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## Terrorism and Weapons of Mass Destruction: the Biological Threat

*To date, al Qaeda has been successful using conventional explosives — such as the October 2002 Bali bombings that resulted in 202 deaths or the March 2004 train bombings in Madrid that killed 191. There is, however, evidence that al Qaeda is attempting to develop a rudimentary biological weapons capability. The chief medical officer at the United States Department of Homeland Security recently told a congressional subcommittee that the U.S. government knows its terrorist enemies have long sought to use biological agents as instruments of warfare and that the current risk of a large-scale biological attack on the nation is possible, naming al Qaeda as a likely source.*

Militant groups are generally adaptive and responsive to failure. If something works, they will use it; if it does not, they will seek more effective means of achieving their deadly goals. During the past several decades in the era of modern terrorism, biological weapons have been used infrequently and with little success. Nevertheless, militant groups who aim to kill large numbers of people are constantly seeking new innovations; consequently there is a serious concern that these groups may tire of explosives and move onward to acquire the technology to produce a cheap and lethal biological weapon such as anthrax.

It is cheap to do. It is easy to pull off. It is tough to respond to. It is biological warfare, and for all these reasons, it remains one of the most pressing concerns of security officials across the country, as well as one of their great frustrations. Homeland security analysis indicates that anthrax is the most probable choice, and a successful single-city attack on an unprepared population could kill an unprecedented number of citizens. Many do not perceive the threat of bioterrorism to be as significant as that of a nuclear or conventional attack, but such an attack could kill as many people as a nuclear detonation, and have its own long-term uncontrollable environmental effects. This issue of *The Lipman Report*® examines the biological threat and its evolution in the current terrorist climate.

### **Biological Weapons**

Biological weapons, such as bacteria, viruses and other microorganisms that cause disease and death, pose a unique threat. Unlike any other category of weapons, most biological agents can reproduce independently and

render an environment more dangerous over time. Some of the biological agents deemed to be the most likely weapons, including anthrax and botulism toxin, are not transmitted from person to person. But others, such as plague bacteria and smallpox, are highly contagious, and can easily become a fatal wildfire. People infected with a contagious agent can spread the disease exponentially, in effect themselves becoming biological bombs. The potential to genetically engineer an organism towards greater virulence and resistance to drug treatment creates additional concern.

### **Anthrax**

A month after the attacks of September 11, 2001, a letter arrived in the office of Senator Patrick Leahy from Vermont. It read: “You cannot stop us. We have this anthrax. You die now. Are you afraid? Death to America. Death to Israel. Allah is great.” Accompanying the note, one of at least five such letters sent to government and news offices, was a cache of the deadly powder that shut down Capitol Hill, killing five people and terrifying an already shell-shocked country. The spore-forming bacterium *Bacillus Anthracis* is readily available in nature and can be deadly if inhaled, ingested or if it comes into contact with a person’s skin. A deadly dose is estimated to be between 8,000 and 50,000 spores. One gram of weaponized anthrax however, such as that contained in the letters mailed to U.S. Senators Tom Daschle and Patrick Leahy in October 2001, can contain up to one million spores — enough to cause between 20 million and 100 million deaths. Yet, in spite of this incredibly deadly potential, these letters — in addition to the five others mailed to media outlets such as the *New York Post* and the major television networks — killed only five people and hospitalized 22 others. This discrepancy between the theoretical number of victims — millions — and the actual number of victims — five — highlights the inherent challenges in biological warfare. Obtaining a biological agent is fairly simple, but isolating a virulent strain and then weaponizing that strain is indeed difficult. The most problematic part, however, is the effective distribution of the weaponized agent to an intended target. Small-scale localized attacks such as the 2001 anthrax letters or the 1984 salmonella attack undertaken by the Bhagwan Shri Rajneesh cult in Oregon are far easier to execute.

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The deadliest known anthrax incident in recent years occurred in 1979 when an accidental release of aerosolized spores from a Soviet biological weapons facility in Sverdlovsk, located in the Ural Mountains, infected 94 people, reportedly killing 68 of them. This facility was one of many laboratories that were part of the Soviet Union's well-funded biological weapons program. Several nations at the time had similar programs. Currently in the United States, an estimated 14,000 people work in approximately 400 laboratories and are authorized to handle the so-called select agents that could be used in a bioterror attack — although not all have the clearance to work with the most toxic substances such as anthrax. With so many people involved in so many laboratories, experts maintain there is a lack of federal oversight ensuring that these laboratories follow security rules and report accidents or releases that might endanger the public. In effect, the government may be providing the tools that a would-be terrorist could use. There exists a very real threat that a jihadist sympathizer could obtain a small quantity of deadly biological organisms by infiltrating a research facility.

It is also logical to assume that independent jihadist cells and lone-wolf jihadists will almost certainly attempt to brew up some of the recipes from the al Qaeda cookbook. The core al Qaeda group, through men like the recently deceased Abu Khabab al-Masri, has published manuals in hard copy and on the Internet that provide instructions on how to manufacture rudimentary biological weapons.

### History of Biological Weapons

To date, biological agents as weapons of war or terror have rarely been used. In the twentieth century, the only known biowarfare against humans occurred in the late 1930s and the early 1940s, when Japanese aircraft dropped porcelain bombs filled with plague-infested fleas on Chinese targets. The germs reportedly caused epidemics that killed thousands.

Various groups throughout modern history, including American right-wing extremists, have sought biological poisons. In 1991, members of the Minnesota Patriots Council (a small anti-government, tax-protest group based in Minnesota) produced a toxin — ricin — from castor beans, but were arrested before using it. In fact,

until the anthrax attacks in 2001, the only large-scale bioterrorism incident in the United States took place in 1984 in Oregon. Members of the Rajneesh cult poured a liquid containing salmonella bacteria onto salad bars and into coffee creamers in several restaurants. At least 750 people became ill, though none died. The salmonella incident demonstrated how easily and unobtrusively a biological attack could be used.

The smallpox virus poses a different kind of biological threat. Smallpox was eradicated in the 1970s and samples of the virus are now legitimately preserved at only two locations: one in the United States and the other in Russia. Analysts believe that rogue states or terrorists are interested in acquiring the virus and that some may have already succeeded. Other possible biological weapons, such as the Ebola virus, offer their own variations. A cause of hemorrhagic fever — Ebola — is intensely contagious, untreatable, and deadly; however it kills its victims so quickly that they do not always have time to infect many others.

Moreover, a formidable biological weapon might be developed through genetic engineering. The result could be a drug-resistant hybrid that is as hardy as an anthrax spore, as contagious as a flu virus and as deadly as a virulent plague bacterium or Ebola. According to scientists who worked in the biological weapons program in the former Soviet Union, efforts there included attempts to make such nightmarish concoctions.

Despite the Biological Weapons Convention, a treaty that bans germ weapons, roughly a dozen countries are suspected of maintaining illegal biological programs. These countries include Iran, Syria and North Korea. Within the United States, there are also security concerns in view of the proliferation of bioscience laboratories following the September 11 terrorist attacks. Congressional leaders and security experts are calling for an investigation into whether the government's most hazardous biological materials are adequately protected and whether security clearances are granted too liberally and to too many people. The vetting for security clearances for many of these positions at biohazard laboratories is — surprisingly — not as rigid as those working for the FBI and the CIA. Additionally serious shortcomings in security have been

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identified at labs run by universities and civilian government agencies. The problems include poor training, sloppy security, lack of oversight, and release of dangerous pathogens

### **A Current Look at Al Qaeda**

In the summer of 2007, the National Intelligence Estimate concluded that al Qaeda had — for the most part — rebuilt its haven in Pakistan’s tribal areas. A recent comprehensive assessment maintains that the al Qaeda problem has only grown worse, in part because of the symbiotic relationship between al Qaeda operatives and Pakistani militant groups based in the tribal areas. Al Qaeda’s success in forging close ties to Pakistani militant groups has given it an increasingly secure haven in the mountainous tribal areas of Pakistan. American intelligence agencies have also concluded that officers in Pakistan’s powerful Directorate for Inter-Services Intelligence, or ISI — which has long maintained ties to militants in the tribal areas — have been rendering assistance to the militants and helped carry out the recent bombing of the Indian Embassy in Kabul, Afghanistan. Al Qaeda has “replenished its bench” with a more diverse group of operatives, many from North Africa and the Levant, as opposed to the cadre of Egyptians and Saudis who have historically dominated the group’s upper ranks.

Al Qaeda is more capable of attacking inside the United States than it was last year, and its roster of senior leaders has recruited and trained “dozens” of militants capable of blending into Western society to carry out attacks. A recent report suggests al Qaeda has trained several dozen operatives in Pakistani camps who would be capable of attacks against Western targets. The report also suggests that intelligence officials are expecting a surge in threats and speculates on possible domestic attacks with the impending election and inauguration of a new president in the United States. Any al Qaeda attack timed to the election would be aimed at wreaking havoc.

A new National Defense Strategy approved in June 2008 identified terrorism as the primary threat to the United States. The New Defense Strategy shifts the military’s focus from conventional warfare to counter-terrorism. As Defense Secretary Robert M. Gates emphasized, even winning the conflicts in Iraq and Afghanistan will

still fail to end the “Long War” against violent extremism, and the fight against al Qaeda and other terrorists should be the nation’s top military priority over the coming decades. The strategy document calls for the military to master “irregular” warfare — rather than concentrating on conventional conflicts against other nations. It also recommends partnering with China and Russia in the war on terrorism to blunt their rise as potential adversaries. Although Iraq and Afghanistan remain the central fronts in the struggle against terrorism, victory in these arenas alone will not bring success. The implications of fighting a long-term, episodic, multi-front, and multi-dimensional conflict are more complex and diverse than the Cold War confrontation with Soviet communism. This document explaining the Defense Department’s strategy focuses on and reflects the government’s concern about terrorists and rogue states bent on using insurgency or weapons of mass destruction.

### **Al Qaeda and Biological Warfare**

The ongoing military assault on al Qaeda, while failing to solve the problem of international terrorism, has still somewhat eviscerated the apex of current terrorist leadership. Not the least of these al Qaeda losses was the death of al Qaeda’s leading chemical and biological expert, Abu Khabab al-Masri, felled by a missile strike on July 28 in South Waziristan. Unfortunately, however, while his expertise may seem irreplaceable, this expert left behind a generation of students.

For more than a decade, Masri moved in the top echelons of al Qaeda as a bomb maker and innovator of the group’s largely unsuccessful attempts to build viable chemical and biological weapons. A chemist by training, Masri received his initial education in the Egyptian army and started in al Qaeda as a bomb maker. Masri branched out into the development of biological and chemical weapons after the terror group settled in Afghanistan in the 1990s. Masri tried unsuccessfully to develop an anthrax weapon while attempting to develop a new breed of effective poisons — ones that when mixed with certain chemicals caused them to be absorbed into the skin more rapidly. It remains unclear how much of this research bore results. However, Masri provided hundreds of mujahedeen (Muslims involved in a jihad) with hands-on training in the use of poisons and

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explosives and distributed training manuals explaining how to make chemical and biological weapons.

There is ample evidence that numerous al Qaeda leaders have shown interest in using biological weapons. Yazid Sufaat, a Malaysian-born al Qaeda biochemist who trained in the United States, spent several months in 2001 trying to cultivate anthrax in Kandahar, Afghanistan. Another elusive and mysterious figure linked to al Qaeda and biological weapons research — who recently was arrested in Afghanistan — is Aafia Siddiqui. She obtained an undergraduate biology degree at the Massachusetts Institute of Technology (MIT) and a doctorate in behavioral neuroscience from Brandeis University. When arrested by the Afghani National Police, she was carrying documents relating to explosives, chemical weapons and weapons containing biological materials and radiological agents, descriptions of landmarks in New York City and elsewhere in the United States, and liquid and gel substances sealed in bottles and jars. Siddiqui is suspected of acting as a sleeper to assist al Qaeda while she lived a quiet life for three years in Boston and Houston, before returning to her native Pakistan in 2002.

### “The system isn’t there”

In its biodefense strategy, the United States government is emphasizing the “big three” sectors of biodefense: stockpiling drugs, surveillance and response capabilities. There have been notable successes, including federal readiness for an outburst of smallpox, plague or other bioterrorism agents. The Strategic National Stockpile, which contains hundreds of millions of doses of treatments for anthrax, smallpox and other diseases, has undergone a major expansion and can ship that material within half a day. The administration has spent \$400 million to deploy airborne pathogen sensors in more than 30 cities around the nation through the Biowatch program. Continuous disease reporting and surveillance is now available in all 50 states and there has been a significant increase in public health laboratories with biological-agent detection capabilities. However, among the missing pieces in defense against biological terrorism are a general-use anthrax vaccine, fast acting sensors, a comprehensive strategy for dealing with a large-scale disease outbreak and sufficient screening and ongoing supervision of the 15,000 researchers authorized to handle disease agents.

The September 2001 attacks and the anthrax mailings resulted in a massive reshuffling of the federal bureaucracy, along with billions of dollars of new spending on homeland security and a heightened sense of threat that persists in America. But the country is still extremely vulnerable to bioterrorism. Ironically, the biotech revolution is making it easier for nonstate actors to develop sophisticated bioweapons. Bioterror experts warn that an attack is only going to become easier to launch as the same work that has spawned countless new biotech medical treatments continues to advance. A major authority from a prominent biosecurity medical center has said, “As we go forward, it’s going to get easier and easier to engineer an organism into new kinds of biological weapons.” Even more worrisome are the security risks. It is clear that we need a rigorous, fact-driven assessment of the bioweapons threats, both from other countries and from terrorists, domestic and foreign.

*Knowing the people in your organization and verifying those who visit your facility is absolutely essential as a first line of defense. A general-use vaccine, along with the ability to distribute it in a timely manner, and the establishment of a program of awareness and education among employees on how to plan and respond will save countless lives. It is essential to commit the resources to develop faster-acting sensors to identify dangerous pathogens and immediately alert those who monitor for deadly biological agents. A tighter vetting process for those who are employed by biohazard laboratories must be put into place. A comprehensive strategy for dealing with a large-scale disease outbreak is crucial because the probability of biological weapons being used against Americans is unknown, but the consequences of such an attack could be devastating. The Time for Urgency is now.®*



The Lipman Report Editors