

CHAPTER 1

U.S. Bio-defense Readiness: Thoughts after September 11th

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The September 11, 2001 hijacking of four U.S. airliners and the subsequent ramming of three of them into the two towers of the World Trade Center and the Pentagon was the worst mass casualty terrorist attack in U.S. history. Approximately 3,000 people from over 80 countries lost their lives at the World Trade Center in New York. Another 179 Americans lost their lives in the Pentagon that same morning.

In the days following the terrorist use of airliners as missiles, the United States was faced with a series of anthrax attacks delivered to victims and target offices through the U.S. mail system. At the time of this writing, there have been five deaths from anthrax, and the offices of ABC News, CBS News, NBC News, The New York Post, The Sun tabloid offices, Microsoft headquarters, and the offices of Senator Patrick Leahy, Senator Tom Daschle, New York Governor George Putaki, and others have been polluted with anthrax - laced mail.

This late 2001 series of anthrax attacks via the U.S. Postal Service fulfilled the warnings of those who had warned of the inevitability of future bioterrorist events. The anthrax attacks of 2001 in the United States validated the previous warnings by some experts concerning bioterrorism that it was not a question of "if," it was a question of "when." Now such bioterrorism is a historical fact, not just a prediction of the future.

The anthrax attacks of 2001 may be a taste of things to come.

They may inspire some inevitable copycat attacks by other high technology terrorists, hate groups and nihilists much like the April 1995 sarin gas attack in the Tokyo subway by the Aum Shinrikyo cult inspired Japanese copycat attacks using cyanide gas in the year that followed. Inevitably, too, the 2001 anthrax attacks in the United States will inspire a host of additional hoax threats that will keep U.S. biodefenders busy separating the real from the phony of such threats.

It is important that U.S. homeland security and U.S. military officials not learn the wrong lessons from the late 2001 anthrax attacks. One conclusion that might be drawn, a misconception, is that the bioterrorist threat has been overblown since “only” a handful of people have died as a result of these attacks. This would be a serious misunderstanding if it were the conclusion of U.S. officials and the public.

Perhaps the most alarming aspect of the whole series of events leading up to the September 11th attacks and anthrax aftermath was the fact that several of the Al Qaeda terrorists including Mohammed Atta, had looked into employing a crop duster aircraft prior to settling on the September 11th hijacking of U.S. airliners and subsequent attacks on the World Trade Center towers and the Pentagon.

As of this writing it is not clear whether or not the anthrax attacks of October and November 2001 were the work of Al Qaeda operations or other terrorists, but if Al Qaeda possessed high quality inhalation anthrax like the anthrax that was used and distributed it using a crop duster over a large metropolitan area like Washington, D.C. then the losses of September 11th, bad as they were, would have been far less serious compared to what might have occurred. If this type of attack had been made, then the fatalities and casualties from such an event might have climbed into the hundreds of thousands, not the handful of bio-casualties that actually occurred. Such aerosolized anthrax attacks remain our worst nightmare whether we are talking about homeland security or the safety of U.S. troops deployed overseas.

One such bioterrorist attack has already been attempted when members of the Aum Shinrikyo terrorist cult in Japan twice

attempted to kill U.S. sailors stationed at the Yokohama Naval base in April 1990 using Botulinium toxin (BOT). Fortunately, these cultist did not know how to successfully weaponize Botulinium toxin and a tragedy was averted.

Another near miss from a biological warfare (BW) threat was averted in 1991 during the Gulf War when coalition troops led by the United States defeated Saddam Hussein's Iraqi forces and freed Kuwait from Iraq's grasp. What was not known until much later after the cease-fire, was that Iraq had cultivated and weaponized anthrax munitions in a lethal aerosolized form. In addition, the Iraqi forces had equipped a Mirage jet with spray tank dispensers and had secured it in a hardened aircraft shelter within range of U.S. and allied troops.

Had Saddam Hussein given the order, this Mirage aircraft, turned into an inhalation anthrax menace, could have flown a mission dispensing lethal anthrax over coalition troop concentrations and killed tens of thousands of them. The Office of the Secretary of Defense commissioned a later study of what the potential anthrax threat was to U.S. and coalition forces on the first day of the ground war in Desert Storm. On that day, the coalition had amassed half a million military personnel for its attack, 320,000 of these were in a rectangular area along the coastline southeast of Kuwait City that measured 50 kilometers by 150 kilometers in size. Calculations of OSD analysts show that if one were to assume that none of these had been vaccinated against anthrax, if the Iraqi Mirage were to successfully disperse its anthrax up wind of these allies, and if meteorological conditions were favorable the night of the attack, then an estimated 76,300 of the 320,000 targeted troops would have died of anthrax from the attack.¹

Contrast this worst case scenario with what really happened. Only 146 U.S. military were killed in Desert Storm altogether and Saddam Hussein appears to have been deterred from using his anthrax weapons by the veiled U.S. threat of retaliation using nuclear arms.

Nevertheless, the threat of lethal aerosolized anthrax released by a single aircraft upwind poses mega-threats to any massed

military forces and to urban populations in the fallout pattern. Thus, we should not misread the true lessons of the late 2001 anthrax terrorism in the United States. Bioterrorism has been practiced, and we have yet to see the worst that could be done. Similarly, the past use of biological weapons in warfare against military personnel does not approach the lethal possibilities such biological weapons may pose in future.

If we do not misread the potential loss of life that biological weapons can pose in the future, then the events following September 11th may serve as a wake up call to the U.S. and allied defense communities. For far too long, biological warfare defense has been under-funded and the necessity for a much more aggressive biological defense program has been under-appreciated. Years ago, during the Cold War, the United States and its allies seriously neglected biological defenses such as vaccine and antibiotics programs.

Starting in WW II, both the U.S. and USSR conducted intensive biological warfare R&D and production programs and continued these into the Cold War. U.S. authorities had every reason to believe the Soviet Union was researching and producing biological weapons during these years, at least until 1972 when both superpowers signed the Biological Weapons Convention (BWC).

However, even after this multilateral treaty banning the research, production, stockpiling, transfer and use of biological weapons was signed there was no strong reason to trust in Soviet treaty compliance since the pact had no verification procedures. The U.S. leadership simply stopped the U.S. program and acted as if it trusted that the Soviets would honor their commitment as well.

Hindsight shows this to have been a terrible mistake. The U.S. BW program funding was stopped, and funding was stopped not only for the prohibited offensive BW program, but tragically also was severely reduced for the BW defensive program such as work on vaccines even though the biological weapons convention permitted such activity. There were other reasons for the neglect of U.S. preparations against bioterrorism and biological warfare during the Cold War. The United States and NATO were planning to deter or counter Soviet conventional and chemical and biological

warfare threats with nuclear responses. Moreover, the task of equipping U.S./NATO conventional and nuclear forces left little defense funding for defense against biological or chemical attacks. U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) and the U.S. Army Chemical Corps were weak bureaucratic players in the internal competition for defense dollars in the U.S. Department of Defense budget battles. The result was severe under-funding of chemical warfare and BW defense programs.

The result of years of neglect has let the biodefense program fall far behind the biological warfare and bioterrorist threat that has developed since 1972. The Soviet BW program not only did not stop in 1972, the Soviets instead accelerated it. Over the past several decades, Soviet bioweaponeers, some 60,000 strong by 1991, have done experiments on over 50 biological agents and combinations of agents for military applications. Meanwhile, the United States biodefense program proceeded at a snail's pace. We became the unready confronting the unthinkable, and now have a long way to go to catch up to the biological weapons threats that have emerged at the beginning of the 21st Century.

A quick look at the current status of the U.S. vaccine program gives some idea of the ground that needs to be made up in biological defenses. Of the 14 diseases that experts deem most lethal, effective and weaponizable, the United States currently has FDA-approved vaccines only for four disease agents, (anthrax, smallpox, cholera, and plague). Five are in the investigational new drug (IND) category (Q fever, Tularemia, VEE, Viral Hemorrhagic fever, and Botulinium toxin) and may be years away from final approval. In the case of five other diseases, (glanders, brucellosis, SEB, ricin, and T-2 mycotoxins) no vaccines of any kind currently exist. Note, for example, the data from Table 1² on "BW Agents - Vaccines, Therapeutics, and Prophylaxis" that itemizes the sorry state of current preparations to immunize U.S. military forces and the public against bioterrorist or biowar attacks. This chart does not even indicate the massive effort needed to produce sufficient stockpiles of vaccines once they are perfected, if they ever are.

The bottom line is that the U.S. and its allies are far behind the threat posed by bioterrorists and adversaries willing to use biowarfare on the battlefield and, hopefully, the mass casualty terrorist attacks of September 11th, followed by the recent anthrax biological attacks, have galvanized U.S. and allied officials to do much more. Needed is investment in vaccines and other biodefense programs to close the threat/response gap that has widened through years of looking the other way and failing to recognize the great menace that biological warfare and bioterrorism pose to our citizens and our armed forces.

Notes

1. Of course, some small percentage of the 320,000 troops had already received anthrax vaccinations and were somewhat protected. OSD calculated that had all 320,000 received such shots, that an Iraqi anthrax attack would have killed just 122 as compared to the 76,300 in the worst case scenario.

2. U.S. Army Medical Research Institution of Infectious Diseases, USAMRIID's Medical Management of Biological Casualties Handbook, 4th edition, (Fort Detrick, Frederick, MD: USAMRIID, February 2001), pp. D-1 to D-2.