanes; and the 2009 H1N1 influenza outbreak have highlighted challenges while also providing valuable lessons to help the Nation prevent, protect against, respond to, and recover from future incidents.

Major progress has been made in improving the Nation's ability to address the public health and medical consequences of the full range of potential threats. For example, states and localities have developed and exercised emergency response and recovery plans; laboratory capacity has increased; disaster communication systems have improved; and plans have been put in place to deliver medical countermeasures to communities, if needed. Numerous local responses to health incidents have improved as a result of these efforts. In addition, U.S. government programs have been working with global partners to enhance capacity to rapidly detect and contain emerging health threats (including bioterrorist threats) and to increase capacity for rapid response to outbreaks and other health incidents, laboratory diagnostic testing, surveillance, and workforce recruitment and training.

Nonetheless, many challenges remain. Emergency response efforts are sometimes disparate; and effective coordination is often lacking across governmental jurisdictions, communities, and the health and emergency response systems.³ Additional steps must be taken to ensure that adequate medical surge capacity and a sufficiently sized and competent workforce are available to respond to health incidents, a sustainable medical countermeasure enterprise sufficient to counter health incidents is fostered, and increased attention is paid to building more resilient communities and integrating the public, including at-risk individuals⁴, into national health security efforts. Moreover, considerable variation remains in the degree to which individual states, territories, tribes, and local jurisdictions are prepared to address large-scale health threats. At the same time, few evidence-based performance measures and standards exist to gauge the effectiveness of national health security efforts and progress toward goals⁵—that is, to assess the extent to

³ The health system includes all parts of the health care delivery system (e.g., primary and hospital care, disaster medicine, and behavioral health care) and the public health system. The emergency services system includes police, fire, emergency medical services, and emergency management.

⁴ As defined in section 2802(b)(4)(B) of the PHS Act, at-risk individuals include “children, pregnant women, senior citizens and other individuals who have special needs in the event of a public health emergency, as determined by the Secretary.” For purposes of this document, the category of at-risk individuals also includes individuals who may need additional response assistance during an emergency, such as persons who have disabilities, live in institutionalized settings, are from diverse cultures, have limited English proficiency or are non-English speaking, are transportation disadvantaged, have chronic medical disorders, or have pharmacological dependency. See also the definition in Appendix C. Glossary of Key Terms.

⁵ Section 319C-1(g)(1), of the Public Health Service (PHS) Act (42 U.S.C. 247d-3a(g)(1)), as amended by section 201 of the Pandemic and All-Hazards Preparedness Act (PAHPA), Public Law No. 109-417, requires that standards be developed to measure levels of preparedness with respect to activities carried out by recipients of the Centers of Disease Control and Prevention's Public Health Emergency Preparedness (PHEP) grants and the Assistant Secretary for Preparedness and Response's Hospital Preparedness Program (HPP) grants. “Not later than 180 days after the date of enactment of the Pandemic and All-Hazards Act, the Secretary shall develop or where appropriate adopt, and

which the Nation is prepared for the types of health incidents that we have experienced in the past and may have to confront in the future.

A Vision of National Health Security

The National Health Security Strategy (NHSS) is the first comprehensive strategy focusing specifically on the Nation's goals of protecting people's health in the case of an emergency. The purpose of the NHSS is to guide the Nation's efforts to minimize the risks⁶ associated with a wide range of potential large-scale incidents that put the health and well-being of the Nation's people at risk, whether at home, in the workplace, or in any other setting. In this context, *national health security is achieved when the Nation and its people are prepared for, protected from, respond effectively to, and able to recover from incidents with potentially negative health consequences.*

The NHSS is a national—not just federal—strategy, and therefore it requires the commitment of a broad range of stakeholders: all levels of government, as well as individuals, families, and communities (including the private sector, non-governmental organizations, and the academic and research sectors).⁷ Although the active and ongoing participation of the Nation's people is necessary to achieve national health security, it is neither reasonable nor realistic to expect that individuals, families, and communities can execute on their own all required actions to prevent, protect against, respond to, and rapidly recover from an incident. It is the responsibility of local, state, territorial, tribal, and federal governments to provide guidance and facilitate collaboration and coordination among individuals, families, and communities, including the private sector, to implement strategies to prevent, protect against, respond to, and recover from an incident. *Healthy People 2010*⁸ describes the relationships among these entities: While individuals are ultimately responsible for their own actions, their behavior is heavily influenced by the communities and neighborhoods in which they live. Policies and investments at the local, state, territorial, tribal, and federal levels guide and facilitate actions that all stakeholders must take to improve health, including preparedness for large-scale health incidents. Further, access to needed and appropriate health care is critical to improving and protecting the health of the Nation's people.

require the application of, measurable evidence-based benchmarks and objective standards that measure levels of preparedness with respect to [PHEP and HPP activities].” Section 2802(a)(2) of the PHS Act (42 U.S.C. 300hh-1(a)(2)), as amended by section 103 of PAHPA, requires that the NHSS include an evaluation of the progress made by federal, state, local, and tribal entities, based on the evidence-based benchmarks and objective standards that measure levels of preparedness established pursuant to section 319C-1(g)(1) of the PHS Act.

⁶ Risk is the multiplicative product of threat, vulnerability, and consequence; see CRS [Congressional Research Service] Report to Congress, “The Department of Homeland Security’s Risk Assessment Methodology: Evolution, Issues, and Options for Congress,” Order Code RL33858, February 2, 2007.

⁷ The Institute of Medicine (IOM) report, *The Future of the Public’s Health in the 21st Century* (Washington, D.C.: The National Academies Press, 2002), presents a comprehensive framework for how the government public health agencies, working with multiple partners from the public and private sectors as an intersectoral public health system, can better assure the health of communities.

⁸ *Healthy People 2010* provides a comprehensive set of disease prevention and health promotion objectives for the United States to achieve over the first decade of the new century, U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, *Healthy People 2010* (accessed online 9/30/09 at <http://www.healthypeople.gov>).

Thus, the NHSS calls for active collaboration and coordination among individuals, families, and communities (including private-sector and all governmental, non-governmental, and academic organizations) to implement strategies to prevent, protect against, respond to, and recover from any type of large-scale incident having health consequences.⁹ Achieving national health security also requires better coordination between the health system and the emergency response system; ultimately, these systems need to work together as part of one integrated national health security system. Further, national health security also requires acknowledgment of our Nation's interdependence with other countries on a global level.

Definition of National Health Security

National health security is a state in which the Nation and its people are prepared for, protected from, and resilient in the face of health threats or incidents with potentially negative health consequences.

The statutory authority and requirements for the NHSS are provided under section 2802 of the Public Health Service Act.¹⁰

National Security and National Health Security

The NHSS acknowledges the interdependent relationship between national security, homeland security, and national health security. Simply put, the health of a nation's people has a direct impact on that nation's security.¹¹ Any large-scale incident such as a natural disaster or an infectious disease pandemic that affects the health of critical workers and compromises a society's ability to provide food, water, health care and, more broadly, economic productivity endangers the security and stability of that society. Conversely, a society that can accommodate and function effectively during such an incident is inherently more secure. Approaching this relationship from the perspective of security, a breach to national security could negatively affect the health of the Nation's people. Prevention is a cornerstone to both health security and national security.

⁹ One Health is an example of an initiative designed to improve collaboration across sectors. The One Health concept is "a worldwide strategy for expanding interdisciplinary collaborations and communications in all aspects of health care for humans and animals." One Health seeks to enhance cooperation and collaboration among physicians, veterinarians, and other scientific health professionals (accessed online 11/17/09 at <http://www.onehealthinitiative.com/about.php>).

¹⁰ Public Health Service Act (42 U.S.C. 300hh-1), as amended by section 103 of PAHPA. By statute, the NHSS and associated implementation plan will be reviewed and revised on a quadrennial basis. In addition, implementation guidance will be updated biennially, although this is not a statutory requirement. Specific information regarding how the NHSS meets each statutory requirement is available in Appendix B.

¹¹ HIV/AIDS provides a good example of this from the global context: HIV prevalence in foreign (mostly African) militaries and the broader active workforce during the 1990s seriously undermined the national security of affected countries; in 2000, HIV/AIDS became the first health issue brought to the attention of the United Nations Security Council and led to major national, bilateral, and multilateral initiatives to address the problem. Similarly, the prospect and success of a biological attack would largely be determined by our ability to mitigate the consequences of the attack through prevention, early detection, countermeasure distribution, and patient care.

National *health* security supports national security and homeland security by focusing on measures for preventing, protecting against, responding to, and recovering from the health impact of myriad threats with potential consequences for health. Therefore, the NHSS is intended to complement and support other national strategies and initiatives and the national priorities, target capabilities, and Emergency Support Functions as defined in policies from the Department of Homeland Security (DHS). It does so by defining the goals, strategic objectives, and capabilities needed to address and respond to health threats and incidents with potentially significant consequences. The *Healthy People* series¹²—the nation’s vision and plan for achieving optimal health—also supports and contributes to the achievement of national health security.

A Framework for the National Health Security Strategy

The NHSS is designed to achieve two goals:

- Build community resilience.
- Strengthen and sustain health and emergency response systems.

The NHSS takes a “systems approach” to health in recognizing that many interrelated systems are needed to support individuals’ and communities’ health and to protect them from and support their recovery after an incident. These include, but are not limited to, the traditional health care system and public health systems. They also include systems that address elements essential to health, such as water, food, housing, the environment, and equal access to care. As shown in Figure 1, these goals are supported by ten strategic objectives, which address areas that require urgent, focused attention and improvement by society. The strategic objectives describe what must be accomplished to address current gaps in national health security over the next four years and to sustain improvements in health security over the longer term.

The strategic objectives, in turn, are supported by a set of operational capabilities.¹³ Capabilities are the means to accomplish a mission, function, or objective.¹⁴ A capability results from the performance of one or more critical tasks, under specified conditions, to target levels of performance and may be achieved with any combination of properly planned, organized, equipped, trained, and exercised personnel that results in the desired outcome.¹⁵ The capabilities might be thought of as the “building blocks” of health security. Once the capabilities are developed, individuals, families, communities (including the private sector and non-governmental organizations), and governments will be much better able to prevent, protect against, respond to, and recover from a wide array of incidents that pose a threat to the Nation’s health and well-being.

The NHSS provides the framework for how the Nation will seek to achieve national health security over the next four years: A broad range of stakeholders, from individuals and

¹² Accessed online 9/30/09 at <http://www.healthypeople.gov>.

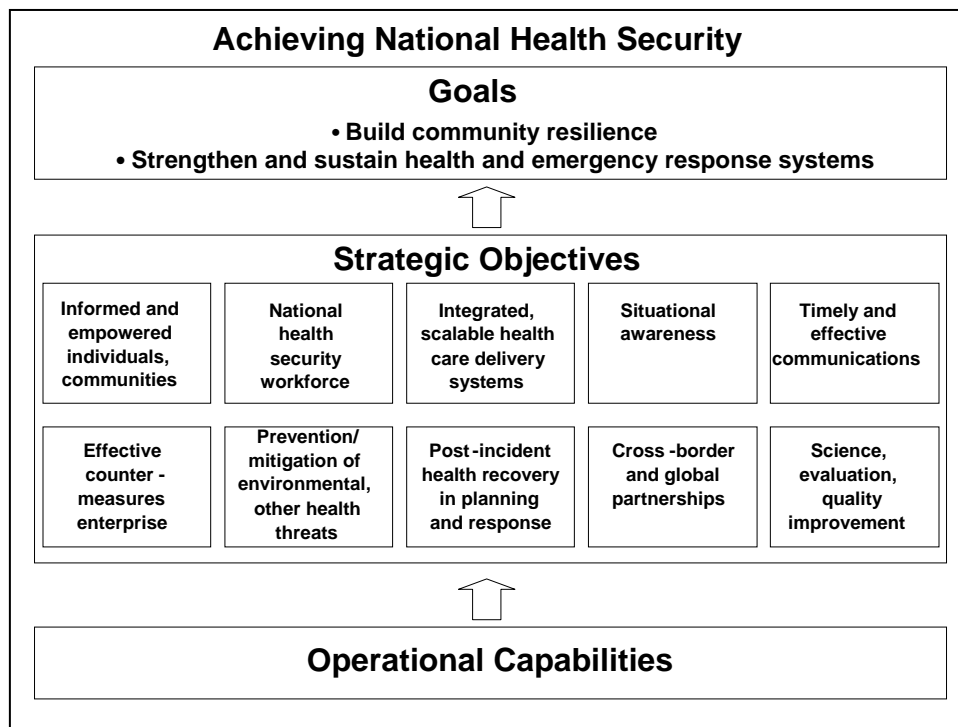
¹³ A full list of the capabilities can be found in Appendix A.

¹⁴ U.S. Department of Homeland Security, Risk Steering Committee, *DHS Risk Lexicon* (Washington D.C., September 2008).

¹⁵ U.S. Department of Homeland Security, *National Preparedness Guidelines, Appendix C* (Washington, D.C., September 2007).

communities to governments, will seek to build and sustain the capabilities that will enable the Nation to fulfill its two goals and meet its ten strategic objectives.

Figure 1. Framework for the NHSS



Goals and Strategic Objectives

The NHSS describes the approach the Nation will take to achieve health security. This approach is encompassed by two broad goals and ten strategic objectives, which are illustrated by Figure 1 and described in the sections that follow.

Goals

Build community resilience

An essential part of achieving national health security is an informed, empowered, and resilient population. Community resilience, as it applies to health, is defined as the sustained ability of communities to withstand and recover—in both the short and long terms—from adversity, such as an influenza pandemic or terrorist attack. The health of a community—and, in turn, community resilience—is determined by a combination of physical, social, and environmental factors (e.g., biology, lifestyle, air and water quality, economic and social conditions, and equal access to health care), and the actions required to fully achieve community resilience are beyond the scope of a single department, policy, or level of government. Indeed, addressing the physical, social, and environmental determinants of health requires actions and investment from multiple

sectors including but not limited to the health system.¹⁶ Community resilience is supported by the promotion of healthy lifestyles; disease prevention; access to culturally informed, timely and high-quality health care; and a robust public health system.

Resilient communities have robust social networks and health systems that support recovery after adversity. They are prepared to take deliberate, collective action in the face of an incident and have developed material, physical, social, and psychological resources that function as a buffer to these incidents and help protect people's health. After an incident, individuals and communities are able to mount an appropriate "bystander response" until emergency responders arrive, i.e., they are sufficiently healthy to sustain themselves and attend to their own health needs (including the need for psychological support) until help arrives and can assist in addressing the needs of at-risk individuals.

Strengthen and sustain health and emergency response systems

Services provided by public health, health care delivery, and emergency response systems complement efforts to build community resilience. Such systems must themselves be resilient: durable, robust, responsive, adaptive to changing situations, efficient, and interoperable. Health care providers must understand the needs of the populations they serve. Care must be accessible, comprehensive, and timely, and the quality provided must be appropriate to the situation.

Government at all levels has an inherent responsibility, particularly in helping build and strengthen the systems (e.g., plans, people, and equipment) that help prevent (e.g., through biosafety, biosecurity, nonproliferation of WMDs, and other measures), protect against (e.g., through community interventions, including medical countermeasures), respond to, and recover from health incidents. Organizations outside government, including the private sector, academia, and community-based organizations, are also critical in these areas. Strong public health, health care delivery, and emergency response systems equipped with effective response tools (e.g., medical countermeasures) can help minimize and/or prevent some incidents from occurring; facilitate the rapid detection and characterization of a health incident; provide care to those affected; reduce the effects of the incident on the community; and help a community recover after an incident. Government investments, resources, policies, and leadership are needed to support all of these efforts.

It is important to note that the Nation's public health agencies were first developed almost 200 years ago to detect and mitigate local disease outbreaks, provide health care, and provide other health-related services. Over time, the roles of public health agencies have matured and expanded, and the Nation must ensure that these agencies can meet the evolving requirements of our time, including their contributions to national health security. The need for public health agencies to play a significant role in national health security has only recently become generally understood.¹⁷ Most public health agencies are ill-equipped to respond to severe pandemics and natural disasters that result in a large number of casualties or patients with highly infectious disease, let alone a catastrophic act of terrorism. Moreover, the Nation lacks a comprehensive,

¹⁶ R.G. Evans and G.L. Stoddart, "Producing Health, Consuming Health Care," *Social Science and Medicine*, 31(12), 1990, 1347–1363.

¹⁷ E. Salinsky and E. Gursky, "The Case for Transforming Governmental Public Health," *Health Affairs*, 25:4, 2006, 1017–1028.

coordinated national health information system that can quickly provide health care data in the early stages of an incident.

While the role of government is critical, the strong systems needed to achieve national health security are built on the efforts of all sectors of society. Investments—of time, effort, and expertise, not just financial resources—are needed from individuals, families, and communities, the latter including private-sector and non-governmental and academic organizations, as well as the full range of local, state, territorial, tribal, and federal governments, and public health agencies, health care providers, and emergency responders.

Systems must be monitored, coordinated, improved, and sustained over time. Given limited resources, the Nation must ensure that its efforts to achieve national health security—including the contributions of both the public and private sectors—create effective and durable systems. Moreover, the Nation must ensure that it achieves the best value for its investments through measurement, accountability, continuous improvement systems for capturing and incorporating lessons learned, and development of an evidence base supporting effective policies and practices.

Critical to all these efforts will be a continuation of the work initiated by the U.S. Department of Health and Human Services (HHS) and DHS to develop and implement a rigorous performance measurement system¹⁸ to track the Nation's progress toward achieving national health security, provide information for quality improvement efforts, and ensure transparency and accountability among all stakeholders. Information gained from these efforts can be used to build the evidence base for national health security. Achievement of national health security is a continually improving process that requires evaluation of the effectiveness of efforts to provide information that can be used to develop and improve technological, policy, operational, and clinical components. Lessons learned should be widely disseminated and incorporated into practice. The participation of the full range of stakeholders helps ensure progress toward national health security and provides an opportunity for stakeholders to identify specific ways in which national health security might be further improved.

Strategic Objectives

The following section describes ten strategic objectives that specify in greater detail what is needed to achieve the goals of the NHSS and the overall vision of national health security. These objectives address areas in need of focused attention and improvement during the four-year period covered by this strategy.

¹⁸ Since 2003, HHS and DHS have been developing performance measures for national capabilities and for funding programs. Measures are also being developed for state and local performance. See, for example, *U.S. Department of Homeland Security, Target Capabilities List: A Companion to the National Preparedness Guidelines* (Washington, D.C., September 2007) and Federal Emergency Management Agency, *Homeland Security Exercise Evaluation Program, Exercise Evaluation Guides* (accessed online 11/18/09 at https://hseep.dhs.gov/pages/1001_About.aspx).

1. Foster informed, empowered individuals and communities

Health security relies on actions by individuals and communities as well as governments. Prepared communities are aware of their potential risks as well as what is expected from community members before and after an adverse incident and, in turn, what they can expect from government (local, state, territorial, tribal, or federal) and other responders, including non-governmental organizations. Empowered communities have contingency plans, communications plans, and provisions in place to shelter, sustain, and provide medical and other care for the entire community, including at-risk individuals; they also have community members who are actively engaged in local decision-making. They can respond when emergency public information and warnings are issued and provide the support needed to increase overall surge capacity during an incident. And they can do so on a sustainable basis.

Empowered individuals have the information and skills they need to protect their health and safety. This requires, first, that enough of their daily needs are met to allow them to be as healthy as possible. The Healthy People series establishes targets that will make clear improvements in the health of the nation. A foundation of effective routine health promotion and access to health services is needed to support healthy individuals and communities and thereby support national health security. Healthy people can be more resistant to illness and may be better able to prevent health effects from an incident or to survive incidents that involve shelter-in-place or evacuation. Informed individuals understand their personal responsibilities (e.g., to stay at home when they are ill and to practice personal hygiene to prevent the spread of illness). They know where to turn for up-to-date information they can understand about an evolving incident and when and where to seek medical attention, and they have the means to take such actions and to help others in need of assistance.

Those who can do so plan in advance for the protection of themselves and their families and have an appropriate and up-to-date medical first aid and safety kit that includes sufficient items to allow them to live safely for several days. Physical and psychological preparedness can help individuals participate, to the extent possible, in their own rescue and provide support to at-risk individuals requiring additional response assistance during an incident. In a prepared community, cohesion, including bystander response to help others during an incident, is the norm.

Governments and communities (including businesses) should work together to support community-level interventions. These interventions should enhance knowledge and social connectedness, through, for example, the use of social networking tools, informational and educational campaigns, and incentives that encourage all members of a community to become informed, empowered, connected, and thus prepared for any health incident.

2. Develop and maintain the workforce needed for national health security

National health security depends on a strong, well-trained workforce operating within supportive policies and legal frameworks. The public health and health care delivery sectors, emergency responders, and those who will administer medical countermeasures during a health incident must be proficient, culturally competent, and ready to respond to major health incidents, including those that require a surge in demand for services. Professional training,

competencies and standards in relevant fields will help ensure the attainment and maintenance of the proficiency of this workforce; regular exercising will help ensure its readiness.

The Nation's public health workforce is undersized and fast approaching retirement.¹⁹ Predicted shortages in nursing, epidemiology, and the laboratory sciences will affect critical core public health capacities. Differences in the scope and breadth of formal public health training and the absence of certification requirements limit the cohesiveness of the Nation's public health workforce and its ability to serve in different settings (e.g., agencies, communities, or states) during an incident.

There have been some successful efforts to increase the number of workers in critical areas of incident response, such as epidemiology.²⁰ The Nation needs to see further increases in the number of communities with adequate staff and volunteers to mount an effective response. Workforce functions and capabilities need to be defined, gaps identified, and strategies developed to recruit and retain a well-qualified permanent workforce (e.g., through incentives and other innovative schemes) as well as preregistered volunteers and intermittent employees (e.g., through the National Disaster Medical System,²¹ Emergency System for Advance Registration of Volunteer Health Professionals,²² and Medical Reserve Corps²³) across a wide spectrum of emergency health service needs. Policies and legal frameworks are needed to facilitate improved credentialing procedures and greater consistency in training for both permanent and volunteer workers.

Efforts to increase and improve the workforce for national health security should focus on both basic education and additional hiring of qualified staff. PAHPA calls for the creation of educational degrees and certification programs in public health emergency preparedness.²⁴ A multidisciplinary approach to education in health security should be explored. At the same

¹⁹ A 2009 government-wide review of federal workforce needs concluded that the federal government is in need of workers in public health more than any other area; see Partnership for Public Service, *Where the Jobs Are 2009* (Washington, D.C., 2009) (accessed online 9/30/09 at <http://data.wherethejobsare.org/wtja/home>). Further, the American Public Health Association projects that 23 percent of the public health workforce will be eligible to retire by 2012; see American Public Health Association, *Shortage of U.S. Public Health Workers Projected to Worsen: About 250,000 New Workers Needed* (May 2008) (accessed online 9/30/09 at <http://www.apha.org/publications/tnh/archives/2008/May+2008/Nation/WorkforceNAT.htm>).

²⁰ Centers for Disease Control and Prevention, *Public Health Preparedness: Mobilizing State by State, Section 1: Public Health Preparedness in the States and D.C.* (accessed online 9/30/09 at <http://www.bt.cdc.gov/publications/feb08phprep/section1/ddandi.asp>).

²¹ National Disaster Medical System (NDMS) (accessed online 11/18/09 at <http://www.hhs.gov/aspr/opeo/ndms/index.html>)

²² U.S. Department of Health and Human Services, Office of the Assistance Secretary for Preparedness and Response, Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP) (accessed online 11/18/09 at <http://www.hhs.gov/aspr/opeo/esarvhp/index.html>).

²³ U.S. Department of Health and Human Services, Office of the Civilian Volunteer Medical Reserve Corps, Office of the U.S. Surgeon General (accessed online 10/08/09 at <http://www.medicalreservecorps.gov/HomePage>).

²⁴ Section 319F(d)(3) of the PHS Act (42 U.S.C. 247d-6(d)(3)), as mentioned by section 304 of PAHPA, states: "The Secretary... shall establish core curricula based on established competencies leading to a 4-year bachelor's degree, a graduate degree, a combined bachelor and master's degree, or a certificate program, for use by each Center."

time, stable funding is a prerequisite to attract and retain high-quality staff for public health, health care delivery, and emergency management. Loan forgiveness programs and other incentives might be employed to attract those with highly critical skills.²⁵

3. Ensure situational awareness

Situational awareness involves an active, continuous, and timely data-oriented loop that informs decisionmaking. In the context of health incidents, operational situational awareness captures information related to health threats and health system and response resources and thus informs and improves prevention, protection, response, and recovery operations and, ultimately, health outcomes.²⁶ Situational awareness requires the ability to tap into data from relevant sources; the efficient use of appropriate information technologies and means of data exchange;²⁷ surveillance and laboratory capacity that can be stepped up to meet surge needs during an incident; effective coordination of information sharing across federal, state, and local entities to create a common operating picture; and the active use of information to make timely and well-informed decisions. A robust and integrated biosurveillance capability and effective leveraging of information in the private sector health care delivery system are especially important.²⁸ Moreover, global situational awareness of relevant information from other countries also contributes to early warning and ongoing characterization of disease outbreaks in near real time.

Situational awareness requires not only good information but also the ability to interpret and act on it. Decisionmakers must be able to identify and track a wide range of threats and to investigate incidents. They must assess and manage risk—develop crisis messages, determine needs for medical care or quarantine, assess inventories of their own and mutual aid assets (e.g., hospital beds), and allocate resources. Active and timely situational awareness provides the foundation for responsible decisions and actions that, in turn, result in better use of resources, successful mitigation of emerging threats, and better outcomes for the population (e.g., improved health outcomes and effective and efficient mass prophylaxis).

Appropriate and interoperable information technologies and consistent messages are a cornerstone of effective situational awareness, and that awareness must be communicated not only to responders as part of effective incident response and management but also to the public. Redundancy and resilience in the communications process must be achieved. This, in

²⁵ Section 338M of the PHS Act (42 U.S.C. 254u), as amended by section 203 of PAHPA, directs the Secretary to “establish a demonstration project to provide for participation of individuals who are eligible for the Loan Repayment Program described in section 338B [i.e., the National Health Service Corps Loan Repayment Program] who agree to complete their service obligation in a State health department that provides a significant amount of service to health professional shortage areas or areas at risk of a public health emergency. . .”

²⁶ Mitigation of threats is discussed further in strategic objective 7.

²⁷ Ideally, this would include automated systems with appropriate human oversight, system redundancies, and protection of content.

²⁸ The National Bio-Surveillance Integration System was mandated by Congress to provide early detection and situational awareness of biological events of potential national consequence and will continue to provide information to all communities of interest; it currently includes 530 data feeds across six domains—public health, food safety, water quality, animal disease, plant disease, and wildlife disease; see <http://www.dhs.gov/xlibrary/assets/mgmt/e300-oha-nbis2010.pdf> (accessed online 10/7/09).

turn, will enable individuals and communities to receive timely and actionable information that they can use in their own decisionmaking.

Both traditional and innovative approaches to situational awareness are needed to enable better action. This includes attention both to systems for capture and transmission of data and to timely public risk communications. Innovations are needed to improve efficiency, accuracy, effectiveness, adaptability, interoperability, and usability of systems to enhance situational awareness. Improved coordination and better integration can help to create a comprehensive common operating picture among local, state, territorial, tribal, and federal entities. Innovations should also incorporate logistical capabilities that allow rapid and accurate matching of asset to need.

4. Foster integrated, scalable health care delivery systems

Health care represents a cornerstone of emergency response and hence of national health security. Health care delivery systems that provide equitable access to efficient routine care will be better able to support an effective response to and recovery from health incidents. Policies that ensure the capacity to rapidly expand the delivery of health care services at the most efficient level of safe and appropriate care must be an inherent component of medical and behavioral health care. The appropriate legal authorities and protections must be in place to facilitate this care. Essential elements of a prepared and responsive health system include the utilization of information technology to care for people remotely or at home; use of portable, standards-based, interoperable electronic health records (EHRs); and the ability to provide psychological support. Strategies to prevent facilities from needing to move to crisis standards of care should also be routinely employed. A well-informed public with tools for self-triage and self-care contributes in important ways to the provision of care at the most appropriate level and to greater efficiency of service delivery at all levels of care.

When confronted with an incremental or sudden demand on resources, a tiered, scalable, and flexible approach is needed to transform the health care system and attain needed surge capability while not jeopardizing services to at-risk individuals in the community. The surge capacity for a health incident will require strategies across the continuum of care—from home care to hospital care. For some incidents, however, the demand for resources will outstrip the ability of the system to provide the highest level of care. Under those circumstances, the health care system will have to shift—at times rapidly—from carrying out a high standard of individual-based care to the provision of the highest standard of care possible for the greatest number of patients using the resources available.²⁹ In times of sudden or high demand for health care services, timely monitoring, management, and distribution of medical equipment and supplies are critical. The triggers that activate emergency mobilization of medical care assets must be clear and well understood by all.

Communities should also be protected by coordinated emergency medical services (EMS) systems. An EMS system is essential to the nation's preparation for the initial emergency medical response to catastrophic incidents. The surge capacity of the Nation's health care

²⁹ Specific recommendations and principles for crisis standards of care during a large-scale health incident are described in Institute of Medicine, *Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations*, Washington, D.C., September 2009.

system can be improved through a focus on data-driven, evidence-based health care delivery. Patient care should be coordinated across the entire continuum of care, beginning with first responders and the emergency care system, to ensure optimal patient outcomes during disasters and other situations where resources are scarce.

5. Ensure timely and effective communications

Lessons learned from 9/11, Hurricane Katrina, and other incidents illustrate the critical role that communication plays during a response. In fact, effective communications both among responders at all levels of government and between responders and the public are critical to nearly every aspect of national health security—from building strong relationships and partnerships before an incident to achieving situational awareness and a high level of coordination among public and private organizations during a response to informing and disseminating information to the public about risks, ongoing incidents, and recovery.

Effective communication is a multidimensional concept that includes both social and technological components. In terms of the social part of communication, increased attention must be devoted to the ways in which people exchange critical information before, during, and after a health incident. For example, trusted sources of information must be developed prior to an incident and then utilized during an incident in ways that elicit timely and appropriate responses on the part of individuals, families, communities, and governments. In addition, effective communication goes beyond dissemination of messages *to* the public, and also involves regular information exchanges *with* the public and the development of trusted networks that facilitate the public's ability to communicate with responders at all levels of government before, during, and after an incident.

Steps must be taken to improve communications between the health and emergency response systems, as well as private-sector and community-based organizations, to better coordinate response activities. This may require, for instance, using a pre-established single trusted point of communication (which may be an individual or an institution) during an incident that is responsible for providing critical information to all parties.

Enhancing the social aspects of communications strategies is critical to ensuring that appropriate messages are received by and from the public. Effective risk communication with the public is an ongoing process that should begin well in advance of an incident. Information disseminated to the public must account for language and cultural differences to ensure that emergency information and warnings, as well as ongoing education, enhance the ability of individuals and communities to stay safe and make choices that increase their likelihood of recovery. Effective risk communication involves being able to reach all segments of the affected population, especially persons with limited English proficiency and persons with disabilities, in ways they trust and understand, and to receive information from the public through multiple channels. The media is a key partner in these efforts.

On the technological front, coordinated communications across all jurisdictions are needed to support timely situational awareness and efficient response to an incident. For example, appropriate technologies can be used to provide a coordinated means of disseminating information about a public health risk or to locate residents and patients who have been

evacuated during an incident. In addition, communications systems need to be secure and sustainable for public health decisionmakers. Moreover, communication technologies—equipment and systems—must be redundant to minimize the risk of critical breakdown. Appropriate communications technologies and systems used during routine operations can be transitioned to use for communicating with the public in advance of, during, and following an incident. Some examples of these systems include automatically generated maps and related Geographic Information System (GIS) tools that can provide information to public health agencies and their partners on characteristics of affected populations, routine services available, the best evacuation and transportation routes, emergency medical and assistance resources (e.g., temporary hospitals, pharmacy assistance, decontamination stations, and food and other supply locations), and other services in areas affected by an incident.

Understanding and improving upon both the social and technological aspects of communications strategies will lead to better coordination among the full range of stakeholders across the public and private sectors, which in turn will assure the effectiveness of activities undertaken before, during, and after an incident.

6. Promote an effective countermeasures enterprise

Medical countermeasures are the drugs, vaccines, diagnostics, and nonpharmaceutical countermeasures that may be needed to mitigate the damage caused by a health incident.³⁰ In order to ensure the efficiency of effort and prudent investments, an integrated vision is needed of all requirements associated with medical countermeasures—from fundamental research to manufacturing, dispensing, and tracking of safety and effectiveness. To date, work across these areas has not always been well informed by a unifying vision that incorporates considerations of quality, safety, and the needs of end users (including children and other at-risk individuals), such as ease of use, age appropriateness, and acceptability to the population.

A comprehensive vision of medical countermeasures should include considerations of the realities, strengths, weaknesses, limitations, legal protections, and critical vulnerabilities affecting all aspects of the creation, development, manufacture, staging, maintenance, prioritization, and timely distribution, delivery, and dispensing of medical countermeasures. It will also be critical for states, territories, tribes, and local authorities to set priorities for how such resources will be allocated when there is a limited supply of medical countermeasures for their populations.

The engagement of all key stakeholders is critical to the development, manufacture, distribution, and administration of medical countermeasures that will ultimately be used in the general population. Specific recommendations for investments should be informed by assessment of risk;³¹ understanding of medical countermeasure requirements; and consultation with industry, practitioners, and the policymakers who are responsible for each segment of the medical countermeasure continuum. Resources should be used to support the

³⁰ Pharmaceutical medical countermeasures include vaccines, drugs, and diagnostics; nonpharmaceutical medical countermeasures include supplies such as ventilators and personal protective equipment (e.g., face masks and gloves).

³¹ This includes information from a broad range of sources, including the intelligence community.

efficient and prudent development of new, faster, safer, and more effective diagnostics, prophylaxis, treatments, and other products. Resources should also be used to support innovative solutions for increasing capabilities to distribute, deliver, and dispense countermeasures. Investments should focus, to the extent possible, on new technologies or countermeasures that could also have uses in non-public health emergency situations, and should address the continuum from research to delivery. These efforts should build upon and strengthen ties between current structures that support the research, development, distribution, and dispensing of such countermeasures. Safety should be monitored, and a continuous quality improvement process should inform distribution and administration.

The range of those participating and working together in these areas should be broadened beyond the federal government to include government agencies at the local, state, territorial, and tribal levels; pharmaceutical developers and academic researchers; the response community; medical and public health providers; and representatives of both the general public and at-risk individuals. Investments should be prioritized to effectively pursue those countermeasures that have the greatest potential to improve national health security, prevent or limit the spread of disease, limit the clinical impact of a health incident, and have elements with potential widespread application even in the absence of a catastrophic event.

7. Ensure prevention or mitigation of environmental and other emerging threats to health

The increasing mobility and density of human populations increase the odds of disease spread by bringing people more in contact with new environments and with each other. Many common pathogens that come from such environmental sources as food, water, and air undoubtedly account for more of the overall burden of disease than do novel pathogens or, to date, those intentionally spread through bioterrorism. Improved information sharing is needed across the human, animal, and food/agricultural sectors. It is important to develop and use these sources of information to maintain comprehensive situational awareness (as discussed in strategic objective 3) and inform actions to mitigate the effects of both acute and longer-term environmental and other emerging threats to health.³² Information about disease risks, environmental threats (e.g., to water and air quality), and food safety should be widely disseminated.

The public health system needs to be able to fully leverage the resources of and be fully coordinated with those organizations and individuals responsible for food safety, environmental protection, and workplace safety. Improvements are required in monitoring emerging infectious agents, including zoonotic and agricultural disease threats and their effects on health; providing adequate biosafety and biosecurity; conducting surveillance of disease vectors; and mitigating any health impacts of climate change. Efforts are also needed to modernize food, plant, and animal safety systems, including mitigation of vulnerabilities at critical production and processing nodes, and to improve screening procedures and protection of the food supply and food products from intentional and unintentional contamination. Enhancements are also needed to protect the environment and the safety and health of responders, including procedures to protect responders and the general workforce from

³² This objective emphasizes the health dimension of priorities defined in Homeland Security Presidential Directive (HSPD) 9, “Defense of U.S. Agriculture and Food.”

existing and emerging workplace hazards. Procedures for evacuation, shelter in place, and response and recovery should also be improved.

8. Incorporate post-incident health recovery into planning and response

While preparing to respond to an incident is key to national health security, so also is resumption of normal community activity after the acute phase of an incident has ended. The long-term health effects of the World Trade Center attacks on incident first responders (e.g., lung ailments and post-traumatic stress disorder) did not become fully apparent until years later. The aftermath of Hurricane Katrina illustrates how long it can take to get a community back up and running after a major storm; many residents have not returned to the area and probably never will, and many are still experiencing psychological effects.

Post-incident health recovery should be incorporated into planning and begins with response; the aim should be to leave individuals and communities at least as well off after an incident as they were before it. All jurisdictions need clear plans and an organized, seamless system and structure for transitioning from response to short- and long-term recovery in the aftermath of an incident. Plans are needed for restoring services, providers, facilities, and infrastructure within the public health, health care delivery, and human services sectors. Planning related to post-incident health recovery should address behavioral health services for affected communities and responders; provision for medical needs throughout the post-incident recovery period; social re-engagement; and rebuilding and restoration of infrastructure and health care delivery mechanisms.

9. Work with cross-border and global partners to enhance national, continental, and global health security

In a globalized world where people and goods move rapidly via air travel, much of the world's manufacturing process is spread across countries, food is imported from one country to another, and the health security of each nation is dependent on the health security of other members of the international community. As experiences with 2009 H1N1 influenza demonstrate, an incident such as the outbreak of an infectious disease in one area of the world will often very quickly affect distant areas of the globe.

Given that many of the threats faced by the Nation do not recognize geographic boundaries, the interdependence of national public health communities around the world and the international organizations that support them must be acknowledged. Existing health security partnerships allow the Nation to access information about threats outside our borders, from the health, diplomatic, defense, intelligence, and law enforcement communities as well as from human and animal disease surveillance networks. These partnerships strengthen the Nation's health security by allowing for sharing and comparing of experiences and strategies for prevention, response, and recovery and for joint emergency response exercises.

The Nation must work closely with global partners to address common threats around the world, to enhance national capacities to detect and respond to these threats, and to learn from each other's experiences as yet another step toward national health security for this and other

countries. Investments in health diplomacy, as well as in surveillance, epidemiology, public health laboratory, and medical preparedness system capacity building in developing countries, should continue to be strengthened. In addition, an increase in global biosecurity and chemical and nuclear facility security can help decrease access to harmful agents or weapons and hence directly increase health security. Learning from the experiences of other countries is sensible from both the practical and diplomatic perspectives. The Nation should also evaluate what kind of international assistance is most acceptable and effective, and under what circumstances.

10. Ensure that all systems that support national health security are based upon the best available science, evaluation, and quality improvement methods

The evidence base for national health security remains limited, in large part due to the rarity of major incidents. Systematic and system-wide actions must be taken to ensure that the best available science, evaluation, and quality improvement methods guide changes in the systems that underlie national health security. A research agenda should be implemented to support the development of empirical standards, policy, and guidance.

The use of clinical practice guidelines establishes a firm foundation for health care services before an incident occurs; such guidelines may need revision during health incidents that involve a sudden and large increase in patient demand. Monitoring of physical and behavioral health outcomes before, during, and after an incident is also key to management of health systems and patient care. The development and implementation of capability-based performance measures will support monitoring for purposes of both accountability and needed improvements in national health security systems.

Both the Post Katrina and Emergency Management Reform Act (PKEMRA, Public Law 109-295) and PAHPA have provisions that seek to address the concerns of Members of the 109th Congress regarding the response to Hurricane Katrina in 2005. Additionally, PAHPA addresses their concern about a possible influenza pandemic, which subsequently emerged in 2009. While these two laws have many aspects in common, of particular significance is the requirement in both laws to evaluate gaps and shortfalls in preparedness and response. Under PKEMRA, the Federal Emergency Management Agency (FEMA) administrator is required to establish a National Preparedness System (NPS) that establishes a systematic evaluation of preparedness through the evaluation of exercises.

Section 103 of PAHPA specifies that the NHSS must include an evaluation of progress made by local, state, territorial, tribal, and federal entities based on evidence-based benchmarks and objective standards that measure levels of preparedness.³³ Effective coordination between HHS and FEMA will be critical to the success of efforts to use research, evaluation, and quality improvement methods to improve emergency management and response systems.

More attention should be given to systematic quality improvement methods to extract and disseminate lessons learned. Additionally, steps must be taken to help ensure that exemplary practices are both incorporated and used efficiently and effectively. For example, in the case

³³ These levels were established pursuant to section 319C-1(g). See section 2802(a)(2) of the PHS Act (42 U.S.C. 300hh-1(a)(2)).

of countermeasure distribution, much can be learned about logistics and supply chain management from the military as well as from package delivery services and large consumer product companies that have developed and applied sophisticated supply chain management techniques. Ultimately, the research, evaluation, and efforts to systematically identify and apply exemplary practices should become a norm, reflecting a national culture of quality improvement.

Implementation and Evaluation

The goals and strategic objectives described here are ambitious, and achieving them will require more detailed planning to guide implementation and evaluation.

Initial Implementation Activities

An accompanying *Interim Implementation Guide (Guide)* describes activities, most of which are already under way, that will take place during the nine-month period from January 2010 through September 2010 and will provide a foundation for developing a more comprehensive *Implementation Plan*. The initial nine-month planning period will allow for coordination with ongoing planning by DHS, including completion of the next round of revisions to the Target Capabilities List (TCL), revision of HSPD-8, and the development of health security workforce competencies for health care, public health, and emergency management. The *Guide* seeks to set in motion a number of foundational activities that require immediate action:

- **Identify and prioritize a list of investments to enhance the capabilities required to achieve national health security.** HHS will generate an initial, nascent list of investments to improve performance on capabilities. The *Guide* thus suggests the need to undertake, during the next nine months, a process to develop and prioritize a list of investments to enhance specific capabilities.
- **Conduct a workforce gap analysis and develop workforce competencies for all sectors involved in national health security.** The *Guide* suggests steps for filling known shortages in occupational specialties that play a key role in health security, developing workforce competencies, providing continuing education and training to the existing workforce, synthesizing findings from existing workforce gap analyses, and planning a more comprehensive workforce gap analysis.
- **Coordinate HHS's efforts to improve national health security with those of DHS, the Department of Defense, and all federal agencies involved in national health security and national security.** The *Guide* highlights the importance of ongoing coordination among HHS, DHS and other federal agencies to ensure interagency consistency of approaches to improving national health security, particularly in areas such as detection and response to outbreaks.
- **Begin to identify and develop methods for risk analysis appropriate to the broad range of risks to the public's health.** The *Guide* lays out a set of principles for developing clear and consistent risk assessment methods, based on definitions and methods described by DHS.

- **Develop an evaluation framework, including plans for performance monitoring and evaluating the impact of investments.** So that efforts to improve national health security will be data-driven and evidence-based, measures of performance that support evaluation and accountability need to be developed. Thus, the *Guide* lays out a concrete plan of action and timeline for ensuring that all communities have a clear set of measures. The *Guide* also recommends a design for reporting, development of algorithms for combining the assessments of multiple measures, and data collection to allow for presentation of data in a format that is useful to decisionmakers and other end users.
- **Promote and implement quality improvement (QI) methods for health security on a broader scale.** The *Guide* provides an approach for developing and disseminating quality improvement methods, which involve systematic collection of data, evaluation of findings, and adaptation of interventions. These methods can help support community- and national-level improvement efforts.
- **Propose an agenda for research to enhance national health security.** The *Guide* highlights the importance of conducting research to help establish an evidence base for national health security. HHS will work with other federal agencies and stakeholders to propose a research agenda for national health security.
- **Conduct an assessment of the countermeasures enterprise with the aim of identifying how to develop, manufacture, and ensure availability and delivery of countermeasures faster and more efficiently.**

The short-term activities described above will provide a foundation for developing a more comprehensive *Implementation Plan*, which will be updated and published biennially. The *Implementation Plan* will outline federal-level activities and provide guidance to inform planning at the local, state, territorial, and tribal levels and in the non-governmental sector. The *Implementation Plan* will also outline a comprehensive evaluation approach to ensure that NHSS activities are informed by lessons learned over time. The inaugural *Implementation Plan* is scheduled for release in September 2010.

Roles and Responsibilities

Achieving national health security is ultimately the shared responsibility of all organizations (both governmental and non-governmental), communities, and individuals. Local, state, territorial, and tribal governments have primary authority for health security but receive support from the federal government before, during, and after incidents. The federal government also helps ensure comparable levels of health security across local jurisdictions by providing funding and guidance, developing performance measures and standards, sponsoring research, and providing technical assistance.

But, as noted previously, a key principle of the NHSS is that other sectors—including the health care, emergency management, law enforcement, private/non-governmental, and academic sectors—as well as individuals and families and the international community, all play a vital role in national health security. For instance,

- In the private sector, businesses should develop and practice plans for protecting their employees and ensuring business continuity.
- Critical infrastructure entities, such as power companies and other utility services, must also be engaged in planning for public health emergencies because of our society's dependence upon their services.
- Academia can contribute to national health security through conducting research to identify best practices for national health security and providing education and training in activities necessary to ensure health security.
- Individuals and families play a critical role by developing family emergency plans, stockpiling food and water, and having available a reserve of their regular prescription drugs as well as over-the-counter medications and first aid supplies.
- Non-governmental organizations, including community-based organizations, are an important partner in recruiting and supporting volunteers, particularly medical professionals in activities such as dispensing countermeasures and providing medical care to casualties as needed.
- The international community plays a key role in surveillance, detection, and communication of health security threats to their own nations, which may also pose a threat to our Nation.

Each of these actors is critical in ensuring the Nation's health security. Specific roles and responsibilities of each sector will be outlined in greater detail in the forthcoming *Implementation Plan*.

Appendices

Four appendices follow:

- Appendix A: Capabilities for National Health Security
- Appendix B: Content of National Health Security Strategy Related to Statutory Requirements
- Appendix C: Glossary of Key Terms
- Appendix D: Annotated Bibliography

Appendix A. Capabilities for National Health Security

This appendix summarizes the list of capabilities that are necessary to achieve national health security. These capabilities are organized into eight general areas: Community Resilience and Recovery; Infrastructure; Situational Awareness; Incident Management; Disease Containment and Mitigation; Health Care Services; Population Safety and Health; and Quality Improvement and Accountability.

Current national guidance³⁴ calls for risk-informed capabilities-based planning within an all-hazards context. Capabilities-based planning can be defined as planning, under uncertainty, to provide capabilities suitable for a wide range of current challenges and circumstances while working within budget constraints that necessitate choice. According to the U.S. Department of Homeland Security, “capabilities-based preparedness is a way to make informed choices about how to manage the risk and reduce the impact posed by potential threats. It focuses decision making on building and maintaining capabilities to prevent and protect against challenges... and to respond and recover when events occur.”³⁵ This approach to planning should emphasize flexibility, adaptability, and robustness of capability.

To achieve national health security, the Nation must attain proficiency related to a set of essential capabilities. The DHS *Target Capabilities List*³⁶ was used as the starting point to identify these capabilities. Of the 50 capabilities described below, 25 correspond directly to capabilities in the September 2007 TCL or are adapted versions of 2007 TCL capabilities, 1 is derived from Emergency Support Function (ESF)³⁷ #8 capability areas, and 24 capabilities are newly developed for this strategy. The origin of the 50 capabilities is included with each of the descriptions below, designated as follows: 1 = 2007 TCL capability, 2 = adapted from 2007 TCL capability, 3 = ESF #8 capability area, 4 = newly developed capability.

Community Resilience and Recovery

Public education to inform and prepare individuals and communities (4) Develop and implement a community-level public education plan on how individuals should prepare for health incidents, including information for and about at-risk individuals; highlight home-based preparedness, including first aid and safety kits, food and water, and the psychological aspects of preparedness; evaluate public education programs periodically to measure their effectiveness.

Public engagement in local decisionmaking (4) Implement civic engagement strategies as part of routine practice to ensure that community members have a voice in decisions about local social services and support systems, thereby fostering resilience.

³⁴ U.S. Department of Homeland Security, *National Preparedness Guidelines* (Washington, D.C., September 2007).

³⁵ U.S. Department of Homeland Security, *National Preparedness Guidelines* (Washington, D.C., September 2007).

³⁶ U.S. Department of Homeland Security, *Target Capabilities List: A Companion to the National Preparedness Guidelines* (Washington, D.C., September 2007).

³⁷ U.S. Department of Health and Human Services, *Emergency Support Functions and the Federal Public Health and Medical Services Response* (accessed online 11/18/09 at <http://www.hhs.gov/disasters/discussion/planners/esf8.html>).

Local social networks for preparedness and resilience (4) Promote connections among individuals in a community and between individuals and community organizations; encourage participation of individuals in existing community organizations and creation of new community organizations; increase social capital (i.e., quality and quantity of social resources in a community) and social cohesion (i.e., how connected residents are) in a community before, during, and after an incident.

Integrated support from non-governmental organizations (4) Involve non-governmental organizations in local decisions about improving population health, including funding for health and social services, policies to develop neighborhood resources for at-risk individuals, and strategies to address chronic disease; integrate such organizations into the multiagency coordination system plans; assist in recruiting and training people for community emergency response teams, including Medical Reserve Corps units and other organized groups; encourage local businesses and organizations to appoint emergency response teams.

Emergency public information and warning (1) Develop systems and procedures to communicate timely, accurate, and accessible information on the cause, size, and current status of an incident to the public, responders, and additional stakeholders (both directly and indirectly affected); create messages in appropriate languages and in alternative formats (e.g., for blind/low vision individuals and the deaf/hard-of-hearing), at the right reading level, and disseminated in multiple ways with special attention to needs of at-risk individuals; employ risk communication methods throughout the development and delivery of information.

Post-incident social network re-engagement (4) Implement social re-engagement efforts (e.g., re-establishment of civic, faith-based, community, social, and educational institutions); assist in maintaining or rebuilding social networks.

Case management support or individual assistance (4) Provide long-term case management, or connect constituents to primary and ancillary health and welfare services; utilize whole family approaches, including crisis counseling, unemployment assistance, and legal assistance; assist in the coordination of health care benefits across jurisdictions (e.g., Medicaid coverage); follow up regarding the physical and behavioral health of affected populations.

Reconstitution of the public health, medical, and behavioral health infrastructure (2) Rebuild the medical and public health systems; provide services even when critical infrastructure is affected (e.g., delivering services when the central hospital is damaged, utilizing community health care centers, and reinforcing the medical workforce using personnel from outside the community or jurisdiction).

Mitigated hazards to health and public health facilities and systems (4) Reduce risk factors, including environmental toxins; mitigate public health facility hazards through risk assessment and detailed action plans for reducing vulnerabilities and maintaining assets.

Support services network for long-term recovery (4) Build neighborhood response networks to aid in immediate response and long-term recovery; provide alternate options for strengthening networks when core institutions (e.g., schools and churches) are affected by the incident; use networks for information dissemination after the incident, movement of supplies and other services, and restoration of a sense of community.

Infrastructure

Sufficient, culturally competent, and proficient public health, health care, and emergency management workforce (4) Develop and maintain a workforce for public health (including epidemiologists, lab scientists, and other experts), health care (physicians, nurses, dentists, pharmacists, and other health care professionals), and emergency management, all with the knowledge and skills to respond to an incident; provide opportunities for continuing education, training, and exercising; create workforce policies (e.g., identification and management, licensing and credentialing, liability protections, and competencies and standards) that will facilitate an effective response.

Volunteer recruitment and management (2) Build networks of trained volunteers who will be available to supplement the permanent workforce during a health incident; rapidly activate staff and volunteer personnel for emergency duty (e.g., to administer vaccines or medications at point-of-dispensing sites); provide treatment to the ill and injured at first aid stations, mass care centers, temporary clinics, and other health care sites; provide staffing to EMS agencies; supplement hospital staff; replace personnel who are unable to do their jobs because they themselves are victims of the incident; rapidly forward licenses/credentials.

Interoperable and resilient communications systems (4) Obtain sufficient wireless communications equipment for routine internal and emergency communication requirements; ensure that systems are interoperable (i.e., able to communicate seamlessly with other agencies), portable, meet standards, are resilient and redundant, and can be accessed by authorized users.

Legal protections and authorities (4) Identify laws that apply, including available waivers, deviations, or emergency authorities during an incident, including liability, credentials and licensing, scope of practice, emergency triage, standards of care, institutional autonomy, patient privacy, documentation of care, seizure of property, isolation and quarantine, and school closures³⁸; coordinate legal issues related to emergency preparedness within the complex system of stakeholders, including public health, emergency management, the judiciary, and government officials, at local, state, territorial, tribal, and federal levels³⁹; address overlapping state and federal laws.⁴⁰

³⁸ Health Systems Research, Inc. *Altered Standards of Care in Mass Casualty Events*, AHRQ Publication No. 05-0043, 2005; Mark A. Rothstein, M. Gabriela Alcalde, Nanette R. Elster, Mary A. Majumder, Larry I. Palmer, Howard T. Stone, and Richard E. Hoffman, *Quarantine and Isolation. Lessons Learned from SARS*, Institute for Bioethics, Health Policy, and Law, University of Louisville School of Medicine, 2003; Trust for America's Health, *State Quarantine and Isolation Laws*, 2004 (accessed online 5/8/09 at <http://healthyamericans.org/reports/bioterror04/Quarantine.pdf>); Centers for Disease Control and Prevention, *School District (K-12) Pandemic Influenza -Planning Checklist*, undated (accessed online 5/27/09 at www.pandemicflu.gov/plan/school/schoolchecklist.html).

³⁹ National Association of County and City Health Officials (NACCHO). *Public Health Emergency Legal Preparedness* (NACCHO webinar, March 27, 2008) (accessed online 12/18/09 at <http://webcasts.naccho.org/session-archived.php?id=1235>).

⁴⁰ The modification of laws during an incident, as applied to institutional autonomy and seizure of property, will remain subject to the unimpaired limitations of the Constitution. Similarly, the coordination of legal issues with the judiciary remains subject to article 3 of the Constitution, which concerns the powers and independence of the judicial branch.

Situational Awareness

Risk assessment and risk management (2, 3-adapted) Identify and assess risks prior to an incident based on credible threats/hazards, vulnerabilities, and consequences; prioritize, select, and implement appropriate prevention, protection, and mitigation solutions to reduce risk; monitor the outcomes of risk reduction decisions; undertake further corrective actions as needed.

Epidemiological surveillance and investigation (1, 3) Track disease agents and cases of disease; maintain routine passive surveillance and implement active surveillance when warranted; investigate incidents and outbreaks and take action based on analysis of results; provide relevant information to the public and providers; monitor and investigate adverse events related to medical countermeasures (e.g., drugs, vaccines, and medical devices) during an incident.

Animal disease surveillance and investigation (2) Track animal disease agents nationally and internationally, in cooperation with the World Health Organization (WHO); monitor animal diseases and investigate outbreaks; determine the source of relevant emerging infectious animal disease or accidental or intentional exposure and take action based on analysis of results; coordinate with vector control personnel as needed.

Agriculture surveillance and food safety (2) Monitor agriculture and food supply for contamination; ensure food supply is safe; conduct epidemiologic investigations related to contaminated food products or diseased crops and take action based on analysis of results.

Chemical, biological, radiological, nuclear, and explosives (CBRNE) detection and mitigation (2, 3-adapted) Identify CBRNE materials at points of manufacturing, transport, possession, and use through monitoring activities and environments in which these agents are utilized; communicate information to appropriate authorities when there is knowledge that these agents are being used for reasons other than their intended purpose; assess risk (threats, vulnerabilities, and consequences); define medical countermeasure requirements relevant to CBRNE; prioritize U.S. government investments to effectively meet mission goal to reduce adverse health effects; support development of infrastructure capable of meeting current requirements with built-in surge capacity.

Monitoring of available health care resources (4) Maintain complete information on an ongoing basis about what resources are available for use during a health incident, including personnel, facilities, equipment, pharmaceuticals, and supplies and assets specifically within the health care system (e.g., hospital beds, number of ventilators, and available ambulances).

Laboratory testing (1) Conduct timely, accurate laboratory tests to identify specific biological, chemical, and radiological agents in a variety of sources, including clinical specimens, food, and environmental samples (e.g., air, water, and soil); maintain situational awareness through laboratory support of surveillance and investigation of illness or outbreak; rule out and establish diagnoses among possible cases of an illness or disease based on laboratory results in support of epidemiologic investigations and medical treatment; maintain laboratory quality systems (e.g., through external quality assurance, and proficiency testing).

Near-real-time systems for capture and analysis of health security-related data (4) Develop and use technologies and processes, including but not limited to automation, for the

timely and efficient capture, transmission, processing, and analysis of information relevant to health security.

Information gathering and recognition of indicators and warning (1) Gather, consolidate, and retain raw data and information from human sources, observation, technical sources, and open (unclassified) or protected (classified) materials; analyze these data to identify trends, indications, and/or warnings of criminal and/or terrorist activities (including planning and surveillance).

Coordination with U.S. and international partners (4) Work with relevant domestic and foreign officials and agencies to obtain and share information needed for situational awareness and response to a health incident; provide timely notification to the World Health Organization (WHO) and other countries/agencies as appropriate of any Public Health Emergency of International Concern, in compliance with the International Health Regulations (IHR) 2008⁴¹; provide technical assistance to other countries and agencies to help them strengthen their core public health capacities and capabilities and thereby fulfill their obligations under IHR 2008.

Incident Management

On-site incident management and multiagency coordination (2) Manage a health incident or a natural or man-made disaster using the Incident Command System (ICS) structure; maintain a continuous flow of critical information among multijurisdictional and multidisciplinary emergency responders, command posts, agencies, and the governmental officials for the duration of the emergency response operation in compliance with National Incident Management System (NIMS); coordinate activities above the field level by prioritizing demands for competing resources, thereby assisting with coordination of operations in the field.

Communications among responders (2) Maintain timely communications among emergency responders (e.g., police, fire, and emergency medical services) and service providers (e.g., health care facilities) to manage response, services, and available assets efficiently.

Critical resource monitoring, logistics and distribution (2, 3-adapted) Access and use resources (e.g., personnel, equipment, and supplies) from local and remote sites; manage resources through emergency operations centers using consistent processes to identify requirements, order, acquire, mobilize, track, report, demobilize, and reimburse.

Disease Containment and Mitigation

Research, development, and procurement of medical countermeasures (4) Set research, development, and procurement priorities for medical countermeasures; develop and test medical countermeasures; submit marketing applications for medical countermeasures to the

⁴¹ World Health Organization, *International Health Regulations*, Second Edition. (Geneva, Switzerland, 2008).

Food and Drug Administration (FDA) for review and approval; create and maintain a stockpile of medical countermeasures.

Management and distribution of medical countermeasures (2) Maintain adequate stockpiles of pharmaceuticals and other medical materials prior to an incident; transport, distribute, and track these materials during an incident.

Administration of medical countermeasures (2) Administer critical medical countermeasures to those who are exposed or potentially exposed to public health threats; use points of dispensing or other options for dispensing medical countermeasures; track any adverse events that may arise from medical countermeasure use.

Community interventions for disease control (4) Contain the spread of communicable diseases using community mitigation strategies such as isolation and quarantine, school closure, and workplace and community social distancing, when appropriate; support individuals who choose to shelter-in-place during a health incident or a natural or man-made disaster.

Health Care Services

Access to health care and social services (4) Implement strategies to guarantee that all community members, including at-risk individuals, have access to necessary quality health services, including essential drugs and vaccines, before, during, and after a health incident; ensure the availability of health care teams appropriate for the patient's acuity level, with medical facilities or alternative care sites that will accept the patient; provide the most appropriate health care (e.g., hospital inpatient) or oversight (e.g., medical special needs patient); ensure the continuation of social services, such as food delivery or behavioral health services.

Evidence-based behavioral health prevention and treatment services (4) Assess behavioral health needs (i.e., mental health and substance abuse needs) among incident victims and response workers, including emotional, psychological, behavioral, or cognitive limitations requiring assistance or supervision; assist or treat those requiring behavioral health care; provide behavioral health training materials for workers.

Medical equipment and supplies monitoring, management, and distribution (2) Create a coordinated system for identifying, receiving, inventorying, allocating, transporting, distributing, tracking, and restocking medical equipment and supplies during an incident.

Use of remote medical care technology (4) Utilize technology to facilitate medical decisionmaking and care remotely, including triage and information on patient identification, status, and location; employ advanced tracking technology for responders to better address proximity to threats and improve post-incident analysis of untoward effects; use information from electronic medical records (EMRs) and electronic health records (EHRs) to improve patient care during health incidents; use appropriate technologies to support home-based and other off-site (remote) medical care.

Emergency triage and pre-hospital treatment (1, 3) Assess injuries or illnesses rapidly and accurately to ensure that the appropriate level of medical care is delivered in the most

appropriate location; make critical decisions efficiently while simultaneously considering ethics, laws, safety, and guidelines for evidence-based care.

Patient transport (2, 3) Identify resources for safely transporting patients to appropriate care sites (e.g., air and ground ambulances); ensure the ability to rapidly reserve transportation resources appropriate for the patient's acuity level.

Medical surge (1) Provide medical care to large numbers of ill or injured people; use permanent staff and volunteers—health professionals and support personnel—to care for patients; identify available equipment (e.g., oxygen, ventilators, and monitoring devices) supplies (e.g., drugs), and space (e.g., beds in hospitals, clinics, and alternative care sites); utilize systems for documenting patient status and medical information and guidelines for making legal and ethical decisions regarding standards of care and allocation of scarce resources, including the possible need for crisis standards of care.

Palliative care education for stakeholders (4) Educate health care professionals about issues related to palliative care; enhance their ability to evaluate and treat patients in need of palliative care and to communicate with patients and families about the end of life; incorporate palliative care into the training and continuing education of health care professionals.

Fatality management (1) Recover and process decedents in a respectful manner that takes into account cultural grieving practices; determine cause and manner of death; identify victims accurately and efficiently; support families with factual information and compassion; return bodies to legal next of kin.

Monitoring of physical and behavioral health outcomes (4) Track community health before, during, and after an incident to ensure that people receive appropriate health services, and that resources are allocated based on health need; assess population health in the recovery phase to help determine when community health is restored to pre-incident or better conditions.

Application of clinical practice guidelines (4) Base treatment decisions on clinical practice guidelines routinely and when possible during an incident; develop crisis standards of care based on clinical practice guidelines before an incident, and implement these when needed in response to an incident.

Population Safety and Health

Responder safety and health (1, 3) Protect the safety and health of all those who respond to a health incident, including volunteers; provide specialized personnel, equipment, training, and other resources that protect against all hazards; prevent illness and injuries among responders resulting from avoidable exposures during the immediate and long-term response and during decontamination.

Emergency public safety and security (2) Undertake activities to maintain a safe and secure environment for the public during and after an incident; coordinate personnel from law enforcement, fire, and emergency medical services to carry out the public safety and security response.

Individual evacuation and shelter-in-place (1) Provide information to individuals about evacuating (including the need to secure accessible transportation) and sheltering-in-place

before, during, and after an incident; assist people with the logistics of evacuating and sheltering-in-place.

Mass care (sheltering, feeding, and related services) (1) Provide immediate and accessible shelters and supportive services to people who are displaced and unable to return to their homes due to a potential or actual health incident.

Environmental health (1, 3) Identify and mitigate environmental health situations that might be harmful to human health before, during, and after an incident; monitor and safeguard (where appropriate) vector surveillance, building environments, outdoor environments, and hazardous materials.

Potable water/wastewater and solid waste disposal (3) Monitor and safeguard (where appropriate) potable water supplies, wastewater management, mass care facilities (food, potable water, and sanitation), and solid waste/debris removal.

Quality Improvement and Accountability

Use of capability-based performance measures (4) Set priorities for measuring capabilities related to national health security, including quality; identify existing performance measures or develop new performance measures for the highest-priority capabilities; collect data on performance measures from real incidents, drills, or exercises; analyze performance data to identify gaps; recommend and apply programs to mitigate those gaps.

Use of quality improvement methods (4) Design a framework for implementing and measuring quality improvement (e.g., related to specific capabilities or other elements relevant to national health security); define performance goals and measure performance; using various statistical and group process methods, decide how to improve performance; incorporate lessons learned; and implement process changes that show promise for improving performance.

Appendix B. Content of National Health Security Strategy Related to Statutory Requirements

<p align="center">Pandemic and All-Hazards Preparedness Act</p>	<p align="center">National Health Security Strategy</p>
<p>PUBLIC LAW 109–417—DEC. 19, 2006; SEC. 103. NATIONAL HEALTH SECURITY STRATEGY. Title XXVIII of the Public Health Service Act (300hh–1 et seq.), as amended by section 101, is amended by inserting after section 2801 the following: SEC. 2802. NATIONAL HEALTH SECURITY STRATEGY.</p>	<p>The section on “Statutory Authority and Requirements” addresses the authority of the Pandemic and All-Hazards Preparedness Act (PAHPA) as it relates to the National Health Security Strategy.</p>
<p>(a) IN GENERAL —</p>	
<p>(1) PREPAREDNESS AND RESPONSE REGARDING PUBLIC HEALTH EMERGENCIES.—Beginning in 2009 and every four years thereafter, the Secretary shall prepare and submit to the relevant committees of Congress a coordinated strategy (to be known as the National Health Security Strategy) and any revisions thereof, and an accompanying implementation plan for public health emergency preparedness and response. Such National Health Security Strategy shall identify the process for achieving the preparedness goals described in subsection (b) and shall be consistent with the National Preparedness Goal, the National Incident Management System, and the National Response Plan developed pursuant to section 502(6) of the Homeland Security Act of 2002, or any successor plan.</p>	<p>Issues related to the submission and revision are addressed in the section entitled “Statutory Authority and Requirements”: In this section, it is stated that both the strategy and the implementation plan will be reviewed and revised on a quadrennial basis. In addition, the strategy states that the implementation guidance will be updated biennially although this is not a statutory requirement.</p> <p>In the section entitled, “National Security and National Health Security,” the relationship between this and other national strategies is discussed.</p>
<p>(2) EVALUATION OF PROGRESS.—The National Health Security Strategy shall include an evaluation of the progress made by Federal, State, local, and tribal entities, based on the evidence-based benchmarks and objective standards that measure levels of preparedness established pursuant to section 319C–1(g). Such evaluation shall include</p>	<p>Elements that will be part of the implementation guide are outlined in the “Implementation and Evaluation” section of the strategy, including:</p> <ul style="list-style-type: none"> • Identifying and prioritizing a list of investments to enhance specific capabilities

Pandemic and All-Hazards Preparedness Act	National Health Security Strategy
<p>aggregate and State-specific breakdowns of obligated funding spent by major category (as defined by the Secretary) for activities funded through awards pursuant to sections 319C–1 and 319C–2.</p>	<ul style="list-style-type: none"> • Conducting a workforce gap analysis • Coordinating HHS’s efforts to improve national health security with those of DHS • Beginning to identify and develop methods for risk analysis appropriate to the broad range of risks to the public’s health • Establishing an evaluation framework and “scorecard” • Developing, refining, and promoting the use of quality improvement tools • Disseminating and beginning to implement a research agenda for enhancing national health security • Reviewing of countermeasures enterprise
<p>(3) PUBLIC HEALTH WORKFORCE.— In 2009, the National Health Security Strategy shall include a national strategy for establishing an effective and prepared public health workforce, including defining the functions, capabilities, and gaps in such workforce, and identifying strategies to recruit, retain, and protect such workforce from workplace exposures during public health emergencies.</p>	<p>Issues related to developing a public health workforce are addressed in the Introduction and under Strategic Objective 2 (Develop and maintain the workforce needed for national health security).</p> <p>Conducting a workforce gap analysis is also recommended in the section on “Implementation and Evaluation.”</p>
<p>(b) PREPAREDNESS GOALS.—The National Health Security Strategy shall include provisions in furtherance of the following:</p>	
<p>(1) INTEGRATION.—Integrating public health and public and private medical capabilities with other first responder systems, including through—</p>	<p>Integration of public health and public and private medical capabilities with other first responder systems is addressed in “A Vision of National Health Security.”</p>
<p>(A) the periodic evaluation of Federal, State, local, and tribal preparedness and</p>	<p>Issues related to drills and exercises are addressed under the second goal (Strengthen and sustain</p>

Pandemic and All-Hazards Preparedness Act	National Health Security Strategy
response capabilities through drills and exercises; and	public health, health care, and emergency response systems) and Strategic Objective 10 (Ensure that all systems that support national health security are based upon the best available science, evaluation and quality improvement methods). As described in the “Implementation and Evaluation” section, the Implementation Guide will offer details on a performance measurement system and an evaluation framework.
(B) Integrating public and private sector public health and medical donations and volunteers.	Volunteer recruitment and management is addressed in Strategic Objective 2 (Develop and maintain the workforce needed for national health security).
(2) PUBLIC HEALTH.—Developing and sustaining Federal, State, local, and tribal essential public health security capabilities, including the following:	
(A) Disease situational awareness domestically and abroad, including detection, identification, and investigation.	Issues related to disease situational awareness are addressed under Strategic Objective 3 (Ensure situational awareness) and Strategic Objective 9 (Work with cross-border global partners to enhance national, continental and global health security).
(B) Disease containment including capabilities for isolation, quarantine, social distancing, and decontamination.	Issues related to disease containment are addressed under Strategic Objective 6 (Promote an effective countermeasures enterprise) and Strategic Objective 7 (Ensure prevention or mitigation of environmental and other emerging threats to health). The strategy recognizes that both medical countermeasures and effective community interventions (e.g., isolation and quarantine) may be necessary to control disease spread.
(C) Risk communication and public preparedness.	Public preparedness is addressed under Strategic Objective 1 (Foster informed, empowered individuals and communities). Risk communication is addressed under Strategic Objective 5 (Ensure timely and effective communications).

Pandemic and All-Hazards Preparedness Act	National Health Security Strategy
(D) Rapid distribution and administration of medical countermeasures.	Issues related to distribution of countermeasures are addressed under Strategic Objective 6 (Promote an effective countermeasure enterprise).
(3) MEDICAL.—Increasing the preparedness, response capabilities, and surge capacity of hospitals, other health care facilities (including mental health facilities), and trauma care and emergency medical service systems, with respect to public health emergencies, which shall include developing plans for the following:	Issues related to preparedness and surge capacity of the health care system are discussed under Strategic Objective 4 (Foster integrated, scalable health care delivery systems).
(A) Strengthening public health emergency medical management and treatment capabilities.	Strengthening public health emergency medical management and treatment capabilities is addressed under Strategic Objective 4 (Foster integrated, scalable health care delivery systems).
(B) Medical evacuation and fatality management.	Issues related to medical evacuation and fatality management are addressed under Strategic Objective 4 (Foster integrated, scalable health care delivery systems).
(C) Rapid distribution and administration of medical countermeasures.	Issues related to distribution and administration of countermeasures are addressed under Strategic Objective 6 (Promote an effective countermeasures enterprise).
(D) Effective utilization of any available public and private mobile medical assets and integration of other Federal assets.	Issues related to mobile medical assets are addressed under Strategic Objective 4 (Foster integrated, scalable health care delivery systems).
(E) Protecting health care workers and health care first responders from workplace exposures during a public health emergency.	Issues related to responder safety and health are addressed under Strategic Objective 7 (Ensure prevention or mitigation of environmental or other emerging threats to health).

<p align="center">Pandemic and All-Hazards Preparedness Act</p>	<p align="center">National Health Security Strategy</p>
<p>(4) AT-RISK INDIVIDUALS.—</p>	
<p>(A) Taking into account the public health and medical needs of at-risk individuals in the event of a public health emergency.</p> <p>(B) For purpose of this section and sections 319C–1, 319F, and 319L, the term ‘at-risk individuals’ means children, pregnant women, senior citizens and other individuals who have special needs in the event of a public health emergency, as determined by the Secretary.</p>	<p>Issues related to at-risk individuals are addressed under the first goal (Build community resilience), Strategic Objective 1 (Foster informed, empowered individuals and communities) and Strategic Objective 6 (Promote an effective countermeasures enterprise).</p>
<p>(5) COORDINATION.—Minimizing duplication of, and ensuring coordination between, Federal, State, local, and tribal planning, preparedness, and response activities (including the State Emergency Management Assistance Compact). Such planning shall be consistent with the National Response Plan, or any successor plan, and National Incident Management System and the National Preparedness Goal.</p>	<p>The need for greater coordination across these entities is discussed in “A Vision of National Health Security” and in Strategic Objective 3 (Ensure situational awareness).</p>
<p>(6) CONTINUITY OF OPERATIONS.—Maintaining vital public health and medical services to allow for optimal Federal, State, local, and tribal operations in the event of a public health emergency.</p>	<p>The need to maintain and sustain vital public health and medical services during a health emergency is addressed in Goal 2 (Strengthen and sustain health and emergency response systems), Strategic Objective 5 (Ensure timely and effective communications), and Strategic Objective 3 (Ensure situational awareness).</p>
<p>“(2) JOINT REVIEW AND MEDICAL SURGE CAPACITY STRATEGIC PLAN.—Not later than 180 days after the date of enactment of the Pandemic and All-Hazards Preparedness Act, the Secretary, in coordination with the Secretary of Homeland Security, the Secretary of Defense, and the Secretary of Veterans Affairs, shall conduct a joint review of the National Disaster Medical System. Such review shall include an</p>	<p>Updates for these items provided in the <i>Interim Implementation Guide</i>, Appendix A: Evaluation of Progress.</p>

Pandemic and All-Hazards Preparedness Act	National Health Security Strategy
<p>evaluation of medical surge capacity, as described by section 2803(a). As part of the National Health Security Strategy under section 2802, the Secretary shall update the findings from such review and further modify the policies of the National Disaster Medical System as necessary.”</p> <p>“(b) STRATEGIC PLAN FOR COUNTERMEASURE RESEARCH, DEVELOPMENT, AND PROCUREMENT.—</p> <p>“(1) IN GENERAL.—Not later than 6 months after the date of enactment of the Pandemic and All-Hazards Preparedness Act, the Secretary shall develop and make public a strategic plan to integrate biodefense and emerging infectious disease requirements with the advanced research and development, strategic initiatives for innovation, and the procurement of qualified countermeasures and qualified pandemic or epidemic products. The Secretary shall carry out such activities as may be practicable to disseminate the information contained in such plan to persons who may have the capacity to substantially contribute to the activities described in such strategic plan. The Secretary shall update and incorporate such plan as part of the National Health Security Strategy described in section 2802.</p> <p>SEC. 204. VACCINE TRACKING AND DISTRIBUTION.</p> <p>(a) IN GENERAL.—Section 319A of the Public Health Service Act (42 U.S.C. 247d–1) is amended to read as follows:</p> <p>“SEC. 319A. VACCINE TRACKING AND DISTRIBUTION.</p>	

<p align="center">Pandemic and All-Hazards Preparedness Act</p>	<p align="center">National Health Security Strategy</p>
<p>“(a) TRACKING.—The Secretary, together with relevant manufacturers, wholesalers, and distributors as may agree to cooperate, may track the initial distribution of federally purchased influenza vaccine in an influenza pandemic. Such tracking information shall be used to inform Federal, State, local, and tribal decision makers during an influenza pandemic.</p> <p>“(b) DISTRIBUTION.—The Secretary shall promote communication between State, local, and tribal public health officials and such manufacturers, wholesalers, and distributors as agree to participate, regarding the effective distribution of seasonal influenza vaccine. Such communication shall include estimates of high priority populations, as determined by the Secretary, in State, local, and tribal jurisdictions in order to inform Federal, State, local, and tribal decision makers during vaccine shortages and supply disruptions.</p> <p>“(c) CONFIDENTIALITY.—The information submitted to the Secretary or its contractors, if any, under this section or under any other section of this Act related to vaccine distribution information shall remain confidential in accordance with the exception from the public disclosure of trade secrets, commercial or financial information, and information obtained from an individual that is privileged and confidential, as provided for in section 552(b)(4) of title 5, United States Code, and subject to the penalties and exceptions under sections 1832 and 1833 of title 18, United States Code, relating to the protection and theft of trade secrets, and subject to privacy protections that are consistent with the regulations promulgated under section 264(c) of the Health Insurance Portability and Accountability Act of 1996. None of such information provided by a manufacturer, wholesaler, or distributor shall be disclosed without its consent to another</p>	

Pandemic and All-Hazards Preparedness Act	National Health Security Strategy
<p>manufacturer, wholesaler, or distributor, or shall be used in any manner to give a manufacturer, wholesaler, or distributor a proprietary advantage.</p> <p>“(d) GUIDELINES.—The Secretary, in order to maintain the confidentiality of relevant information and ensure that none of the information contained in the systems involved may be used to provide proprietary advantage within the vaccine market, while allowing State, local, and tribal health officials access to such information to maximize the delivery and availability of vaccines to high priority populations, during times of influenza pandemics, vaccine shortages, and supply disruptions, in consultation with manufacturers, distributors, wholesalers and State, local, and tribal health departments, shall develop guidelines for subsections (a) and (b).</p> <p>PUBLIC LAW 109–417—DEC. 19, 2006 120 STAT. 2851</p> <p>“(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to carry out this section, such sums for each of fiscal years 2007 through 2011.</p> <p>“(f) REPORT TO CONGRESS.—As part of the National Health Security Strategy described in section 2802, the Secretary shall provide an update on the implementation of subsections (a) through (d).”</p>	

Appendix C. Glossary of Key Terms

All-hazards approach

An approach that emphasizes preparedness “not just to specific types of hazards but also to steps that increase preparedness for any type of hazard.”⁴²

At-risk individuals

Term applied to those individuals who, “before, during, and after an incident . . . may have additional needs in one or more of the following functional areas: communication, medical care, maintaining independence, supervision, and transportation. In addition to those individuals specifically recognized as at-risk in the Pandemic and All-Hazards Preparedness Act (i.e., children, senior citizens, and pregnant women), individuals who may need additional response assistance include those who have disabilities, live in institutionalized settings, are from diverse cultures, have limited English proficiency or are non-English speaking, are transportation disadvantaged, have chronic medical disorders, and have pharmacological dependency.”⁴³

Biosafety

“Development and implementation of administrative policies, work practices, facility design, and safety equipment to prevent transmission of biologic agents to workers, other persons, and the environment.”⁴⁴

Capabilities-based planning

“Planning, under uncertainty, to provide capabilities suitable for a wide range of modern-day challenges and circumstances while working within an economic framework that necessitates choice.”⁴⁵

Capability

“Provides the means to accomplish a mission or function resulting from the performance of one or more critical tasks, under specified conditions, to target levels of performance. A capability may be delivered with *any* combination of properly planned, organized, equipped, trained, and exercised personnel that achieves the desired outcome.”⁴⁶

Community

Includes individuals and their families; private-sector, non-governmental, and academic organizations; and all forms of government (i.e., local, state, territorial, tribal, and federal).

⁴² Centers for Disease Control and Prevention, *Preparedness for All Hazards* (accessed online 8/6/09 at <http://www.bt.cdc.gov/hazards-all.asp>).

⁴³ U.S. Department of Health and Human Services, Assistant Secretary for Planning and Response, Office for At-Risk Individuals, Behavioral Health, and Human Services Coordination (ABC), *At-Risk Individuals* (Washington, D.C., undated).

⁴⁴ Centers for Disease Control and Prevention, Office of Health and Safety, *Laboratory Biosecurity. Glossary* (accessed online 8/5/09 at http://www.cdc.gov/od/ohs/biosecurity_training/page53.html).

⁴⁵ Paul K. Davis, *Analytic Architecture for Capabilities-Based Planning, Mission-System Analysis, and Transformation* (Santa Monica, Calif., RAND Corporation, MR-1513-OSD, 2002).

⁴⁶ U.S. Department of Homeland Security, *National Preparedness Guidelines* (Washington, D.C., September 2007).

Continuous quality improvement

“An ongoing effort to improve the efficiency, effectiveness, quality, or performance of services, processes, capacities, outcomes. These efforts can seek ‘incremental’ improvement over time or ‘breakthrough’ improvement all at once. Among the most widely used tools for continuous improvement is a four-step quality model, the Plan-Do-Check-Act (PDCA) cycle.”⁴⁷

Emergency Medical Services System

“Any specific arrangement of emergency medical personnel, equipment and supplies designed to function in a coordinated fashion. May be local, regional, State or National.”⁴⁸

Fatality management

“The capability to effectively perform scene documentation; the complete collection and recovery of the dead, victim’s personal effects, and items of evidence; decontamination of remains and personal effects (if required); transportation, storage, documentation, and recovery of forensic and physical evidence; determination of the nature and extent of injury; identification of the fatalities using scientific means; certification of the cause and manner of death; processing and returning of human remains and personal effects of victims to the legally authorized person(s) (if possible); and interaction with and provision of legal, customary, compassionate, and culturally competent required services to the families of deceased with the context of the family assistance center.”⁴⁹

Food defense

“The collective term used by the FDA, USDA [U.S. Department of Agriculture], DHS, etc. to encompass activities associated with protecting the nation’s food supply from deliberate or intentional acts of contamination or tampering. This term encompasses other similar verbiage (i.e., bioterrorism (BT), counter-terrorism (CT), etc.)”⁵⁰

Food safety

“Protecting the food supply from microbial, chemical (i.e., arsenic, lead) and physical (i.e., glass, metal) hazards or contamination that may occur during all stages of food production and handling-growing, harvesting, processing, transporting, preparing, distributing and storing. The goal of food safety monitoring is to keep food wholesome.”⁵¹

⁴⁷ Centers for Disease Control and Prevention, Office of the Director, Office of the Chief of Public Health Practice. *National Public Health Performance Standards Program, Glossary* (accessed online 8/6/09 at <http://www.cdc.gov/od/ocphp/nphpsp/PDF/Glossary.pdf>).

⁴⁸ U.S. DOT EMS Pandemic Influenza Guidelines for Statewide Adoption, (accessed online 8/31/09 at <http://www.ems.gov/>)

⁴⁹ U.S. Department of Homeland Security, *Target Capabilities List: A Companion to the National Preparedness Guidelines* (Washington, D.C., September 2007).

⁵⁰ U.S. Food and Drug Administration, Food Defense and Emergency Response, *Food Defense Acronyms, Abbreviations and Definitions* (accessed online 8/24/09 at <http://www.fda.gov/Food/FoodDefense/Training/ucm111382.htm>).

⁵¹ University of Rhode Island Cooperative Extension, *Food Safety Education Glossary* (accessed online 10/9/09 at <http://www.uri.edu/ce/ceec/food/factsheets/glossary.html>).

Health care delivery system

Includes primary and hospital care, disaster medicine, behavioral health care, and all other health care services

Health incident

Refers to a wide range of natural and man-made phenomena that may have health consequences that include, but are not limited to, infectious disease outbreaks, hurricanes, earthquakes, storms, tornadoes, tsunamis, hazardous material spills, nuclear accidents, biological and other terrorist attacks, and fires.

Health sector

Includes all parts of the health care delivery system (e.g., primary and hospital care, disaster medicine, and behavioral health care) and the public health system

Incident command

“Entity responsible for overall management of the incident. Consists of the Incident Commander, either single or unified command, and any assigned supporting staff.”⁵²

Jurisdictions

“A range or sphere of authority. Public agencies have jurisdiction at an incident related to their legal responsibilities and authority. Jurisdictional authority at an incident can be political or geographical (e.g., local, State, tribal, territorial, and Federal boundary lines) or functional (e.g., law enforcement, public health).”⁵³

Medical countermeasures

Medical countermeasures include those drugs, biological products, and devices that meet the definition of “qualified countermeasure,” “that the Secretary determines to be a priority (consistent with sections 302(2) and 304(a) of the Homeland Security Act of 2002) to—treat, identify, or prevent harm from any biological, chemical, radiological, or nuclear agent that may cause a public health emergency affecting national security or treat, identify, or prevent harm from a condition that may result in adverse health consequences or death, and may be caused by administering a drug, biological product, or device that is used [to treat, identify, or prevent harm from such an agent].”⁵⁴

Medical surge

“Medical Surge is the capability to rapidly expand the capacity of the existing health care system (long-term care facilities, community health agencies, acute care facilities, alternate care facilities and public health departments) in order to provide triage and subsequent medical care. This includes providing definitive care to individuals at the appropriate clinical level of care, within sufficient time to achieve recovery and minimize medical complications. The capability

⁵² U.S. Department of Homeland Security, *National Response Framework* (Washington, D.C., January 2008).

⁵³ U.S. Department of Homeland Security, *National Response Framework* (Washington, D.C., January 2008).

⁵⁴ 110th Congress, *Section 319F-1 of the Public Health Service Act*, 42 U.S.C. 247d-6a(a)(2).

applies to an incident resulting in a number or type of patients that overwhelm the day-to-day acute-care medical capacity.”⁵⁵

National Disaster Medical System (NDMS)

“A coordinated effort by HHS, DHS, DOD and VA [Department of Veterans Affairs], working in collaboration with the States and other appropriate public or private entities to provide health services, health-related social services, other appropriate human services, and appropriate auxiliary services to respond to the needs of victims of a public health emergency or be present at locations, and for limited periods of time, specified by the Secretary on the basis that the Secretary has determined that a location is at risk of a public health emergency during the time specified.”⁵⁶ Includes 112 Disaster Medical Assistance Teams, including Disaster Mortuary Assistance Teams, National Veterinary Medical Assistance Teams, National Pharmaceutical Assistance Teams, and other related teams and assets. The NDMS is housed in HHS in the Office of the Assistant Secretary for Preparedness and Response.⁵⁷

National health security

National health security exists when the Nation and its people are prepared for, protected from, and resilient in the face of health threats or incidents with potentially negative health consequences.

Non-pharmaceutical interventions

“Mitigation measure implemented to reduce the spread of an infectious disease (e.g., pandemic influenza) but one that does not include pharmaceutical products, such as vaccines and medicines. Examples include social distancing and infection control measures.”⁵⁸

PAHPA

Pandemic and All Hazards Preparedness Act, Public Law No. 109-417.⁵⁹

Public health

“The science and practice of protecting and improving the overall health of the community through disease prevention and early diagnosis, control of communicable diseases, health education, injury prevention, sanitation, and protection from environmental hazards.”⁶⁰

⁵⁵ U.S. Department of Homeland Security, *Target Capabilities List: A Companion to the National Preparedness Guidelines* (Washington, D.C., September 2007).

⁵⁶ 42 U.S.C. 200hh-11.

⁵⁷ National Disaster Medical System (NDMS) (accessed online 11/18/09 at <http://www.hhs.gov/aspr/oepo/ndms/index.html>).

⁵⁸ U.S. Department of Health and Human Services, *Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States—Early, Targeted, Layered Use of Non-Pharmaceutical Interventions* (Washington, D.C., 2007).

⁵⁹ 109th Congress, *Pandemic and All-Hazards Preparedness Act Public Law No. 109-417* (Washington, D.C., December 19, 2006).

⁶⁰ U.S. Department of Homeland Security, *Homeland Security Presidential Directive 21: Public Health and Medical Preparedness* (accessed online 10/9/09 at http://www.dhs.gov/xabout/laws/gc_1219263961449.shtm).

Resilience/ Community Resilience

The ability of communities to withstand and recover—in both the short and long terms—from adversity, such as a natural disaster or terrorist attack.⁶¹

Situational awareness

“The ability to identify, process, and comprehend the critical elements of information about an incident.”⁶²

Weapons of mass destruction

“Weapons that are capable of a high order of destruction and/or of being used in a manner so as to destroy large numbers of people. Weapons of mass destruction can be nuclear, biological, chemical, and radiological weapons, but exclude means of delivery of weapons where such means is a separable and divisible part of the weapon.”⁶³

Zoonosis

“Any disease and/or infection which is naturally ‘transmissible from vertebrate animals to man’ is classified as a zoonosis according to the PAHO [Pan American Health Organization] publication ‘Zoonoses and communicable diseases common to man and animals.’ Over 200 zoonoses have been described and they [have been] known . . . [for] many centuries. They involve all types of agents: bacteria, parasites, viruses and unconventional agents.”⁶⁴

⁶¹ Fran H. Norris, Susan P. Stevens, Betty Pfefferbaum, Karen A. Wyche, and Rose L. Pfefferbaum, “Community Resilience as a Metaphor, Theory, Set of Capacities, and Strategy for Disaster Readiness,” *American Journal of Community Psychology*, 41:127–150, 2008; Betty J. Pfefferbaum, Dori B. Reissman, Rose L. Pfefferbaum, Robin H. Gurwitsch, Richard W. Klomp, *Building Resilience to Mass Trauma Events*. In Lynda S. Doll et al., eds., *Handbook of Injury and Violence Prevention* (New York: Springer Science + Business Media, 2007, pp. 347–358).

⁶² U.S. Department of Homeland Security, *National Response Framework* (Washington, D.C., January 2008).

⁶³ Chairman of the Joint Chiefs of Staff, *National Military Strategy to Combat Weapons of Mass Destruction* (Washington, D.C., February 13, 2006) (accessed online 11/18/09 at <http://www.defenselink.mil/pdf/NMS-CWMD2006.pdf>).

⁶⁴ World Health Organization, *Zoonoses and Veterinary Public Health (VPH)* (accessed online 10/9/09 at <http://www.who.int/zoonoses/en/>).

Appendix D. Annotated Bibliography

This annotated bibliography contains key government documents drawn upon in developing the NHSS.

CRS [Congressional Research Service] Report to Congress, *The Department of Homeland Security's Risk Assessment Methodology: Evolution, Issues, and Options for Congress*, Order Code RL33858. February 2, 2007.

This report provides an analysis of the Department of Homeland Security's ability to assess risk within the context of the homeland security grant process. It then provides Congress with several directions for future risk-assessment-related grant programs.

Federal Communications Commission (FCC), Public Safety and Homeland Security Bureau, *FCC Preparedness for Major Public Emergencies, Chairman's 30 Day Review*, September 2009.

This report describes the essential duties of the FCC during a major public emergency in support of one or more of the National Essential Functions, identifying more than 140 functions to be performed during an emergency or resumed after an emergency by the FCC.

Institute of Medicine, *Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations*, Washington, D.C., September 2009.

The purpose of this guidance was to help state and local public health and health-sector agencies establish and implement standards of care in disaster situations. With an eye toward ethical dilemmas, the guidance highlights various roles and responsibilities and identifies triggers for implementing disaster care.

Institute of Medicine, *Respiratory Protection for Health Care Workers in the Workplace against Novel H1N1 Influenza A: A Letter Report*, Washington, D.C.: National Academies Press, 2009.

This report describes existing empirical evidence on the efficacy of various personal respiratory technologies in protecting health care workers from H1N1 in the workplace and offers recommendations on the necessary respiratory protection against H1N1 for health care workers.

National Intelligence Council, *Global Trends 2025: A Transformed World*, Washington, D.C., 2008.

This fourth installment in the National Intelligence Council series makes projections about the global landscape with key factors including a shift from west to east in global wealth and economic power, population growth (leading to strained resources), increased demand for food, climate change, new technologies, ideological clashes, and competition for resources resulting in new types of conflicts and the increased presence of non-governmental organizations.

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, *National Biosurveillance Strategy for Human Health 2008–2013, Version 1.0*, Washington, D.C., December 2008.

This Strategy is intended to implement systems that provide accurate and timely information, coordinate health information sharing, engage stakeholders (governmental, non-governmental, the private sector, and academia), optimize current resources and prioritize improvements to existing biosurveillance efforts and infrastructures.

U.S. Department of Health and Human Services, *Draft Strategic National Vaccine Plan*, Washington, D.C.: The National Vaccine Program, November 26, 2008.

This Plan updates the 1994 National Vaccine Plan and is based on five goals: development of new vaccines, enhancement of safety practices, communication with the public, consistent supply and efficient use of current vaccines, and global use of vaccines for disease prevention.

U.S. Department of Homeland Security, *National Preparedness Guidelines*, Washington, D.C., September 2007.

These Guidelines finalize development of national preparedness tools and the goal set forth in HSPD 8. The purpose of the Guidelines includes organizing national efforts to strengthen national preparedness, guiding preparedness investments in national preparedness, facilitating the preparedness planning process, establishing readiness metrics, and incorporating lessons learned.

U.S. Department of Homeland Security, Risk Steering Committee, *DHS Risk Lexicon*, Washington, D.C., September 2008.

This lexicon defines and standardizes DHS risk management concepts for ease in communication and uniformity on the subject.

U.S. Department of Homeland Security, *Target Capabilities List: A Companion to the National Preparedness Guidelines*, Washington, D.C., September 2007.

The Target Capabilities List, along with the National Preparedness Guidelines, establishes the all-hazards framework for the Nation. The TCL is a list of operationally ready capabilities defining all-hazards preparedness on a national level.

U.S. Government Accountability Office (GAO), *Combating Nuclear Terrorism: Preliminary Observations on Preparedness to Recover from Possible Attacks Using Radiological or Nuclear Materials*, GAO-09-996T, Washington, D.C., September 2009.

DHS, through FEMA, is responsible for responding to and recovering from radiological dispersal device (RDD) or improvised nuclear device (IND) incidents. This testimony, by the Director of Natural Resources and Environment, looks at the current capabilities of the federal government to clean up areas contaminated with radioactive materials and also makes suggestions for future development in emergency preparedness capabilities surrounding this topic.

U.S. Government Accountability Office, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism*, GAO-04-408T, Washington, D.C., February 2004.

In this report, the GAO identified a set of desirable characteristics for developing and implementing national strategies to create consistency, enhance usefulness, and assure accountability.

U.S. Government Accountability Office, *Emergency Management: Preliminary Observations on FEMA's Community Preparedness Programs Related to the National Preparedness System*, GAO-10-105T, Washington, D.C., October 2009.

This report includes testimony from the Director of Homeland Security and Justice Issues on past challenges and future strengthening actions for FEMA's community preparedness programs. The testimony focuses on Citizen Corps, its partner programs, and the Ready Campaign, which operate within the context of the NPS.

U.S. Office of the Director of National Intelligence, *The National Intelligence Strategy of the United States of America*, Washington, D.C., August 2009.

This strategy sets priorities for the Intelligence Community (IC) for the next four years, guides the development of IC capabilities, and, in conjunction with an implementation plan, sets a basis for accountability.

U.S. President. Executive Order, "United States Intelligence Activities, Executive Order 13470, Amendments to Executive Order 12333, Federal Register 73, No. 150 (August 4, 2008): 45325. This document updates the Intelligence Reform and Terrorism Prevention Act of 2004 (Public Law 108-458), rewriting part 1 (Goals, Directions, Duties, and Responsibilities with Respect to United States Intelligence Efforts) of Executive Order 12333 (December 4, 1981) in total as well as sections of part 3.

The White House, Office of Homeland Security, *National Strategy for Homeland Security*, Washington, D.C., July 2002.

The purpose of this Strategy is to bring together the federal government, state and local governments, the private sector, and the American people to mobilize, organize, and secure the Nation from terrorist attacks. The strategy is based on three main objectives: prevent terrorist attacks within the United States, reduce America's vulnerability to terrorism, and minimize the damage and recover from attacks that do occur.

The White House, Office of Homeland Security, *National Strategy for Homeland Security*, Washington, D.C., October 2007.

This Strategy updates the 2002 version by reflecting on what the Nation learned about security over half a decade. The updated version is based on four goals including preventing attacks; protecting people, infrastructure, and resources; responding to and recovering from incidents that do occur; and strengthening our security foundation.

The White House, *National Security Strategy of the United States of America*, Washington, D.C., March 2006.

This Strategy outlines the security threats facing the country and expands on several essential tasks for facing these challenges, such as strengthening alliances, encouraging global economic growth, and updating America's national security for the 21st century.