

Building Civilian Preparedness and Readiness

Until the 1990s, most US biodefense expertise, research, planning, and preparedness were concentrated in the military, and civilian preparedness was overlooked.

It has long been clear that biological weapons posed a threat far beyond the battlefield because they could be used to target large numbers of civilians. The potential results of their use were demonstrated in the 1950s and 1960s when, as part of the former US offensive biological weapons program, the US military tested the spread of microbes in cities and subway systems and projected potentially staggering levels of mortality and morbidity.^{7,8} Despite the threat to civilians, responsibility for biodefense rested with the military in the decades after the 1969 US unilateral disarmament of biological weapons and the 1972 Biological Weapons Convention (BWC). Until the late 1990s, in fact, most US biodefense expertise, research, planning, and

preparedness were concentrated in the US military, which focuses on force protection, and civilian preparedness was overlooked.⁹

In the 1990s, civilian vulnerability and the need for preparedness were both made clear when defectors from the former Soviet Union and Iraq revealed the existence of biological weapons programs in both countries, in violation of the BWC.¹⁰⁻¹² The former Soviet Union's program was vast, employing more than 60,000 people in dozens of facilities.¹³ When Russia's steep economic decline occurred in the 1990s and scientists, along with many others, lost their jobs, leading security experts began to worry that nations and terrorist groups would be able to purchase from unemployed Russian experts the materials and expertise needed to make biological weapons.¹⁴ Another event that raised concern was the 1995 Aum Shinrikyo subway attack in Tokyo, which led to revelations that the Japanese cult had explored use of biological weapons.^{15,16} Those events exposed the reality of the bioweapons threat, and the 1993 attack on the World Trade Center in New York and the 1995 terrorist bombing in Oklahoma City made clear that the United States was also vulnerable to violent extremism.

At the same time, great advances in the biomedical sciences were occurring: the Human Genome Project was launched, the medical potential of stem cells was discovered, fMRIs to explore brain function were developed, and genetic engineering gained ground.¹⁷ Although such advances were generally applauded, they also prompted worries that, in the wrong hands, the growing power of science could be misapplied with calamitous effect. This fear was supported by a 1993 Office of Technology Assessment report that stated that the lethality of a biological weapon could mirror the consequences of a nuclear attack.¹⁸ Popular culture was stoking fear about the

dark side of biology, too, with movies like 1995's *Outbreak*, about an Ebola like epidemic,¹⁹ and the 1997 novel *The Cobra Event*, about a lone bioweaponer who sparks an epidemic with a genetically engineered smallpox virus.²⁰ *The Cobra Event* is said to have inspired President Clinton to call for analysis of the biological weapons threat and US preparedness.^{21,22}

The growing recognition of civilian vulnerability was accompanied by the growing realization that US cities and states and the federal government were not organized to manage and withstand outbreaks of unusual infectious diseases and the potential widespread epidemics that could follow a bioweapons attack. Public health departments were understaffed, underfunded, and unconnected to hospitals.²³ Hospitals did not have the surge capacity needed to triage and treat a sudden large influx of patients. Most US clinicians had never seen a patient suffering from anthrax or smallpox and may not have recognized the signs and symptoms. Members of the public were not included in emergency planning and response. And many officials considered the public a problem to be managed – one prone to irrational fear, panic, and civil unrest.²⁴

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As the threat of a bioattack seemed to be growing, the nation was not at all ready to respond – neither to bioterrorism nor to any type of widespread epidemic. Against this backdrop, the Sloan Foundation launched its biosecurity program in 2000.

The foundation entered the field recognizing that civilians were not aware of the threat or prepared for an attack and that the US government was not

doing enough to prepare. By focusing on biosecurity, the Sloan Foundation hoped to spur US government action while also helping ordinary people and professionals with relevant expertise gain awareness and get involved in emergency planning.

The Sloan Foundation gave its first biosecurity grant to the Center for Civilian Biodefense Studies at Johns Hopkins University, an academic policy center focused primarily on preparedness and grounded in public health, medicine, and the life sciences. Early on, the foundation also funded the READY campaign, now run by DHS, to provide practical information that people needed to protect themselves. Sloan supported other important preparedness initiatives, including projects that promoted strategic thinking about national biopreparedness, brought together emergency managers from big cities to share best practices, raised awareness of the terrorist threat to children, and developed guidance for working with the disability community in emergencies. The foundation funded hospital planning efforts to improve communications and expand levels of care and facilitated planning for a volunteer civilian medical reserve corps that could respond in emergencies.

In 2012, civilian preparedness is much better than it was in the 1990s. The 9/11 terrorist attacks and the anthrax letter attacks that followed underscored the need for preparedness and reinforced the importance of Sloan's biosecurity program. Now, a little more than a decade later, medical and public health professionals are demonstrably more prepared for epidemic response. The skills needed to communicate with the public during emergencies have been identified and practiced, and the public is now widely acknowledged as central to emergency preparedness. President Obama and other government leaders have described the public as key to US

resilience to a catastrophic health event.^{25,26} Hindsight makes clear that the Sloan Foundation was connected to much of the biopreparedness work and progress of the past decade.



Preparing for a Threat Beyond the Battlefield

The Center for Biosecurity of UPMC

When the Johns Hopkins Center for Civilian Biodefense Studies now the Center for Biosecurity of UPMC was formed in 1998, it was one of the few organizations with the mission of improving the country's preparedness for bioterrorism and the only one with substantive expertise in medicine and public health. D. A. Henderson, who led the World Health Organization's (WHO) smallpox eradication program from 1967 to 1977, founded the center because he thought that most parts of the federal government did not fully understand the nature of bioterrorism. Evidence of that misunderstanding was the US government's emphasis on traditional first responder organizations rather than public health or medical institutions as key to bioterrorism preparedness.²⁷ Henderson knew that the most likely first responders to a biological attack would be healthcare providers: emergency room physicians and nurses, family doctors, infectious disease specialists, infection control practitioners, epidemiologists, and laboratory

experts. He was concerned that professionals in those disciplines were not engaged in bioterrorism preparedness, leaving the nation unready to face the consequences.²⁸

The reason most health professionals and life scientists were not engaged, according to Henderson, was because the notion of biological weapons was anathema to them. Many were convinced that biodefense measures were unnecessary for the United States. This conviction stemmed from an absolute belief in the moral repugnance of biological weapons and a belief that no one would use them. Others believed that such weapons would be too difficult to make.²⁹ These positions were challenged when the Soviet and Iraqi bioweapons programs were revealed in the 1990s, and then again when the terrorist threat to the United States was brought home with the 1993 World Trade Center bombing and the 1995 Oklahoma City bombing.

Henderson recruited Tara O'Toole, an occupational health physician and former Assistant Secretary of Energy for Environment, Safety, and Health, to be deputy director. He also recruited Tom Inglesby, an infectious diseases doctor, and Monica Schoch Spana, a medical anthropologist, early on as well. Though Henderson and his colleagues began to see the old taboos against discussing biodefense waning, it was still a shock when, in February 1999, nearly 1,000 people accepted the center's invitation to attend the first of its kind National Symposium on Medical and Public Health Response to Bioterrorism, a two day conference cosponsored by the center, HHS, and the Infectious Diseases Society of America. Some who wanted to attend had to be turned away for lack of space.³⁰ Donna Shalala, Secretary of HHS, told the assembled group of Congressional staff and medical, public health, government, intelligence, and military experts that, with bioterrorism, "the

public health and medical communities stand directly on the front lines. How well we respond to a threat or attack will depend on the preparedness of our public health and medical communities.”³¹ She also announced President Clinton’s proposed increase of \$72 million in funding to HHS for bioterrorism preparedness.³¹

As interest in the medical and public health communities began to build, the center also began hosting professional conferences to describe the threat of bioterrorism, discuss medical care for smallpox or anthrax patients (diseases that had been encountered by only a handful of practicing physicians), and recommend policies to guide the roles and responsibilities of health professionals in the aftermath of a bioterrorist attack.

Around that time, the *Journal of the American Medical Association (JAMA)* began publishing a series of center led papers on the medical and public health management of the principal biological threat agents, beginning with anthrax and smallpox and followed by papers on plague, botulinum toxin, tularemia, and viral hemorrhagic fevers.³²⁻³⁷ The guidelines for medical and public health management of each agent were developed in consensus with experts convened by the center, in what became known as the Working Group on Civilian Biodefense. The 1999 guidance for anthrax developed by this group became foundational for clinical management of the 2001 anthrax attack victims. Much of what this working group anticipated for such an event was substantiated during the response to the 2001 anthrax attacks. New

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information gained from that experience led to additional, updated clinical guidance on anthrax from the working group in 2002.³⁸

Yet in 1999 and 2000, before the value of these efforts was widely recognized, funding the center's activities proved difficult. Even though infectious disease experts and concerned government officials were encouraging, the center's mission was too security oriented for traditional health foundations and too health focused for those concerned about security. Civilian biodefense was not yet a professional field of practice.

That changed after Gomory heard a US government presentation in the fall of 2000 that he said "didn't add up."³⁹ In that presentation, an official described the national strategy to defend against a bioterrorist attack as one reliant on developing a vaccine from scratch after an attack a process that typically takes many years and mobilizing to administer the vaccine broadly. Observed Gomory, "That didn't look to me like a 'defense.' And it was pretty clear that the [weapons] could be deadly."³⁹ When he learned of Henderson's center, Gomory asked for a meeting in New York. That meeting resulted in a relationship that lasted more than a decade, during which time the Sloan Foundation provided substantial support for the center's work. In making its first biosecurity grant to the center, Gomory said that he hoped to "catalyze the creation of a national program of civilian biodefense."³⁹

In the history of the Sloan biosecurity program, the relationship between the foundation and the center, the recipient of its largest total grants, was unique. Gomory considered the advancement of a center devoted to biosecurity as one of the most successful accomplishments of the Sloan program.¹ It allowed a group of people passionate about the problem of bioweapons to work full time on solutions. A dedicated center could employ

a variety of methods and approaches to influence policymakers, inform the public, and achieve Gomory's desired goal of a prepared nation. "You want to give grants to people who want to get there," Gomory said, "not to people who don't have their hearts in the effort. It was obvious D. A. really wanted to get there."¹

The Sloan grant allowed the center to more than double the size of its staff, adding scientists, physicians, and other experts to pursue biodefense and public health policy work as their profession. In 2003, the center was recruited by UPMC (the University of Pittsburgh Medical Center) to collaborate with the UPMC healthcare system and the University of Pittsburgh Schools of Medicine and Public Health. In 2012, it is still the largest and longest serving think tank focused on biosecurity. Many projects undertaken by the center over the years have focused on improving preparedness, but the center has also addressed many of the same issues in biosecurity that were of concern to the Sloan Foundation: responsible stewardship of biological research (chapter 4), pandemic influenza preparedness (chapter 9), business preparedness (chapter 6), disease surveillance (chapter 8), and protecting building occupants from bioterrorism (chapter 7).

One barrier to advancing civilian preparedness was that most policymakers did not understand how a bioterrorism attack would unfold, the responses that would be required, or the decisions that leaders would have to make. To overcome that, one of the first projects the center embarked on was the tabletop exercise *Dark Winter*, held at Andrews Air Force Base in the summer of 2001. In that exercise, former senior government officials played the roles of members of the White House National Security Council reacting to a fictitious smallpox attack in the United States. The center designed, wrote, and produced

the scenario in collaboration with Analytic Services, Inc. (ANSER), the Center for Strategic and International Studies (CSIS), and the Oklahoma National Memorial Institute for the Prevention of Terrorism. The exercise demonstrated fundamentals of epidemiology and emphasized that if a contagious disease such as smallpox is not contained with public health measures, including vaccination, it will continue to spread.⁴⁰

Dark Winter also made obvious the limited options for response available to leaders. As a result of the exercise, the participants learned that they wanted more situational awareness of the attack and its consequences—such as the numbers of sick and dead people and the locations of hospitalized survivors—but the fragmented US healthcare system was not networked to provide such data. They also learned that hospitals and public health departments would be central to the response, but they were poorly resourced to handle a surge of patients. Smallpox vaccine could probably protect against death and possibly disease if administered within three days of exposure, but stockpiles were grossly insufficient to stop an epidemic.³⁵

Former Senator Sam Nunn, who played the US president during the exercise, showed how important leadership would be in a crisis when he observed that “the federal government has to have cooperation from the American people. There is no federal force out there that can require 300 million people to take steps they don’t want to take.”⁴⁰ *Dark Winter* was the first exercise of its kind, and it prompted both a Congressional hearing and increased concern about US preparedness.⁴⁰

That the American public could have a positive, consequential role in the disaster planning and response is now backed by empirical evidence; has been affirmed by the US president,²⁶ the director of the Federal Emergency

Management Agency (FEMA),²⁵ and other government officials; and seems completely obvious today. However, today's view of the public's role represents a sea change in attitude. When the center began its work, many policy leaders and major planning documents viewed the public as a problem to manage, even as a "panicky mob" that would engage in antisocial, violent actions that the government had to be able to anticipate.²⁴

Since its inception, the center has done a significant amount of work demonstrating that this view of the public is wrong. These efforts have been led by medical anthropologist Monica Schoch Spana. Schoch Spana directed the February 2003 conference *The Public as an Asset, Not a Problem: A Summit on Leadership During Bioterrorism*, which she followed with several scholarly articles, a series of workshops, and publication of the handbook *Leading During Bioattacks and Epidemics with the Public's Trust and Help: A Manual for Mayors, Governors, and Top Health Officials*.⁴¹ The manual provided government leaders with guidance on anticipating and averting governing pitfalls that arise during epidemics and best practices for safeguarding the public's trust and cooperation. The center distributed 10,000 manuals to the offices of mayors, governors, county executives, and public health departments nationwide. The manual was endorsed by the US Conference of Mayors' homeland security task force and the American Public Health Association. Building on this momentum, in 2007 the center convened a blue ribbon panel for the Working Group on Community Engagement in Public Health Emergency Planning to advise elected officials and health and safety authorities on why and how to involve the community

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in disaster related policymaking.⁴² The report's principles and practices are reflected in the 2008 national guidance to health departments on engaging vulnerable populations in pandemic flu planning,⁴³ the 2009 National Health Security Strategy,⁴⁴ and CDC's 2011 public health preparedness grant guidance and performance measures for state and local health departments.⁴⁵

The center has specialized in convening experts and facilitating in depth discussion to address problems in preparedness. For example, in 2005 the center partnered with the WHO Communicable Disease Surveillance and Response Office in Lyon, France, to bring together experts in biosafety, infectious diseases, public health, and the biosciences to discuss challenges presented by the 2003 SARS outbreak and the growing threat of H5N1 influenza.

Center experts have provided real time advice to government and health leaders during infectious disease crises, such as the 2003 SARS epidemic and the 2009 H1N1 pandemic, and have worked to transform the lessons observed during an event into policies beneficial for the next infectious disease emergency. In March 2012, after the 2009 influenza pandemic subsided, the center convened a meeting in Washington, DC, that invited leaders to review the most important medical and public health lessons learned from the experience with the pandemic and to consider policy implications for future outbreaks.⁴⁶ Over the years, the center's staff has published dozens of scholarly analyses of issues ranging from medical countermeasures to building safety and policy papers on topics ranging from legislation affecting public health to laboratory security. They have provided Congressional testimony, instituted a Congressional seminar series on biological and nuclear security with the Senate Caucus on WMD Terrorism as an honorary co host,

and provided real time expert advice to Congressional staff. The center's crosscutting analysis of the federal budget for civilian preparedness, published annually since 2001, has been the only analysis of its kind and is relied on by government agencies and the media.⁴⁷

The center has also nurtured biodefense as a professional field. From 2001 through 2009, the center hosted nearly thirty dinner meetings that invited members of the biosecurity community (policymakers, scientists, medical and public health officials and practitioners) to meet informally for expert presentations and off the record discussion of important and cutting edge issues. The staff published *Biodefense Quarterly*, which kept approximately 2,000 subscribers apprised of factual biodefense information, and offered summer courses in biodefense at the Johns Hopkins School of Public Health.

In 2003, the center teamed with Mary Ann Liebert, Inc., to create the peer reviewed journal *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* to provide the first forum for scholarly publication in the field and to advance knowledge and practice.⁴ Center for Biosecurity staff have editorial responsibility for the journal, which ranks in the top ten journals in the world in international relations. With Sloan support, the center also publishes an electronic daily newsletter, *Biosecurity News Today*, and the twice monthly *Clinicians' Biosecurity News*, both designed to keep the biodefense community and medical and public health communities up to date on developments in the field.

As the field of biosecurity has grown, a number of subspecialties have emerged. In response, the center has increasingly convened large meetings that bring together members of those subspecialty communities to exchange information, identify priorities, and set goals. As an example, for the October

2011 Sloan funded meeting, Charting the Future of Biosecurity, the center invited federal officials, top scientists, private sector executives, members of the press, and other influential leaders in the field to take stock of the progress made in biosecurity since 2001 and recommend priorities for the decade ahead.

Sloan Foundation support has allowed the Center for Biosecurity to address an array of topics that constitute biosecurity and civilian biodefense. It has helped the center be nimble able to respond quickly to events and provide critical information and consultation in real time and has provided stability when center experts have gone on to serve in government. D. A. Henderson was asked to establish the HHS Office of Public Health Preparedness shortly after the 9/11 attacks, and the center's second director, Tara O'Toole, was appointed DHS Under Secretary for Science and Technology in 2009. Center alumni have gone on to serve important roles in the FDA, HHS, DHS, DOD, and the Intelligence Advanced Research Projects Agency (IARPA).

Throughout its history, the center has conducted independent research and analysis, convened professional groups to address complex problems, and engaged the government policy community, all in service to its mission of increasing resilience to biological threats. Sloan Foundation support has allowed the center to remain an independent voice calling for action and needed changes in civilian preparedness.



Showing Americans How to Prepare for Terrorism

The Advertising Council's READY Campaign

Where can people find information about how to protect their families after a terrorist attack? According to focus research conducted in July 2002,⁴⁸ people were anxious about terrorism but did not know what to do or how to create emergency preparedness plans for themselves and their families.⁴⁸ That research, conducted by the Advertising Council (Ad Council) and funded by the Sloan Foundation, found that Americans were “hungry for leadership and action, to be told what to do to be more prepared, to be assured that this preparedness can make a difference” and “to take responsibility upon themselves.”⁴⁸

The public's desire for preparedness information prompted three way collaboration among the Ad Council, the Sloan Foundation, and the White House Office of Homeland Security to produce a multimedia public education campaign. The READY campaign was developed in just seven months and formally launched in February 2003.

The Ad Council was a logical choice. This private nonprofit organization conducts more than twenty such campaigns each year with various federal

agencies, and their campaigns are memorable: “Friends Don’t Let Friends Drive Drunk,” “Take a Bite Out of Crime,” and “A Mind Is a Terrible Thing to Waste” are instantly recognizable, and one of their first, “Loose Lips Sink Ships,” is iconic of the WWII era.⁴⁹

The READY campaign encouraged people to take simple, life saving actions, such as making an emergency supply kit, creating a family communication plan, and becoming informed about different types of terrorism they might face. According to Kathy Crosby, the Ad Council’s senior vice president and group campaign director at the time, and now director of health communication and education at the FDA Center for Tobacco Products, “The point we were trying to make was that until help arrives, you’re your own first responder, so be there to protect your family.”⁵⁰

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The campaign took its name from remarks by Tom Ridge, then secretary of the fledgling DHS, recalled Crosby: “One of the very first things we heard him say was, ‘Terrorism forces us to make a choice. We can be afraid. Or we can be ready.’”⁵⁰ That became the signature line for the campaign, which Ridge formally launched on February 19, 2003.^{51,52}

The campaign brochure, “Preparing Makes Sense. Get Ready Now,” summarized the threats from biological and chemical weapons, nuclear blasts, radiation discharges, and dirty bombs.⁵³ It offered sensible, straightforward advice, such as: “While there are many things that might make you more comfortable, think first about fresh water, food and clean air,” and “Consider two kits. In one, put everything you will need to stay where you are and make it on your own. The other should be a lightweight, smaller version you

can take with you if you have to get away.”⁵³ Other campaign components included a website (<http://www.ready.gov>), TV and radio public service announcements (PSAs), and a toll free phone number (1 800 BE READY) that people could call for information.

The READY campaign became one of the Ad Council’s most successful campaigns. When it debuted, it generated more than 1,700 media stories.⁵⁴ More than 2.8 million brochures were downloaded from the campaign’s website during its first ten months online.⁵⁴ In addition, the Ad Council secured a commitment of \$17 million in outdoor advertising for the campaign and \$90 \$100 million in space for a shortened copy of the brochure in the *Yellow Pages*.⁵⁴ In the first six weeks after launch, there was \$4.2 million in donated media. More than 100 million people had seen or read about the READY campaign within the first ten days of the launch.⁵⁴

Public awareness of the campaign’s messages peaked at approximately 70 percent between April and June 2003. Between February 2003 and February 2004, a behavior shift occurred as the proportion of Americans who stocked emergency supplies climbed from 26 percent to 33 percent. Those who created a family emergency plan increased from 17 percent to 27 percent. Among parents with children younger than eighteen years, the number who prepared jumped from 28 percent to 40 percent. Finally, those who remembered a READY PSA were much more likely to have stocked emergency supplies, made a family emergency plan, and searched out more information on preparedness.⁵⁴

As years passed with no subsequent attacks on US soil, the READY campaign’s mission changed. After Sloan funding ended in 2003, and as DHS took over, the campaign evolved to address all types of emergencies,

from terrorism to natural disasters. Today, its three primary audiences are the general public, businesses, and schools. Information presented on the READY website has been translated into twelve languages. At the same time, more than a decade after 9/11, Americans have slacked off in personal preparedness.⁵⁰ “We’ve seen a flattening of the behavioral metrics,” Crosby said. “Complacency has set in. We’re still trying to figure out how to break through that. Unless the problem goes away, there will always be a need to get the preparedness message out there.”⁵⁰ The national READY campaign is still going strong, though, and has inspired other groups to carry its messages forward; those groups include the Boy Scouts and Girl Scouts of America, both of which now have emergency preparedness badges.^{54,55}

The Sloan Foundation’s early work in the wake of the 9/11 attacks paved the way for this ongoing civilian awareness initiative. As Crosby explains:

Sloan recognized in 2002 that there was a window of opportunity because there was not yet a formal DHS, so there was no funding for public education. They saw a void in the market and they were willing to put themselves and the Sloan Foundation out there to solve the problem. They had the utter belief that the Sloan Foundation could and should make a difference in preparedness.⁵⁰

Major General Bruce Lawlor, Ridge’s chief of staff, concurred, when he told the *New York Times* in February 2003 that “the foundation has been absolutely essential to what we did.”⁵⁶



A Learning and Exchange Forum for Big City Emergency Managers

The Council for Excellence in Government's Forum for Big City Emergency Managers

Part of a city emergency manager's job description is planning for hurricanes, tornadoes, earthquakes, blackouts, terrorism attacks, and just about any other type of disaster imaginable. In big cities, though, the job is even more complex. If a storm surge hit New York City, for example, it could displace millions of people. Where would they go? Depending on the size of the storm, it could take months, even years, to repair all the property damage. FEMA could provide trailers for temporary housing, but they are designed to be placed ten households per acre, and Manhattan is about twenty times more densely populated.⁵⁷

Given the unique disaster planning needs of big cities, it made sense for their emergency managers to have a way to compare notes and share best practices. Recognizing that, the Sloan Foundation sponsored a first of its kind meeting in October 2004 for the emergency managers of Los Angeles, Chicago, New York, and the District of Columbia to gather and have an opportunity to speak frankly about the demands and challenges of their jobs. That successful first meeting led the foundation to provide funding for the

Council for Excellence in Government to formalize over two years a “learning and exchange forum” for big city emergency managers. When the first forum was held in Washington, DC, in 2005, participants addressed public preparedness plans and campaigns, critical infrastructure protections, and mass warning systems.

The emergency managers found the exchange valuable, said Lynn Jennings, then executive vice president of the Council on Excellence in Government: “The cities are the cutting edge in how they approach emergency management, and how they leverage resources. Learning from one another really serves them well.”⁵⁸ The Big City Managers group also opened a channel through which DHS could connect with big cities vulnerable to attack. Once the Sloan funding ended, management of the group transitioned to an independent, nonprofit organization called Big City Emergency Managers, Inc. (with Lynn Jennings as executive director of the new organization).

BCEM is now composed of fifteen jurisdictions that represent almost 30 percent of the nation’s population.⁵⁹ The group’s mission is to support emergency management operations in the nation’s largest, most at risk metropolitan jurisdictions, so the country is better able to prevent, protect against, mitigate, prepare for, respond to, and recover from major incidents and catastrophic emergencies. They receive no government assistance, relying instead on corporate partners that include Target, ESRI, Sprint, and ICF.⁵⁹ When BCEM meets twice a year, the group is briefed about major events that have occurred. For example, the Washington, DC, emergency manager has given a detailed presentation on the 2008 inauguration, and the New York City manager has briefed the group on the 2009 emergency landing of an airplane in the Hudson River. Participants also share details of new projects:

Joe Bruno, emergency manager for New York City, presented the city's 2007 competition for the best post disaster urban housing designs, which was initiated in recognition of the inadequacy of FEMA trailers.⁵⁷

“Learning what’s new and innovative makes this meeting worthwhile to the participants,” explained Lynn Jennings. Particularly in times of budget shortfalls, the participants need creative ideas about how to sustain programs and build energy around them. As far as the emergency managers themselves, added Jennings, “They are so committed to what they do, it makes a huge difference.”⁵⁸



A Framework for Mass Casualty Response

George Washington University's MaHIM System

When Robert Stevens, a photography editor for a Florida tabloid, died of inhalational anthrax on October 5, 2001, his death was initially declared an isolated incident.^{60,61} That judgment was quickly proven wrong as additional anthrax filled letters were mailed to the offices of news media outlets and two US senators. After hearing the news, Joseph Barbera, co director of the Institute for Crisis, Disaster, and Risk Management at George Washington University (GWU), activated the Washington, DC, Hospital Association communications system. Daily conference calls were held for clinicians

and health authorities to discuss patient care, the value of nasal swabs in diagnosing anthrax, patient response to treatment, and resources that would be needed if the number of victims grew.²³ Although hospitals and public health departments were overwhelmed at the time, the anthrax event was mostly over within two months. In all, five people died of inhalational anthrax, eleven others recovered, five were treated for cutaneous anthrax, and 32,000 people were prescribed antibiotics.^{62,63}

During those two months, according to Barbera, “there was a lack of any understanding of how to organize and how to manage a major incident that crossed multiple jurisdictions and multiple disciplines.”⁶⁴ Barbera thought pre event organization would have made delivery of health care go more smoothly.

Because plans were not already in place, Barbera noted, public confidence in authority was undermined. This was evident in the public’s response to the nasal swab tests and to the provision of ciprofloxacin (cipro) to Capitol Hill

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staff but not to Brentwood postal workers. The CDC directed care of the postal workers and did not recommend the nasal swab test because it was thought to produce

misleading results; CDC recommended the antibiotic doxycycline because it was as effective as cipro and more readily available. Although both approaches were based on scientific evidence, some attributed the differences to a double standard: An anonymous government official remarked that “it became an issue of poor black folks versus rich white folks.”²³

After the anthrax attacks, getting hospitals and the public health system better prepared became a federal priority, which led to the 2002 launch of

the Hospital Preparedness Program (HPP). The HPP is an HHS initiative to improve surge capacity and hospital preparedness for public health emergencies. At the same time, the Sloan Foundation funded Joe Barbera and his GWU colleague Anthony G. Macintyre to develop the Medical and Health Incident Management (MaHIM) system, a project designed to help hospitals improve their emergency planning.

MaHIM—so named to evoke the word *mayhem*, which describes Barbera’s and Macintyre’s assessment of the medical and public health response to the 2001 anthrax attacks—was designed as a framework for mass casualty response. The MaHIM planning system describes each operational function that emergency management and the public health and medical sectors must address to manage mass casualty incidents. Barbera and Macintyre extrapolated from business management principles in conceptualizing MaHIM. They also built on the principles of incident command used to create a flexible organizational framework to help people who do not normally work together to cooperate in an emergency. First responders know incident command systems well. MaHIM described a structure that could take hospitals from an organic reaction to public health emergencies to proactive planning in which specific emergency hospital functions were identified and planned for in advance.⁶⁵

MaHIM provided the intellectual foundation for the *Medical Surge Capacity and Capability (MSCC) Handbook*, which was funded and endorsed by HHS.⁶⁶ The handbook describes six tiers of emergency management for individual hospitals through the federal government. The handbook was published in 2004, updated in 2007, and is still widely used by hospital planners.

Hospitals are much better prepared for emergencies in 2012 than they were in 2001. By providing more than \$4.5 billion to hospitals since its inception, the HPP has been the main impetus for improvement.⁶⁷ One of the most significant developments has been the nationwide formulation of healthcare coalitions, which have improved collaboration and networking among individual hospitals as well as among hospitals, public health departments, and emergency management and response agencies.⁶⁸ But progress remains uneven, and there is more work to be done. Barbera described the remaining need: “The one thing we don’t have to worry about in the United States is having intelligent, knowledgeable public health personnel and medical personnel. What we need is a system that allows them to maximize their capabilities.”⁶⁴



Children as Targets of Terrorism

Center for Disaster Preparedness Guidelines

Just weeks after the September 2004 Beslan massacre, in which Chechen separatists targeted a Russian school and killed 186 children, there were reports of a computer disk found in Iraq that contained building layouts and security plans for American schools in California, Florida, Georgia, Michigan, New Jersey, and Oregon.⁶⁹ Until that time, targeting children was unheard of.

They were seen as the unfortunate collateral victims of terrorism, not the targets. A shift to targeting children could cause widespread societal grief and reverse even the staunchest national “no negotiation” policies.

In 2005, in light of this emerging, unthinkable threat, the National Center for Disaster Preparedness (NCDP), under the direction of Irwin Redlener, received a grant from the Sloan Foundation to develop preparedness models, guidelines for emergency responders, and treatment protocols to address the unique physical and emotional needs of child targets of a terrorist attack. NCDP is housed at the Columbia University Mailman School of Public Health and is an academically based interdisciplinary research and policy analysis center focused on the nation’s capacity to prevent and respond to terrorism and major disasters.

“In 2001, we had awoken to the specter of terrorism as a real potential in our lives,” said Redlener, a pediatrician and principal investigator for the Sloan funded study. “Whatever distance we were mentally keeping [from thinking about tragedy] . . . was shattered. And once that door was opened, what else could happen?”⁷⁰

During the six month project, NCDP staff reviewed national, state, and local laws pertaining to children and terrorism and assessed the potential for violence at child centric destinations, such as schools, playgrounds, buses, colleges, and universities. They met with legislators whose committee memberships placed them in influential positions for this issue and with officials at the US Department of Education and the New York Police Department (NYPD). NCDP also hosted an October 2005 meeting, Working Group on Children as Intended Targets of Terrorism, in which participants discussed prevention and preparedness for child targeted terrorism and

health system response. The report from the meeting concluded that current medical and public health systems were not prepared for an attack on children and suggested that several important steps be taken to remedy that situation. The authors called for enhanced security at child centric facilities

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and for training to teach first responders how to recognize and treat the unique effects of violence and terrorism on children. The report also noted the need to determine the most

efficient treatment models for post traumatic stress disorder in children.⁷⁰

Redlener distributed the findings to members of Congress, the White House, and experts in the intelligence community.⁷¹

Children make up 25 percent of the US population.⁷² Concern about whether the nation was prepared for an attack that targeted them prompted formation of the bipartisan National Commission on Children and Disasters, which was appointed in 2008 by President George W. Bush and established under the Kids in Disasters Wellbeing, Safety, and Health Act of 2007.⁷² In 2010, the commission completed its work, issuing a report on major deficiencies in emergency preparedness for children.⁷²

Redlener, a member of the commission, had hoped to establish a dedicated program focused on children as targets of terrorism, but he encountered many obstacles: “There’s a reflexive aversion to the topic,” he explained. “People don’t like to think about it, and people don’t plan for it. Children are still highly vulnerable.”⁷⁰



Preparing the Disability Community for Disaster

The National Organization on Disability's Emergency Preparedness Initiative

Two months after the 9/11 terrorist attacks, the National Organization on Disability (NOD) launched the Emergency Preparedness Initiative (EPI). Before that, NOD had focused on employment and education issues in its mission to promote access in all aspects of life for the fifty four million disabled Americans.⁷³ Even though there had been a great deal of progress at that point, “9/11 woke people up to the reality that for people with disabilities, the opening of access they had been experiencing might close in a moment during a disaster,” according to Elizabeth Davis, EPI’s first director and current director of EAD & Associates, LLC.⁷⁴

EPI had a two fold purpose. First, it aimed to bring people with disabilities into the emergency planning process to offer their insights, direct knowledge, and resourcefulness. Second, EPI sought to ensure that the needs of people with disabilities would be addressed in a disaster. If first responders could make effective decisions during a crisis, then the effects of a disaster could be minimized.⁷⁵ “Individuals with disabilities have to be problem solvers and creative solution finders on a daily basis, overcoming barriers and finding

solutions so the next person doesn't experience what they went through. Well, why not bring that same moxie into emergency management?" asked Davis.⁷⁴ But first, people needed information.

A 2003 2004 Sloan Foundation grant met that need by providing NOD the funding to build the EPI website that was launched on July 15, 2003. The website featured new research and government reports on emergency preparedness for people with disabilities, information about useful equipment and technologies, an electronic bulletin board to encourage information sharing among emergency management planners, and video clips that demonstrated best practices in areas such as special needs planning,

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evacuation techniques for people with disabilities, and other relevant topics.

The website was designed for the disability community and as a resource for emergency planners and the disaster

response community. "The publications turned out to be wildly successful, not just with advocacy organizations and people with disabilities, but with community outreach officers in emergency management and with partner organizations that had a role in disasters, such as local Red Cross chapters," observed Davis. "It penetrated to stakeholders from both sides of the community, which was part of EPI's original goal."⁷⁴

EPI continued to advocate for the inclusion of people with disabilities in planning for all phases of the disaster lifecycle. The organization's goal was to promote consideration of the disability community in general so, for instance, disaster engineers and architects would be able to design and rebuild fully accessible buildings during the recovery and rebuilding phase of

a disaster. “If you have a destructive event, whether natural or man made, and you need to completely rebuild, then you should embrace the opportunity to build back better than what it was before,” said Davis, “and this includes making the built environment accessible for all people.”⁷⁴

Indeed, as a testament to the success of the initiative, in 2011 the Emergency Preparedness Initiative spun off and was launched as a self sufficient 501(c)(3) not for profit organization called EPI Global. Elizabeth Davis is on the new organization’s board of directors. More work is needed to improve preparedness for people with disabilities, but by building on the successes of EPI under NOD, EPI Global hopes to find renewed commitment of support as it expands its program areas.



Organizing Medical Volunteers for Disaster Response

The Civilian Medical Reserve Corps

The Medical Reserve Corps (MRC) recruits, manages, trains, and activates medical professionals and other volunteers for disaster response duty. Today, there are more than 200,000 MRC volunteers coordinated by the HHS Office of the Surgeon General. During disasters such as Hurricanes Gustav and Ike

in 2008, MRC volunteers have administered tetanus shots and performed medical evaluations; in nonemergency times, they have volunteered at health fairs to perform hypertension screening and give flu shots. Now celebrating its ten year anniversary, the MRC was launched as a demonstration project in July 2002,⁷⁶ but it was born in the immediate aftermath of the 9/11 terrorist attacks.

On the day of the attacks on the World Trade Center, Dr. Richard Hatchett was working at the Memorial Sloan Kettering Cancer Center's emergency room for cancer patients. The next day, he and many other medical professionals in New York City made their way downtown to see if help was needed at the various triage posts that sprung up spontaneously around Ground Zero. Eventually, Hatchett made his way to Stuyvesant High School, four blocks from where the towers stood.

The medical volunteers at Stuyvesant kept pace with the fast moving events in the days after 9/11. As the number of volunteers grew, so did the size and organization of the small triage area established in the lobby of the high school. When tractor trailer trucks started delivering supplies, the group created a supply depot. When volunteers came to feed rescue workers, the group set up a cafeteria area. And when massage therapists with massage beds showed up, the medical volunteers found a place for them to work. When narcotics and other valuable medicines arrived, the group developed its own volunteer security force for what came to be known as the "Stuyvesant Triage Center." Hatchett described the situation as "a constant influx of resources and material," and said that he "was running around making sure that everyone had what they needed to keep the thing functional."⁷⁷ The New York

police and fire departments and the Office of Emergency Management were present but too busy to provide oversight or direction.

Hatchett recalled that “people were traumatized, but the ability to do something productive and as part of a group was transformational. Even though it was so desperately sad and terrible, the work we were doing together was also life affirming. These people who did not know each other drew together and turned Stuyvesant into a four floor field hospital overnight.”⁷⁷ There were no survivors who needed care, so the volunteers took care of the medical needs of the search and rescue workers: They maintained the eye washing stations necessary because of the dust and debris in the air, they treated minor injuries, and they provided care to responders who developed respiratory problems and chest pain.

The organic volunteer effort was a success, but there were challenges. Specifically, Hatchett notes, there were security, credentialing, and organizational issues, as well as problems in communicating with official responders. This prompted him to e mail several Stuyvesant volunteers later that month to say “that if the other shoe drops and this happens again, we need to be better organized.”⁷⁷ The group started meeting and came up with the idea of creating a civilian MRC that would be able to connect with the official government response.

Soon after, Hatchett was introduced to the Sloan Foundation’s Gomory and Olsiewski, who gave him a small grant to defray the expenses of developing the MRC concept. That funding allowed the group to move its work space from a bar to an office in the New York University math department. There the group developed its proposal for a Civilian Medical

Reserve Corps. When it was finished, Olsiewski helped to bring the concept to the appropriate people in Albany and Washington, DC.

At that point, Hatchett was receiving some “tacit pressure” at work to wrap up his volunteer activities so he could take on increased clinical responsibilities. When he got the message not long after that the vice

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president’s office was on the phone, he just assumed it was an executive of the Memorial Sloan Kettering Cancer Center. It wasn’t. A representative of the office of Vice President Dick Cheney was on the phone, inviting Hatchett to Washington, DC, to brief the project to high level officials. After President Bush mentioned the project in his 2002 State of the Union address, the civilian MRC was launched. The corps “creates a highly distributed capability that communities have used,” explained Hatchett, “and the more they use it, the more it becomes part of local community response capability.”⁷⁷

The project had significant professional consequences for Hatchett, who was invited to embark on a career in government to help establish a national MRC. Now he is chief medical officer and deputy director at BARDA, the agency that develops and purchases the vaccines, drugs, therapies, and diagnostic tools that are needed for public health medical emergencies, including bioterrorism.

Although Hatchett thinks we are much better prepared for emergencies than we were ten years ago, he also thinks misinformation about communities’ reactions to crisis still abounds. “Communities respond in a very affirmative way to disasters,” he explained, and because governments

often fear the eruption of disorder, they often “create the crisis they are most afraid of by clamping down on spontaneous community action.” If governments were to both understand and leverage that response, claimed Hatchett, “we could have much better use of spontaneous volunteers. The more structure there is in which to receive and accommodate volunteers, the better off we are.”⁷⁷

