

**House of Representatives Homeland Security Committee
Subcommittee on Emergency Preparedness, Response, and
Communications**

Bioterrorism: Assessing the Threat

311 Cannon House Office Building Washington, D.C. 20515

Feb 11, 2014 10:00am

Testimony of Robert P. Kadlec M.D.

Madame Chairman Brooks and Ranking Member Payne it is a privilege and honor to appear before you and members of this Subcommittee to talk about a very important national security issue: bioterrorism and biological warfare. It is a subject that has not received the kind of attention or consideration that it deserves and I would like to commend the Committee for taking the time and effort to raise awareness and inform the public about it. Congress plays a vital role in confronting this threat through hearings like this, authorizing important programs and appropriating the necessary funds to ensure we have the means and medical countermeasures to deter and if necessary protect America and Americans from this threat.

Talking about the threat I am always reminded of the sage words of Dr. Joshua Lederberg, Nobel Prize winning microbiologist who said “I am very worried about this (bioterrorism) but hardly dare to mention it for fear of putting an evil idea in someone’s head.” His words resonant constantly with me and serve as a practical warning. But, the practical reality argues that in a democracy we must talk about these otherwise unspeakable threats in a responsible way to inform, not to incite. If no one talks about the risks of biowarfare (BW) or bioterrorism (BT); few in government will think about it, much less act to do the necessary things to protect America and Americans.

The risk of deliberate biological attacks is not an easy problem to talk about. Frankly, it scares people. In today’s public discourse, we usually hear the risk embedded in the phrase natural, accidental and deliberate disease threats.

Somehow if we cloak it with other infectious disease threats that emerge from Mother Nature it is easier to contemplate or accept. We do ourselves, however, a great disservice by doing so.

The deliberate use of biological agents or toxins to achieve strategic military and political objectives invokes a fundamental principle not found in nature--the efforts of a thinking enemy to use biological agents to inflict death, incapacitation or economic loss by using biological agents to confound diagnosis and frustrate treatment. The military or terrorist intent is to create conditions that are not found in nature or with natural disease epidemiology: aerosolizing overwhelming doses of infectious agents to infect large numbers of people simultaneously with agents that are not naturally endemic and are likely to have been engineered to be more virulent than natural strains and resistant to common forms of treatment.

Conflating deliberate and natural disease threats somehow implies that by addressing the more common Mother Nature problem, the solution will be sufficient to address the deliberate biological threat. It is not. To understand this threat and confront it effectively is to understand this fundamental principle. I am afraid, we as a nation and government do not fully comprehend the kind of threat we are talking about today.

Fortunately, unlike cyberattacks which occur with some frequency and have received media notoriety, deliberate biological attacks have been very few and far between. It is, however, a threat that could result in enormous loss of life, severe economic losses, cause social instability and forever change our way of life. Simply stated, biological weapons have the power to kill as many or more people as a nuclear weapon. The technological barriers to achieve this potential are significantly less than for nuclear weapons. The fact it has not happened yet may be more a matter of luck and the superb efforts of the U.S. military and Intelligence Community than restraint or unwillingness on the part of terrorists.

The trends emerging around the potential threat of deliberate use of biological agents are alarming. The dual-use means to cultivate, grow and produce biological agents in quantities sufficient for nefarious use has grown smaller and more efficient, harder to locate and diffused globally. This technology and know-how

are increasingly becoming available to wider group of potential adversaries. In the past, BW was a capability reserved for nations, now it is a potential weapon for terrorist groups and disaffected individuals. Complicating this picture is the discipline of synthetic biology. The World Health Organization has assessed that advances in synthetic biology now permits adversaries to recreate pathogens no longer found in nature such as smallpox. It is conceivable in the not too distant future that someone could design and produce a new pathogen never seen before.

One way to consider the seriousness of the threat is to observe what Congress has said and done. Congress has mandated commissions, enacted laws and appropriated funds going back to the late 1990's highlighting the risks from deliberate use of biological agents. In 1999, Senators Gary Hart and Warren Rudman highlighted the risk in their report entitled "A New World Coming: American Security in the 21st Century." It noted that the increase in information technology and biotechnology will cause new vulnerabilities for the U.S. and that the proliferation of chemical, biological and potentially nuclear weapons that will empower and embolden both state and not-state actors to threaten or act against the U.S..

In 2004, Congress passed the Project BioShield Act (Public Law 108-276) that appropriated \$5.6 billion to create a guaranteed market for the acquisition of medical countermeasures against chemical, biological, radiological and nuclear threats. An essential provision of that law was directed the Department of Homeland Security (DHS) to determine which biological threats pose a priority threat in order to prioritize medical countermeasure development and acquisition. DHS uses the Integrated Terrorism Risk Assessment findings to determine which CBRN agents present a greater risk based on the relative risk ranking against the U.S. population sufficient to affect national security. Specifically, for the highest ranked agents, DHS evaluates the intelligence and threat information and develops and models a highly plausible consequence scenario taking into account acquisition, production, dissemination efficacy, source strength and meteorological conditions. This model is used to derive an estimate of the number of potentially exposed individuals at various levels of exposure, which becomes part of the Material Threat Assessment. The estimates are provided to the Department of Health and Human Services (HHS), which conducts its Public Health Consequence Modeling to determine the public health impacts.

DHS has issued about a dozen Material Threat Assessments for biological threat agents that have served as the basis for advanced development and acquisition of medical countermeasures by HHS. As mandated by law, the U.S. is currently researching, developing, producing and stockpiling medical countermeasures against a variety of biological agents such as anthrax, botulinum toxin, smallpox and other agents viewed as a credible BW or BT threat. Project BioShield funding acquires the medical countermeasures that create a powerful deterrent against this threat.

The 2008 Weapons of Mass Destruction Commission chaired by Senators Bob Graham and Jim Talent further highlighted growing trends in the spread of enabling technology and led to their principle finding that the risk of a WMD attack was rising and that the terrorist use of biological weapons was greater than the likelihood of terrorists building or obtaining a nuclear device. Their Commission recommended greater efforts to both prevent and respond to this threat. Their periodic report cards indicate that we have achieved much but still have far to go in our preparedness efforts.

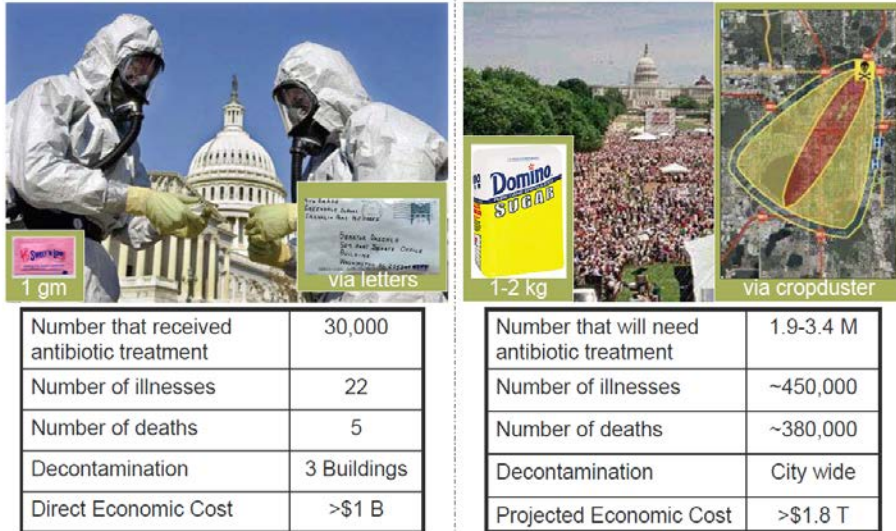
The Intelligence Community annually reports to Congress on the threats confronting the nation. I note that Director of National Intelligence James Clapper and other senior intelligence officials testified before the House and Senate Intelligence Committees in January of this year. Their annual assessment identifies the greatest national security threats. General Clapper stated:

“Nation-state efforts to develop or acquire weapons of mass destruction (WMD) and their delivery systems constitute a major threat to the security of the United States, deployed troops, and allies. We are focused on the threat and destabilizing effects of nuclear proliferation, proliferation of chemical and biological warfare (CBW)-related materials, and development of WMD delivery systems. The time when only a few states had access to the most dangerous technologies is past. Biological and chemical materials and technologies, almost always dual use, move easily in the globalized economy, as do personnel with scientific expertise to design and use them. The latest discoveries in the life sciences also diffuse globally and rapidly.”

He also noted that elements of Syria’s biological weapons program might have progressed beyond research and development and might have achieved limited agent production. In an environment where a variety of radical Islamic groups are fighting the Syrian government, the risk that one or two kilograms of anthrax could fall into the hands of terrorists should make us pay serious attention. During my tenure as the Special Assistant to the President for Biodefense Policy in the Bush Administration, we evaluated and modeled the human and economic impact that a couple of kilograms of anthrax could have on a major metropolitan area.

The Challenge of Catastrophic Bioterrorism

Past Experience: 2001 Anthrax Attacks Current Concern: Aerosol Release



In addition to Congress and the Intelligence Community’s perspectives, I would like to offer you a more personal evaluation of the threat as it has evolved during my professional career. I come to you as an accidental tourist as it pertains to the subject of bioterrorism and biological warfare. My introduction came some 24 years ago when I was a young officer and physician assigned to the Joint Special Operations Command at Fort Bragg on the eve of the Iraqi invasion of Kuwait. I was pressed to serve as an advisor on these issues to then Major General Wayne A. Downing.

At that time, the U.S. military was marginally prepared to confront a regional power that possessed chemical and biological weapons. The military lacked the necessary protective equipment, detectors and medical countermeasures including vaccines and antibiotics against the immediate threats posed by Iraq. Congress played a vital role in rectifying those shortfalls and our military is better prepared.

While the U.S. was victorious in 1991, the scale and scope of Iraq's biological weapons program remained elusive despite the most intrusive inspection and monitoring regime ever conceived and implemented by the United Nations Special Commission (UNSOCM). I experienced this first hand, as I served as a UNSCOM biological arms inspector in 1994, 1996 and 1998. It was only after the defection of Saddam Hussein's son, Hussein Kamel, did UNSCOM and the world learn of the extent of Iraq's biological weapons. Even so, UNSCOM was never able to fully account for or verify the destruction or elimination of the biological weapons Iraq possessed or the precursors (seed stock) that were used as part of the program.

The events in Iraq and the coincident dissolution of the Former Soviet Union signified an important milestone in historical trend of biological warfare. Previous to the 1990's, biological weapons were capabilities limited to advanced nations and indeed superpowers. The defections of high level officials from the Soviet BW program illuminated the size and sophistication of a program that involved an estimated 30,000 scientists and workers and two dozen large scale facilities. The Soviets manufactured metric tons of anthrax and smallpox to be used in war with the U.S. Despite the enormous scale and scope of the Soviet program, the disturbing fact is the U.S. intelligence community knew little of its existence. Once again Congress played a vital role in efforts to prevent the risk of proliferation of nuclear and biological weapons with Soviet Threat Reduction Act of 1991.

From Fort Bragg I was assigned to the Pentagon Office of the Secretary of Defense for Counter-proliferation Policy that was established after the first Gulf War. There, I witnessed the efforts to ascertain the truth behind the former Soviet Union's BW effort. The Trilateral Process between the U.S., UK and Russia stalled and the Government of Russia never provided a full accounting of its BW program. The fate of these agents and associated weapons was never satisfactorily resolved. The enigma of the Russian program is only magnified when President

Putin recently called for exploiting new and emerging technologies to rearm Russia and mentioned the development of genetic weapons as means “for achieving political and strategic goals.”

The revelations from the Former Soviet Union and Iraq all occurred as the advances in biotechnology and molecular biology marched on in the background. The dual-use means (both the enabling technology and the know-how) continue to increase and diffuse around the globe. The means are available for any nation with modest pharmaceutical manufacturing capacity to achieve a capability with lethal equivalence to nuclear weapons.

The concern that non-state actors could divert legitimate biological process and equipment was realized when the Japanese cult Aum Shinrikyo surprised the Japanese Government and the world by perpetrating a chemical nerve agent (sarin) attack in the Tokyo subway system in 1995. While the manifestation of the Aum’s intentions was a nerve agent attack, Japanese law enforcement investigations uncovered Aum’s efforts to develop, produce and disseminate botulinum toxin and anthrax. The cult tried several times, fortunately unsuccessfully, to disseminate botulinum toxin and anthrax. One attempted anthrax attack targeted the U.S. naval installation at Yokohama. Probably, the greatest limitation to their effort was obtaining a virulent strain of anthrax to affect their plan. In the end they were the cult that “could not spray straight.” Their incompetence was fortunate for us, but the story is not reassuring. The cult’s efforts to develop both chemical and biological weapons went unnoticed by Japanese civilian authorities and U.S. intelligence agencies.

Following the attacks of September 11th, I was recalled for service back into the Pentagon and was there when the initial reports about inhalational anthrax cases were first reported by the media. The national psyche after the traumatic attacks at the World Trade Center and the Pentagon was fragile and the anthrax letter attacks dealt another significant blow striking fear in every American heart about what could come next. Little did we know that the perpetrator was not Al Qaeda but a deranged scientist.

This fear, however, and the uncertainty about the identity and motives of the perpetrator(s) was enhanced when U.S. forces who invaded Afghanistan uncovered a laboratory built by Al Qaeda to research, develop and produce anthrax (Agent

X). According to the 2005 Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction:

“ al-Qa’ida’s biological program was further along, particularly with regard to Agent X, than pre-war intelligence indicated. The program was extensive, well-organized, and operated for two years before September 11, but intelligence insights into the program were limited. The program involved several sites in Afghanistan. Two of these sites contained commercial equipment and were operated by individuals with special training. Documents found indicated that while al-Qa’ida’s primary interest was Agent X, the group had considered acquiring a variety of other biological agents. The documents obtained at the training camp included scientific articles and handwritten notes pertaining to Agent X.

Reporting supports the hypothesis that al-Qa’ida had acquired several biological agents possibly as early as 1999, and had the necessary equipment to enable limited, basic production of Agent X. Other reporting indicates that al-Qa’ida had succeeded in isolating cultures of Agent X. Nevertheless, outstanding questions remain about the extent of biological research and development in pre-war Afghanistan, including about the reliability of the reporting described above.”

The possibility that Al Qaeda then and now may still harbor the strategic intent and pursued capabilities to attack the U.S. with biological weapons is a lingering concern that should not be ignored.

In 2003 and 2004, I deployed to Iraq four times looking for proof of Saddam’s BW program and the existence of smallpox virus cultures. It was difficult challenge under the tactical circumstances we encountered and operated in. Despite finding clandestine biological laboratories run by the Iraqi Intelligence Services, the true nature of the work and relevance to Iraq’s offensive BW effort was never ascertained. Here again, despite owning the territory, apprehending and interviewing many but not all the key personalities involved, and exhaustive field investigations; the ability to uncover the truth about Iraq’s BW program was never accomplished.

The limitations of intelligence were formally noted by the 2005 Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction. According to a senior CIA official interviewed for that report: “We don’t know more about the biological weapons threat than we did five years ago, and five years from now we will know even less.” That statement may seem astonishing but it reflects the challenge our Intelligence Community faces in light of the global diffusion of technology that enables practically anyone with a biology degree the means to create a biological weapon.

The risk for surprise is great. Relying entirely on intelligence assessments fails to understand the complex threat our intelligence community confronts. Understanding and preparing for the future biological threat will take more than intelligence. I highlight the vital contributing role of the National Biodefense Analysis and Countermeasure Center and two of its component entities.

- The National Bioforensic Analysis Center conducts bioforensic analysis of evidence from a biocrime or terrorist attack to attain a "biological fingerprint" to help investigators identify perpetrators and determine the origin and method of attack. It is the lead federal facility to conduct and facilitate the technical forensic analysis and interpretation of materials recovered following a biological attack in support of the FBI.
- The National Biological Threat Characterization Center conducts studies and laboratory experiments to fill information gaps to better understand current and future biological threats; to assess vulnerabilities and conduct risk assessments; and to determine potential impacts to guide the development of countermeasures such as detectors, drugs, vaccines, and decontamination technologies.

These Centers provide critical insights and information that help the U.S. biodefense enterprise understand current and emerging threats. In the case of the anthrax letters, the forerunner to the National Bioforensic Analysis Center contributed significantly to the investigation that led to the identification of the perpetrator of those attacks. Bioforensics can play an important part in a BW deterrent strategy that links timely and accurate attribution with the credible threat of retribution to any perpetrator.

The Threat Characterization Center tests whether the hypothetical threats are real. Using valid scientific methods performing research and conducting experiments, the researchers there help bound a potential infinite risk with scientific data. They help advance the understanding of what really constitutes a threat.

I would conclude with the observation that the risk of biological attacks on the U.S. with biological agents is an uncertain, imminent reality. Our ability to predict or know when this threat will manifest itself is severely limited by the capabilities of our intelligence services and the wide array of potential perpetrators who could conduct such attacks. Biological weapons could inflict grievous harm on America, equal to and potentially greater than nuclear weapons, and any investments to defend against them is a modest insurance policy against an uncertain future. Our best defense remains a robust defense: A credible and rapid means to detect and mitigate such attacks and equally credible means to attribute and hold those accountable. I thank you for this opportunity and look forward to assisting you further in your efforts on this subject.