Preparedness for a CBRNE Event

U.S. Air Force (Mark Wyatt)

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Airman tests biological agents for Full Spectrum Threat Response program

U.S. Air Force (Michael A. Ward)

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Former Secretary of the Navy Richard Danzig postulates the potential catastrophic effects of bioterrorism on our nation from "reload."[1] Simply put, *reload* is the ability of an enemy to repeatedly conduct bioterrorism attacks. This aspect of bioterrorism could have devastating effects. Are our military health care providers and first responders prepared for such a chemical, biological, radiological, nuclear, or high-yield explosive (CBRNE) attack? The precise answer to this question is as likely to appear through gazing at a Magic 8-Ball as from any particular source and will not be fully known until such an event occurs. However, some indicators are available to help predict the outcome of a CBRNE attack on our homeland and how the military can participate in a national response. To conduct a realistic assessment of national CBRNE preparedness, it is useful to examine:

- historical accounts of national readiness
- changes that have occurred since 9/11 among the various components of civilian and military health care providers as well as capacity
- educational measures needed to prepare for CBRNE events
- critical role of leadership in emergency response.

Historical Readiness

The level of preparedness that existed during World War II is representative of full national preparedness. This was achieved with

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Left: Civilian first responders assist in All Hazard Response Training at Hanscom Air Force Base

total military mobilization and full civilian preparedness. The Office of Civilian Defense (OCD), established in May 1941, was charged with protecting the civilian population, maintaining morale, and promoting volunteer involvement in defense. It was also responsible for ensuring that Federal agencies responded to community needs resulting from the war. OCD established air-raid procedures, created the Civil Air Patrol, supervised blackouts, filled sandbags, provided for war service functions such as childcare, health, housing, and transportation, and planned for protection against fire in case of attack. Although OCD was disbanded at the conclusion of the war, the Federal Civil Defense Administration (FCDA) was established in 1950, partially in response to the Soviet Union's development of the atomic bomb. The FCDA was wholly a civilian organization, as civilian protection was understood as ideally a civilian rather than a military undertaking.

During the Cold War, a heightened degree of national readiness was maintained by the FCDA. The civil defense system was developed in response to the threat of nuclear war, perceived to be the primary CBRNE threat. There was a boom in construction of fallout shelters in certain parts of the Nation. A mid-1960s study of three Midwestern states showed that their civil defense directors estimated war as more likely than did their community leader counterparts and had a more positive view of civil defense in general. The most successful civil defense directors came from larger cities. Importantly, these directors felt that individuals could do more to control national problems. Civilian and military officials devised plans that would give the greatest number of civilians a chance to survive a nuclear war and reconstitute society. This historical perspective has been lost to modern American culture.

A similar state of national readiness for a CBRNE threat today is maintained by modern-day Israel, which can be thought of as a "hardened" democratic society. As a nation, Israel has adapted to the threat of biological or chemical attack, especially since its experiences during the 1991 Persian Gulf War. Its government funding supports civil defense against unconventional weapons. Israel's civil defense policy is based on two components: to deter or prevent an enemy attack and to minimize the damage of such an attack should deterrence and prevention fail. Israeli civil defense is an inseparable part of national defense, and the military is fully integrated in this process through the Israel Defense Forces Home Front Command, created in 1992. Many North Atlantic Treaty Organization allies similarly include civilian and military components in their civil defense planning.

In general, the United States follows a CBRNE defense doctrine similar to Israel's. Total protection is impossible, and attempts to achieve it would require social and economic changes that a populace would find unacceptable. Deterrence of an unconventional weapon attack is important to maintain. Those who would use such weapons must understand that they would suffer retaliation—a conviction that is also held by our allies.[2] When combined with active measures, the Israeli CBRNE defense experience dictates that deterrence helps to reduce the expense of passive protective measures. Fully functional early warning systems should significantly improve civil defense and are an important component of national CBRNE readiness.

Ohio National Guardsmen extract victims during exercise Vigilant Guard, 2007

U.S. Army (Russell Lee Klika)

Where Are We Today?

The independent health advocacy group Trust for America's Health (TFAH) conducts an annual national survey of state public health systems regarding preparedness for a CBRNE disaster. The news from 5 consecutive years of analysis is heartening. The TFAH assessment is thorough and based on 10 pragmatic preparedness indicators, including the ability to receive and distribute pharmaceutical supplies, laboratory diagnostic capacity, various workforce surge capacity indicators, immunization delivery, resiliency, and measures of leadership commitment to achieving these goals. When the assessment was first conducted in 2003, approximately 75 percent of the states earned 5 or fewer of the 10 indicators; in the 2007 survey, the same percentage of the states scored 8 or higher. Success in these measures requires coordination among Federal, state, and local authorities, the ability to "grow" a professional and reliable public health workforce, secure and reliable data transmission, access to qualified volunteer personnel, and the willingness of state and local authorities to spend funds to match and exceed Federal grants for these measures.

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This increase in national civilian preparedness is due to Department of Health and Human Services dispersal of billions of dollars to the states through the Centers for Disease Control and Prevention, the Health Resources and Services Administration, and the American Schools of Public Health. This massive funding effort, coupled with the establishment of national Public Health Preparedness Centers, has had a significant impact on our civilian level of preparedness for a CBRNE event, as reflected in the most recent TFAH analysis.

A hypothetical scale of CBRNE preparedness might equate a low level of societal post–World War II national preparedness to that existing prior to September 11, 2001, and a high preparedness level to that of modern-day Israel. Where is the United States today between these two levels of preparedness? As previously described, multiple efforts have been established since 9/11, although we have not achieved parity with Israel. As a nation, we have not moved toward our World War II mobilization level. There has not been a military draft in support of ongoing operations. The average citizen is little inconvenienced in his or her daily life by the wars in Iraq and Afghanistan. No national societal commitment has occurred for the maximum possible CBRNE preparedness.

If we are concerned about the national level of preparedness, we must prepare our health care providers fully and harden our health care infrastructure. Most preparedness benchmarks for the military health care sector would of necessity be similar to those used to assess the civilian sector by the TFAH, including pharmaceutical and immunization distribution capacity, laboratory diagnostic capacity, workforce surge capacity, resiliency, and leadership commitment to achieving these goals. There are also important exceptions that would need to be considered to assess the readiness status of military health care providers. These include the fact that those on the frontlines of a battlefield may be more at risk of receiving patients exposed to CBRNE or of becoming exposed themselves. Also, those at the forward echelons of military health care may have less hospital capacity immediately available than their civilian counterparts. There are also many benefits associated with the existing military health care system. They can be thought of as communication enhancers, superior preparedness education, organic material, and personnel assets.

Since 9/11, redundant communication capability has been developed, stretching across the echelons of health care. This is particularly important in the event that any single or multiple communication modes are affected during a CBRNE event. The Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) is now available across the various echelons of military health care. This system records disease presentation by syndrome at the time of patient visit, greatly decreasing the time to determine the occurrence of a disease outbreak. Similar disease surveillance systems have been developed in the civilian sector nationally[3] and by individual cities and states.[4] There are also efforts linking military and civilian disease reporting systems to maximize national outbreak detection and tracking.[5] In addition, the nationally established BioWatch Program uses a series of detectors to provide early warning of a mass biological pathogen release. This system alerts authorities before victims begin to show symptoms and enables early medical treatment, thereby decreasing illness and death.[6]

Military Organizations

Many military units have state-of-the-art CBRNE agent detection capabilities, both in the field and through reachback to the military reference laboratories at the U.S. Army Medical Research Institute for Infectious Diseases (USAMRIID), U.S. Army Medical Research Institute of Chemical Defense (USAMRICD), and the Armed Forces Radiobiology Research Institute (AFRRI). Military health care providers have access to experimental diagnostics, detection systems, and therapies within the proper chain of command. There are unique resources available to diagnose and treat high-risk patients, including the USAMRIID Aeromedical Isolation Team and Special Medical Augmentation Response Team (SMART), which are organic to the U.S. Army Medical Command. Field investigation capabilities are available through various teams. Full integration of other important partners in any CBRNE defense, including diagnostic laboratories, veterinarian assessment, mortuary support, and other capabilities, exists through the chain of command.

The Navy and Marine Corps Chemical Biological Incident Response Force (CBIRF) can deploy up to 330 personnel to coordinate initial relief efforts and assist with security, agent detection and identification, medical expertise, and limited decontamination of personnel and equipment. CBIRF is a national asset that can be deployed in support of homeland defense and has been used numerous times since its inception in April 1996.

National Guard and Active Component forces have become more integrated in military operations since 9/11. Many state emergency operations centers are collocated with their National Guard components. The National Guard responds to statewide disasters and has special capabilities in the formation of Weapons of Mass Destruction Civil Support Teams in CBRNE events. Another asset available to a state's National Guard is the CBRNE Enhanced Response Force Package. These newly developed teams are designed to provide capabilities to locate and extract victims from a contaminated environment, conduct casualty/patient decontamina-

tion, and provide lifesaving medical triage. Statewide emergency preparedness efforts from notional to full-scale preparedness drills are often coordinated with that state's National Guard assets.

Although not considered a branch of the Armed Forces, the U.S. Public Health Service (USPHS) is part of the national health care emergency response network. Since 9/11, the USPHS has increased its emergency response capacity. The Office of the Surgeon General can dispatch multidisciplinary teams of physicians, dentists, veterinarians, nurses, pharmacists, and scientists to respond to domestic and international humanitarian missions. USPHS officers also may be assigned to work with or in state health agencies, enabling integration into a local response to a CBRNE event.

U.S. Northern Command. Following 9/11, the Unified Command Plan 2002 established a new geographic combatant command, U.S. Northern Command (USNORTHCOM), with inherent responsibilities for handling national disasters inside the United States because it is tasked to carry out the military's homeland security activities. Among the many USNORTHCOM assets is the Joint Task Force–Civil Support (JTF–CS), which plans and integrates Department of Defense (DOD) support to the designated lead agency for domestic CBRNE consequence management operations. JTF–CS can deploy to a CBRNE incident site and execute command and control of designated DOD forces, providing support to civil authorities to save lives, prevent injury, and give temporary critical life support. JTF–CS focuses on responding to the effects of a CBRNE incident after civilian resources have been utilized, and typical JTF–CS tasks include incident site support, casualty medical assistance and treatment, displaced populace support, mortuary affairs support, logistics support, and air operations.

U.S. Army North (Fifth Army). This organization conducts homeland defense and civil support operations and theater security cooperation activities as the Army Service component command to USNORTHCOM. Previously, the United States was divided between Fifth Army in the West and First Army in the East. Recent transformation has retained responsibility of training, readiness, and mobilization missions with First Army, while Fifth Army is assigned to USNORTHCOM as U.S. Army North (USARNORTH), which commands and controls deployed forces as a JTF or joint force land component command. The CBRNE Consequence Management Reaction Force is a reaction JTF composed of joint military and governmental organizations from across the country tasked to respond to a terrorist attack or natural disaster resulting from or causing a release of chemical, biological, radiological, or nuclear agents, or a high-yield explosive. USARNORTH also can provide operational command posts to serve as the command and control element for a potential JTF. Each post includes approximately 66 personnel equipped with command and control capabilities optimized for the support of civil authorities.

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Educational Measures

Various graduate medical educational opportunities are available to military providers and scientists through USAMRIID, USAMRICD, and AFRRI, including such courses as the Medical Management of Chemical and Biological Casualties, Field Management of Chemical and Biological Casualties, Hospital Management of CBRNE Casualties, Medical Effects of Ionizing Radiation, and other Service-specific courses. These postgraduate courses train to a high standard to develop an "informed physician/clinician/public health workforce" that will recognize, triage, and treat CBRNE patients and facilitate crisis response and recovery. These courses use subject matter experts in a resident research setting, affording participants access to world-class research expertise combined with realistic experiential case studies. Training at these centers is regularly updated to reflect changes in patient treatment policies, understanding of disease, and the most recent prophylaxis and therapies. There are also courses required for the military first responder community, such as those taught at the U.S. Army CBRN School.

Role of Leadership

Leadership contributes significantly to any disaster response and recovery. Emergency response personnel nationwide are intimately familiar with the incident

National Guard Bureau

National Guardsmen respond to simulated CBRNE attack

command system (ICS), which permits an effective integrated response to a disaster such as a fire or weather-related emergency. ICS training and structure enables disparate emergency response organizations (for example, fire, police, emergency medical services) to respond to an event using a common management system with coordinated communication, response, and synchronization along shared apparent lines of authority. This system should work well in the event of a CBRNE event as long as organizations possessing the requisite specialty skills are included in the ICS disaster response. However, such responses will always include visible authority figures to coordinate efforts among various organizations, as well as between the civilian and military sectors.

Military leadership in a catastrophic emergency is not assumed to be preferable to civilian rule. However, that view may be changing. An example was the substitution of military leadership for failed civilian efforts in New Orleans during the Hurricane Katrina recovery. Lieutenant General Russel Honoré, USA, helped to restore calm and order to New Orleans in the hurricane's aftermath as the enormity of the disaster and its required response became fully understood.

National Guardsman tests communications system networked through incident command system initiative

U.S. Air Force (J.G. Buzanowski)

Civil service management differs in several ways from military leadership. The concept of civil service began in China during the Qin (221–207 BCE) and Han dynasties (206 BCE–220 AD) and initially relied on recommendations by superiors for appointment to office. In administrative areas, especially the military, appointments were to be based solely on merit. After the fall of the Han dynasty, the bureaucracy regressed into a semi–merit-based nine-rank system in which noble birthright became the most significant prerequisite to more authoritative posts.

There is a rich history of attempts to promote competency and prevent improper political influence in the U.S. civil service. During the 19th century, the U.S. Federal civil service was largely a spoils system. After President James Garfield was assassinated by a dissatisfied civil service job seeker in 1881, the Pendleton Act of 1883, sponsored and written by opponents of the patronage system, reestablished the Civil Service Commission. This eventually led to rules governing competitive examinations for classified civil service positions. The Pendleton Act placed most Federal employees on the merit system and marked the end of the spoils system. Among the many changes to civil service since then have been the creations of the General Services Administration and the Civil Service Reform Act of 1978, which abolished the U.S. Civil Service Commission and created the U.S. Office of Personnel Management, Federal Labor Relations Authority, and U.S. Merit Systems Protection Board in an effort to replace incompetent officials.

The U.S. military is a meritocracy (that is, those in positions of high authority have the credentials, experience, and demonstrated leadership, all developed over decades). The highest command positions are (like promotions) selected by boards of superiors and peers. Successful leadership and innovation are rewarded. Continuing professional education is valued, encouraged, and often required.

Unfortunately, it is possible for some top civil service managers to arrive at their positions lacking vital skills and experiences. Such qualifying life experiences are not easily avoided in our Active duty military system. This system requires regular movement to assignments of increasing complexity, and one's management skills increase as a consequence of progressively more responsible positions over a 20- to 30-year career. Retired Major General John Singlaub, USA, in his autobiography *Hazardous Duty*, observed that military officers (conducting special operations) must maintain a high level of personal honesty. Singlaub described how an "officer had to have two fundamentally important traits . . . integrity and courage, both physical and moral. If an officer lacked those qualities, no amount of careful planning or help from influential connections would bring him a successful career." Regrettably, the same cannot be said for all civilian appointees.

In the event of a national emergency, specifically a chemical, biological, radiological, nuclear, or high-yield explosive event, our military can provide multiple assets and specialized expertise to support the national health care response. The existing military structure and health care providers have been considerably transformed since 9/11 for national preparedness. Given the current operations tempo, our nation is perhaps better prepared for such an event than at any time in its recent past. Contemporary focused resources, and training to prepare for a catastrophic CBRNE event, will continue to produce a national reserve of highly trained, capable personnel. **JFQ**

NOTES

[1] See Richard Danzig, *Catastrophic Bioterrorism—What Is to Be Done?* (Washington, DC: Center for Technology and National Security Policy, National Defense University, August 2003), available at <http://biotech.law.lsu.edu/blaw/general/danzig01.pdf>.

[2] "France 'would use nuclear arms,'" BBC News, January 19, 2006, available at <http://news.bbc.co.uk/2/hi/europe/4627862.stm>.

[3] General information on BioSense is available at <www.cdc.gov/BioSense/>.

[4] For example, see the International Society for Disease Surveillance Web site, available at <www.syndromic.org/>.

[5] Peter Buxbaum, "Military Health System, CDC, join to track disease outbreaks," *Government Health IT*, March 6, 2008, available at <www.govhealthit.com/online/news/350251-1.html>.

[6] Dana A. Shea and Sarah A. Lister, *The BioWatch Program: Detection of Bioterrorism*, Congressional Research Service Report RL32152, November 19, 2003, available at <http://fas.org/sgp/crs/terror/RL32152.html>.