

LABORATORY RESPONSE TO BIOLOGICAL TERRORISM

WHAT IS THE PUBLIC HEALTH ISSUE?

- Because most bioterrorist agents rarely cause naturally occurring disease, the enhancement of national capacity to rapidly identify these agents remains critical, both at CDC and at state and local public health laboratories.
- Early detection and identification of disease agents is essential in making decisions regarding patient management, guiding epidemiologic investigations, assisting law enforcement, and deploying healthcare resources.

WHAT HAS CDC ACCOMPLISHED?

CDC's laboratory system delivers accurate and timely identification of any agent causing a public health threat, including both naturally occurring diseases and organisms that could be used in a biologic terrorism attack.

CDC, in collaboration with the Association of Public Health Laboratories and the Federal Bureau of Investigation, established the Laboratory Response Network in 1999 to develop federal, state, and local public health laboratory capacity to respond to bioterrorism events. This network is a strategic domestic and international partnership designed to link front-line clinical microbiology laboratories in hospitals and other institutions to state and local public health laboratories. It also supports advanced capacities of public health, military, veterinary, agricultural, water, chemical, and food-testing laboratories at the federal level.

Depending on a laboratory's ability to handle dangerous pathogens, the laboratory is designated either as a reference laboratory or a sentinel laboratory. Reference laboratories are the core, advanced technology public health laboratories that can provide confirmatory testing for agents in biosafety levels 3 and 4. This includes the centralized, state-of-the-art national reference laboratory located at CDC to rapidly and accurately identify any agent used in a biological terrorism attack (the Rapid Response and Advanced Technology Laboratory). Reference laboratories have access to a secure website which allows for timely reporting and monitoring. These reference laboratories (about 120 laboratories) can access online agent protocols, share information, and order reagents. Sentinel laboratories are the basic diagnostic facilities, such as hospital clinical laboratories, that initially identify likely bioterrorism agents and submit specimens to reference laboratories for confirmatory testing. The estimated 25,000 sentinel laboratories are geographically dispersed and play an important role in detecting and reporting possible outbreaks.

CDC, in collaboration with federal, state, and local partners, has identified the biological agents likely to be involved in a terrorist attack and is developing scientifically validated rapid assays to help detect these agents.

WHAT ARE THE NEXT STEPS?

- Continue to enhance capacity of laboratories to rapidly detect and identify agents likely to be used in a terrorist attack and provide crucial information to health professionals.
- Expand training and technical assistance to state and local public health laboratories to ensure they will be better prepared to respond in the event of a terrorist attack.
Increase the number of laboratory members in appropriate sentinel and reference laboratory capacities for human, animal, food, chemical, and environmental testing.
- Increase the number of available validated rapid assays and environmental sampling procedures for biological and chemical agents.
- Optimize communication methods and linkages to facilitate rapid, accurate, secure, data transfer.