

REDUCING THE THREAT OF BIOLOGICAL WEAPONS

I. The Issue

The spread of deadly pathogens and the dangers of their deliberate use are arguably the most perilous yet least understood threat to American security today. Following the deliberate dissemination of poisonous chemicals on the Tokyo subway by the *Aum Shinrikyo* cult in 1995, the fear of domestic terrorism using pathogens or chemicals has grown steadily in the United States. In 2001, this fear was greatly magnified by the sudden spread of powdered anthrax spores through the U.S. mail starting seven days after the September 11th attacks on the World Trade Center and the Pentagon. By the end of that year, anthrax-contaminated letters had infected eighteen people and caused five fatalities.¹ The American public's overall level of awareness and concern, and the precautions taken by the public in response to the attacks, have increased dramatically, demonstrating that the dangers posed by pathogens have implications far beyond domestic public health.²

Even though biological warfare arouses general revulsion, has never been successfully conducted on a large scale, and is banned by international treaty, biological pathogens were stockpiled during both world wars and continue to be developed as strategic weapons—the “poor man’s atomic bomb”—by a small but growing number of countries.³ It is believed that about a dozen countries currently possess the capability to produce and deploy biological weapons.⁴

While it is generally agreed to be extremely difficult to build effective biological weapons capable of killing or sickening masses of people, the technology to do so is becoming increasingly available. The technologies necessary to grow dangerous pathogens are “dual-use,” that is, they have both peaceful and nefarious uses and it is very difficult to distinguish between the two. Industrial plants that produce fermented beverages and vaccines as well as hospitals, biotechnological and pharmaceutical research labs, all have the capabilities to produce dangerous pathogens for use as weapons. Monitoring and verifying the peaceful use of these technologies on a global basis is a practical impossibility.

By far the country with the most advanced program to build biological weapons was the Soviet Union. At the height of the Cold War, that country had trained more than 60,000 scientists and engineers in the biological weaponry sciences. To date, many of those individuals have not found gainful employment and, therefore, there is a serious risk that their expertise will proliferate to states such as Iran, Iraq and Syria—states believed to be pursuing offensive biological programs. Intelligence gathered during

operations in Afghanistan in the winter of 2002 suggests that Osama bin Laden and al Qaeda are also working on developing biological weapons.

In 1991, the Nunn-Lugar Cooperative Threat Reduction Program (CTR) was established as a series of programs to aid countries of the former Soviet Union in the destruction of weapons of mass destruction. Between fiscal years 1994 and 1999, the United States provided about \$20 million to fund collaborative research projects that redirect former biological weapons scientists to peaceful research activities. For fiscal years 2000, 2001, and 2002, the United States spent \$51 million in CTR funding alone (the State Department also provides funding for biological weapons prevention activities in the former Soviet Union) to expand efforts to engage former Soviet biological weapons institutes.

II. Recent Legislation

- The “USA Patriot Act of 2001” (H.R.3162, which became Public Law 107-56), written and passed in the immediate aftermath of the October 2001 anthrax attacks, criminalized the possession of biological agents where it is not “reasonably justified by a prophylactic, protective, bona fide research, or other peaceful purpose.” It also prohibited “restricted persons,” defined in the Act, from working with certain agents. These restrictions have raised concerns in the scientific community that research on infectious diseases could be hampered.
- The “Public Health Security and Bioterrorism Preparedness and Response Act of 2002” (H.R. 3448, which became Public Law 107-188) is intended to improve the ability of government to respond to a bioterrorist attack by: enhancing detection capabilities following an attack; improving disease surveillance systems and public health laboratories; improving techniques to treat the victims of an attack; and improving hospital, state and local capacity for responding to bioterrorist attacks. The bill also improves the government’s ability to contain an attack by expanding pharmaceutical stockpiles and accelerating the development of new treatments, including a smallpox vaccine. The legislation also authorized fiscal year 2002 appropriations of approximately \$3.2 billion for these activities.
- Each year, the Congress enacts a National Defense Authorization Act, providing an authorization of appropriations to help Russia build down its massive stockpile of biological weapons and re-employ that state’s weapon scientists. These programs, part of the Nunn-Lugar Cooperative Threat Reduction Program, work to ensure that weapons, materials, and expertise from Russia do not fall into the hands of terrorists or terrorist states.

III. Obstacles

- During negotiations to conclude an international arrangement by which the international community can verify compliance with the Biological Weapons Convention (BWC), the American negotiating team highlighted several obstacles that they believed made the draft protocol unworkable. These included the belief that the draft protocol would not:
 - cover enough relevant facilities and would focus its energies on Western states instead of those countries thought to be pursuing biological weapons. As a result, the protocol would “do little” to deter states from violating the BWC;

- o improve the United States' ability to verify others' compliance with the convention or enhance U.S. confidence that other states were complying; and
 - o protect adequately the secrets of the U.S. biotech industry or U.S. biodefense programs.
- Any mechanism by which the international community will be able to verify compliance with the Biological Weapons Convention (BWC) will have to balance the right of international inspectors to scrutinize and the right of governments and the private sector to protect proprietary information.
 - Expansion of U.S. programs to help the Russian's build down their biological programs has been hampered by Moscow's unwillingness to permit access to former Ministry of Defense biological weapons production facilities across the country.

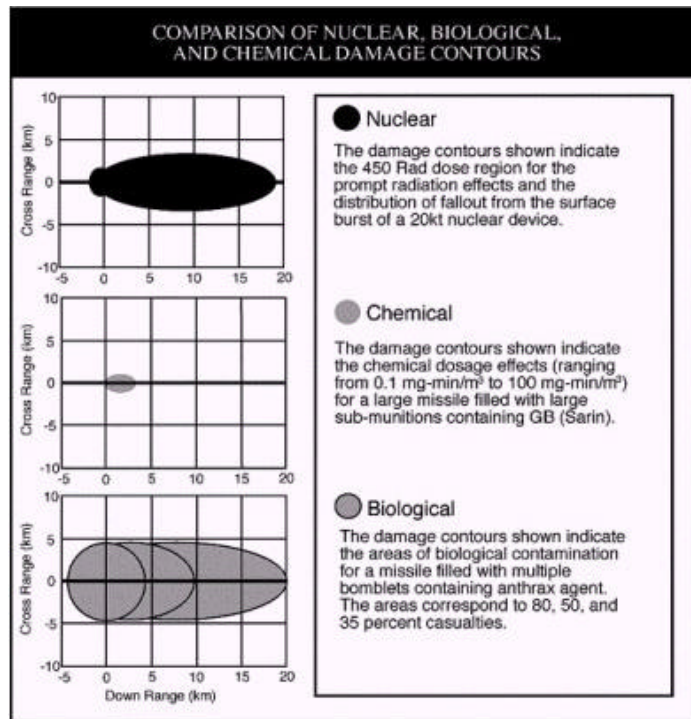
IV. Q & A

Q: What are biological weapons?

A: Biological weapons are living organisms adapted for military use and intended to cause disease or death in human, animal or plant life. They tend to be agents made up of organisms, which rely on their highly contagious properties and their ability to reproduce to achieve their potentially devastating impact on a target.

Q: Are biological weapons and chemical weapons equally destructive?

A: No. Weight for weight, biological weapons are hundreds of thousands of times more potent than the most lethal chemical warfare agents, making them true weapons of mass destruction with a potential for lethal mayhem that, in certain circumstances, can exceed that of nuclear weapons.⁵



Source: Department of Defense, *Proliferation: Threat and Response*, (April 1996), p. A-6.

Q: Which countries have biological weapons?

A: About a dozen countries are thought by Western analysts to have clandestine biological weapons programs. Among those, China, Cuba, Iraq, Iran, Libya and Russia have also ratified the Biological Weapons Convention (BWC). Others about whom there are suspicions are North Korea, Egypt, Syria, Israel, and Taiwan. The U.S., U.K. and France have decommissioned their offensive biological weapons capability, but they retain a defensive and research capabilities.

Q: Are biological weapons really a threat?

A: Along with chemical weapons, biological weapons have been described as “the poor man’s atomic bomb.” Biological weapons pose potentially devastating effects and are very difficult to defend against. These weapons are also indiscriminate; and once unleashed, are uncontrollable. For that reason there have been growing concerns about their use by terrorist groups against civilian populations. It is thought, for example, that the *Aum Shinrikyo* sect in Japan was experimenting with such weapons. Moreover, the perpetrator(s) of the 2001 anthrax mailings in the United States remain(s) at large. Most experts agree, however, that it would be very difficult to create effective biological weapons and to deploy them with mass effect.

V. Talking Points

- Biological weapons potentially pose greater dangers than either chemical or nuclear weapons because pathogens are so lethal on a pound-for-pound basis, their production requires a much smaller and cheaper industrial infrastructure, and the necessary technology and know know-how are almost entirely dual-use and, thus, widely available.
- The devastation that could be brought about by the use of biological weapons is suggested by the fact that, throughout history, the inadvertent spread of infectious disease during wartime has caused far more casualties than actual combat.
- The Biological Weapons Convention (BWC) of 1972, signed and ratified by 146 countries, bans the development, production, stockpiling, and transfer of biological pathogens for weapons purposes. This treaty was weakened from the start however, by the impossibility of banning all nefarious research on pathogens.
- At its peak, the Soviet biological weapons program produced massive quantities of biological agents annually employing more than 60,000 scientists and technicians. Today, due to the diminished state of the Russian economy, Moscow cannot afford to safely maintain stockpiles or employ scientists for peaceful purposes. More must be done to ensure that weapons, materials and expertise do not fall into the hands of those that wish the United States harm.

VI. Factoids

- As a result of the anthrax attacks in the United States in 2001, some 10,000 people along the East Coast, actually or potentially exposed to virulent anthrax spores, were prescribed prophylactic antibiotics.
- At its peak, the Soviet biological weapons program produced massive quantities of biological agents annually, including: 1,500 metric tons of tularemia bacteria; 4,500

metric tons of anthrax; 1,500 metric tons of bubonic plague bacteria; and 2,000 metric tons of glanders bacteria.⁶

- These materials were produced at approximately 50 facilities scattered across Russia, Kazakhstan, Uzbekistan, Georgia, Armenia, Ukraine, and Belarus. Much of this material remains today.⁷
- According to a Russian defector who once headed up a massive biological weapons facility in the former Soviet Union, more than 60,000 scientists and technicians were formerly employed in a variety of Russian biological warfare programs. While most were absorbed back into society, a number have moved abroad.⁸
- According to the same defector, “between five and ten” of the best biological warfare scientists have been hired on long-term, top-secret contracts by Iran.⁹
- During the Gulf War, Iraq admitted that it deployed biological agent-filled munitions to airfields, and that these weapons were intended for use against Israel and coalition forces in Saudi Arabia.¹⁰
- A small airplane dispersing 220 pounds of anthrax spores could inflict more casualties in the Washington, D.C. metropolitan area than missile carrying a hydrogen bomb.¹¹
- According to a Centers for Disease Control and Prevention (CDC) study, the economic impact of a bioterrorist attack on a single American city can range from \$477.7 million per 100,000 persons exposed (using aerosolized brucellosis) to \$26.2 billion per 100,000 persons exposed (using aerosolized anthrax).

VII. Applicable Treaties, Legislation, and Other International Agreements

- Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, also known as the Biological Weapons Convention (BWC), outlaws biological weapons. The BWC was opened for signature on April 10, 1972, and entered into force on March 26, 1975. It currently has 146 states-parties and 17 signatory states.¹² However, the treaty lacks an effective means by which to verify a state’s compliance. This has led to numerous parties to the treaty effectively circumventing the provisions and continuing with the production of biological weapons.
- In 1994, BWC states-parties received a report from a group of governmental experts that had been evaluating potential verification measures since 1991. The experts concluded that some verification measures could help improve the convention’s implementation; and with these results in mind, states-parties authorized their most ambitious effort to date, establishing a body known as the Ad Hoc Group to conclude a protocol to strengthen the convention. The Ad Hoc Group met beginning in 1995 through 2001 but the process was derailed over American objections that the emerging consensus among states-parties would still permit countries to deceive the international community and build biological weapons. There remain no means to verify compliance with the treaty.

- The Biological Weapons Anti-Terrorism Act of 1989 (Public Law 101-298) outlaws the development or possession of biological weapons.
- The Anti-Terrorism and Effective Death Penalty Act (Public Law 104-132) enhances the penalties and controls over biological pathogens.

¹ As of 5 December 2001, eleven cases of inhalation and seven cases of cutaneous anthrax had been confirmed. There were four additional suspected cases cutaneous anthrax. CDC (Centers for Disease Control and Prevention), MMWR (Morbidity and Mortality Weekly Report), "Update: Investigation of Bioterrorism Related Anthrax," 7 December 2001, accessed at: www.cdc.gov/mmwr/preview/mmwrhtml/mm5048a1.htm. The fatalities included a 94-year old woman from rural Connecticut, a hospital employee in New York city, both whom are suspected to have contracted the disease from contaminated mail, two Washington, DC-area postal workers and a newspaper picture editor in Florida.

² In a survey conducted by the Harvard School of Public Health/Robert Wood Johnson Foundation, *Survey Project on Americans' Response to Biological Terrorism*, on November 8th 2001, 57% of those surveyed stated that they had taken one or more precautions in response to reports of bioterrorism. A study commissioned by the Vietnam Veterans of America Foundation, conducted between 19 and 20 November 2002, found that 64% of respondents believe that chemical and biological weapons are the greatest threat to American security, as compared to just 7% who felt nuclear weapons posed the greatest threat. Study available at the Nuclear Threat Reduction Campaign website: <http://www.nuclearthreatreduction.org>.

³ In 1972 at the behest of President Richard Nixon, the international community concluded the Biological and Toxin Weapons Convention (BWC) banning the development, stockpiling, transfer, and use of biological weapons (BW) worldwide. The treaty does not include formal measures to ensure compliance by its 144 member-states. This lack of an enforcement mechanism has undermined the effectiveness of the BWC, as it is unable to prevent systematic violations.

⁴ Department of Defense, *Proliferation Threat and Response*, (1997), accessed at: <http://www.defenselink.mil/pubs/prolif97/>.

⁵ Office of Technology Assessment, "Technologies Underlying Weapons of Mass Destruction," December 1993, OTA-BP-ISC-115, p.73.

⁶ Joseph Cirincione, et al., *Deadly Arsenal: Tracking Weapons of Mass Destruction*, Carnegie Endowment for International Peace: 2002, p. 48.

⁷ Amy E. Smithson, "Toxic Archipelago: Preventing Proliferation from the Former Soviet Chemical and Biological Weapons Complexes," Report No. 32 from the Henry L. Stimson Center December 1999.

⁸ Al Venter, "Analysis: Spectre of Biowar Remains," *Jane's Defense Weekly*, April 28, 1999, pp. 22-23.

⁹ Ibid.

¹⁰ U.S. Office of the Secretary of Defense, *Proliferation: Threat and Response*, January 2001, accessed at: <http://www.defenselink.mil/pubs/ptr20010110.pdf>

¹¹ Office of Technology Assessment, *op. cit.*

¹² Arms Control Association, "Biological Weapons Convention at a Glance," November 2002, accessed at: <http://www.armscontrol.org/factsheets/BWCataglance.asp>.