PUBLIC HEALTH LABORATORY RESPONSE

UNMET NEEDS

- Increase CDC Public Health Emergency Preparedness (PHEP) funding for public health laboratories to prepare for and respond to all threats
- Increase funding to CDC to expand public health laboratory outreach, training and coordination with sentinel clinical and other laboratories
- Increase support for nation’s Laboratory Response Network (LRN) to ensure a robust system for the detection of emerging threats
- Increase funding at CDC for laboratory response to incidents involving chemical threats
- Provide funding to CDC to improve states’ ability to detect radiological exposure in humans

BACKGROUND

In accordance with Presidential Decision Directive 39, the Centers for Disease Control and Prevention (CDC), the Federal Bureau of Investigation (FBI), and the Association of Public Health Laboratories (APHL) formed the LRN in 1999. This network is the nation’s premier system for identifying, testing, and characterizing potential agents of biological and chemical terrorism as well as emerging threats. The LRN’s integrated system of state and local public health, federal, military and international laboratories enables it to respond quickly to all threats.

State and local public health laboratories comprise approximately 70% of the 160 LRN Biological Reference Laboratories and almost 100% of the LRN Chemical Laboratories. These laboratories produce high-confidence test results that are the basis for threat analysis and intervention by both public health and law enforcement authorities.

The Public Health Emergency Preparedness (PHEP) cooperative agreement has supported preparedness and response efforts in state, local, tribal, and territorial public health departments since 2002. This funding ensures that public health departments, including public health laboratories within the LRN, have the capacity and capability to effectively respond to all-hazard threats, such as infectious disease outbreaks, natural disasters, and biological, chemical, nuclear and radiological emergencies.

LRN FOR BIOLOGICAL THREAT PREPAREDNESS (LRN-B)

A primary concern of the global public health community is emerging infectious diseases, such as novel influenza A H1N1 or West Nile virus. In 2013, the Middle East Respiratory Syndrome Coronavirus (MERS-CoV), a novel virus closely related to the Severe Acute Respiratory Syndrome (SARS) Coronavirus responsible for 774 deaths...
in south China in 2002 and 2003, emerged in the Arabian Peninsula with a few reports of cases in Europe. As of February 7, 2014, the World Health Organization (WHO) reported a total of 182 laboratory-confirmed cases of MERS-CoV and 79 deaths, statistics that have kept the WHO and CDC vigilant and the public health community prepared to respond.

Although no cases have been reported in the United States, the CDC issued guidance to health care providers who may suspect MERS-CoV infection. Additionally, the CDC has utilized polymerase chain reaction (PCR) testing for the laboratory confirmation of potential cases. The CDC utilized the LRN for Biological Threat Preparedness (LRN-B) to implement testing across the country in 46 public health laboratories and four Department of Defense (DoD) laboratories. Response to MERS has not been the first time the LRN-B has been called into action; the network was leveraged for response to other public health threats such as anthrax, West Nile virus, H1N1 and SARS.

The ability of our nation to prepare for and respond to global threats is made possible due to CDC PHEP funding, which supports over 800 laboratorians in the 50 state, District of Columbia and Puerto Rico public health laboratories. Additionally, in 2013, this funding allowed these public health laboratories to test over 29,000 samples and specimens for various threat agents. The ability to rule-out threats is equally important for global health security.

**LRN FOR CHEMICAL THREAT PREPAREDNESS (LRN-C)**

In June 2010, fisherman in Massachusetts pulled something unusual out of the water: a cylinder. Soon after, two patients went to the hospital with blisters or chest pain and tingling, symptoms consistent with chemical weapon exposure. With CDC PHEP funding for the LRN for Chemical Threat Preparedness (LRN-C), the Massachusetts public health laboratory was able to test the fishermen for chemical weapon exposure, including mustard gas and lewisite. Within 12 hours, the first patient tested positive for lewisite while the second patient was negative.

Through continued PHEP funding, the 54 laboratories that comprise the LRN-C maintain capabilities to respond to local events in a quick and efficient manner to calm public fears or drive treatment regimens. This responsiveness was demonstrated during the WV chemical spill, when an LRN-C method used by the WV public health laboratory allowed them to report results three times faster than the other laboratories. LRN-C laboratories, however struggle to maintain and replace aging equipment and train employees: in 2013, nine public health laboratories were forced to decrease their chemical threat capability, thus affecting rapid response to public health threats.

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