

Hearing on Terrorism Preparedness: Medical First Response

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Good morning Chairman Shays, distinguished members of the Committee. Thank you for the opportunity to appear before you today to discuss the important topic of "Terrorism Preparedness: Medical First Response." I am a physician and public health professional, and from 1993-1997 served as Assistant Secretary of Energy for Environment Safety and Health. I am currently on the faculty of the Johns Hopkins University School of Public Health and am here today in my capacity as a Senior Fellow in the Johns Hopkins Center for Civilian Biodefense Studies. I will confine my testimony to medical and public health response to bioterrorist attacks on U.S. civilians.

Introduction

A terrorist attack using a biological weapon against U.S. civilians will require a response that is fundamentally different from the response demanded by an attack that employs chemical weapons or explosives—even nuclear explosives. The medical and public health response to a bioterrorist attack will also differ significantly from response to natural disasters such as earthquakes or fires. Construction of effective response programs requires that these differences be clearly recognized.

The outcome of a bioterrorist attack on U.S. civilians would be an epidemic. The "first responders" to such an event would be physicians, nurses, and public health professionals in city and state health departments. A covert bioterrorist attack would likely come to attention gradually, as doctors became aware of an accumulation of inexplicable deaths among previously healthy people. The speed and accuracy with which physicians and laboratories reached correct diagnoses and reported their findings to public health authorities would directly affect the number of deaths, and—if the attack employed a contagious disease—the ability to contain the epidemic. Few, if any, practicing clinicians have ever seen a case of smallpox or anthrax or plague. Only a handful of laboratories have the ability to identify definitively the pathogens of greatest concern.

Few, if any, recent disasters on American soil have resulted in large numbers of patients needing immediate and sustained medical care. It is hard to identify a modern event that has truly tested the capacity of the U.S. healthcare system to respond to massive casualties. Nothing in memory is comparable to the situation that would arise if a U.S. city were targeted with, say, an aerosolized anthrax weapon.

In a bioterrorist scenario, hundreds, thousands, or perhaps even tens of thousands of people would need immediate care, and many would require intensive therapy or ventilators. Hospitals, which thus far are almost entirely absent from any bioterrorism response planning activities, are already overburdened. Few cities have sufficient numbers of unoccupied hospital beds, staff or equipment to absorb a large, sudden influx of severely ill patients.

In any scenario involving biological weapons, the number of people who were ill and in need of hospital care would likely be exceeded by individuals seeking care because they were fearful of being sick. The Scud missile attacks on Israeli citizens during the Gulf War produced large numbers of people seeking medical care for symptoms of acute anxiety—symptoms that closely mimic early nerve gas effects. Similarly, in their initial stages, many of the diseases delivered by biological weapons resemble common illnesses. Rapid diagnostic tests for diagnosing smallpox, anthrax, etc. would be most helpful; but even the availability of such tools will not prevent the need to distinguish the truly sick from the worried well. Accomplishing this, and triaging affected individuals so as to best deploy limited drugs and equipment, will require significant resources.

In the event that a bioterrorist attack employs a contagious pathogen, provisions must be made to protect health professionals from the diseases afflicting their patients, and to prevent patients from infecting others. Most hospital infection plans are capable of managing a handful of infectious patients. We are unaware of any hospital that has the capacity to effectively isolate as many as 50 to 100 such patients.

No one knows how people would react to an attack with a deadly pathogen. But it is likely that some healthcare workers would leave their jobs to care for their families; others would leave for fear of their own safety. Maintaining security at hospitals, healthcare centers, and pharmacies would pose great challenges since many hospital security staff are off-duty police officers who would presumably be needed elsewhere during the crisis.

Media coverage of modern epidemics will have a profound influence on the outcome of response efforts should a biological attack occur. It is easy to imagine the opportunities for misinformation, or contradictory interpretations by various self-appointed or media-anointed “experts” in the context of a terrorist attack on Americans. This would be a situation that lends itself to fueling public mistrust; yet providing the public with accurate, timely information that people not only believe, but act on, could literally save lives.

The Role of Public Health in Bioterrorism Response

Public health agencies at the municipal, county, state and federal levels will be central participants in efforts to recognize and respond to bioterrorist attacks. Public health response activities will be especially essential to shaping the scope and outcome of a bioterrorist attack. Containment of transmissible disease outbreaks in the modern world is a formidable undertaking. The mobility of urban populations, the global availability of high-speed transportation networks, and limitations on public health’s legal authorities, are factors that impact on epidemic management.

It is possible that electronically based surveillance systems will be helpful in detecting an attack; but it is certain that such systems will be essential tools in managing an epidemic. Thus, the ability of local and state health departments to analyze and monitor the epidemiological situation is a key component of any national response system. Epidemiologic analysis of initial victims may be critical in determining where the attack occurred, who is at risk, and who requires prophylactic treatment.

A key component of efforts to limit the number who become ill will include the identification of contacts requiring vaccination, antibiotics or quarantine. Epidemiologic tracking of the epidemic will be necessary to determine if response efforts are succeeding, where resources should be invested, and whether additional attacks have occurred. History shows that governments’ ability to describe accurately the course of disease outbreaks has a great impact on public credibility and on citizens’ willingness to follow the recommendations of public health authorities.

Unfortunately, the public health infrastructure in the U.S. has been neglected for decades. In 1988, the Institute of Medicine wrote that “public health in the United States has been taken for granted” and that “our current capabilities for effective public health actions are inadequate.”[Institute of Medicine, *The Future of Public Health*, National Academy Press, Washington, DC, 1988]. In the ensuing decade, the situation has only gotten worse. City and state health agencies remain

seriously under-funded and understaffed, a situation that presents a real danger in our nation's potential to manage effectively an epidemic among the civilian population. The state grants program initiated this year by the Centers for Disease Control Bioterrorism Preparedness and Response Office is an important first step towards strengthening state and local public health capacities.

Collaboration between public health departments and the medical community is also critical to bioterrorism response. The gulf between medicine and public health is well documented and significant. Communication between hospitals and state health agencies is extremely limited. For example, few state health agencies have the ability to determine how many intensive care unit beds in the state are occupied at any given time, and few physicians know how to contact government health agencies were they to suspect a case of smallpox or anthrax. Re-establishing the linkages between medical practitioners and hospitals and public health agencies will be extremely important (and is likely to yield dividends beyond bioterrorism response).

The Role of Medicine

There is an enormous need to raise awareness within the medical community of the threat of bioterrorism. During a bioterrorist attack, health professionals will be the first responders. Yet, this critical component of the nation's response capability has thus far received no funding or targeted attention from any federal preparedness program. Moreover, very few medical or hospital industry leaders with whom we have spoken are even aware that bioterrorism is a problem.

Physicians are already struggling to keep up with advances in their own specialties—they are not searching for additional subjects to master. It is likely that many will be reluctant to devote time or resources in preparing to treat diseases with low probabilities of occurrence. Physicians must be educated about the potentially calamitous consequences of bioterrorism, and the critical role that astute clinicians could play in recognizing such attacks. It is essential that at least a core of practitioners in selected medical specialties—such as emergency medicine, infectious disease, internal medicine, hospital epidemiology, etc.—are aware of the basic clinical manifestations and management of diseases caused by biological weapons.

Should a bioterrorist attack on U.S. civilians occur, hospitals would be frontline institutions for dealing with the response, regardless of the type or scale of the attack. The current hospital system is not well prepared to deal with a mass disaster. Economic pressures have reduced staff and the number of available hospital beds. Intensive care and isolation beds are particularly scarce. Drugs and equipment are purchased on an "as needed" basis, which has resulted in reduced stockpiles available for immediate use.

Hospitals have been largely missing from bioterrorism response planning to date. Efforts to include hospitals in exercises sponsored by the Domestic Preparedness programs have not been successful in engaging hospital leaders, who are preoccupied with the changing and financially competitive terrain of modern health care. Most hospitals are not in a position to accept unfunded mandates, and are unlikely to respond to bioterrorism response plans unless the nation establishes a thoughtful menu of incentives and programs that motivate and enable them to do so.

Effective response to a bioterrorist attack that results in hundreds or thousands of patients will require extensive coordination and cooperation among dozens of hospitals and Health Maintenance Organizations in a city or region. The protocols and infrastructure for implementing such collaboration should be examined, especially in view of the autonomous and financially competitive nature of health care organizations.

It is critical that response roles and capabilities of hospitals be carefully examined and augmented as appropriate. The Hopkins Center for Biodefense Studies has begun a project to design a "template" that would identify key elements in creating institutional capacities required for effective hospital response. Increasing awareness among hospital leaders and staff of the threat bioterrorism is obviously a key component of building such capacity.

Social Dimensions of Bioterrorism

Planning for a response to terrorist attacks must not neglect the social consequences of epidemics. A deliberate epidemic may continue to produce victims over a period of weeks or months. Additional attacks must be anticipated. If the biological weapon used is a contagious disease, fellow citizens may represent ongoing threats to public safety, or be perceived as such. Managing the response to a bioterrorist attack will exact a physical and emotional toll on the whole population, but especially health care workers and family caretakers, many of whom may fear for their own health. Normal routines and commercial activity are likely to be seriously disrupted, possibly on a citywide or regional basis and for an extended time period. Proper attention to the psychological needs of people in crisis is essential.

Historically, some disease control measures taken in times of public health emergencies have been at odds with, or perceived as violating, certain democratic principles and processes. For example, mandatory quarantine or enforced vaccination to limit disease spread have been perceived as threats to individual autonomy and the right to privacy, or as discriminatory actions against certain groups. During a crisis, communication failures among different communities and between government officials and citizens can create suspicions and resistance that inhibit the accomplishment of public health objectives. Moreover, differing ideas of what constitutes proper response can also have long-term political consequences, contributing to distrust of government institutions and disengagement from the processes of representative democracy.

A bioterrorist attack will undoubtedly raise many important political and legal questions and issues involving civil liberties, the authorities of state and federal health officials, liability in the event mass vaccination is necessary, etc. An effort to identify and better understand such issues is important.

Federal Bioterrorism Response Programs

All Federal response plans in place and under development—including those of the Departments of Defense and Health and Human Services—are designed to support local resources and capabilities. However, it is estimated that 24-48 hours will elapse before federal resources arrive on the scene. During this initial—and for bioterrorism, most crucial—phase of response, local hospitals and health agencies are on their own. Thus, it is extremely important that the federal efforts to augment state and local bioterrorism response capacities be expanded to include as partners the medical and public health communities.

In recent years, a number of laudable federal efforts aimed at augmenting terrorism preparedness on the local level have gotten underway. Some of these programs have been criticized for being poorly coordinated on the federal level, an observation not without foundation. Such criticism may reflect, in part, the complexity of the technical issues and the unusual panoply of actors that would be engaged in terrorism response activities. Both of these aspects—the technical difficulty of the issues and the challenge of integrating diverse organizations and cultures—are magnified in the context of bioterrorism.

Three aspects of current federal programs deserve emphasis. The first is the pressing need to upgrade the capacity of local public health systems to respond to an intentional epidemic. The second is the imperative to engage the medical community, including hospitals, in bioterrorism response planning and preparedness. The third aspect of federal efforts that requires attention is the institutional “connectedness” that will be essential to mount an effective response to acts of bioterrorism.

1. **Upgrade Local and State Public Health Capacities:** The creation of the Bioterrorism Preparedness and Response Office within CDC establishes an important nexus for scientifically informed policy. The grants program run by the Office of Bioterrorism Response targets state health departments—a critical, and thus far neglected, component of bioterrorism response. The Office has recently embarked on a number of impor-

tant bioterrorism related initiatives. Such programs include the development of national pharmaceutical and vaccine stockpiles, the strengthening of CDC's diagnostic laboratory capacity, the augmentation of CDC's epidemiologic capacity and the improvement of disease surveillance systems.

It is vital that this program continue and be expanded. Upgrading the nation's public health system is a significant undertaking. A five-year plan that identified the core public health functions essential to effective bioterrorism response would be useful to establish priorities and to set realistic budget targets. Such a plan might also help ensure that state-based systems are integrated into regional and national responses. Efforts to implement critical capacities should not be sacrificed to attempts to create ambitious, long-term projects. For example, sensitive surveillance systems designed to detect bioterrorist attacks will be expensive and difficult to create. Such systems may not make detection of outbreaks more rapid or more certain than detection by alert clinicians who can recognize disease caused by biological weapons and know how to contact and work with responsible public health officials. Creating the capacity to efficiently track and respond to disease outbreaks on the local and state level is the critical need.

2. **Engage the Medical Community in Bioterrorism Response Planning:** The Nunn-Lugar Domenici Domestic Preparedness Programs have thus far focused primarily on responses to terrorist attacks using conventional explosives or chemical weapons. Training exercises focused on chemical attacks or conventional explosions have appropriately targeted traditional "first responders"—firefighters, emergency response technicians, law enforcement personnel and the like. Few cities have considered or practiced responding to an attack that employs biological weapons. Thus, the medical community, hospitals, and even state health departments have been missing from training and exercises sponsored by the Domestic Preparedness Programs. Furthermore, even when bioterrorism scenarios are considered, clinicians, hospital leaders and public health experts are frequently not included.

The Office of Emergency Preparedness (OEP) within HHS is in charge of a number of programs that carry out important medical missions during natural disasters. The National Disaster Medical System (NDMS) is designed as a partnership between the public and private sectors during emergencies and includes resources from the Departments of Defense, Veterans Affairs and the Federal Emergency Management Agency as well as HHS. OEP's role within the NDMS might provide important support functions following a bioterrorist attack, including logistical support and coordination of hospital resources.

The NDMS is specifically envisioned as a supplement to state and local medical resources. About 7000 volunteers nationwide comprise Disaster Medical Assistance Teams (DMATs), which are typically mobilized during natural disasters or discrete events such as the bombing of the federal building in Oklahoma. DMATs usually include about 30 people, only one or two of whom is a physician, and are trained to interact with traditional emergency response personnel. Other OEP capabilities, including mental health services and mortuary services, might be extremely useful resources. How such teams would interface with hospitals or local health departments; how and whether such volunteer teams could be mustered during a large epidemic; and how any public health or medical unit will interact with federal program personnel are all areas needing attention.

It is not easy to engage the medical community in bioterrorism response planning and preparedness. From a practical standpoint, the task of educating clinicians about the possibilities and medical implication of biological weapons is probably best addressed by professional societies. Hospitals and large HMOs are unlikely to devote scarce resources to bioterrorism preparedness without promise of financial support and the engagement of key authorities within the hospital community. Whether all hospitals should be prepared to respond to bioterrorism or whether a limited number of institutions should be selected to pursue more advanced capabilities is an open question.

- 3. Coordination among Institutions Involved In Bioterrorism Preparedness Planning and Response:** Institutional coordination is an important aspect of response planning. The lack of a precise understanding of roles and responsibilities among federal agencies involved in terrorist response is well recognized. Local institutions are not, in general, in better shape, and have far fewer resources to devote to planning activities.

Coherent state-wide plans embracing all relevant parties—including hospitals, emergency response systems and government health agencies—in functional consortia would be extremely useful. CDC and OEP and state preparedness initiatives must address issues of coordination and collaboration that result in a constructive reexamination of strategies and plans.

All fifty U.S. states responded to the Federal Centers for Disease Control and Prevention 1999 Request for Proposals to strengthen public health response to bioterrorism; however, to date very few representatives of the medical or hospital communities have participated in planning projects or are even aware of the threat posed by bioterrorism. It is critical that the leadership from both the medical and public health communities become engaged soon, to ground the process in an accurate understanding of technical and institutional issues, and to incorporate a realistic and thoughtful analysis of the social repercussions of public health options.

Coordination between the health sector and law enforcement authorities is especially important, given that a bioterrorist attack will necessarily involve a high-profile, high stakes criminal investigation and will raise profound national security issues. Efforts to ensure adequate communication and collaboration among health authorities and law enforcement deserve a high priority given the lack of practical experience in such collaboration and the significant organizational and cultural differences among these sectors.

Mission and Focus of the Johns Hopkins Center for Civilian Biodefense Studies

The Johns Hopkins Center for Civilian Biodefense Studies is dedicated to fostering the development of medical and public health policies and structures to prevent the use of biological weapons and protect the civilian population from bioterrorism. The Center's principal focus is upon those bioweapons that have the potential to cause catastrophic, potentially destabilizing epidemics.

Begun in September 1998, the Center is dedicated to a sustained examination of the policy and operational issues associated with medical and public health implications of bioterrorist threats. The Center is committed to providing opportunities for informed dialogue among a diverse array of policy experts and health practitioners. The Center itself possesses a unique array of expertise and experience in medicine, public health, and government, which makes it well-poised to carry out its goals.

The Center's approach includes three focus areas:

Raising awareness—increase national and international awareness of the medical and public health threats posed by biological weapons, thereby augmenting the potential legal, political and moral prohibitions against their use.

Building the knowledge base—develop a broad appreciation of the threat posed by the biological agents of greatest concern, and possible medical and public health management options through analysis of expected clinical manifestations, available treatment strategies, epidemiology, and potential methods of prophylaxis. Disseminate this knowledge throughout the medical and public health communities.

Catalyzing development of effective, practical systems to respond to epidemics—inform the planning and preparation for possible bioterrorist attacks, and by so doing, lessen their potential effects and attractiveness as instruments of terror. Engage the medical and public health communities in comprehensive planning in critical areas such as epidemiological

characterization of intentional epidemics, the care and treatment of casualties, communication of information to the public, and the pursuit of unmet research and preparedness needs.

To further these ends, since its establishment one year ago, the Center has accomplished the following:

Delivered more than 75 presentations to audiences in 27 cities.

Co-sponsored with the Department of Health and Human Services the “National Symposium on the Medical and Public Health Responses to Bioterrorism,” attended by over 900 people from medical, public health, military, intelligence and media communities.

Convened an expert, national Working Group to analyze appropriate medical and public health strategies for dealing with the most dangerous biological weapons. Consensus recommendations on anthrax and smallpox are detailed in peer-reviewed articles in the Journal of the American Medical Association. Articles on plague, botulism, tularemia and the hemorrhagic fevers are in progress.

Established a website and quarterly newsletter that provide general and technical information on medical and public health aspects of bioterrorism to professionals and the general public.

Testified before Senate and House committees and briefed Congressional staff and members of Congress.

Began identifying key elements and processes for developing an effective medical and public health response to bioterrorism which can serve as a template for operational efforts.

Began a historical investigation of the social and medical responses to past epidemics aimed at illuminating probable public reactions toward official interventions.

Participated in many government and scientific advisory committees addressing various aspects of bioterrorism. Institutions include the Department of Health and Human Services, the National Academy of Sciences, Institute of Medicine, Department of Defense, Infectious Diseases Society of America, World Health Organization, and Maryland Institute for Emergency Management.

Recommendations

A number of steps must be taken to develop the appropriate level of readiness at the local, state, and federal level to effectively deal with the threat of bioterrorism:

1. **Augment Local Public Health Capacity:** Investment of talent and money in the HHS bioterrorism response program in CDC should continue and indeed, should be significantly increased. More attention should be directed towards identifying and implementing the essential elements of bioterrorism response, and toward making sure that Federal efforts can effectively plug into local resources.

We agree with the assessment of the Deutch Commission that federal efforts to respond to terrorist attacks are uncoordinated. We encourage all agencies involved with the public health response to bioterrorism to seek greater cooperation and a more explicit understanding of responsibilities and capabilities. However, this should not obscure the fact that the HHS programs now underway bring different elements to the nation's response capability and are of great potential value. There is plenty for everyone to do.

2. **Improve Clinicians' Awareness of the Threat of Bioterrorism and the Diagnosis and Treatment of Diseases caused by Biological Weapons:** The medical community must be brought into the planning and preparations for bioterrorism. In the event of a bioterrorist attack, local health resources—physicians, nurses, and the technicians and administrators who support them, will carry the weight of the response. Yet none of the preparedness programs now in place include any appreciable engagement of physicians or hospitals.

Increasing health professionals' awareness of the medical manifestations of biological weapons and educating clinicians about what to do should they suspect a biological attack must be a top priority. This can be

accomplished most efficiently if curricula are designed and distributed through professional societies such as the American College of Emergency Physicians, the American Colleges of Physicians, the Infectious Disease Society of America, etc., rather than by for-profit contractors.

3. **Engage Hospitals in Bioterrorism Preparedness and Response Planning:** With very few exceptions, hospitals are not yet participants in any response planning efforts. Given the competing priorities facing health care institutions, initiatives to make hospitals aware of the bioterrorist threat and of their critical role in bioterrorism response must engage leaders within at the appropriate levels of authority and influence. As the path towards constructive integration of hospitals into response planning becomes better defined, proper heed should be paid to the resources hospitals will require to fulfill their roles and missions.
4. **Assess the Impact of the Media:** Careful anticipation and study of the influence of the media on the events following a bioterrorist event is needed. The media's impact on the epidemic and its concomitant potential to generate or quell public panic has great salience for any practical response planning. Consideration should be given to advance preparation of educational videos, and briefings for reporters. Protocols for providing the public with rapid and accurate medical information in the event of an attack should be determined.

Conclusion

If a bioterrorist attack occurs on U.S. soil, the ensuing response will engage all levels of government, most federal agencies, and multiple professional communities, most particularly healthcare providers and public health professionals. It will take place in an atmosphere of great tension, uncertainty and fear. Decisions will have to be made and coordinated very rapidly. Planning and implementation of effective response strategies must take into account the complexity of this challenge and the essential multidisciplinary, inter-institutional nature of the problem. There is an urgent national need to develop a holistic picture of what such a response should include and how it might be organized, recognizing the importance of crafting strategies that are locally-based and flexible enough to accommodate specific contexts and unexpected conditions.