Bio Terror Bible

EXPOSING THE COMING BIO-TERROR PANDEMIC

BIOTERRORBIBLE.COM: The following whitepapers were published by think-tanks, universities, NGO's and various governmental agencies and have at the very minimum set the stage psychologically for the impending bio-terror induced pandemic. The simple fact that these whitepapers exists in mass confirms that an upcoming bio-terror attack is in the cards and may be played in a last ditch effort to regain political, economic and militarial control of society.

WHITEPAPERS: Army War College , ASM (American Society for Microbiology), CATO Institute, Center for a New American Security, Center for Biosecurity of UPMC, Center for Counterproliferation Research, Chemical and Biological Arms Control Institute, CRS (Report for Congress), GAO (General Accounting Office), Institute for National Strategic Studies, Institute for Science and Public Policy, Johns Hopkins University, National Academy Of Engineering, National Defence University, PERI (Public Entity Risk Institute), RIS (Research & Information System), Terrorism Intelligence Centre, The Federalist Society, UNESCO (United Nations), University of Laussane, and the WMD Center.

Title: Bioterrorism Threats To Our Future: The Role Of The Clinical Microbiology Laboratory In Detection, Identification, And Confirmation Of Biological Agents
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Abstract: Biological warfare has been known since the Middle Ages. In the 14th century, the Tatars catapulted the bodies of bubonic plague victims into the walled city of Kaffa, an economically important port that they were besieging. It was infected residents fleeing this siege who spread the Black Death throughout Western Europe. The Spanish conquistadors and the British used smallpox, measles, and perhaps other agents to help subdue Native American peoples by providing them with blankets and handkerchiefs contaminated with these organisms. Since the Native Americans had never before been exposed to these pathogens, they haad virtually no natural immunity to them. Bioterrorism does not need to be directed against human life to be effective, but can also be directed against water and food sources. The ancient Romans, among others, threw carrion into wells to poison their adversaries' drinking water. A bioterrorism event could also target the agricultural sector, through either animals or crops.

The reality of modern-day biological terrorism was brought to the forefront in 1997, when the Federal Bureau of Investigation (FBI) arrested a man in Las Vegas, Nevada, who was found to be carrying the agent of anthrax. Although this individual was in possession of the avirulent vaccine strain of the anthrax organism, this incident served as a reminder of how easily a terrorist act could potentially cause serious illness and panic in the civilian population.

Huge expenditures have been made throughout the world both to produce biological weapons and to develop the means to protect military populations from these agents. Much less consideration, however,

has been given to what steps need to
be taken to protect civilian populations. One example of how an attack on a civilian population might unfold was the contamination of salad bars with Salmonella typhimurium in The Dalles, Oregon, in 1984 by followers of the cult leader Baghwan Sri Rajneesh. In that case, followers of Sri Rajneesh attempted to incapacitate the population of The Dalles on election day in order to influence the outcome of a local election. Even though the organism that they used is generally regarded as a microbial pathogen of low virulence, more than 750 people fell ill from food poisoning. Fortunately, none died. This incident demonstrated the relative ease with which microorganisms can be obtained and disseminated: the bacterial cultures used were grown in a clinical laboratory at the cult's compound in Oregon. Perhaps most striking, the intentional nature of this incident was not detected at the time it occurred. It only came to light a year later, when a former cult member revealed it during the course of a separate criminal investigation.

A less successful, but more frightening, example of attempted civilian bioterrorism occurred in Japan in the early 1990s. The Aum Shinrikyo cult is known for releasing sarin nerve gas inside the Tokyo subway system. What is not generally known is that they had previously attempted on several occasions to disseminate botulinum toxin and the anthrax agent among the general population. No illnesses are known to have resulted from these incidents, probably, at least in part, because insufficiently virulent strains were used. However, with further trials, Aum Shinrikyo might well have succeeded in their macabre campaign.

Clearly bioterrorism appeals not only to nations, both large and small, but particularly to terrorist groups. Some have suggested that biological agents are more likely to be used by terrorist groups than by belligerent nations. One major reason is that the capacity to produce and effectively spread biological weapons requires relatively little in the way of sophisticated technology. For this reason, biological weapons have been called "the poor man's atom bomb." Indeed, recipes for producing biological weapons are available on the Internet. Most colleges, universities,
and hospitals in the United States—and even some high schools—have facilities that could be used to produce crude
versions of biological weapons that might be used to terrorize individuals, community organizations, churches, schools, and cities. In addition, the apparent ease with which these weapons may be produced has resulted in hundreds of threats, particularly letters claiming that the person who opened them has been exposed to anthrax spores. So far these incidents have been found to be hoaxes. Yet at the time they occur, they generate considerable anxiety and must be dealt with seriously.

While biological weapons may not immediately produce the massive casualties and destruction wreaked by chemical and
radiological weapons, they pose their own insidious danger. Unlike chemical and radiological weapons, individuals affected by agents of microbial terrorism only slowly develop signs and symptoms of disease after exposure—a lag time that is known as the incubation period—and so could escape diagnosis for many days. Also, since infectious diseases often begin with mild symptoms and only manifest their true character with time, an illness caused by a bioterrorism agent may initially be incorrectly interpreted as a less severe natural infection, further delaying recognition of the event. Finally, recognition of a bioterrorism attack will require an appreciation of a cluster of infections— possibly with unusual organisms. Since infected individuals would either report to an emergency room (ER) or see their personal care physicians one at a time, and since they would most likely be scattered across many ERs and the practices of many different physicians, it could take days to weeks for the telltale pattern to become epidemiologically evident. These delays would be damaging. By the time public health officials realized that a deadly strain had been released upon our population, medical facilities would already be

overwhelmed.

Many emergency personnel—firefighters, paramedics, police officers, and hospital emergency room workers—would have unknowingly been exposed, incapacitating the very professionals who would be needed to combat the outbreak. Moreover, infected persons who continued to move about in the population during the early, mild stage of their illness could be spreading the disease to others. Although most experts agree that the probability of a bioterroris attack is low, they also believe that it is no longer a matter of “whether” but “when” such an attack will occur. Allocation by the Federal government of $1.4 billion during fiscal year 2000 to introduction fight biological and chemical terrorism is strong testimony to the credibility now given to the possibility of a bioterrorism incident. Much of this increased credibility has arisen from revelations about the scope of the biological weapons program conducted in the former Soviet Union by the Soviet defector Ken Alibeck, who was Deputy Director of this program, called Biopreparat. Although the program no longer officially exists, biological materials prepared under Biopreparat are not all accounted for, and some experts fear that scientists formerly employed in Biopreparat may be tempted to sell their expertise to terrorist groups or small nations seeking to develop a biological weapons capability.

Because the threat of a bioterrorist attack is now perceived as real, the diagnostic microbiology laboratory must be prepared to collaborate closely with clinicians to detect rapidly and efficiently potential biological agents that could be used in such an incident. The clinical microbiology laboratory will have a very significant role in the determination of whether or not a bioterrorism event has taken place and, if an attack is occurring, what kind of agent is being used. In the event of a biological attack, the early recognition and detection of the causative agent will pose a formidable challenge to the microbiologist and the clinical microbiology laboratory staff. Not only will the clinical microbiology laboratory be expected to detect and identify the agent in a timely manner, but it also will be expected to provide information regarding the selection, collection, safe handling, and transport of specimens to an appropriate laboratory with a level of biosafety capability compatible with the potential threat.

Rapid and accurate identification of the biological agent will be critical to implementation of control measures to treat those already infected and to contain the spread to additional individuals. Without the expertise of clinical microbiology laboratories that are trained to detect and identify a biological agent rapidly and accurately, the health care delivery system may be unable to provide appropriate medical care and to institute necessary preventive measures in a timely manner. Thus, the clinical microbiology laboratory is a sentinel that will play a vital and pivotal role in the event of a terrorist action involving biological agents.

Whether an outbreak of infectious disease is due to a terrorist incident, such as contamination of a salad bar with Salmonella, or a naturally occurring infection, such as Cryptosporidium contamination of a community water supply, the rapid response of the microbiology laboratory will be equally important in protecting public health. Clinical microbiology laboratories are staffed with professionals who are well-trained and who practice on a daily basis the skills and techniques necessary to detect, recover, and identify any agent causing infectious disease.

Enhancing these capabilities of the clinical microbiology laboratory with regard to bioterrorism will have the added benefit of enhancing the laboratory's capabilities in routine daily health care. More-sensitive detection methods for biowarfare agents may enter the microbiology laboratory as rapid, improved diagnostics for naturally acquired infectious diseases from both conventional and newly emerging organisms. And more-effective networks to coordinate the emergency response to a bioterrorism event will translate into better mechanisms for dealing with natural outbreaks of both conventional and emerging infectious diseases.

Ensuring that all levels of our medical and public health communities are ready to detect and combat a bioterrorism attack will allow the public to have confidence that we are prepared to meet this challenge and to assist in their protection. This readiness must start with the sentinels of the diagnostic microbiology laboratory and the professionals who staff it. At the colloquium, experienced microbiologists addressed the relevant issues and delineated the necessary guidelines for the clinical microbiology laboratory to ensure our readiness for a potential attack. Their analysis and recommendations are set out in this document.

Recommendations

Colloquium participants repeatedly emphasized the primary importance of the Level A clinical microbiology laboratory in serving as a sentinel for detecting these critical agents. Unlike with nuclear or chemical weapons, first responders to a
bioterrorism event will most likely be clinicians and clinical microbiologists, especially in the case of an event without an overt signal. Rapid recognition of potential bioterrorism agents by Level A clinical microbiology laboratories will be essential for the public health response to a bioterrorism event. In conjunction with state and federal agencies, clinical microbiology laboratories will play an important role in determining when a bioterrorism event has occurred.

At the present time, however, there is an acute shortage of clinical microbiologists trained to respond effectively to emerging infections, including bioterrorism events. For these reasons, colloquium participants identified as their first priority a major initiative in education and training of clinical microbiologists, which would include upgrading both general microbiology skills that bear on identifying a bioterrorism threat and skills directly related to detecting and responding to a bioterrorism event. As part of this education and training effort, they formulated several recommendations:

1. Individuals in clinical microbiology laboratories who are responsible for identifying microorganisms and testing them for antibiotic susceptibility should possess at least a bachelor's degree in medical technology or a life science field that includes at least 20 credit hours in microbiology coursework. (In the absence of a bachelor's degree, an equivalent combination of training and experience is recommended, such as an associate (MLT) degree and >_ 10 years of experience in a clinical microbiology laboratory.)

2. Consideration should be given to amending personnel standards in the CLIA '88 legislation to raise the minimum education standard for this group of laboratory workers from an associate degree to a bachelor's degree.

3. Bioterrorism-specific training should take place as part of the ongoing qualification of microbiologists at all levels.

4. All clinical microbiology laboratories should be staffed with individuals who have been trained to safely handle bioterrorism agents as well as those organisms associated with emerging infections.

5. Every clinical microbiology laboratory should have ready access to a clinical microbiologist certified either as a Specialist by an approved accreditation program (e.g., by the American College of Microbiology or the American Society of Clinical Pathologists) or certified at the doctoral level by an approved accreditation program (e.g., American Board of Medical Microbiology, American Board of Medical Laboratory Immunology, American College of Internal Medicine, or American Board of Pathology).

6. Professional microbiologists should be familiar with the likely agents of bioterrorism and be prepared to use the Level A laboratory algorithms designed for the detection of these agents.

7. Technologists working with cultures may require specialized training to recognize isolates that are most likely to be used in a bioterrorism attack, especially in rural areas where laboratory supervisors and directors may not be readily available.

9. The American Society for Microbiology (ASM) should be involved in bioterrorism-specific training, possibly in partnership with an organization such as the National Laboratory Training Network.

10. ASM should promote the rapid development of effective continuing education programs and materials by ensuring accuracy of curricula and materials and partnering with other agencies.

To evaluate the effectiveness of the recommended training, proficiency testing should be instituted. The proficiency testing
program administered to most clinical microbiology laboratories by the College of American Pathologists (CAP) could be modified to include regular ungraded challenges of attenuated (e.g., vaccine) strains of potential bioterrorism agents. Full-scale proficiency testing programs for Level A laboratories are desirable and could be conducted by organizations that already perform proficiency testing in other areas.

Such programs would include written sections as well as an exercise in identifying agents that would need to be ruled out in the event of a suspected bioterrorism threat. We recommend that CLIA on site surveys include documentation of laboratory bioterrorism preparedness by measuring proficiency in the use of Level A laboratory algorithms designed to rule out these agents.

Formal education and training are the first steps in qualifying a laboratory to respond to a possible bioterrorism threat. To translate fundamental skills into practical action, planning is necessary. Therefore, all clinical microbiology laboratories should have a bioterrorism response plan. Minimal elements of a response plan include knowing the chain of communication within the laboratory when a possible bioterrorism agent is suspected; where to send specimens for further testing after an initial screening protocol suggests the presence of a potential bioterrorism agent; and how to respond if the laboratory becomes overwhelmed with samples during a suspected or actual bioterrorism event. Maintaining patient confidentiality would also be an important component of a response plan.

Laboratory personnel should be evaluated annually on their knowledge of the bioterrorism response plan. No matter how well trained and prepared, personnel in the clinical microbiology laboratory can only be effective guardians
of the public health as part of a network of laboratories, epidemiologists, and infectious disease specialists. The Laboratory Response Network is the essential underpinning of the capability to respond to a bioterrorism threat, with state public health laboratories assuming a crucial role in the Network. Continued recommendations support of the Laboratory Response Network is therefore necessary to ensure rapid response to a possible bioterrorism event.

At the current time, the system for responding to bioterrorism events in the U.S. is better developed than ever, but it is still inadequate. All of the pieces necessary to respond to a bioterrorism event at the advanced level are in place. What is needed is enhancement of the existing system at the sentinel level—the Level A clinical microbiology laboratory. Additional
education and training need to be provided at the sentinel level to ensure optimal functioning of the Network.

In a broader context, the Network could be enhanced in several ways. It is important that there be better coordination and less redundancy among local, state, and federal agencies involved in bioterrorism preparedness. We also need to define more rigorously how veterinary, food, and water microbiology laboratories fit into the national bioterrorism preparedness plan. Finally, to facilitate communication of information and specimens, it is critical for each state to make available to each Level A laboratory a list of state and federal laboratories with locations, names of contact persons and 24-hour/7-day contact numbers.

Several recommendations arose concerning laboratory safety. Assessment of risk to laboratory personnel from bioterrorism organisms is the responsibility of clinical microbiologists, infection control personnel, and infectious disease physicians. Risk assessment should be conducted on at least an annual basis. A risk analysis checklist should be developed to gauge laboratory preparedness.

We also recommend that potential bioterrorism agents and other Level 3 agents (and associated waste) should be autoclaved (or incinerated) on site before disposal. And, to increase the probability of being aware of specimens possibly containing smallpox, we recommend that information on recognizing the clinical manifestations of smallpox be restored to the course curriculum for medical students and clinical microbiologists.

To increase the ability of microbiology laboratories to detect potential bioterrorism agents rapidly and accurately, we recommend continued development of immunodiagnostic assays with <24-hour turnaround time for these pathogens. As well, it would be desirable to utilize nucleic acid detection assays for potential bioterrorism agents. In addition, Level A laboratories would benefit from improved databases for automated microbiological systems that now have difficulty identifying bioterrorism agents. Future efforts should be directed toward developing methods for detecting antimicrobial resistance and genetic alterations in microorganisms that could be used in bioterrorism attacks (American Society for Microbiology, 2001).