Biologic Terrorism — Responding to the Threat

The growing awareness of the possibility that a terrorist organization might use a biologic agent in an attack on a civilian target in the United States raises important questions about our capability as a nation to respond effectively to the threat and to deal with the consequences of an attack. The article by Kaufmann et al. in this issue of *Emerging Infectious Diseases* describes three possible biologic attack scenarios and uses an economic analysis to describe the benefits of a rapid medical response and early intervention. The authors conclude that major reductions in morbidity and mortality and consequent cost savings can be achieved by early intervention. The effectiveness of postattack intervention depends on a rapid response which requires prior planning, preparation, and training. Achieving the level of preparedness implied by the assumptions stated in the article will require a major national effort. This discussion of possible bioterrorist attack scenarios adds to a growing concern about our willingness as a nation to commit the effort and resources necessary to protect our citizens.

Biologic warfare and use of biologic weapons by terrorists have only recently been discussed openly and realistically. The fall of the Soviet Union and the defeat of Iraq uncovered extensive biologic weapons programs of surprising sophistication and diversity. The threat to the nation from biologic weapons is no longer a debate issue. Now the questions are how immediate and serious is the threat and how do we respond effectively?

Protecting the armed forces against biologic weapons, although complex and difficult, is less challenging than protecting the civilian population. The armed forces are relatively small populations that can be vaccinated against the major threat agents. Aerosols containing biologic materials can be detected at a distance, and protective masks and suits are effective. Military medical personnel are trained to recognize and treat casualties, and antibiotics, antiviral drugs, and antitoxins can be stockpiled for military contingencies. The preponderance of scientific expertise for many of the threat agents is within the military medical research laboratories, although this capability is now being seriously compromised by budget cuts and personnel reductions.

The civilian population cannot be protected in the same manner as the armed forces. We must rely heavily on our intelligence and criminal investigation agencies and on international efforts to identify specific threats and deter terrorists. We must also recognize the possibility that a determined terrorist organization may not be deterred, may evade detection, and may succeed in releasing an aerosol of a virulent bacterium, virus, or toxin in a susceptible target area such as an airport or stadium. Our current capability to effectively respond to such a scenario and minimize the impact is far less than needed.

The U.S. Armed Forces and the Department of Defense have the greatest capability in biologic defense, but the responsibility for dealing with the threat of biologic weapon use by a terrorist falls on multiple federal, state, and municipal agencies and the civilian health care community. Most of the organizations are inadequately prepared to deal effectively with the problem.

The organizational aspects of dealing with an attack on our civilian population are daunting. Responsibility for recognizing an unusual outbreak of illness that may be the result of the deliberate release of a biologic warfare agent will fall on the health care community. Early recognition will be an important factor in determining the overall outcome and will depend on the level of suspicion and knowledge of the health care providers that see the initial cases. Rapid, precise, and reliable diagnosis will be the responsibility of the federal and state public health laboratory system with help from their military colleagues. Organizing and managing the care of patients and mounting the appropriate public health response will involve local health care and municipal agencies and authorities and state public health authorities. The effectiveness of coordination, support, and leadership at the federal level may make huge differences in reducing death rates and containing the possible secondary spread of a communicable disease. The Federal Emergency Management Agency has the major responsibility for planning and coordinating the consequences phase of a federal response, but the level of preparedness at all levels will ultimately determine the outcome.

If we take the biologic warfare threat seriously, a major effort will be needed to develop contingency plans and initiate coordinated and mutually supportive programs in all involved agencies. Training and education of the health care community will require a major effort involving several major professional organizations. Developing and improving diagnostic and identi-

fication capability is essential for medical care, public health, intelligence, and law enforcement agencies and should be a national priority.

The science base needed to deal with the broad spectrum of agents on the threat list, bacteria, viruses, toxins, and parasites, is widely distributed among several federal laboratories in the Department of Health and Human Services, the Department of Defense, and the Department of Energy, as well as in universities and state public health laboratories. In addition, since many of the biologic agents are not normally large public health problems or popular subjects of scientific research, critical areas have inadequate research capability and limited expert personnel. Deficiencies in our scientific knowledge and a paucity of experts will ultimately limit our capability to rapidly and precisely identify agents and respond effectively in a crisis. For example, the global molecular epidemiology of the agents at the top of the threat list is critically important for identifying the organisms accurately and differentiating local from exotic strains. Current databases are inadequate, and no organized effort is being made to fill in the gaps.

The current public discussion of the threat of biologic terrorism is an opportunity to evaluate our collective capabilities and to assess weaknesses and vulnerabilities. Raising the level of national preparedness will require leadership and action by responsible federal agencies. A thoughtful analysis of the consequences of unpreparedness provides a mandate for action.

Philip K. Russell
Johns Hopkins University,
Baltimore, Maryland, USA

Health Alert Network

WHAT IS THE PUBLIC HEALTH PROBLEM?

- The Nation faces a growing array of public health threats. Chief among these are new and emerging infectious diseases, chronic disease epidemics, environmental health dangers, and potential bioterrorist attacks.
- Our public health system must be prepared to address these threats. Failure to rapidly detect and respond to a bioterrorism event, for example, could cost thousands of lives.
- Public health professionals in state and local health departments must have access to up-to-date training in essential competencies and skills.
- Most health departments lack the modern, secure electronic systems needed to detect disease outbreaks rapidly, respond to outbreaks, and communicate with CDC, other government agencies, and the public during public health emergencies.

WHAT HAS CDC ACCOMPLISHED?

Through the Health Alert Network (HAN) initiative, CDC is aiding state and local health departments to raise their capacity and preparedness to deal with public health threats. Key elements are modern information and communication systems, a fully trained workforce, and robust organizational capacity to address the full spectrum of public health issues, including potential bioterrorism. CDC launched the initiative in 1999 with grants to 37 states, 3 large cities, and 3 new Centers for Public Health Preparedness located in metropolitan health departments. CDC provides consultation and technical assistance to the grantees.

Example of program in action: Before the 1999 West Nile virus outbreak in New York, the state health department had systematically invested in upgrading its electronic information systems. This foundation was established through New York's participation in the HAN initiative. Thanks to the foundation laid by the HAN program, New York quickly implemented new surveillance systems that delivered critical information to the public health authorities in charge of responding to the outbreak.

WHAT ARE THE NEXT STEPS?

The HAN mission aims to eventually endow all state and local public health departments with adequately trained professionals and state-of-the-art information and communication systems. This will help them to develop and maintain their capacity to address existing and new health threats.

PDF Version (size 380KB)

Close Window

This page last reviewed March 29, 2001

Centers for Disease Control and Prevention

Programs In Brief

Laboratory Response to Chemical Terrorism

WHAT IS THE PUBLIC HEALTH PROBLEM?

Chemical attacks by terrorists, such as the release of the deadly gas sarin in a Tokyo subway, underscore the need to quickly and reliably (1) determine the identity of the chemical agent, (2) find out who has been exposed, and (3) determine the extent of their exposure.

Public health laboratories currently do not have the infrastructure to test human samples for chemical agents. In the event of a chemical terrorist incident, not only would there be a need to analyze samples from people actually exposed to an agent, but there also could be extensive demand for services for people who think they were exposed.

WHAT HAS CDC ACCOMPLISHED?

CDC has developed a Rapid Toxic Screen that can analyze 50 chemical agents in human blood and urine, giving medical and public health personnel rapid access to critical exposure information during chemical emergencies.

CDC has established a rapid response team that will provide public health and other emergency officials with around-the-clock assistance in dealing with potential terrorist incidents.

CDC has awarded funds to state public health laboratories in California, Michigan, New Mexico, New York, and Virginia. CDC is providing training to these laboratories to help emergency officials respond more quickly to a possible chemical terrorist attack.

WHAT ARE THE NEXT STEPS?

CDC will increase the number of chemical agents in the Rapid Toxic Screen to 150 by September 2001, expanding our ability to identify the chemicals involved in a terrorist attack and to provide crucial information to health professionals. CDC also will expand training and technical assistance to state laboratories so that they will be better prepared to respond in the event of a terrorist attack.

For more information visit Bioterrorism Preparedness and Response.

PDF Version (size 340KB)

Close Window

This page last reviewed March 27, 2001

Centers for Disease Control and Prevention

Programs In Brief

National Pharmaceutical Stockpile Program

WHAT IS THE PUBLIC HEALTH PROBLEM?

A release of selected biological or chemical agents targeting the U.S. civilian population would require rapid access to large quantities of pharmaceuticals and other medical supplies. Such quantities might not be readily available unless special stockpiles are created. No one can anticipate exactly where a terrorist might strike, and few state or local governments have the resources to create sufficient stockpiles of their own. Therefore, in January 1999, Congress mandated that CDC develop and manage the National Pharmaceutical Stockpile (NPS).

WHAT HAS CDC ACCOMPLISHED?

CDC has stored five pharmaceutical packages in secure regional warehouses across the country. Each package contains enough pharmaceuticals and other medical supplies to treat and prevent anthrax, plague, and tularemia in nearly one million persons for 3 days. Three more packages will be positioned by January 2001. These packages stand ready for transport and delivery within 12 hours of a federal decision to deploy. If an incident requires additional pharmaceuticals or other medical supplies, the second phase of assistance consists of follow-up vendor-managed inventory supplies (VMI), which will arrive within 24 to 36 hours. Follow-up VMI packages can be tailored to provide the specific pharmaceuticals, supplies, or products necessary to treat the suspected or confirmed agent or combination of agents.

WHAT ARE THE NEXT STEPS?

- Maintain and upgrade medical materiel in the NPS.
- Work toward solving issues surrounding management, security, and dispersal of NPS assets.
- Continue research on practical and operational issues involving the response to a chemical or biological terrorism incident and treatment of people exposed to an agent.
- Continue work to ensure that all state and local authorities are prepared to receive and distribute NPS assets in the event of a biological or chemical terrorist incident. CDC will have trained representatives from all 50 states and approximately one-third of the large municipalities by mid-

2001.

PDF Version (size 380KB)

Close Window

This page last reviewed March 27, 2001

Centers for Disease Control and Prevention

Programs In Brief

Past Issue

Vol. 5, No. 4
July – August

Special Issue

Nuclear Blindness: An Overview of the Biological Weapons Programs of the Former Soviet Union and Iraq

Christopher J. Davis
Johns Hopkins University Center for Civilian Biodefense Studies

The demise of the biological weapons capability of the United States in 1969 and the advent of the Biological and Toxin Weapons Convention in 1972 caused governments in the West to go to sleep to the possibility of biological weapons development throughout the rest of the world, as technically knowledgeable workers were transferred and retired, intelligence desks were closed down, and budgets were cut. By 1979, despite the Sverdlovsk anthrax release, a senior British government policy official described any biological weapons threat as nebulous. President Nixon's biological weapons disarmament declaration in 1969 had conveyed the impression that biological weapons were uncontrollable and that the U.S. program had not been successful in producing usable weapons (when in fact the opposite was true). Add to this the rise of truly intercontinental ballistic missile delivery of nuclear weapons, and the stage was set for what I have termed "nuclear blindness" and defined as "the tunnel vision suffered by successive governments, brought on by the mistaken belief that it is only the size of the bang that matters." Throughout this period, both the former Soviet Union and Iraq conceived, albeit in different ways, their new biological weapons programs. It took until 1989-1991 for government technical experts in the West to persuade the world and their own governments that these programs were real and of enormous potential importance to the security of the West, if not the whole world.

Too many times in the past we have failed to anticipate future developments; refused to think the unthinkable and expect the unexpected. Too many times we have been out maneuvered by those who take the time to think and plan and do not simply rely on reacting to events. We must learn to think like our potential adversaries if we are to avoid conflict or blunt an attack, because only superior thinking and planning (not just better technology) will enable us to survive biological warfare.

The Former Soviet Union

The origins of the biological weapons program of the former Soviet Union stretch back to statements by Lenin, and experimental work was under way by the late 1920s. The modern era was ushered in, however, only with the postwar military building program, which established infrastructure for research, development, testing, production, and delivery of a variety of agents and weapons.

On the other side of the globe, the allied biological weapons program had grown from the fledgling efforts of British research into anthrax and the development of the World War II–anthrax cattlecake retaliation weapon into a large U.S.-based research and development (R&D) and production capability. By 1969, the U.S. military had accepted seven type-classified agents, and, at plants such as the one at Pine Bluff in Arkansas, they could produce 650 tons of agent per month for filling into weapons. This thriving offensive program was unilaterally abandoned in 1969 as a result of a complicated mixture of politics, secret intelligence information, new technological developments, and the Vietnam War. These developments gave impetus to the creation of the Biological and Toxin Weapons Convention, originally drafted by the British but finalized by the Soviet Union. Although the Soviet Union signed the Convention at its inception in 1972, it did not believe that the United States would be so foolish as to abandon its biological weapons capability, regarding the disarmament agreement as a `worthless piece of paper.'

In 1973 and 1974, the Soviet Politburo formed and funded the organization known most recently as Biopreparat (Chief Directorate for Biological Preparations), designed to carry out offensive biological

weapons R&D and production concealed behind legal and civil biotechnology research. At no time did civilian biotechnology work ever comprise much more than 15% of the activity at any of the 52 sites under the aegis of Biopreparat. Ultimately it was controlled by the Ministry of Defense, the Military Industrial Commission, and other state organs, all the way up to the Central Committee and what became eventually the Office of the President. Its head, a general, retained special access to the Central Committee from its inception, and through its links with the Academies of Science and Medical Science, Ministry of Health, and the Anti-Plague Institutes, recruited a generation of scientists who elsewhere in the world underpinned the expanding pharmaceutical and biotechnology industries and academic life-sciences research. The whole system probably employed at its height at least 50,000 people, many of whom were scientists and technicians with very high security clearance that identified them as part of a biological weapons program more closely held and more secret than its nuclear weapons counterpart. The system was always able to draw on the best from any source but was, to a certain extent, self-sufficient. Not all of the 52 establishments were occupied with microbiology or weapons—some were workshops, garages, and cover operations; others supported the program directly with fermenter design and construction or building of weapons test chambers; while yet others carried out advanced research, which would then be given to other institutes for development. Often there was internal competition, with one project being given to a number of facilities to see who would come up with the best idea. In its first 15 years alone, Biopreparat probably cost at least 1.5 billion rubles to create and run—a large sum for life-sciences R&D but relatively modest compared with the cost of nuclear weapons R&D and, therefore, in terms of strategic weapons, extremely cost-effective.

The main purpose of the enormous Biopreparat capability was to hide biological weapons research, development, and production formerly carried out solely in Ministry of Defense establishments behind a facade of nominally civilian biotechnology and pharmaceutical enterprises. The two systems, the former Ministry of Defense complex of biological weapons facilities and the new Biopreparat facilities, continued to operate side-by-side. The Ministry of Defense facilities themselves probably employed another 15,000 workers and had a separate budget, so that the potential within the system as a whole, which is how it should be considered, was large and dwarfed the by-then long-abandoned U.S. offensive program. Its capacity for production of agent was measured not in tons but in hundreds of tons for each of at least nine separate sites, primarily plague, tularemia, glanders, anthrax, smallpox, and Venezuelan equine encephalomyelitis.

Another mission of Biopreparat was to apply advances in biotechnology (genetic engineering, in particular) to improving the biological weapons capability of the former Soviet Union. This mission took several forms, supported primarily by the then vice-president of the Academy of Sciences, Yuri Ovchinnikov, the most influential Soviet biomedical scientist of the 1970s. He saw a way around arms control treaties and weapons conventions by using microbes to produce biologically active substances that would replace classic chemical weapons; their production could then be concealed in the biotechnology or pharmaceutical industry. He also envisaged that the government would use genetic engineering to produce a new generation of biological weapons agents with enhanced capability for expressing toxins and other biologically active substances and to improve overall weapons effectiveness. The outcome of the first of these two programs is not known, but the latter was very successful. Moreover, the new Biopreparat-based program was able to address all aspects of agent production and delivery, not just the most advanced microbiological ones. It built strength in depth, having as its main aims to improve industrial production scale-up techniques, microbial production rates, yields of viable microorganisms, virulence, and resistance of microorganisms to antibiotics; to maximize viability of agent during dissemination and increased survivability of biological aerosols; and to enhance the ability of microorganisms to degrade the target's natural defenses. The leaders of the program foresaw increasing encroachment of international arms control processes into the territory of sovereign states. Thus, they perceived the need for its weapons to become invulnerable to first strike or counterattack. Key technical targets associated with such an approach were the development of dry solid particulate agent formulations, miniaturized production facilities, mobile production and filling facilities, strains resistant to multiple antibiotics, cruise missile dissemination system, and combination organisms.

By addressing every aspect of weapon production, from selection of new strains of organisms to the behavior of biological aerosols under every possible condition of climate and topography, through the genetic engineering of antibiotic resistance and the design of optimum dissemination and delivery systems, the former Soviet Union was able to envisage the achievement of a miniaturized mobile production and weapon-making capability invulnerable to clandestine monitoring, invasive arms inspection, or attack in the event of war (because it was beyond identification); agents precisely matched to particular scenarios and human targets and incapable of being treated; a variety of dissemination systems, including cruise missiles; agents resistant to degradation by heat, light, cold, UV radiation, ionizing radiation, and various antibiotics; and dry formulations of agents capable of remaining viable in long-term storage.

By the time of the breakup of the former Soviet Union, from which the Russian Confederation emerged in 1992, much had been achieved and war mobilization plans were in place for the surge production of huge quantities of the agents mentioned earlier, as well as a number of others, such as Marburg virus. Of overwhelming importance has been the capability to undertake a strategic attack using plague or smallpox. Intercontinental ballistic missiles with MIRVed warheads containing plague were available for launch even before 1985, and SS-11 and SS-18 missiles have been mentioned in this connection. Concepts of use had been developed for each of the biological agents formally accepted into use by the army. For instance, the principal agents designated as tactical or operational for use on the battlefield were tularemia and Venezuelan equine encephalomyelitis, whereas anthrax and Marburg virus were nominated for attacking rear areas. The third category of agents comprised the highly transmissible agents smallpox and plague, which were categorized as strategic weapons and destined for use against enemy population centers.

What happened after Vladimir Pasechnik (the former general director of Science Production Organisation Farmpribor and director of The All Union Scientific Research Institute of Ultra Pure Biopreparations in Leningrad [St. Petersburg]) defected in 1989 constitutes a long and complex story, but in January 1991 the first-ever visit to Biopreparat facilities was undertaken, by a joint U.K./U.S. technical team, under a cloak of secrecy. After the subsequent defection of Kanadjan Alibekov (a former senior deputy director of Biopreparat) in 1992, the United States and the United Kingdom were certain enough that the offensive biological weapons program was continuing that they challenged the new Russian regime openly about it as late as 1993. By then substantial changes had taken place within Biopreparat, and today a concerted effort is under way to help the Russians civilianize these former biological weapons R&D establishments. However, questions remain about the Russian program: What happened to the part of the program in Ministry of Defence facilities that western experts have been unable to visit? What happened to plans detailing every aspect of production and deployment? What happened to the Ovchinnikov bioregulator program? What happened to the thousands of personnel involved in the Biopreparat program? What happened to the R&D centered on anticrop, antiplant, and antilivestock biological weapons? What happened to the stocks of seed cultures of biological weapons agents designed to be used to fuel the mobilized production of weapons? Was there space-based biological weapons capability? Was there any human genetics-related biological weapons research?

Despite the passage of nearly 10 years, the fundamental change in political structure of Russia, the extreme economic upheaval and budget restrictions, the reorientation of Biopreparat's work, and the help and support given by the West to civilianize programs and stop the transfer of technology and scientists into illegal biological weapons programs, the capability of the old Russian Ministry of Defence sites remains largely unknown.

Iraq

Iraq has stated that its biological weapons program dates to at least 1974. It was carried out in great secrecy, after the Biological and Toxin Weapons Convention had been signed. The program was first conducted in an ostensibly civilian organization called the State Organization for Trade and Industry until this was superseded by the Military Industrial Commission. As with all other major military programs, biological weapons R&D was able to call upon many of its leading scientists who undertook undergraduate or postgraduate training in the west. Much of what happened between the supposed inception of the program in 1974 and the establishment of a group of biologists within the Al-Muthanna chemical weapons complex in 1984 is unknown.

In 1987, the Al-Muthanna research group was transferred to the Al-Salman facility, and work was expanded to include the investigation of fungal and antiplant agents; 1988 saw the establishment of the Al-Hakam Factory, an industrial-scale production facility designed to produce anthrax and botulinum toxin for filling into weapons. This project was completed quickly by using equipment from nominally civilian facilities, such as those used to produce vaccines; the factory itself produced biological agent, which was filled into weapons and deployed in late 1990. The program was further expanded in 1990 when viruses were added to the range of agents under development and production capacity was enhanced by the acquisition and integration of civilian biotechnology facilities by the Military Industrial Commission.

According to the Iraqis, the program was terminated in 1991, after the adoption of UN SCR687, and agents, weapons, munitions, and documents were destroyed. However, the United Nations Special Commission (UNSCOM) believes that from 1991 to 1995 Iraq actively preserved biological weapons capability.

The Agents, Weapons, and Means of Delivery

The UNSCOM belief that three biological agents were filled into weapons is supported by Iraqi statements concerning the filling of munitions and their deployment ready for delivery. For one of these agents, *Botulinum* toxin, UNSCOM also possesses objective evidence; the other two were probably anthrax and *Clostridium perfringens* spores. Approximately 380,000 liters of *Botulinum* toxin were manufactured, along with 84,250 liters of anthrax spores and 3,400 liters of *C. perfringens* spores. In addition, 2,200 liters of aflatoxin were produced. All these figures represent preconcentration totals and may be underestimates. Ricin toxin and the antiplant agents wheat bunt and corn smut were also produced. Camel pox is known to have been under development as well. This disparate list of biological agents, which at first seems to contain substances not previously conceived as potential offensive biological weapons agents, on closer inspection reveals a rationale based on the possession of a multipotent arsenal having lethal, incapacitating, oncogenic, ethnic, economic, terror, and variable time-onset capabilities. In addition, these agents are capable of being used to attack people through the lungs and the skin, as well as with carriers such as triethylamine, CN or CS, or as a toxic coating in fragmentation weapons.

Agents were filled into various weapons for dissemination. By the end of 1990, according to Iraqi statements, 25 SCUD/Al-Hussein missiles were readied for use with biological weapons warheads (each carrying 145 liters of agent) and deployed for action. At least 160 R400 retarded aerial bombs, carrying the distinctive black-stripe identification around them, may also have been filled with 90-liter charges of *Botulinum* toxin and ready for use. UNSCOM has evidence to corroborate the Iraqi claim. The Iraqis also intended to fill R400 bombs with anthrax and aflatoxin. Originally designed and filled with chemical agents, 155-mm shells were also tested with a ricin toxin fill. At least three fuel drop tanks were completely modified and fitted with Venturi mechanisms to facilitate aerosol release, for dispersal of 2,200-liter loads of anthrax and possibly *Botulinum* toxin, using F1 aircraft as the delivery means.

Postscript

UNSCOM has no confidence that Iraq has abandoned its biological weapons program. The true scale and scope of the Iraqi biological weapons program are, despite all UNSCOM's efforts, still not known.

Dr. Davis is consultant in Pharmaceutical Medicine and Applied Physiology and director of the ORAQ Consultancy Ltd., United Kingdom.

Address for correspondence: Christopher J. Davis, Og House, Ogbourne St. George, Marlborough, Wiltshire, SN8 1TF, United Kingdom; fax: 44-(0)-1672-841418; e-mail: christopher.davis1@virgin.net .

Submit Reset

This page last reviewed July 1, 1999

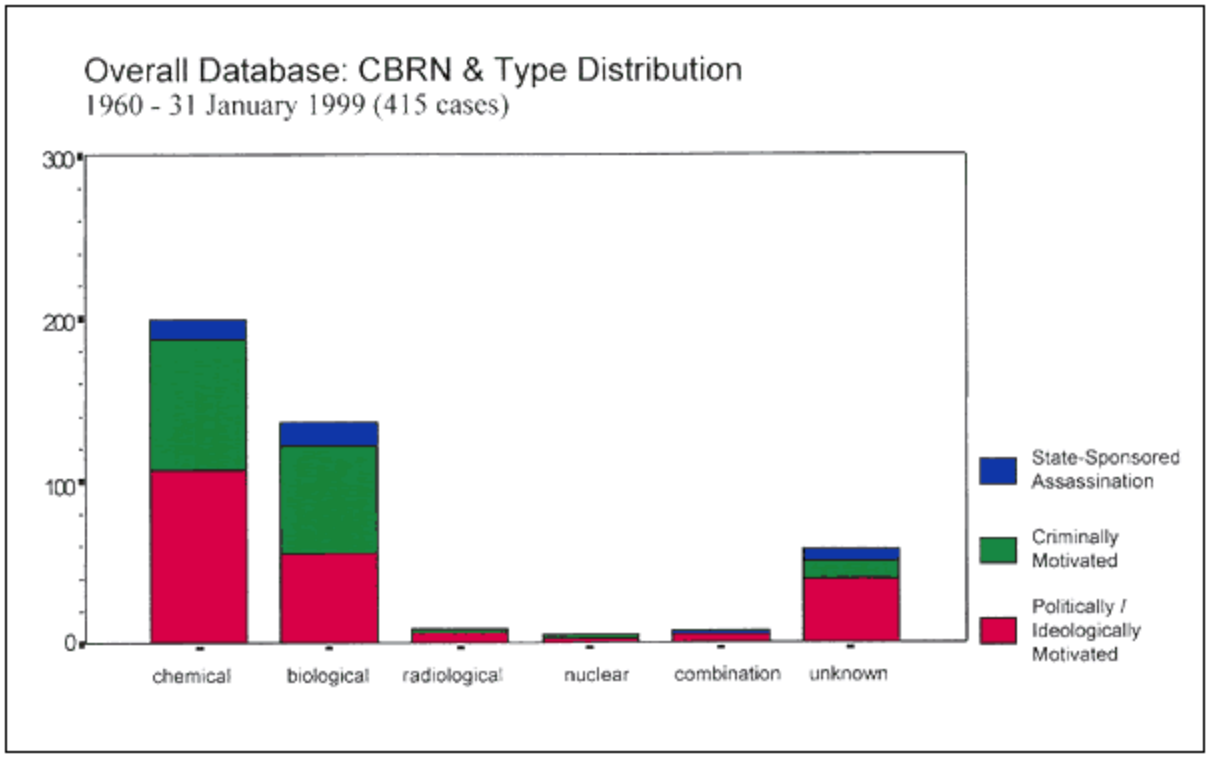
Emerging Infectious Diseases Journal
National Center for Infectious Diseases
Centers for Disease Control and Prevention

URL: http://www.cdc.gov/ncidod/EID/vol5no4/davis.htm

Special Issue

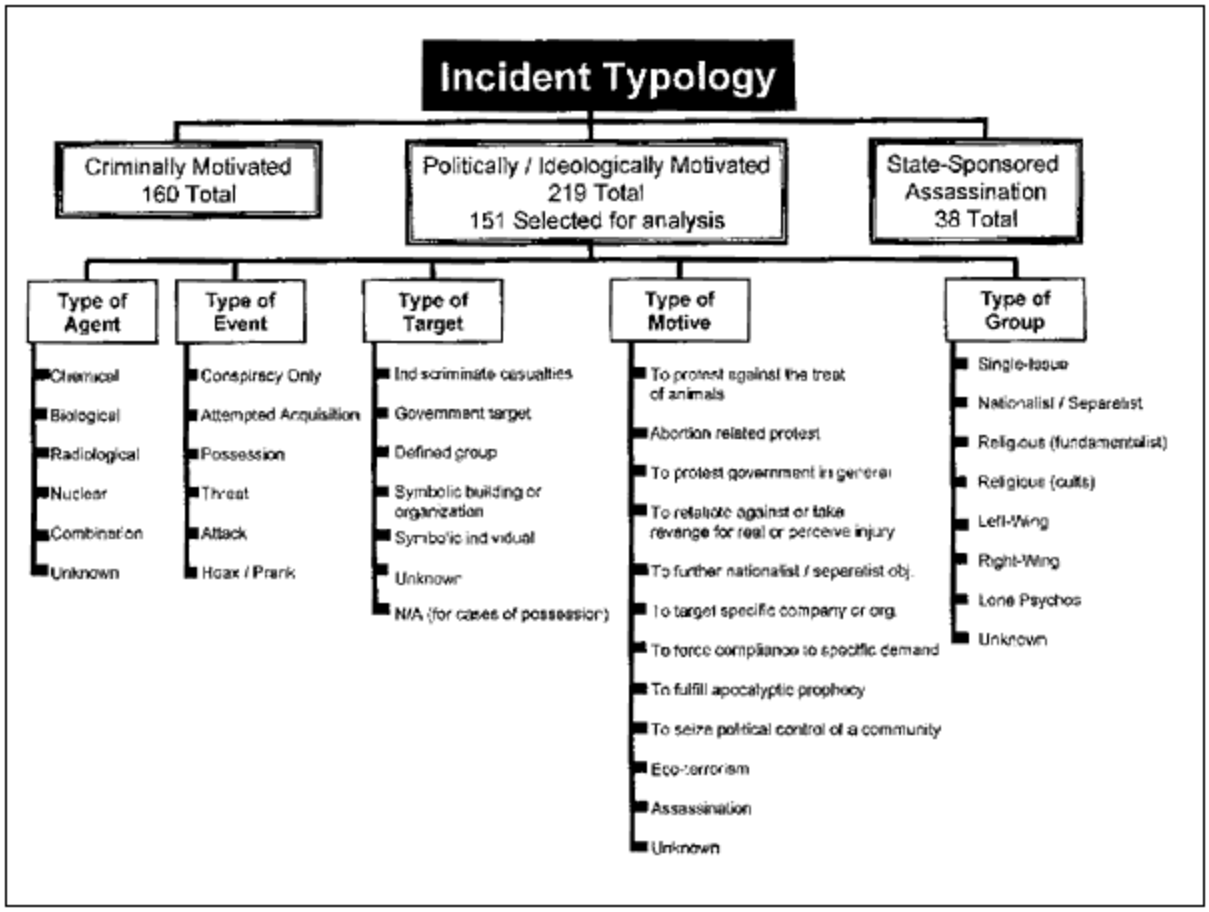
Historical Trends Related to Bioterrorism: An Empirical Analysis

Jonathan B. Tucker
Monterey Institute of International Studies, Monterey, California, USA



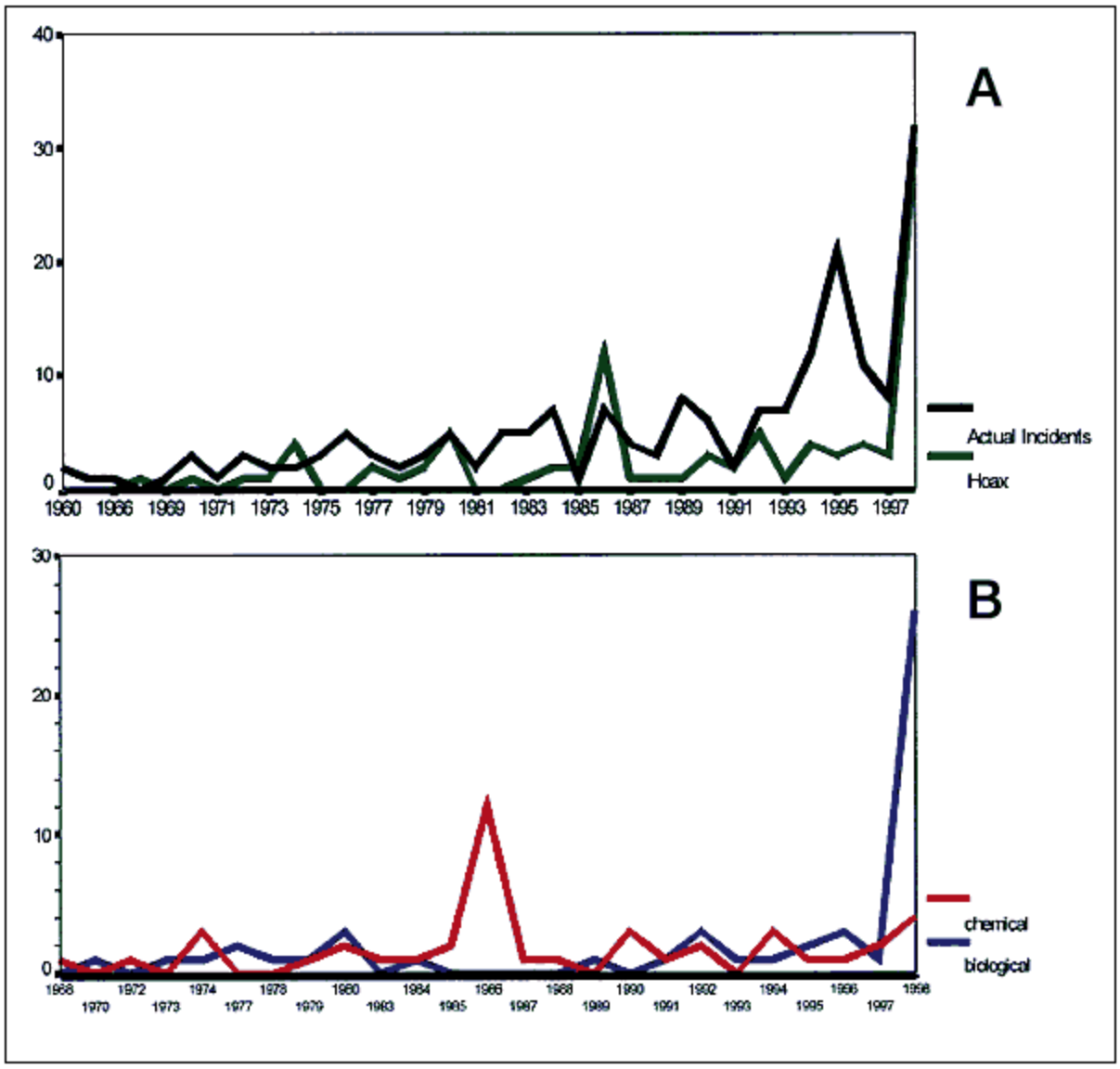
Back to article

Figure 1. Overall database: Distribution of incident by type, 1960—Jan. 31, 1999 (415 cases).



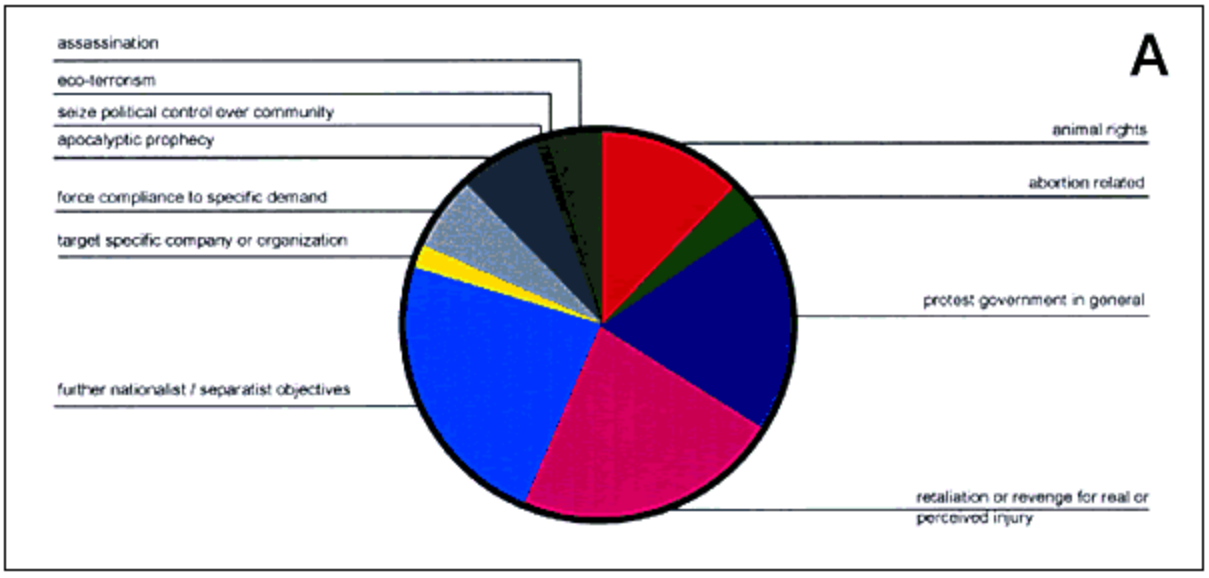
Back to article

Figure 2. Standardized typology used in analysis of politically or ideologically motivated incidents.



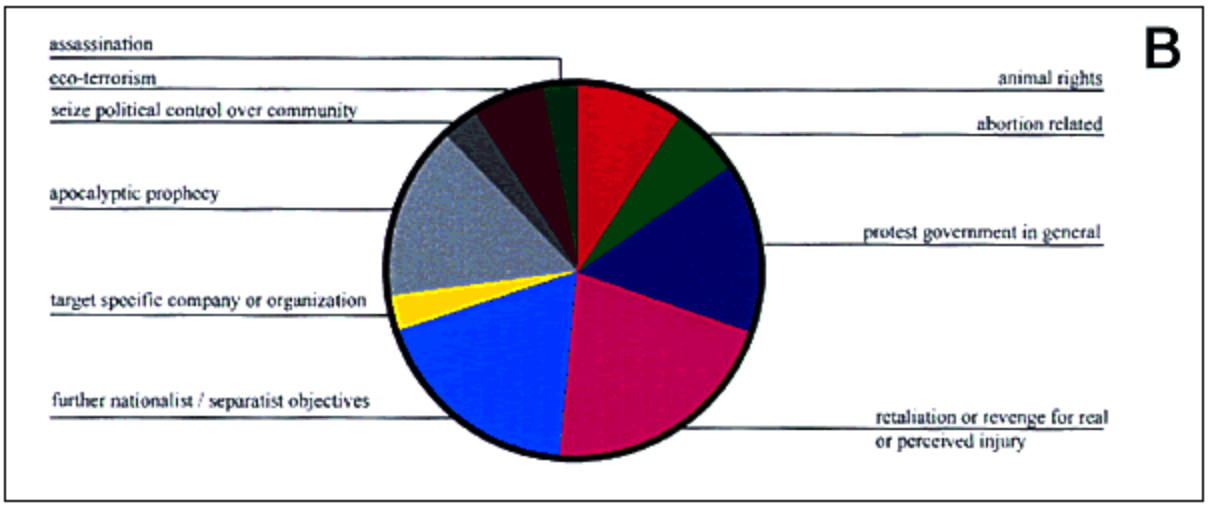
Back to article

Figure 3. (A) Actual chemical and biological incidents vs. hoaxes, 1960—1998 (278 cases). (B) Chemical and biological hoaxes over time, 1960—1998 (93 cases: 43 chemical, 50 biological).



Back to article

Figure 4. Distribution of motivations for chemical and biological terrorism incidents, 1960—Jan. 31, 1999 (147 cases).



Back to article

Figure 5. Distribution of motivations for biological terrorism incidents, 1960—Jan. 31, 1999 (33 cases)

Home
About Us
Programs
Publications
Employment/Training

Contact Us
Search DLS

One Page Summary

CHEMICAL TERRORISM

Chemical attacks by terrorists -- such as the release of the deadly nerve gas, sarin, in a Tokyo subway in 1995 -- underscore the need for a prompt and effective public health response to chemical terrorism. DLS provides laboratory support for responding to chemical terrorist incidents. Specifically, DLS has developed methods to measure chemical agents in blood and urine so that health officials can determine what chemical agents have been used, who has been exposed, and what is the amount of each individual's exposure. Health officials can then use this information for the medical management of persons exposed or potentially exposed.

Rapid Toxic Screen: DLS is developing a Rapid Toxic Screen that will measure 150 chemical agents in blood and urine. Methods for 50 chemical agents were completed in 1999, methods for 50 additional chemical agents will be completed in 2000, and the final 50 chemical agents will be added in 2001. The Rapid Toxic Screen uses advanced analytical techniques, including tandem mass spectrometry and high resolution mass spectrometry, to quickly and accurately measure these chemical agents. The Screen includes measurements of chemical warfare agents and toxic industrial chemicals.

Laboratory Response Team: DLS maintains a Laboratory Response Team that is on call 24 hours per day / 7 days per week to respond to known or potential chemical terrorist attacks. These persons assist in the acquisition of appropriate samples to come to DLS for analysis by the Rapid Toxic Screen. They are also available for rapid deployment to an affected site, if needed.

Chemical Terrorism Laboratory Network (CTLN): DLS has awarded grants to four state laboratories (California, Michigan, New York, and Virginia) that collectively form the CTLN. These laboratories will also have the capacity to measure chemical agents in the Rapid Toxic Screen. In the event of a chemical terrorism attack that requires more capacity than available at DLS, these laboratories will provide additional capability.

Revised Final FY 1999 Performance Plan And FY 2000 Performance Plan

XIV. Public Health Response to Terrorism

contents | next page

The growing threats from biological and chemical terrorism within the United States necessitates strengthening of public health capacity at the local, state, and federal level in order to prepare and respond to these perils. Proposed operations focus on buttressing the essential role that public health plays in the emergency response to terrorism through efforts that: a) reinforce systems of public health surveillance to detect unusual or covert events; b) build epidemiologic capacity to investigate and control health threats from such events; c) enhance public health laboratory capability to diagnose the illnesses and identify the compounds used in these circumstances; and d) develop and coordinate communications systems with other government agencies and the general public to disseminate critical information and allay unnecessary fear.

Performance Goals and Measures

Performance Goal: Increase the ability of CDC, state and local health departments to respond to terrorist threats.

Performance Measures:

FY Baseline	FY 1999 Appropriated	FY 2000 Estimate
0 (1998) sentinel networks	Establish 3 sentinel networks which will be capable if identifying early victims of bioterrorism.	Expand and enhance 3 sentinel networks which will be capable of identifying early victims of bioterrorism.
0 (1998) Health Departments with epidemiology and laboratory capacity.	Increase the number of state and major city health departments which expand epidemiology, clinical and laboratory capacity to investigate and mitigate health threats posed by bioterrorism to 40.	Increase the number of state and major city health departments which expand epidemiology, clinical and laboratory capacity to investigate and mitigate health threats posed by bioterrorism to 63.
0 (1998) Reference laboratories with support capabilities.	Create a network of two state or major city laboratories to provide rapid and accurate diagnostic and/or reference support for 10-15 select biologic agents and/or...	Create a network of twelve state or major city laboratories to provide rapid and accurate diagnostic and /or reference support for 10-15 select biologic agents and/or...
0 (1998) Demonstration Programs	...Bioterrorism preparedness and response planning programs will be established in 5 states or localities.	...Bioterrorism preparedness and response planning programs will be established in 10 states or localities.
0 (1998) Assays specific to chemicals used in terrorist attacks.	Measure rapidly by chemical methods 50 toxicants in blood and	Measure rapidly by chemical methods 100 toxicants in blood and

	urine likely to be used in chemical terrorism.	urine likely to be used in chemical terrorism.
0 (1998) Major Metropolitan areas with electronic surveillance and communications systems.	The number of major metropolitan areas with health sector dedicated communications systems to facilitate or expedite detection and response to terrorist events will be increased to between 15 and 25 through the Health Alert Network (HAN).	The number of major metropolitan areas with health sector dedicated communications systems to facilitate or expedite detection and response to terrorist events will be increased to between 25 and 35 through the Health Alert Network (HAN).
0 (FY 1998) plan for national pharmaceutical "stockpile" to respond to terrorist use of potential biological or chemical agents.	Create a national pharmaceutical "stockpile" available for deployment to respond to terrorist use of potential biological or chemical agents, including the ability to protect 1-4 million civilians from anthrax attack.	Create a national pharmaceutical "stockpile" available for deployment to respond to terrorist use of potential biological or chemical agents, including the ability to protect 1-4 million civilians from anthrax attack.
Total Program Funding	**$121,750**	**$118,000**

Verification/Validation of Performance Measures: Data for these measures will be available from grantee progress reports, Environmental Health Laboratory's strategic planning progress reports, development of lists of purchased pharmaceuticals, and will be verified through site visits and/or publications.

Links to DHHS Strategic Plan

These performance measures relate to DHHS Goal 1: Reduce major threats to the health of all Americans and Goal 5: Improve public health systems.

▲ contents ▶ next page

CDC Performance Plans | FY2000 Plan | FY1999 Plan

CDC Home | Search | Health Topics A-Z

This page last reviewed January 12, 2000
URL: http://www.cdc.gov/od/perfplan/2000xiv.htm

Office of the Director/Administrator
Centers for Disease Control and Prevention
and Agency for Toxic Substances and Disease Registry
Atlanta, GA