Defending against Catastrophic Threats

The expertise, technology, and material needed to build the most deadly weapons known to mankind—including chemical, biological, radiological, and nuclear weapons—are proliferating. If our enemies acquire these weapons, they are likely to try to use them. The consequences of such an attack could be far more devastating than those we suffered on September 11—a chemical, biological, radiological, or nuclear terrorist attack in the United States could cause large numbers of casualties, mass psychological disruption, and contamination, and could overwhelm local medical capabilities.

Currently, chemical, biological, radiological, and nuclear detection capabilities are modest and response capabilities are dispersed throughout the country at every level of government. Responsibility for chemical, biological, radiological, and nuclear surveillance as well as for initial response efforts often rests with state and local hospitals and public health agencies. Today, if a natural disaster or terrorist attack causes medical consequences that exceed local and state capabilities, the Department of Health and Human Services would coordinate the deployment of medical personnel, equipment, and pharmaceuticals among the Departments of Agriculture, Defense, Energy, Justice, Transportation, Veterans Affairs, the Environmental Protection Agency, the Federal Emergency Management Agency, General Services Administration, National Communications System, U.S. Postal Service, and the American Red Cross.

While the government's collaborative arrangements have proven adequate for a variety of natural disasters,

the threat of terrorist attacks using chemical, biological, radiological, or nuclear weapons with potentially catastrophic consequences demands new approaches, a focused strategy, and a new organization. Our country has already expanded capabilities and improved coordination among federal agencies, but more can be done to prepare and respond.

National Vision

America will have a coordinated national effort to prepare for, prevent, and respond to chemical, biological, radiological, and nuclear terrorist threats to the homeland. We will seek to detect chemical, biological, radiological, or nuclear weapons and prevent their entry into the United States. If terrorists use chemical, biological, radiological, or nuclear weapons, our communities and emergency personnel will be organized, trained, and equipped to detect and identify dangerous agents, respond rapidly, treat those who are harmed, contain the damage, and decontaminate the area. Our Nation will consolidate and synchronize the disparate efforts of multiple federal entities currently scattered across several departments. Under the President's proposal, the Department of Homeland Security will unify much of the federal government's efforts to develop and implement scientific and technological countermeasures against human, animal, and plant diseases that could be used as terrorist weapons. The Department would sponsor and establish national priorities for research, development, and testing to develop new vaccines, antidotes, diagnostics, therapies and other technologies against chemical, biological, radiological, or nuclear terrorism; to recognize, identify, and confirm the occurrence of an attack; and to minimize the morbidity and mortality caused by such an attack. In addition, the federal government will set standards and guidelines for state and local chemical, biological, radiological, and nuclear preparedness and response efforts.

Major Initiatives

Prevent terrorist use of nuclear weapons through better sensors and procedures. Our top scientific priority must be preventing terrorist use of nuclear weapons. Under the President's proposal, the Department of Homeland Security will implement a new system of procedures and technologies to detect and prevent the transport of nuclear explosives toward our borders and into the United States. The Department of Homeland Security would develop and deploy new inspection procedures and detection systems against the entry of such materials at all ports of entry in the United States and at major overseas cargo loading facilities. The Department—in cooperation with the Department of Transportation, state and local governments, and the private sector—would develop additional inspection procedures and detection systems throughout our national transportation structure to detect the movement of nuclear materials within the United States. It will also initiate and sustain research and development efforts aimed at new and better passive and active detection systems.

The Departments of State, Energy, and Defense are already working with foreign states possessing nuclear programs to ensure continued strict security for the global inventory of nuclear weapons and materials, consistent with domestic and international legal obligations (including the Treaty on Non-Proliferation of Nuclear Weapons). These Departments will also work with foreign governments to improve their capabilities to detect the movement of nuclear materials or weapons and to respond appropriately. They will work with foreign governments, for example, to assess their need for enhanced radiation detection capabilities at borders, seaports, and airports and, where appropriate, will coordinate the provision of detection equipment to countries where the threat from the movement of nuclear weapons and materials is significant.

Detect chemical and biological materials and attacks. The federal government, with due attention to constraints such as the need for low operating costs, will develop sensitive and highly selective systems that detect the release of biological or chemical agents. The Environmental Protection Agency, for example, is evaluating the upgrading of air monitoring stations to allow for the detection of certain chemical, biological, or radiological substances. The federal government will also explore systems that can detect whether an individual has been immunized against a threat pathogen or has recently handled threat materials.

The ability to quickly recognize and report biological and chemical attacks will minimize casualties and enable first responders to treat the injured effectively. Local emergency personnel and health providers must first be able to diagnose symptoms. In addition to existing state laws mandating the reporting of threat diseases by physicians, veterinarians, and public health laboratories, rapid diagnosis of diseases of concern and communication form the cornerstone of a robust response. The Department of Homeland Security,

under the President's proposal, will improve infectious disease and chemical terrorism surveillance by working with the Centers for Disease Control and Prevention (CDC) and the Department of Veterans Affairs in concert with local and state public health jurisdictions. These entities will work to develop a national system to detect biological and chemical attacks. This system will include a public health surveillance system to monitor public and private databases for indicators of biological or chemical attack. National research efforts will pay particular attention to recognizing harmful dual-use industrial chemicals.

The CDC will continue its vital role in detecting, diagnosing, and addressing bioterrorist threats. Its Epidemic Intelligence Service will be expanded and modernized to better train local and state officials in recognizing biological attacks. Under the President's proposal, the Department of Homeland Security will also provide resources to state and local jurisdictions with a population of 500,000 or more to hire skilled epidemiologists. The recently established Epidemic Information Exchange System will allow the sharing of disease information in a secure information system. Public health databases will be linked nationwide through the National Electronic Disease Surveillance System to recognize patterns of disease occurrence and to identify potential regional or national outbreaks. The Laboratory Response Network will improve laboratory technology and infrastructure to increase the speed and precision of diagnoses and confirmation of biological attacks. The Department would build the capacity to gather data from all these systems and sensors, quickly assess the extent of any attack, and recommend response options to policymakers.

The Department of Homeland Security, working with the Department of Agriculture, would also strengthen our parallel system for monitoring agricultural outbreaks. Since animals can serve as important sentinels signaling a biological attack against humans or be targets themselves, the Department of Homeland Security would collaborate closely with the Department of Agriculture and the Food and Drug Administration's Food and Animal Health program.

Improve chemical sensors and decontamination techniques. Private industry and the military routinely use sensors that can detect and identify toxic chemicals. Sensors with medical applications have also reached the market. Affordable, accurate, compact, and dependable sensors, however, are not available. The Department of Homeland Security would therefore fund and coordinate a national research program to develop, test, and field detection devices and networks that provide immediate and accurate warnings. The Department would also support research into decontamination technologies and procedures. As discussed in the *Emergency Preparedness and Response* chapter, the Department of Homeland Security and the Environmental Protection Agency would require assessment technologies to determine when to permit individuals to re-enter buildings and areas.

Develop broad spectrum vaccines, antimicrobials and antidotes. In many cases, our medical countermeasures cannot address all possible biological agents or may not be suitable for use by the general population. The Departments of Health and Human Services and Homeland Security, and other government and private research entities, will pursue new defenses that will increase efficacy while reducing side effects. For example, they will explore the utility of attenuated smallpox vaccines and of existing antivirals modified to render those vaccines more effective and safe. Furthermore, the federal government, in collaboration with the private sector, will research and work toward development of broad spectrum antivirals to meet the threat of engineered pathogens aimed at both humans and livestock.

Short-and long-term efforts will expand the inventory of diagnostics, vaccines, and other therapies such as antimicrobials and antidotes that can mitigate the consequences of a chemical, biological, radiological, or nuclear attack. Development of safer smallpox vaccines and antiviral drugs will lower the risk of adverse reactions experienced with the traditional vaccine. The goal of protecting a diverse population of all ages and health conditions requires a coordinated national effort with a comprehensive research and development strategy and investment plans.

Harness the scientific knowledge and tools to counter terrorism. We will harness America's resources to fight against the most pressing chemical, biological, radiological, or nuclear challenges. In consultation with the Department of Health and Human Services, the Department of Homeland Security would leverage the expertise of America's cutting-edge medical and biotechnological infrastructure to advance the state of knowledge in infectious disease prevention and treatment, forensic epidemiology, and microbial forensics. Substantial research into relevant medical sciences is necessary to better detect, diagnose, and treat the consequences of chemical, biological, radiological, or nuclear attacks. The President has proposed a National Biological Weapons Analysis Center in the Department of Homeland Security to address some of these issues and conduct risk assessments. This Center, with input from the public health sector, will identify the highest priority threat agents to determine which countermeasures require priority research and development. The federal government will also consider and

address the potential impact of genetic engineering on the biological threat.

The Food and Drug Administration (FDA) ensures the availability of medical products (drugs, vaccines, and devices) in the event of the intentional use of chemical, biological, radiological, or nuclear agents. Recently, the FDA adjusted its new drug and biological product regulations so that certain human drugs designed for emergency responses can be quickly introduced based on animal rather than human tests.

Implement the Select Agent Program. Research laboratories can also counter bioterrorism through prevention, and by tracking and securing dangerous biological agents. Under the President's proposal, the Department of Homeland Security will oversee the Select Agent Program to regulate the shipment of certain hazardous biological organisms and toxins. Through the registration of more than 300 laboratories, the Select Agent Program has significantly increased oversight and security of pathogens that could be used for bioterrorism. The CDC is also training public health officials in every state to assist in accurately interpreting biosafety containment provisions and select agent procedures.