

Background

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Improving the Federal Response to Catastrophic Bioterrorist Attacks: The Next Steps

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The proliferation of biotoxin threats,¹ in all likelihood, will only grow with time. Of all the areas of emergency response, the federal government is least prepared to deal with catastrophic bioterrorism.

Before the creation of the Department of Homeland Security (DHS) in January 2002, numerous federal departments and agencies bore responsibility for assisting state and local governments in bioterrorism preparedness and response. There was little coordination. Today, despite organizational changes, much expertise and capacity remains beyond the department. While the Secretary of Homeland Security is mandated to coordinate the federal response, planning and coordination are still inadequate, lines of operational control are unclear, and there is no coherent national preparedness program.

To address these shortfalls, further reforms are needed that cut across a range of federal departments and initiatives.

Why Worry?

There is one simple reason why bioterrorist strikes will be attempted against the United States in the future: They can kill Americans on an unprecedented scale and spread unimaginable fear, panic, and economic disruption.² A gram or less of many biotoxin weapons can kill or sicken tens of thousands. Weight for weight, they can be hundreds to thousands of times more lethal than the most deadly chemical agents and can, in some cases, be produced at much less cost.

Talking Points

- There is one simple reason why bioterrorist strikes will be attempted against the United States: They can kill Americans on an unprecedented scale and spread unimaginable fear, panic, and economic disruption. A gram or less of some bioweapons can kill or sicken tens of thousands.
- While the Secretary of Homeland Security will coordinate the federal response to bioterrorism, planning and coordination are still inadequate, lines of operational control are unclear, and there is no coherent national preparedness program.
- The Administration should focus most assistance to state and local governments on establishing a "national bioterrorism watch system" and direct the federal government's main effort toward ensuring adequate regional and national surge capacity.
- Congress should establish an Assistant Secretary for Bioterrorism and Infectious Disease Response in the Department of Homeland Security and amend the Homeland Security Act of 2002 to streamline responsibility for bioterrorism programs.

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Some biotoxin weapons are communicable and can be spread easily beyond the initial target. They are less difficult to obtain than nuclear arms and potentially more deadly than conventional explosives or radiological and chemical weapons. A terrorist could use a virulent, infectious biological agent to inflict catastrophic damage.

The technical procedures for biotoxin weapons production are available in open-source, scientific literature. Over 100 states have the capacity to manufacture biological weapons on a large scale. A basic facility can be constructed and operated for less than \$10 million.³

Biotoxin weapons programs, however, are not limited to state threats. Any non-state group might be capable of performing some form of biological or toxin warfare. A terrorist group, given a competent team of graduate students and a facility no larger than a few hundred square feet, could field a small-scale program for a few hundred thousand dollars or less.⁴ Individuals with some graduate-level science education or medical training could produce biotoxin weapons.⁵ In some cases, biological attacks can be mounted without any scientific skills or medical knowledge.⁶

Moreover, the proliferation of biological and toxin threats will only grow with time. Biotechnology is

1. Biological weapons use living microorganisms including bacteria, rickettsiae, fungi, and viruses that cause incapacitating or fatal infections. Toxins are chemicals produced by bacteria, fungi, plants, or animals that act as poisons. Usually, they are classified as either chemical or biological weapons, although in fact they have some characteristics of both. While they are derived from organic sources, toxin weapons, unlike biological weapons, are not living organisms, do not reproduce, and are not communicable. As with biological weapons, they can be hundreds to thousands of times more lethal than an equivalent amount of chemical nerve agent. In contrast, like chemical weapons, the effects of some toxins can appear in seconds to minutes rather than requiring hours or weeks for symptoms to appear, as is often true for biological infections. Unlike chemical weapons, however, toxins can often be difficult to detect and diagnose. For scientific research and development or nonproliferation issues, it may be useful to group toxins with chemical or biological weapons, but for medical considerations and casualty response, assessment, and treatment, it is worth distinguishing toxin weapons as a separate category. J. M. Madsen, "Toxins As Weapons of Mass Destruction: A Comparison and Contrast with Biological-Warfare and Chemical-Warfare Agents," *Clinical Laboratory Medicine*, Vol. 3 (2001), pp. 593–605.
2. Some virulent diseases, such as smallpox, may quickly result in an epidemic if they can overcome an initial medical response. Martin I. Meltzer *et al.*, "Modeling Potential Responses to Smallpox As a Bioterrorist Weapon," *Emerging Infectious Diseases*, Vol. 7, No. 6 (2001), at www.cdc.gov/ncidod/EID/vol7no6/meltzer.htm. For the theoretical framework used to predict the spread of infectious disease in host populations, see World Health Organization, *Health Aspects of Biological and Chemical Weapons* (Geneva: World Health Organization, 2001), Annex 5.
3. U.S. Congress, Office of Technology Assessment, *Technologies Underlying Weapons of Mass Destruction*, December 1993, p. 86, at www.wss.princeton.edu/cgi-bin/byteserv.prl/~ota/disk1/1993/9344/9344.PDF.
4. *Ibid.*
5. The skills for creating very small, stable, and clump-free agents do require some sophistication. Obtaining the means to manufacture ultrafine particles is central to producing potentially highly lethal agents. The lethality of many pathogens rises considerably when they are inhaled. Particles between one to five microns in diameter (a fraction of the width of a human hair) are ideal. They remain in the air longer and can be inhaled deep into the lungs where the membranes are thinner and small particles can pass more easily into the body and initiate respiratory infections. In addition, coatings (microencapsulation) can be used to prevent clumping and ensure that particles remain small. The equipment costs for producing ultra small particles that are both clump-free and highly stable could also be significant, requiring tools such as containment facilities, electron microscopes (which alone cost \$50,000 to \$250,000 or more), and sophisticated spray dryers. Spray drying involves atomizing a liquid feedstock into a spray of droplets that are dried with hot air. Dryers designed for "pilot-size" projects to produce market samples can be purchased for about \$50,000. *Technologies for Powder Processing* (Columbia, Md.: Niro Inc., 2002), pp. 4–5.
6. Biological forms of toxic warfare might include employing raw sewage or medical waste. For example, in April 2000, Australian police arrested Vitek Boden, who had engineered the release of thousands of gallons of sludge into the local water system. Boden's act was intended to prompt local officials to hire him as a consultant to deal with the unexplained contamination, but a far more destructive release could easily have been conducted as a terrorist act. Barton Gellman, "Cyber-Attacks by Al Qaeda Feared, Terrorists at Threshold of Using Internet As Tool of Bloodshed, Experts Say," *The Washington Post*, June 27, 2002, p. A1. See also Theodore Karasik, *Toxic Warfare* (Santa Monica: Rand, 2002), *passim*.

one of the fastest growing commercial sectors in the world. The number of biotechnology companies in the United States alone has tripled since 1992.

These firms are also research-intensive, bringing new methods and products to the marketplace every day, and many of the benefits of this effort are dual-use, increasing the possibility that knowledge, skills, and equipment could be adapted to a biological agent program. The pharmaceutical industry, for example, has invested enormous effort in making drugs more stable for oral or aerosol delivery and thus, unintentionally, is developing the tools for producing the next generation of easily deliverable biological weapons.⁷ As the global biotechnology industry expands, nonproliferation efforts will have a difficult time keeping pace with the opportunities available to field a bioweapon.⁸

Equally troubling, the difficulties in effectively delivering biotoxins can be overcome with some forethought and ingenuity. For example, cruise missiles, unmanned aerial vehicles, or aircraft could perform sprayer attacks, but only if specialized spraying equipment was employed that ensured proper dispersal and prevented particle clumping. Clumping of agents can degrade the effectiveness of an attack. Large particles quickly drop to the ground or, if inhaled, do not easily pass into lung tissue, significantly lessening the potential for infection.

Mechanical stresses in the spraying system might also kill or inactivate a large percentage of particles—by some estimates up to 99 percent.⁹ However, if an enemy had a large supply (e.g., 50 kilograms of a virulent bioweapon) or was not terribly concerned about achieving maximum effects, crude dispensers might be adequate.

In creating bioweapons, terrorists might be limited only by their imagination. For example, a low-tech version of a bio-cruise missile attack could be attempted with a system like the Autonomous Helicopter, a 14-foot-long, pilotless, remote-controlled helicopter built by Yamaha for crop dusting in Japan. The \$100,000 aircraft uses a GPS system and video camera to allow its flight route to be preprogrammed and monitored.

Intentional contamination of food and water is another possible form of biological attack. Product tampering or contaminating food supplies is an ever-present danger.¹⁰ For instance, in 1984, the Rajneeshee cult contaminated local salad bars in an Oregon town with salmonella, demonstrating the ease of conducting small-scale, indiscriminate terrorist attacks.¹¹

Another means of bioattack is to spread infectious diseases through humans, animals, or insects. Infectious diseases are already the third leading cause of death in the United States, and battling them is an ongoing health issue. Foreign animal

7. Preparatory Committee of the Fifth Review Conference of the States Parties to the Convention on the Prohibition of Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, "Background Paper on New Scientific and Technological Developments Relevant to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction," September 14, 2001, p. 11, at www.brad.ac.uk/acad/sbtwc/revconf/5conv4.pdf.
8. Jonathan B. Tucker, "Putting Teeth in the Biological Weapons Convention," *Issues in Science and Technology*, Spring 2002, pp. 71–77.
9. Seth Carus, *Bioterrorism and Biocrimes* (Washington, D.C.: Center for Counterproliferation, 2001), p. 24.
10. For an overview of the threat of biological agroterrorism, see Anne Kohnen, "Responding to the Threat of Agroterrorism: Specific Recommendations for the United States Department of Agriculture," Belfer Center for Science and International Affairs *Discussion Paper* 2000–29, Executive Session on Domestic Preparedness *Discussion Paper* ESDP–2000–04, John F. Kennedy School of Government, Harvard University, October 2000. Contaminated food is already a serious problem. Food-borne disease causes, on average, 76 million illnesses each year, 325,000 hospitalizations, and 5,000 deaths, creating an economic cost that by some estimates ranges up to \$32 billion. Estimates for the cost of food-borne illness vary considerably depending on the criteria used. See Jean C. Buzby *et al.*, "Bacterial Foodborne Disease: Medical Costs and Productivity Losses," *Agricultural Economics*, Vol. 741 (August 1996), at www.ers.usda.gov/publications/Aer741/index.htm.
11. Judith Miller *et al.*, *Germes: Biological Weapons and America's Secret War* (New York: Simon & Schuster, 2001), pp. 13–32. See also W. Seth Carus, "The Rajneeshees (1984)," in *Toxic Terror*, ed. Jonathan B. Tucker (Cambridge, Mass.: MIT Press, 2000), pp. 115–137.

diseases also present a serious risk. Many diseases can infect multiple hosts. Three-quarters of emerging human pathogens are zoonotic—in other words, readily transmitted back and forth among humans, domesticated animals, and wildlife.¹²

Biological dangers can threaten plants and animals as well as people. These are significant, even without the threat of terrorist strikes. Crop and livestock losses from contamination by mycotoxins (toxins produced by fungi), for example, cost the United States an average of \$932 million per year.¹³

Federal Bioterrorism Response: Organization and Capabilities

Before the creation of the Department of Homeland Security in January 2002, numerous federal departments and agencies bore responsibility for bioterrorism preparedness and response. Today, at least five federal departments still retain significant responsibilities for responding to a bioterrorist event.

The Department of Homeland Security. The DHS has inherited some of the operational resources of these agencies, including oversight of the Strategic National Stockpile. Managed by the Centers for Disease Control and Prevention (CDC) in the Department of Health and Human Services (HHS), the Strategic National Stockpile provides for the storage and deployment of pharmaceuticals, supplies, and equipment for responding to a national health emergency or disaster.

The DHS also oversees the Metropolitan Medical Response System¹⁴ and the National Disaster Medical System,¹⁵ including national Disaster Medical Assistance Teams, Veterinary Medical Assistance Teams, and Disaster Mortuary Support Teams—formerly administered by the HHS. In addition, the DHS has assumed the functions of the HHS's Office of Emergency Preparedness, which manages and coordinates federal health, medical, and health-related social services for major emergencies and disasters.

The DHS also took over the Department of Agriculture's Plum Island Animal Disease Center, which conducts research and experiments on a wide range of animal pathogens, and the Animal and Plant Health Inspection Service, which conducts border inspections.

In addition to assets directly related to biotoxin threats, the responsibility for coordinating the federal response to any terrorist attack or major disaster (including biotoxin strikes) falls to the Federal Emergency Management Agency (FEMA) under the oversight of the DHS Under Secretary for Emergency Preparedness and Response. Formerly an independent agency but now part of the DHS, FEMA manages national mitigation and disaster assistance programs, including coordinating the types and levels of support provided by all federal departments and agencies in the response to and recovery from a terrorist strike.¹⁶

12. Mark E. J. Woodhouse, "Population Biology of Emerging and Re-Emerging Pathogens," *Trends in Microbiology*, Vol. 10 (October 2002), pp. s3–s7.

13. John L. Richard *et al.*, *Mycotoxins: Risks in Plant, Animal, and Human Systems* (Ames, Iowa: Council for Agricultural Science and Technology, January 2003), pp. 10 and 48–57. Economic costs are difficult to determine. Using computer modeling, the FDA estimates the mean annual economic costs due to crop losses from the mycotoxins, aflatoxins, fumonisins, and deoxynivalenol at \$932 million. Insufficient information is available to determine economic losses on crops, livestock, and humans from other mycotoxins.

14. The Metropolitan Medical Response System provides coordination and grants to cities across the United States to enhance their capability to respond to chemical and biological terrorism incidents. The program is intended to address the needs of first responders (e.g., fire, medical, and law enforcement) as well as public health offices and laboratories, private hospitals, clinics, independent physicians, and non-governmental organizations. Institute of Medicine, *Tools for Evaluating the Metropolitan Medical Response System Program: Phase I Report* (Washington, D.C., National Academies Press, 2001), p. 1.

15. The purpose of the National Disaster Medical System is to coordinate the efforts of HHS, FEMA, the Department of Defense, the Department of Veterans Affairs, and relevant state agencies. It is intended to provide additional medical response to a disaster area with teams, supplies, and equipment; patient movement out of the disaster area; and medical care at hospitals supporting the response outside the disaster area. Public Health Security and Bioterrorism Preparedness and Response Act of 2002, Public Law No. 107–188, Section 2810.

Department of Justice. Under the current national response plan, the Federal Bureau of Investigation (as executive agent for the Department of Justice) retains its role as the lead agency for federal crisis management at a terrorist scene for all types of attacks, including bioterrorism.¹⁷

Department of Health and Human Services. The Food and Drug Administration (FDA) with its Office of Crisis Management and the CDC, for example, could play important roles in the federal response to bioterrorist threats. The FDA's Office of Crisis Management works with state and local food safety agencies to identify possible food supply contamination.¹⁸

The CDC oversees national biosurveillance efforts, and its Laboratory Response Network provides specialized, rapid-detection capabilities to state and local health agencies.¹⁹ Along with the Health and Human Resources Administration, the CDC provides funding directly to state and local health organizations to upgrade their overall capabilities and conduct training exercises. Finally, the CDC continues to manage the National Strategic Stockpile in coordination with DHS through a memorandum of understanding agreed to by the two departments.²⁰

In addition, the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 established an Assistant Secretary for Public Health Emergency Preparedness to serve as the DHS Secretary's principal adviser on matters related to bioterrorism and to coordinate interagency activities with other federal agencies and the state and local offi-

cially responsible for emergency preparedness. The legislation also expanded the disaster planning responsibilities of HHS, calling for the HHS Secretary to submit a National Preparedness Plan to Congress.

Section 505 of the Homeland Security Act of 2002 reinforces HHS's responsibilities, directing the Secretary to set priorities and preparedness goals and further develop a coordinated strategy for such activities in collaboration with the DHS. HHS was also directed to collaborate with the DHS in developing specific benchmarks and outcome measurements for evaluating progress in improving preparedness.

Department of Defense. The Department of Defense (DOD) is also a cosponsor of the National Disaster Medical System, and its hospitals are often used to treat civilian disaster victims.²¹ In addition to hospital facilities, a number of DOD assets might be deployed in response to a catastrophic bioterrorist attack.²² In particular, the DOD is able to provide technical and personnel support to the DHS and state authorities during a declared biological or other terrorist disaster. These include the U.S. Army's Medical Research Institute for Infectious Diseases (USAMRIID) Aeromedical Isolation Team and the U.S. Marine Corps' Chemical and Biological Incident Response Force (CBIRF).

Additionally, Congress established an Assistant Secretary of Defense for Homeland Defense to oversee programs and policies providing military assistance to civilian authorities (MACA). The Pentagon also established the U.S. Northern Command

16. Federal Response Plan: Interim, January 2003, p. 12.

17. U.S. Department of Homeland Security, Initial Response Plan, September 30, 2003, p. 2; Federal Response Plan: Interim, January 2003, p. TI-3.

18. Dr. Mark B. McClellan, Commissioner, Food and Drug Administration, testimony before the Committee on Health, Education, Labor, and Pensions, U.S. Senate, July 24, 2003.

19. The fiscal year (FY) 2003 budget allocated about \$1.3 billion for medical preparedness, including \$498 million administered by the Health Resources and Services Administrations (HRSA) for hospital preparedness and infrastructure and \$945 million administered by the CDC for state and local public health agencies to upgrade preparedness and response capacity. The President's FY 2004 budget calls for \$1.45 billion with about \$518 million for the HRSA and about \$940 million for the CDC. The FY 2004 budget is still under consideration by Congress.

20. Dr. Julie L. Gerberding, Director, Centers for Disease Control and Prevention, testimony before the Committee on Health, Education, Labor, and Pensions, U.S. Senate, July 24, 2003.

21. Vice Admiral Richard H. Carmona, M.D., U.S. Surgeon General, "The Role of the Military in Civilian Emergency Response," prepared remarks on board the USNS *Mercy*, July 26, 2003.

(NORTHCOM), which has responsibilities for both MACA and defense of the United States.²³

Department of Veterans Affairs. The Department of Veterans Affairs Emergency Preparedness Act of 2002 assigned preparedness and response functions to the nationwide system of hospitals and clinics operated by the Department of Veterans Affairs (VA). The act created an Assistant Secretary of Operations, Preparedness, and Security to act as the VA's liaison with the DHS, and it directs that all VA facilities be made available for use during a declared national emergency.

The VA's assistance during national emergencies is not new, but the act allows for greater cooperation with the DHS. The VA is also creating four regional emergency preparedness research centers to aid in developing federal medical response strategies.

Why the Current System Is Inadequate

The current federal response system is predicated on the thoughtful and systematic application of resources. Local communities are expected to deal with disasters and emergencies using their own

resources. When they lack adequate capacity, they call on the assets from the state and neighboring jurisdictions. Federal resources are brought to bear only after state and local governments find they lack adequate capacity and request assistance from the federal government. In turn, FEMA then has to determine the level of required assistance and then coordinate the delivery of support with HHS, the DOD, the VA, and other federal agencies.

The current approach could well prove totally inadequate in the event of a virulent biotoxin attack. Effectively negating threats in many cases requires a rapid response capability, and operating on compressed timelines leaves little room for delayed delivery of support or miscues in coordination.²⁴

One significant requirement, for example, is quickly emplacing an incident response structure that can detect and assess threats and mobilize appropriate resources. In particular, for a chemical or biological attack, actions taken in the first hours to identify, contain, and treat victims may significantly reduce the scope of casualties and reduce the prospects for the outbreak of an epidemic.²⁵

22. The Posse Comitatus Act could limit the use of federal military forces in responding to a bioterrorist attack. Posse Comitatus prohibits federal forces from performing law enforcement activities without the permission of Congress, except as provided by specific acts of Congress. Edward P. Richard *et al.*, "Bioterrorism and the Use of Fear in Public Health," *The Urban Lawyer*, Vol. 34, No. 3 (Summer 2002), pp. 717–719. The act does not either preclude the military from providing logistical support, loaning equipment, and offering technical advice, facilities, medical assistance, and training to civil authorities or limit the use of National Guard Forces in state active duty or Title 32 status. The National Guard of each state or territory is commanded by its governor. Governors can assign state missions as allowed by state constitutions and statutes. Individuals or units are called into federal service under either Title 32 or Title 10 of the U.S. Code. Title 32 covers federally funded, non-federal duty status, which includes periodic training periods and participation in congressionally directed domestic programs such as drug interdiction. For more on Posse Comitatus, see Mathew Carlton Hammond, "The Posse Comitatus Act: A Principle in Need of Renewal," *Washington University Law Quarterly*, Summer 1997, p. 3, at www.wulaw.wuslt.edu/75-2/752-10.html; Jeffrey D. Brake, "Terrorism and the Military's Role in Domestic Crisis Management: Background and Issues for Congress," Congressional Research Service, April 19, 2001, p. 11–18; and Craig T. Trebilcock, "Posse Comitatus—Has the Posse Outlived Its Purpose?" Center for Strategic and International Studies Working Group, 2000, pp. 1–5.
23. James Jay Carafano, "Shaping the Future of Northern Command," Center for Strategic and Budgetary Assessments *Background*, April 29, 2003, p. 1, at www.csbaonline.org/4Publications/Archive/B.20030429.NORTHCOM/B.20030429.NORTHCOM.pdf.
24. For example, an analysis that modeled the economic consequences of a biological attack found that the speed of the response was the single most important variable in reducing casualties. Arnold F. Kaufmann *et al.*, "The Economic Impact of Bioterrorist Attack: Are Prevention and Postattack Intervention Programs Justifiable?" *Emerging Infectious Diseases*, April–June 1997, at www.cdc.gov/ncidod/eid/vol3no2/kaufman.htm.
25. The prospects for combating biological and toxin attacks or an infectious disease campaign can vary greatly depending on the pathogen, how quickly it is identified, and the countermeasures employed. An anthrax attack, for example, might be largely defeated by promptly administering antibiotics to exposed individuals. Some infections, such as hemorrhagic fevers, are so virulent that individuals are quickly incapacitated and have little opportunity to spread the disease. In cases where the contagion is quickly identified, it might be contained before a widespread outbreak ensued. Smallpox, in contrast, is extremely communicable. The effects of the illness do not appear quickly, and victims could infect many people before succumbing.

Complicating any medical response is the plethora of federal, state, and local agencies that would play a role in consequence management. Orchestrating their efforts could be a major challenge. Some organizational chains of command are maximized for responding to infectious diseases, some for natural disasters, others for weapons of mass destruction incidents or investigating crime scenes, and still others for chronic health care issues or emergency or mass casualty treatment. A communicable biotoxin attack, however, could resemble elements of all these problems, requiring perhaps a more sophisticated and integrated response than any other form of terrorist weapon.²⁶

Virtually every large-scale exercise or response experiences problems in agency notification, mobilization, information management, communication systems, and administrative and logistical support. Emergency response operations are also frequently plagued by a lack of information sharing and confusion over responsibilities among policymakers, law enforcement, emergency managers, first responders, public health workers, physicians, nonprofit organizations, and federal agencies. The necessity for speed can exacerbate the coordination challenge.²⁷

Responders will also have to deal with the demanding conditions and requirements of any terrorist strike. One major command and control challenge is the problem of convergence, a phenomenon that occurs when people, goods, and services are spontaneously mobilized and sent into a

disaster-stricken area.²⁸ Although convergence may have beneficial effects, like rushing resources to the scene of a crisis, it can also lead to congestion, create confusion, hinder the delivery of aid, compromise security, and waste scarce resources. In the case of bioterrorist attack, responders could also become victims and unwittingly spread the contagion.

The expense of further improving the response capabilities of state and local governments and the private sector that might negate the need for a robust federal response is also a significant issue. The cost of general improvements in the state of health care systems, maintaining infrastructure, trained personnel, and expanding hospitals' surge capacity for acute care would be substantial. For example, the Association of American Hospitals estimates that preparing the nation's hospital facilities for biotoxin attacks will cost over \$11 billion.²⁹ Enhancing the capacity to deal with infectious diseases might require even more investment, since the epidemiology of biotoxin (non-contagious) weapon strikes and infectious disease attacks can be different and require different clinical response and treatment strategies.³⁰

Improving the Federal Response

Preparing the federal government to deal more effectively with catastrophic bioterrorism requires developing a national system that can quickly move the right kind and level of assistance to local communities. The Administration and Congress need to

26. National Association of County and City Health Officials, *Assessment of Local Bioterrorism and Emergency Preparedness*, NACCHO Research Brief No. 5, October 2001, and U.S. General Accounting Office, *Bioterrorism: Federal Research and Preparedness Activities*, GAO-01-915, October 5, 2001, p. 4.
27. James Jay Carafano, "Homeland Security and the Trouble with Training," Center for Strategic and Budgetary Assessments *Backgrounder*, September 3, 2002, at www.csbaonline.org/4Publications/Archive/B.20021003.Homeland_Security_/B.20021003.Homeland_Security_.htm.
28. For a discussion of convergence, see Julie L. Demuth, *Countering Terrorism: Lessons Learned from Natural and Technological Disasters* (Washington, D.C.: National Academy of Sciences, 2002), p. 7. See also Brian A. Jackson *et al.*, *Protecting Emergency Responders: Lessons Learned from Terrorist Attacks* (Arlington, Va.: RAND Science and Technology Policy Institute, 2002), p. xiii.
29. Association of American Hospitals, *Hospital Resources for Disaster Readiness*, at www.aha.org/Emergency/Readiness/ReadyAssessmentB1101.asp. A 2001 survey of 224 hospitals in four Midwestern states found that fewer than 20 percent of hospital emergency departments had biochemical response plans, and they generally lacked the requisite supplies and facilities to deal with an attack. Donald Clark Wetter *et al.*, "Hospital Preparedness for Victims of Biological and Chemical Terrorism," *American Journal of Public Health*, Vol. 91, No. 5 (2001), pp. 710-716.
30. Julie A. Pavlin, "Epidemiology of Bioterrorism," *Emerging Infectious Diseases*, Vol. 5, No. 4 (July/August 1999), pp. 529-530.

take the following actions to streamline the current system, reduce bottlenecks, ensure adequate national surge capacity to respond to a catastrophic threat, and integrate and harmonize operational capabilities *before* a crisis ensues.

Centralize medical response capabilities in HHS. Bifurcating responsibility for medical response programs such as the National Strategic Stockpile between HHS and DHS was a mistake. Managing complex programs through interagency memoranda of understanding is bureaucratic, inefficient, and unnecessary. Clearly, efficiencies could be gained by transferring responsibility and budgetary oversight of these efforts into one department or the other.

The DHS lacks the expertise and experience to oversee large medical emergency response programs. Congress should amend the Homeland Security Act of 2002 to move responsibility for overseeing the National Strategic Stockpile, the Metropolitan Medical Response System, and the National Disaster Medical System to HHS.

Create an Assistant Secretary for Bioterrorism in DHS. To improve coordination of the national bioterrorism response effort and ensure that key biomedical response programs are seamlessly integrated into the overall national response system, the DHS requires a level of management commensurate with the assistant secretaries providing oversight for the DOD, VA, and HHS.

Congress should establish an Assistant Secretary for Bioterrorism and Infectious Disease Response in the DHS Emergency Preparedness and Response Directorate. The Assistant Secretary should have responsibility for ensuring that plans and programs under development—including the National Response Plan, National Incident Management System, and HHS national preparedness plan—are consistent and provide for the rapid delivery of services and support in the event of biomedical emergency.

Harmonize, simplify, and focus DHS and HHS grant programs for state and local governments.

The DHS and HHS need to work closely together to ensure that grant programs are operating as efficiently as possible to expand the capabilities of local communities to deal with a health disaster. Put simply, they need to ensure “the biggest bang for the buck.” The departments need a common performance-based grant system that:

- Is based on national performance standards,
- Focuses most resources on major metropolitan areas and other critical high-risk targets,
- Simplifies the grant process so that states and local governments have to provide only one assessment of their needs and vulnerabilities,
- Encourages the development of regional response capabilities and mutual-support agreements, and
- Evaluates how effectively grant funds are being used to achieve the levels of performance set by the agencies.

Congress needs to act now to establish a framework for an effective national homeland security grant program.³¹

Focus federal resources on developing national surge capacity. A significant portion of federal assistance (over one-third)³² contributes to developing local hospital surge capacity. This funding supports a questionable strategy and is perhaps wasteful spending. A fixed hospital-based national emergency response system is not the answer. It can be assumed that local hospitals will quickly be overwhelmed by a catastrophic bioterrorist attack. In addition, encouraging hospitals to maintain excess capacity, medical facilities, equipment, and staff that are not needed for normal operations only places further and perhaps unnecessary economic stresses on health care providers.³³

Federal aid should also strike the right balance in ensuring that the national, state, and local govern-

31. For further recommendations, see Michael Scardaville, “Adding Flexibility and Purpose to Domestic Preparedness Grant Programs,” Heritage Foundation *Background* No. 1652, May 6, 2003, at www.heritage.org/Research/HomelandDefense/bg1652.cfm. A Bill to Provide for Homeland Security Grant Coordination and Simplification (S. 1073) and the Faster and Smarter Funding for First Responders Act (H.R. 3266) contain many of the appropriate features; neither, however, adequately addresses the issues of standards, assessment, and accountability to ensure that grant funds are actually improving levels of performance.

32. See footnote 19.

ments focus on their appropriate responsibilities. Assistance to the state and local level should focus on medical surveillance,³⁴ detection,³⁵ identification, and communication so that problems can be identified quickly and regional and national resources can be rushed to the scene.

This “national bioterrorism watch system” should include training and effective information and incorporate health clinics, hospitals, health care providers, public health officials, first responders, veterinary clinics and hospitals, and food and commodity distribution infrastructure. The Administration needs to develop an integrated national preparedness program that focuses the lion’s share

of assistance to state and local governments on helping to contribute to the “national bioterrorism watch system,” while the federal government should focus on ensuring adequate regional and national surge capacity.

Ensure appropriate DOD support for bioterrorism response. Rather than building vast excess capacity in the national health care system at great cost, the Administration should focus on ensuring that the resources already available can be brought to bear as efficiently and effectively as possible. Two key issues that must be addressed are how quickly military capabilities can be brought to bear if needed and how the need for the armed forces to

33. The cost of maintaining public health care could severely undercut the nation’s ability to respond to biological attacks or an infectious disease crisis. The economic resources required to meet the nation’s health needs are expected to rise from 14 percent to 16.8 percent of gross domestic product by 2010. Stephen Heffler *et al.*, “Trends: Health Spending Projections for 2001–2011: The Latest Outlook,” *Health Affairs*, Vol. 21, No. 2 (March/April 2002).
34. Biomedical surveillance and monitoring alone may be inadequate. Systems that have been proposed or that are currently being implemented would link medical reporting with the Internet and powerful computer analysis tools. These would be used to identify trends that might suggest virulent disease attacks, either conducted covertly or introduced in the manner of an infectious disease. Such systems have been proposed on a regional, national, or even global scale. See, for example, World Health Organization, *Preparedness for the Deliberate Use of Biological Weapons: A Rational Approach to Thinking the Unthinkable* (Geneva: World Health Organization, May 2002), pp. 10–11. The DOD maintains a Global Emerging Infections Surveillance and Response System (DOD-GEIS) that incorporates reporting from U.S. military medical commands and research facilities worldwide. Randall Culpepper and Patrick Kelly, “DOD-Global Emerging Infections Surveillance and Response System” *Navy Medicine*, Vol. 93 (September–October 2002), pp. 10–14. Currently, there is no national civilian surveillance system, although the CDC has funded state and local programs to improve epidemiology and biomedical surveillance. Centers for Disease Control, “Bioterrorism: Epidemiology and Surveillance,” p. 1, at www.cdc.gov/programs/bio6.pdf. The CDC also has an ongoing initiative, the National Electronic Disease Surveillance System, to develop interoperable surveillance systems at the federal, state, and local levels. They may contribute to identifying and mitigating the effects of an attack, but their utility in dramatically improving biomedical defenses is relatively untested and unproven, particularly for responding to potentially virulent biological attacks from agents like smallpox, anthrax, and tularemia. At best, biomedical surveillance would only be one part of an effective response strategy, and even then effective clinical diagnosis will likely be key to the early identification of an outbreak. Outbreaks, for example, might leave insufficient clinical signs by which to rapidly identify attacks, or they might occur in populations, such as low-income groups, that lack access to or eschew the use of medical facilities until symptoms become acute. It is more likely that perceptive medical personnel will recognize the signs of an attack before they can be deduced by sophisticated surveillance and computer monitoring systems. Thus, personnel, training, and communications will remain vital elements of any surveillance system.
35. Detection systems alone will not be sufficient to deal with bioterrorist threats. On an average city street, the air is saturated with biological spores and other organic particles. An effective screening system would have to wade through this biomass to pick out deadly agents. Unlike chemical or radiological weapons, there is no widely available detector capable of screening, providing early warning, and immediately typing all potential biological agents. Current detectors provide only limited utility at high cost. On the other hand, advances in genomics, computer technology, and various forms of spectral analysis have significantly improved the ability to identify biological agents in the laboratory, a process that can now take from a few hours to a few weeks rather than months. The federal government, for example, has begun installing biological monitors at the EPA’s 3,000 Air Quality Monitoring Network stations in major urban areas. Laboratory analysis of filters in the monitors could identify some airborne aerosol attacks of a few pathogens, such as anthrax and smallpox, within 24 hours. These detectors can only detect major releases of agents over a large open area. They will not detect releases of biological agents indoors. This system also may be vulnerable to deceptive practices. For example, the detectors only measure the presence of an agent. Therefore, an enemy might be able to overload the system by releasing very small amounts near monitors in several cities.

support homeland security and conduct missions overseas can be balanced. Here, the newly established U.S. Northern Command (NORTHCOM) could play a key role.

First, NORTHCOM should coordinate military assistance to civilian authorities, even when a large federal military presence is not required. This will allow the command to establish solid working relationships with the other federal agencies and state and local governments that would respond to a large-scale disaster or terrorist attack.

Second, NORTHCOM needs to have the contingency plans and force structure in place to respond to a large-scale bioterrorist strike, and these needs must be balanced with the Pentagon's other responsibilities. Through judicious planning and force restructuring in the Reserves and National Guard, the military can effectively support both "home" and "away" games within existing force levels.³⁶ The Department of Defense should take another hard look at whether it has forces adequately prepared to deal with a catastrophic disaster and ensure that NORTHCOM has both the forces available and the contingency plans needed to meet the needs of the National Disaster Medical System in the event of a bioterrorist strike.

Enhance federal expertise in emergency medical care. The federal government lacks an integrated approach to emergency medicine, a key component for responding to a bioterrorist attack. HHS, for example, does not have a National Institute of Emergency Medicine. The Emergency Medical Services Division, tasked with developing the federal contribution to enhancing and guiding the emergency medical system, is a small office within the Department of Transportation's National Highway and Traffic Safety Administration, far removed from other key elements of the federal emergency medical response system in HHS and DHS.

Congress should amend the Public Health Security and Bioterrorism Preparedness and Response Act and address the shortfall in federal expertise in emergency medical services, including moving Emergency Medical Services Division functions to

HHS and establishing an Institute for Emergency Medicine as part of the National Institutes of Health, dedicated to spearheading emergency medical research efforts. This institute should work closely with the CDC to devise more comprehensive emergency medical response strategies.

The Way Ahead

Bioterrorism is a growing threat, but simply throwing more money at the problem or creating bigger and more complex bureaucracies is not the answer. Providing sufficient resources for bioterrorism preparedness is important, but without the right organization, strategies, and programs, these efforts will be inefficient and wasteful. Congress and the Administration should move to ensure that the federal government is better organized to meet the challenge.

Specifically, Congress should:

- **Move** responsibility for overseeing the National Strategic Stockpile, the Metropolitan Medical Response System, and the National Disaster Medical System to HHS.
- **Establish** an Assistant Secretary for Bioterrorism and Infectious Disease Response in the DHS Emergency Preparedness and Response Directorate.
- **Create** a framework for an effective national homeland security grant program.
- **Address** the shortfall in federal expertise in emergency medical services, in part by moving the Emergency Medical Services Division functions to the HHS and establishing an Institute for Emergency Medicine.

The Administration should:

- **Focus** most assistance to state and local governments on establishing a "national bioterrorism watch system" and direct the federal government's main effort toward ensuring adequate regional and national surge capacity.
- **Ensure** that NORTHCOM has both the forces available and the contingency plans needed to

36. See proposals in James Jay Carafano, testimony before the Committee on Government Reform, U.S. House of Representatives, April 29, 2003, at www.csbaonline.org/4Publications/Archive/T.20030429.Testimony_before_H/T.20030429.Testimony_before_H.htm. See also Carafano, "Shaping the Future of Northern Command," p. 11.

meet the needs of the National Disaster Medical System in the event of a bioterrorist strike.

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