



Ataxia:*
**The Chemical and Biological
Terrorism Threat and the US Response**

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***Ataxia n 1:** lack of order: CONFUSION
2: an inability to coordinate voluntary muscular movements
that is symptomatic of some nervous disorders

Preface and Acknowledgments

Behind every major project, there are unsung heroes. In this instance, many of the behind-the-scenes stalwarts were those who have been real-life heroes in countless emergencies, the personnel on the front lines of public safety and health care in the United States. Others who played significant roles in shaping the content of this report were experts in matters pertaining to chemical and biological weapons, who reviewed segments of this manuscript, and who gave assistance by providing assorted facts and explanations for the text. Certainly not least in the category of unsung heroes would be the home team from the Henry L. Stimson Center.

Significant portions of the *Ataxia* text are grounded in interviews with police officers, firefighters, emergency managers and planners, emergency department physicians, registered nurses, and public health officials in over thirty cities, not to mention several state-level officials. Without their cooperation and insight, quite frankly, the final three chapters of this report would have been so much folderol. Some of these individuals literally spent hours with the author, explaining not only their regular jobs, but their assessments of the federal government's unconventional terrorism preparedness programs. These individuals also reviewed step-by-step their city's plans and capabilities to cope with this novel type of disaster. Although they are identified only by job title in the report, the author recalls with gratitude their dedication to their jobs, their patience with her, and their ingenuity and energy in tackling the terribly difficult problems that a chemical or biological terrorist attack would pose. Americans are indeed fortunate to have such heroes come to their rescue in times of trouble.

Another group of individuals who provided invaluable help with chapters 2 and 3 of this report are the numerous tutors that the author has had over the years in the technical intricacies of how chemical and biological agents are made and dispersed. These two chapters, written with an eye toward conveying the complexities of producing and disseminating these agents without crossing the line to reveal data that would assist terrorist activities in that regard, also benefitted from interviews with experts in the field, including Dr. Jeff Mohr, Chief of Life Sciences at Dugway Proving Ground. Other interviewees asked that the author not reveal their identities, but she thanks them and Dr. Mohr for sharing their expertise.

Chapters of this report were sent for outside review by nine individuals with expertise that ranges across the subjects addressed therein. The segments of chapter 2 that describe chemical and biological weapons production and use were reviewed by two experts in those fields. Similarly, two individuals evaluated the chapter on Aum Shinrikyo's chemical and biological weapons activities, Dr. Anthony Tu and Mr. Masaaki Sugishima of the Colorado State Department of Biochemistry and Molecular Biology and the Asahi University School of Law, respectively. Dr. Tu helped Japanese police crack the Matsumoto sarin gas attack case and also lent technical assistance in the aftermath of the Tokyo subway sarin attack, and Mr. Sugishima has extensively studied the cult's biological weapons program and the misperceptions about it. Two professionals with first-hand front-line knowledge, one a physician and another an emergency manager,

examined chapter 6 for accuracy and clarity. Also, Mr. John Parachini of the Monterey Institute's Washington office was one of several to see the concluding chapter in draft form and offer suggestions for the final version. Some of the reviewers were interviewed for the report, and a condition of those interviews was that the author not identify anyone by name. Anonymity does not diminish in the least the service that they provided by reading and commenting on the text.

Several branches of the US government cooperated with the research by providing information, and a number of federal staffers were interviewed along the way. Deserving of special mention in that regard are the Domestic Preparedness Program at the US Army's Soldier and Biological Chemical Command, the Federal Bureau of Investigation, the Office of Emergency Preparedness at the Health and Human Services Department, the Department of Veterans Affairs, the Centers for Disease Control and Prevention, the Office of Management and Budget, and the Office of Justice Programs at the Justice Department.

Outside of government, quite a few organizations and individuals amiably accommodated inquiries and requests from the project staff. For instance, Mr. Jason Pate and Ms. Lindsay DeFazio of the Center for Nonproliferation Studies at the Monterey Institute allowed the author to explore Monterey's database on terrorist activities with chemical and biological substances, which resulted in the analysis presented at the end of chapter 2. The author also wishes to thank Dr. William L. Waugh, Jr., for a couple of key conversations that helped her understand cycles, emerging trends, and funding in the field of emergency management. Dr. Waugh, a Professor in the Department of Public Administration and Urban Studies at Georgia State University, specializes in emergency management policies and decision making. In addition, Ms. Ellie Menser of the National Institute for Allergies and Infectious Diseases and Ms. Carol Adderly of the National Institutes of Health assisted by deciphering the infectious disease research budgets of their organizations. Mr. Phil Cogan of the US Chemical Health and Safety Board provided immensely helpful data on hazardous materials incidents in the United States, and Ms. Rose Cross and Ms. Doris Stowe of the Accreditation Council for Graduate Medical Education gave explanations of various topics related to medical education. Moreover, Ms. Heather Miller of the American College of Medical Toxicology helped with information on this particular area of medical specialization. Mr. Steven Foley of the National Fire Protection Association, who serves double duty as the co-chair of the InterAgency Board for Equipment Standardization and InterOperability, kindly explained a number of developments related to equipment and standards. Mr. Frank Simione of the American Type Culture Collection, Mr. David Smith of Genetic Resources Collection, CABI Bioscience, and Ms. Christine Rohde of Deutsche Sammlung von Mikroorganismen und Zellkulturen, GmbH, helped to decode the regulatory framework for culture collections. In addition, appreciation is due to Mr. Dean Samet of the Joint Commission on Accreditation of Healthcare Organizations and Ms. Tamatha Chapman of the International Association of Chiefs of Police for their assistance in with regulations and standards in the health care and law enforcement settings.

At the Stimson Center, Mr. Michael Krepon, president emeritus, and Ms. Cheryl Ramp, vice president, did double duty by not only reading portions of the manuscript but by providing guidance and encouragement over the lifetime of the project. Drawing from his background in journalism, senior associate Jesse James also stepped forward to help formulate plans for and execute the public release of the report. Also behind the scenes, Ms. Jane Dorsey, Ms. Caroline Earle, and Ms. Wendy Green deserve special credit for help with the report's look in its print, compact disc, and worldwide web forms.

The other members of the home team to whom the author is particularly indebted are co-author and research associate Ms. Leslie-Anne Levy and Ms. Claudine McCarthy, research associate. The former, who has been with the project since mid-1998, without complaint took on the tough chore of unraveling the federal government's serpentine programs and finances related to unconventional terrorism. The fruits of her labor can be found in chapter 4, but her fingerprints are all over the other chapters as well, particularly anywhere there are numbers. In addition to her incredible work ethic and irrepressible sense of humor, the author is eternally grateful that Ms. Levy has the mathematical skills that always seem to elude her. The newer member of the project team, Ms. McCarthy, flourished in the baptism by fire that constituted this report's final stages. Quite simply, she was indefatigable on the hunt for facts and admirably sharp in policing a manuscript of this length. Her suggestions on content and structure evidenced a mature touch for analytical research, and she was also no slouch in the humor department either. At the end of the day, the author could not have asked for better collaborators.

Finally, since January 1993, the Carnegie Corporation of New York has been a principal supporter of the Stimson Center's Chemical and Biological Weapons Nonproliferation Project. This research was conducted under the auspices of a Carnegie Corporation grant, with supplemental funding from Mrs. Peggy Spanel, who has also given grants to the project for several years running. The author is extremely grateful for this generous, recurrent support, which has enabled the project to tackle problems in the arena of chemical and biological weapons threat reduction that demand a considerable investment of time and resources.

A.E.S.
Washington, DC
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EXECUTIVE SUMMARY¹

A crescendo of apprehension has been building in the United States ever since the Japanese cult Aum Shinrikyo upset the conventional wisdom that possession and use of mass destruction weapons was the province of governments alone. This sect's shocking 20 March 1995 subway attack was proclaimed the dawn of a new age of "catastrophic" terrorism involving chemical, biological, and nuclear weapons. Before long, an array of US leaders went on record with dire "not if, but when" predictions that terrorists would harm large numbers of Americans using chemical and biological agents. This report calls that prediction into question and critically examines the US government's unconventional terrorism preparedness programs.

While the catastrophic terrorism premise is challenged with technical and historical analyses, the appraisal of the US government's programs comes from those on the front lines of public safety and health care in the United States who contend daily with emergencies small and large. Their pragmatism provides a sensible counterpoint to the hypothetical thinking that has taken the federal preparedness effort on costly, redundant detours and resulted in programs disconnected from the threat, each other, and the front line. Interviews conducted from January 1999 to September 2000 with police, firefighters, paramedics, emergency managers, health care personnel, and public health officials from over thirty cities in twenty-five states revealed that in contrast to Washington, those on the front line emphasize preparedness based on existing assets that are useful in multiple contingencies and structured for long-term maintenance.

Saturation coverage of scary, hypothetical, unconventional terrorism scenarios along with the ominous forecasts from Washington have taken their toll on the American psyche. According to a Council on Foreign Relations survey published in 1999, US citizens perceive international terrorism and chemical and biological weapons as the two most serious threats facing the United States. As the report's title indicates, there is confusion about the gravity of this threat and lack of order in the US government's response to it. Therefore, this report endeavors: 1) to put the threat into proper perspective, and 2) suggest ways the government might use taxpayers' dollars more wisely to enhance front-line preparedness.

Those seeking clarity about the nature of the unconventional terrorist threat or the labyrinth of federal agencies involved in unconventional terrorist programming can consult chapters 2, 3, and 4. Those in search of front-line insight into the federal government's unconventional terrorism training and equipment grant programs and the preparedness status typical of US cities that have received federal aid can turn to chapters 5 and 6. There, congressional, federal, and local officials can see where the front line is having difficulty with response capabilities so that the appropriate adjustments to federal and local efforts can be made to address the shortcomings. These two chapters contain novel ideas that some cities have employed

¹ For brevity's sake, footnotes are not employed in this summary. Statements of fact therein are thoroughly documented in the report.

to improve their plans, strategies, and capabilities, as well as a frank description of the significant trials facing on-scene rescuers and health care providers should this type of disaster befall a US city. Chapter 7 ties the text together and recommends the perpetuation of the domestic preparedness effort contingent on a return to its original focus—front-line preparedness.

In the years ahead, domestic preparedness must graduate to a program that puts as much emphasis on public health and hospital preparedness as on disaster scene rescue capabilities. A sign of maturity in the program would be its transformation from an inside-the-beltway justification for a spending carnival to preparedness standards and capabilities that are institutionalized and sustained over the long term. Readiness for large-scale chemical and biological events is necessary regardless of whether terrorists ever brew nerve agents again or master the microbe. Industrial chemicals are pervasive in modern society and pathogens can jump from continents overnight and resurface in more virulent or drug-resistant forms.

GROUNDING THE THREAT IN REALITY

For decades, the globe has been peppered with facilities full of the very materials and expertise from which poison gas and germ weapons can be made. Skyscrapers, sporting arenas, and subways have long been accessible terrorist targets. No amount of spending could alter those aspects of the threat in the past. The same is true of the present.

Should terrorists attempt to manufacture chemical warfare agents, the technical challenges are noteworthy, but not insurmountable. The task is not a snap, as Aum Shinrikyo discovered. By almost any standard, Aum was a terrorist nightmare—a cult flush with money and technical skills led by a con-man guru with an apocalyptic vision, an obsession with chemical and biological weaponry, and no qualms about killing. This dangerous combination left scars on Japan and by proxy on the rest of the world, but much of what has been written or said about the sect has embellished Aum's prowess with chemical and biological agents and the effects of its attacks with those agents. The sect's scientists located the agent formulas readily, but no chemistry book gave them detailed instructions about how to work with these exceedingly volatile materials. Aum's chemical program experienced several toxic production accidents, and the cult's attempts to disseminate poison gas often jeopardized the lives of cult members.

While it is theoretically true that a quart of nerve agent contains about a million lethal doses, the oft-discussed basement terrorist would labor roughly two years to make enough sarin to kill five hundred outdoors and another eighteen years to produce the *ton* of sarin required to kill ten thousand. No one disputes that bathtub manufacturing poses a threat to public safety, but this setting is incongruous with causing mass casualties. The indoor dispersal scenario also is not as easily executed as some have indicated. Terrorists could, however, take a shortcut to a genuine unconventional weapons capability by hiring scientists from national weapons programs. By the US government's *conservative* estimate, about 10,500 scientists from the former Soviet chemical and biowarfare program pose a critical proliferation risk. These scientists

are steeped in the finer points of chemical agent dispersal, have access to lethal disease strains, and carry in their heads the knowledge gained from decades of biowarfare research.

Without expert help, terrorists may be stymied by several barriers on the road to a mass casualty biological attack, which requires a deadly disease strain disseminated so that the microbes survive. Aum Shinrikyo could not even get past step one, failing to isolate a lethal strain of *Clostridium botulinum* from the more than 675 existing variants. As chapter 3 relates, though the sect is credited with producing and disseminating anthrax and botulinum toxin, the cult's bioweapons program was a serial flop from start to finish. Despite having aggressively recruited scientists, the results of Aum's chemical and biological weapons programs tend to disprove assertions that acquiring and spreading these agents is shake-'n-bake easy. Governments have found it necessary to employ hundreds, even thousands, of top-flight scientists to obtain a mass casualty unconventional weapons capability. Surveying the historical record for the last quarter of a century, no individual or group approached the replication of Aum's constellation of technical skill, intent, and resources directed toward a viable unconventional mass casualty threat.

The statistics charting terrorist behavior with chemical and biological substances from 1975 to mid-2000 show that by far the most frequent of terrorist activities domestically were non-credible hoaxes, which are a poor indicator of true terrorist intent to pursue such capabilities and use such weapons. As noted in chapter 2, the Center for Nonproliferation Studies database records 126 incidents worldwide where terrorists used chemical or biological substances during this time period, but a combined 45 percent of these cases involved either low-end materials (e.g., tear gas) or are attributed to Aum Shinrikyo. The largest death toll resulting from a single unconventional terrorist attack was nineteen, and in 96 percent of the cases, three or fewer people were injured or killed. No death or injury resulted in 60 percent of the cases where chemical or biological substances were used. These statistics jibe with the Federal Bureau of Investigation's description that recent use cases have involved domestic disputes or disgruntled workers wielding household or industrial chemicals with the intent to harm one or a few individuals (e.g., government officials), not to cause mass casualties.

Among the many possible lessons from the Aum experience is that the worst case scenario is not always what unfolds. Terrorists might look at Aum's troubles and see that acquiring and using these weapons is a hard rather than an easy proposition. Moreover, terrorists could well see the cult's attack, which resulted in a severe police clamp-down and domestic legal reform, as having backfired against Aum's near- and long-term objectives. In short, Aum has often been portrayed as a beacon for terrorists to follow, but it could be just the opposite. If the past is any predictor of the future, weapons of choice for terrorists will remain truck bombs and other conventional tools that are markedly less technically demanding, resource-intensive, and dangerous for the perpetrators.

THE VIEW FROM METROPOLIS, USA

Most local officials thought of Aum Shinrikyo as a terrorist aberration. Those who worried about a toxic terrorist attack thought first of the considerable harm that could be inflicted if terrorists sabotaged or stole chemicals from approximately 850,000 US facilities that work with hazardous or extremely hazardous substances. Still, most US cities did not undertake preparations of any significance until the arrival of the federal training and grant programs that Senators Sam Nunn (D–Georgia, ret.), Richard Lugar (R–Indiana), and Pete Domenici (R–New Mexico) launched after the Aum attack to help rescuers in the nation’s 120 largest cities better cope with unconventional terrorism. Local officials report that this good idea was not implemented in a coherent or cost-effective manner.

While the front line applauded the decision to take programs directly to the cities, which averted siphoning of resources at the state level, the General Accounting Office criticized the approach for leaving rescuers in entire states and other densely populated areas without training. For their part, local officials soon deduced that the federal “partners” were busier competing with each other for missions and resources than they were coordinating their efforts. The equipment grant programs of the Defense, Health and Human Services, and Justice Departments all had varying timelines and requirements, slightly different goals, and conflicting views on priorities regarding how to accomplish certain response tasks. Another byproduct of the lack of federal coordination was the creation of roughly ninety terrorism preparedness courses. Firefighters alone could get training from three federal agencies, headlined by the Army’s Domestic Preparedness Program.

Some local rescuers characterized the Army’s training as a good starting point, but others said the courses overflowed with material that rescuers were already required to know and short on the data that they needed to protect themselves and aid victims. By the time the courses were truly upgraded, over sixty cities had already received training. Local officials reported difficulties securing updated materials from the Army’s contractors, who were also faulted for providing trainers who did not know the subject matter and executed the training and exercise programs in a manpower-intensive and therefore expensive fashion. After local officials stripped out redundant materials and added what was missing, the training spread fairly well among firefighters and ambulance crews. However, the police rank and file, 911 dispatchers, laboratory technicians, and health care providers did not make it into the classroom regularly.

Although laymen tend to think of chemical and biological weapons as similar, their use requires different response strategies and capabilities. Ask front-line officials what their challenges would be after a chemical terrorist attack and at a staccato pace they start ticking problems off on their fingers: absence of awareness and standard operating procedures in 911 call centers; insufficiently equipped and trained police who are therefore likely to rush into trouble; difficulty in decontaminating large numbers of casualties rapidly; lack of chemical antidotes, not to mention uncertainty among paramedics about how to administer them; far too few hospitals ready to handle a major onrush of panicked, possibly contaminated chemical casualties; deficiencies in communication systems likely to be overwhelmed and therefore contribute to a

confused response; and probable glitches if police were asked to organize and implement a large area evacuation on short notice.

To crown this list of worries, local officials predict that long after victims of a chemical attack had been transported to hospitals, they would be bombarded with incoming federal rescue teams that would joust with each other to find something useful to do when not ordering local rescuers about in their home city. These teams, which could not arrive in time to make a lifesaving difference, would create another disaster of sorts. The list of problems deviates slightly from city to city. Although they have made headway in some areas, even cities that have benefitted from the federal unconventional terrorism preparedness programs can identify gaps in their planning and capabilities to deal with a large-scale chemical terrorist event.

Although many cities have begun to overcome some of the hurdles of on-scene rescue, they had yet to spur meaningful or widespread preparedness at the hospitals. Some 60,500 accidents with hazardous materials occur nationwide annually, with over 2,550 resulting in casualties. Yet, US hospitals are not required to have a standing capacity to decontaminate a few, much less large numbers of, patients. Persistently high statistics document the closure of US hospitals from one or two contaminated patients, so hospitals are truly unprepared for a throng of chemical casualties. Consequently, in most cities surveyed hospitals plan to lock their doors after a chemical terrorist attack rather than risk compounding the problem by getting contaminated. Except for the 250 medical toxicologists in the country, the civilian medical ranks are terribly thin in chemical casualty expertise. Some emergency department personnel got a refresher course via the domestic preparedness training, but the remainder of the medical community is hardly braced to attend to chemical casualties. Finally, US hospitals, filled to near capacity on a daily basis, were often compelled to refuse patients during influenza seasons in the late 1990s. Medical professionals repeatedly estimated that at any given time there would be at most a dozen intensive care unit beds, burn beds, and ventilators available in any given city to facilitate the recovery of poison gas casualties.

In the aftermath of a covert bioterrorist attack, the first concern that weighs on the minds of local officials is that they would probably be unaware of the disaster until after a great deal of damage had been done. Since physicians have trouble making diagnoses from generic symptoms, most disease outbreaks are reported by the technicians in 158,000 state and local public health and private laboratories after they identify pathogens by analysis of cultures. However, the nation's disease surveillance capability has deteriorated significantly since its 1950s heyday. Few technicians have ever seen biowarfare microbes under their microscopes, and many may be unfamiliar with the special tests required to identify them. Significant delays could occur before the mystery disease was identified, which would hamper critical lifesaving intervention and efforts to prevent the spread of a communicable disease.

Next, local officials worry that their area health care system could well collapse under the intense pressure for medical care that a bioterrorist attack would generate. Medical manpower shortages would

materialize all too quickly, especially among the nursing ranks. Without missing a beat, local officials note that hospitals would rapidly run out of beds, drugs, and other support supplies. Then, they puzzle over the monumental logistics of providing preventative medical care for large populations within a crunched time period. Even in cities that have fashioned a plan to cope with a deluge of sick citizens, local officials describe a minefield of legal conflicts and logistical barriers in the way of swiftly quarantining a geographic area. None of the surveyed cities had made more than a dent on quarantine matters. As for outside help, local authorities are quite concerned that the federal government would be unable to deliver sufficient medical manpower fast enough to contain a disease outbreak.

When asked to rate their preparedness on a scale of one to ten before and after having received assistance via one or more of the federal programs, local officials said their readiness for a chemical attack improved from an average “before” rating of 3.1 to an “after” rating of 5.9. For bioterrorism readiness, the average “before” rating of 1.7 rose to an “after” rating of 4.1. While preparedness improvement was evident, local officials said they still had a long way to go.

EXPANDING, INSTITUTIONALIZING, AND SUSTAINING PREPAREDNESS

The time-tested, cost-effective approach to spread training geographically is institutionalization. If preparedness is truly to take hold nationwide and be sustained, then standards must be established and taught through the local and state training academies, as well as in the nursing and medical schools. A few cities have added a course in their responder academies, but a great many more indicated they had no plans to do so. Institutionalization would also bring with it an important feature lacking in existing training programs, namely the regular testing for professional knowledge and skills. Given the advantages of institutionalization, Washington would be well advised to get out of the training business and instead be the catalyst that prods the tangle of entities involved in institutionalization to articulate and promulgate standards. Otherwise, ineffective spending will continue at the federal and local levels and training without standards will be implemented unevenly. Standards and institutionalization of training would obviously be more effective.

The domestic preparedness program was structured as a cost-sharing arrangement, such that the federal government provided training and equipment while cities covered local costs. Local officials tended to put a very low priority on preparation for an unconventional terrorist attack, so it was often an uphill battle to get authorization for the overtime labor costs for training and the other expenditures inherent in the preparedness program (e.g., equipment maintenance). Since the federal programs did not include requirements to sustain training and other capabilities over the long term, local responders feared that city governments would gradually cut off supporting funds. Already, some cities reported that hard-won preparedness gains had begun to degrade. So, unless a long-term cost-sharing arrangement is created to sustain preparedness, both the local and federal investments to date could well evaporate.

City officials prefer that the federal government pick up the sustainment tab, and many in Washington would rather pronounce the 120 cities “prepared” than inaugurate an ongoing federal program. If anything, chapters 5 and 6 should shatter any impression that the 120 cities can be considered prepared. National and local leaders would be well advised to chart a forward fiscal course to solidify the preparedness gains, to fill in the remaining gaps in local capabilities, to enable continued exercises and equipment replacement and maintenance over the long term. In all fairness, local governments should pick up part of the bill because, as the saying goes, all emergencies are local. Moreover, the cities have already received significant federal aid that has helped to enhance local response for emergencies of all types. For its part, Washington should bear part of the burden because it has a vested interest in making sure that the front line remains as prepared as possible, lest the whole nation be paralyzed by a single local event or the copycat incidents that could follow.

The subject of add-on fees and taxes is universally unpopular, but many programs and capabilities that serve public safety and health are funded in this way. A cost-sharing arrangement could be built from any number of platforms, including ongoing federal domestic preparedness funding that incorporates measures and proof of progress, state and local disaster preparedness trust funds, and local user fees. Elected officials reluctant to consider such options need to recognize that between 1987 and 1996, a hazardous chemical incident of some severity took place in 95 percent of US counties. Also, if the hospitals are already buckling under the patient surges of an influenza season, it follows that capacity for a communicable disease outbreak of any significant proportion is grossly insufficient. Unconventional terrorism concerns aside, the public health and safety sectors must be buttressed if they are to handle the spiraling demands of modern emergencies (e.g., mass transport crashes). In other words, both local and national politicians should grit their teeth and fund disaster preparedness over the long term. Considerable leadership at the local, state, and national levels will be required, but the results would serve the entire country well in large-scale industrial accidents, natural outbreaks of infectious disease, weather disasters, and, yes, unconventional terrorist attacks.

A SOUND, LONG-TERM PRESCRIPTION FOR PUBLIC HEALTH

Preparedness funding has focused disproportionately on the on-scene sirens and rescue components of unconventional terrorism response. In 1999 and 2000, an estimated \$148 and \$222 million, respectively, from the unconventional terrorism preparedness budget was allocated to hospital preparations, the public health infrastructure, and biomedical research. Only about 6 percent of the unconventional terrorism budget was devoted to strengthening the public health infrastructure in 2000, but multiple public benefits will result because more laboratories can identify infrequently seen diseases and communications within the health care community will be improved. Escalation of research for new vaccines and antibiotics has been recommended consistently to reduce the biowarfare threat to US troops and citizens. Such research could also avert a looming global public health crisis that the nation’s most esteemed scientists and public health watchdog organizations forecast could well plunge medicine back to a pre-antibiotic era. Development that encroaches

on various ecosystems is rousing new diseases, and physicians increasingly find their arsenal of medications powerless against old diseases resurfacing in antibiotic-resistant forms.

The combined National Institutes of Health infectious disease and bioterrorism medical research budgets total \$1.08 billion. This appreciable chunk of money should be viewed, however, in the context that on average it costs \$500 million to bring a *single* new drug online. At least nine and perhaps fifteen years can be required to take a drug from laboratory to market. No new classes of antibiotics have been introduced since the 1970s, and except for a handful of candidate biowarfare agent vaccines, no new drugs are in the developmental pipeline. Without corrective action, in the foreseeable future there will be no drugs that can fight common pneumonia and many other ailments. If that alone does not jar Washington's complacency about the microbial threat, then the frailty of modern medicine against this threat is evidenced by the fact that every year, roughly two million Americans acquire infections while in the hospital, and an estimated nineteen thousand die because these infections are resistant to drug therapies. These numbers reflect the steady march of infectious diseases up the chart of leading causes of death, with deaths from respiratory infections ranking sixth nationally in 1997 and 1998.

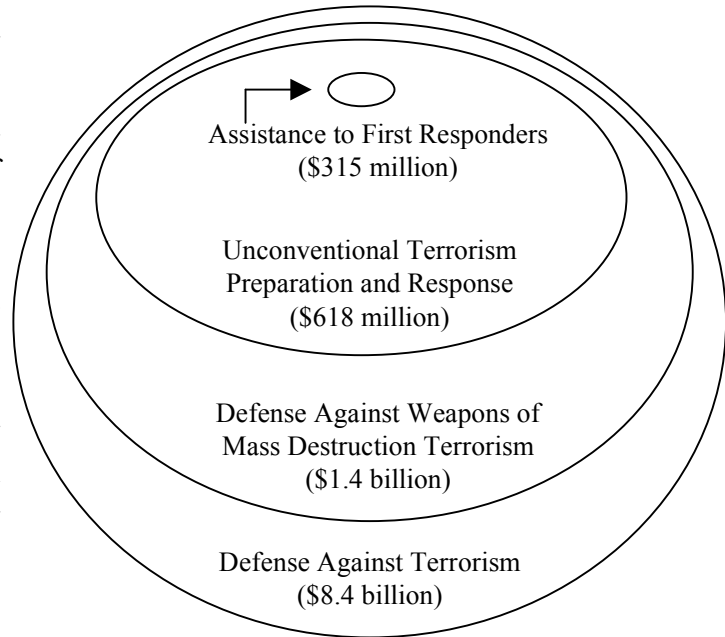
Even if a future disease calamity never arrives courtesy of terrorists, mankind is still in a race against time to develop new medications before the natural mutation of pathogens renders impotent all of those currently on the shelves. A creative, dedicated political and fiscal collaboration between government and the private sector of the kind that typified World War II mobilization partnerships must be forged to take laboratory discoveries from the National Institutes of Health and elsewhere through the process of clinical trials and licensing. Washington must also shed any illusion that this job can be done on the cheap. The amount needed to conduct pioneering research and bring industry to the table is probably well shy of the \$22.5 billion that the Pentagon spent from 1942 to 1945 on the Manhattan Project, but far above the government's tepid investment to date. For the public good, someone in Washington must exercise leadership and have the guts to make a fiscal investment commensurate with what it takes to research, develop, and test new drug therapies.

SUBSTITUTING PREPAREDNESS FOR PORK

A series of expert studies and panels have labeled the federal preparedness programs a fractured mess and urged a national strategy to guide programs better. This counsel has fallen on deaf ears, for the executive branch continues to spawn duplicative programs, abetted by at least a dozen congressional committees that have authorized virtually any program with terrorism in the title. Throwing money at a problem is a costly substitute for effective government.

Had Washington taken full advantage of existing assets and stuck to its appropriate role of helping a stricken city recover over the mid- and long-terms, the front lines might be better prepared and spending priorities might not have strayed off course. As figure ES.1 shows, in 2000 roughly \$315 million went to the front lines in the form of training, equipment grants, and planning assistance. That amount translates to 22 percent of funding related directly to weapons of mass destruction programs, or 3.7 percent of the overall \$8.4 billion counterterrorism budget in 2000. Bluntly put, an absurdly small slice of the funding pie has made it beyond the beltway.

Figure ES.1: Breakdown of Overall Federal Budget to Combat Terrorism



Examples of questionable spending abound, including the profusion of specialized training facilities at the very time when Washington ought to be bowing out of the training business. When the Justice Department already has a first responder training facility at Ft. McClellan, Alabama, why is the National Guard building another in West Virginia to the tune of \$60 million? In the late 1990s, the Marine Corps launched a 350-person team and the Guard began creating specialized response units despite the fact the Army, the Environmental Protection Agency, the Coast Guard, and the Army Reserve had sufficient long-standing assets to give cities whatever assistance they might need with unconventional bomb disposal, chemical warfare agent identification, decontamination, and remediation.

The overwhelming recommendation from the front lines—even from responders who are in the Guard—is that the National Guard teams should be abolished because they were an unworkable proposition from the outset. Local responders who have seen the Guard’s supposedly multi-purpose technical resource squads in action rated them as bulldozing amateurs prone to embarrassing technical gaffes. As one local official said of them, “The good thing about those teams is that it takes them as long as it does to get here.” Elected officials would better serve preparedness by disbanding the Guard teams and disbursing their equipment within the respective states to front-line units that actually know how to use this gear.

In fact, Washington should declare a moratorium on any new federal teams for unconventional terrorism response. Inside the beltway, the response to such criticism may be that these teams really do not cost much—just a few million dollars here and there. Such a rejoinder truly belies the fact that national policy makers have lost perspective on the program’s stated purposes. A million dollars is serious money

on the front lines that can make a real preparedness difference. To illustrate the point, 2,333 hospitals or fire stations could be outfitted with decontamination capabilities for the cost of standing up one National Guard Civil Support team. If the total 1999 budget for these National Guard teams had been used thusly, 49,800 local facilities could have been armed for decontamination.

At the end of the day, front-line officials only ask that Washington take a coherent, pragmatic approach to unconventional terrorism preparedness, one that holds to a sensible division of labor and grounds a response in pre-existing local and federal capabilities that can be sustained cost-effectively regardless of whether a terrorist attack occurs. These heroes of everyday emergencies, many of whom have seen first-hand the misfortune of headline-making natural and manmade tragedies, are a candid lot. They know when pork is taking precedence over preparedness. So far, that is their assessment of the federal effort.

Among the report's other common sense recommendations to remedy various preparedness problems and reduce the threat of unconventional terrorism:

- * To relieve the bottleneck of patients at hospitals after a chemical incident, cities and outlying towns should designate fire companies to perform decontamination chores at hospitals during emergencies and the Joint Commission on Accreditation of Healthcare Organizations should stiffen its hospital decontamination standards.
- * To enable hospitals to manage a surge of infectious disease patients, the cost-effective interim option would have hospitals in all metropolitan communities jointly nail down plans for converting wards, even entire facilities to the care of such patients. More permanently, US hospitals would increase their isolation capacity.
- * To hinder plots to sabotage industrial chemical plants, Washington should reverse a 4 August 2000 regulation that provides a road map to these sites on the Internet and in reading rooms throughout the country. Instead of foolhardily abdicating chemical industry watchdog duties to those who may not always have public safety in mind, policy makers and interest groups should consider augmenting professional regulatory staffs and expanding existing mechanisms for citizens concerned about environmental safety.
- * To reduce the chances that terrorists might buy weapons expertise or materials, the US government should provide a hefty funding increase for the International Science and Technology Center and its sister organizations, which operate collaborative scientific grant programs that help former Soviet weaponeers find legitimate, peaceful employment.

- * To stockpile drugs for possible chemical or biological agent casualties more cost-effectively, local pharmaceutical “bubbles” should be created with custodial hospitals that rotate these drugs so that expiration dates become immaterial and the Shelf Life Extension program should be employed. Also, guidelines should be drafted for chemical antidote purchases and the Public Health Service staff modestly increased to enable drugs to be procured in bulk, bringing economies of scale into play.
- * To sharpen the ability to detect an infectious disease outbreak more rapidly than traditional laboratory analysis, the potential of the disease syndrome surveillance prototypes described in chapter 6 should be further explored and refined. Sound results that cue more intensive laboratory analysis, epidemiological investigation, and medical intervention as early as possible in a disease outbreak could point to the desirability of instituting syndrome surveillance tools nationwide.
- * To prevent hospitals from collapsing during an infectious disease outbreak, cities should have workable plans to care for the unaffected and the mildly or moderately ill, including the establishment of field care centers where medical exams could be conducted, prophylactic drugs dispensed, and counseling provided, as appropriate. If a contagious disease were involved and person-to-person contact had to be kept to a minimum, fast food restaurants could be commandeered to administer drive-through prophylaxis.
- * To test whether the federal government could fulfill its most important role after a manmade or a natural disease outbreak, a large-scale medical mobilization exercise should be held. A genuine and probably sobering measure of federal capabilities could be taken to inform federal and local plans and programs.
- * To overcome the legal and logistic problems that all areas would face trying to enforce evacuation, isolation, or quarantine orders, a national conference should be convened. Thereafter, Congress should charter a multi-disciplinary expert commission to draft legislative proposals for the consideration of individual states and Congress.
- * To enhance the domestic preparedness training, the program should include lessons learned from other cities’ experiences, more likely scenarios (e.g., hoaxes), drills that realistically test hospital capabilities, and benchmarks for how deep into the front ranks the training should reach. Administrative costs should be trimmed by substituting as often as possible long-distance communications methods for contractor trips to the cities.

- * To avert duplication of effort and greatly enhance the ability of medical personnel to attend to chemical and biological casualties, consensus pre-hospital and hospital medical protocols need to be completed.