Bioterrorism – A Real Threat

Wayne H. Griest
Chemical Sciences Division
Oak Ridge National Laboratory
Oak Ridge, Tennessee

Biological agents are the ideal stealth weapons for the terrorist. Most biological agents require a few days before symptoms of exposure begin to appear, and when they do, it is too late for administration of effective treatments. In the meantime, the perpetrators have escaped. Recent events have tragically demonstrated that terrorism on a large scale is a real threat to open and free societies. Even earlier, bioterrorism on a large scale has been carried out on the US by the Bhagwan Shree Rajneesh cult. They spiked salad bars in Oregon with *Salmonella* to disrupt a local election in 1984. More than 750 people became ill. The Aum Shinrityo cult also (ineffectively) released Anthrax and Botulinum toxin in Tokyo years prior to their Sarin attack on the subways. These two examples illustrate two main routes of potential exposure in bioterrorism: ingestion and inhalation. Dermal exposure is generally not an effective route of exposure. In addition, bioterrorism is not limited to just people. Agriculture, both plants and animals, also is a vulnerable and important target.

An important question is what can the scientific community do to help combat bioterrorism. The first line of defense that science can contribute to is the development of technology to assist in intelligence gathering and terrorist/bioweapon interdiction. The next level of involvement is early detection of bioterrorism events. Faster, less expensive instruments for real-time monitoring of highly populated buildings, stadiums/arenas, subways, etc are needed to detect and identify bioagent releases and facilitate early segregation, decontamination, and treatment of those exposed. Furthermore, an early warning system could minimize the spread of bioagents and their exposure to people by rapidly shutting-down ventilation systems. In the absence of fixed-place monitoring equipment, there is a great need for portable equipment which would be taken to the site of a suspected bioterrorism event to determine if biological agents had been released. Concurrent with this is the need for training of first responders and the availability of sufficient stockpiles in many major cities of appropriate decontamination agents, vaccines and other prophylactic treatments. Also, and perhaps most appropriate for the audience of *Risk Assessment Notes*, is training of health care professionals to recognize symptoms of diseases caused by biological warfare agents to accurately and quickly diagnose the causes, and a reporting system to allow such cases to be tracked and recognized as a potential bioterrorism event.

Work is underway on most of the needs noted above, but far more support and effort is needed to prevent bioterrorism from creating catastrophic events.

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