

## Priority 2: Protecting People

**P**HPR protects people from public health threats by providing strategic direction, coordination, and support for all of CDC's preparedness and emergency response activities. Three essential components of this work include:

- Regulating and monitoring the ownership, use, and transfer of dangerous biological agents and toxins,
- Quickly identifying and responding to disease agents and outbreaks, and
- Providing critical personnel to states and localities to support public health preparedness planning and response.

Through its Select Agent Program, PHPR oversees and inspects the entities that house dangerous materials, such as anthrax, that cause disease in humans and pose a severe threat to public health and safety. A core function of the Select Agent Program is to prevent access to or possession of select agents and toxins by individuals who intend to misuse them. The Select Agent Program currently regulates 65 select agents and toxins. During 2013, 284 entities were registered with the Select Agent Program to possess select agents and toxins.



Delaware's Public Health Lab can screen for more than 10 potential biothreat agents and more than 30 potential chemical terrorism agents. The lab was unable to conduct this screening before receiving PHEP funding.

Though inspections are generally conducted every three years, nearly 60 percent of the registered entities had inspections by the Select Agent Program in 2013. Inspections ensure registered entities comply with laboratory safety and security measures and regulations.

Public health laboratories are a critical component of protecting people, as they speed the identification of disease agents to help contain outbreaks and get people the right treatment faster. Specifically, laboratories identify and characterize disease agents, toxins, and other health threats found in clinical specimens, food, or other substances.

CDC coordinates the Laboratory Response Network (LRN) which provides timely, highly reliable laboratory tests on biological (B)



More than 150 laboratories nationwide participate in the LRN. CDC funds a subset of LRN laboratories through the PHEP cooperative agreement.

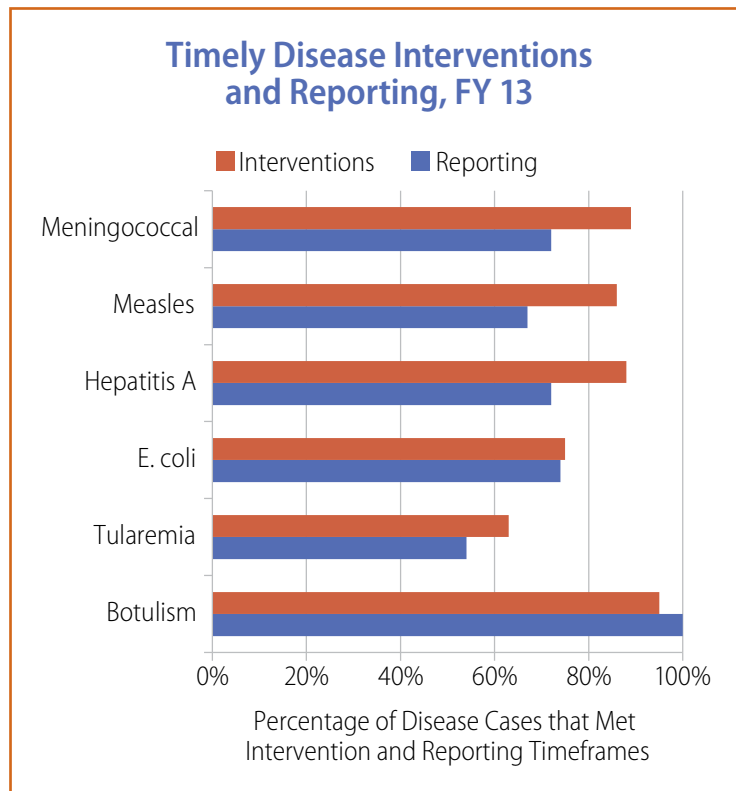
and chemical (C) public health threats. The LRN was launched in 1999 when CDC, the Federal Bureau of Investigation, and the Association of Public Health Laboratories recognized the need for an expanded, coordinated

public health and law enforcement capability to respond to both intentional and non-intentional biological and chemical threats. After the domestic terrorist attacks of 2001, the LRN grew rapidly to a full national collaboration of federal, state, and local governmental laboratories, coordinated by CDC, and including veterinary, environmental, and human health laboratories.

The LRN provides 24/7/365 access to testing and subject matter expertise. Funded in part by CDC through the PHEP cooperative agreement, LRN member laboratories (LRN labs) significantly contribute to their state's or locality's ability to detect, characterize, and communicate threat agents. LRN labs can perform standardized tests yielding reliable results within hours. CDC regularly collaborates with other federal agencies, such as the Food and Drug Administration, the Department of Homeland Security, the Biomedical Advanced Research and Development Authority, and the Department of Defense, on the development of these highly specialized laboratory tests.

Timely reporting and intervention are essential for effective response to infectious disease outbreaks. Quickly beginning investigations and recommending meaningful interventions protects the health of individuals and communities by limiting the spread of disease and eliminating or reducing sources of infection. Hospitals, labs, and other healthcare providers must report cases of certain diseases to a public health department within established timeframes. Following notification, public health authorities must in turn

initiate infection control measures (interventions) within an appropriate timeframe. The chart above shows the percentage of selected disease cases for which PHEP awardees met required reporting and intervention timeframes during 2013.



Public health emergency responses begin at the local level, with state and federal governments providing support as needed. CDC enhances local- and state-level response capabilities and mitigates workforce gaps through a robust field staff program. During 2013, 131 CDC field staff were assigned to 50 different PHEP awardee locations.<sup>6</sup> Field staff fill critical roles in epidemiology, medical countermeasure management, and technical assistance. In addition to their daily job functions, CDC field staff can be called upon to assist during public health emergencies.

## **FAST** **FACT**

Approximately 90% of the U.S. population lives within 100 miles of an LRN laboratory, decreasing the time needed to respond to biological and chemical threats.



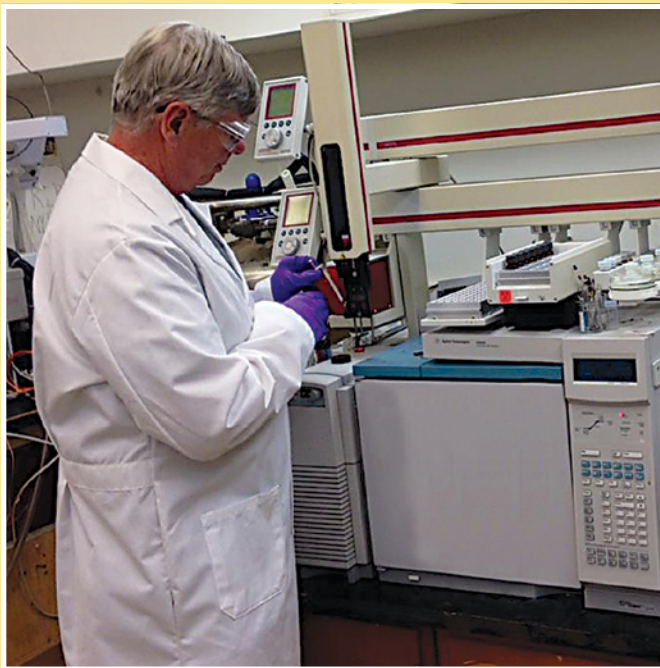
<sup>6</sup> Field staff include Career Epidemiology Field Officers, Epidemic Intelligence Service Officers, Public Health Associate Program fellows and graduates, Public Health Prevention Service fellows, and Public Health Associates. See Appendix B for more information.

# Innovations in Labs Demonstrate Increases in Efficiency and Effectiveness

Environmental health is an important component of public health, but it takes creativity and vision to recognize a new opportunity to bring the two together in the laboratory.

Maine's Division of Public Health Systems maintains its LRN-C laboratory within its Health and Environmental Testing Laboratory (HETL). As part of the LRN, they have the capacity to test for chemical agents in environmental and biological samples, including testing for cyanide in blood. However, the bulk of the lab's work involves testing for contaminants in water. Dr. Jim Eaton, a chemist with the HETL, recognized the potential environmental application of the CDC methods for analyzing cyanide in blood. Dr. Eaton began hypothesizing, testing, adapting, and developing a new procedure.

But changing laboratory methods is no small feat, particularly when the testing is part of federally required reporting to ensure the health of citizens. Dr. Eaton and the HETL staff



Dr Jim Eaton analyzes samples in the Health and Environmental Testing Laboratory

worked with the Environmental Protection Agency (EPA) to develop a data validation plan. Part of that validation included testing the method at three different labs. Through his LRN-C training, Dr. Eaton had established good relationships with scientists from other network labs. He reached out to colleagues in two other states and both were very willing to help test the new method. After analyzing the data, Dr. Eaton and his colleagues determined that not only was the new method effective, it produced less waste and required less time and money than other methods approved by EPA.

Once the validity of the method was established, EPA accepted and published it, allowing adoption by other states, and enabling them to more efficiently use their resources as they strive to protect public health and the environment.



# Preparing for a Chemical Threat Event through Practice

Rapid communication and open collaboration are essential components to successfully respond to chemical threat events that can impact public health. The 2014 Florida Chemical Exposure Full Scale Exercise provided the Florida Department of Health (DOH), Bureau of Public Health Laboratories (BPHL), an opportunity to practice these skills with various partner agencies throughout the state. In the exercise scenario, people were theoretically exposed to sarin, a dangerous nerve agent, at Florida malls and shopping centers. This exercise offered a learning environment for many agencies to work together to prepare for effective responses to a chemical exposure event.

Twenty-three Florida counties participated in the exercise, including representatives from Florida DOH, 30 hospitals, Florida Fusion Center (a federal and state collaboration for gathering and sharing information), the U.S. Federal Bureau of Investigation, Florida Highway Patrol, and Florida Department of Law Enforcement. This exercise tested a variety of capabilities including communication, specimen packing, shipping, analysis, surge capacity, and results reporting. The exercise activities allowed Florida's Chemical Threat Program to successfully measure and validate the selected public health preparedness target capabilities, information sharing and public health laboratory testing.

The 2014 Florida Chemical Exposure Full Scale Exercise encouraged additional "spin-off" exercises and training opportunities. Several participating hospitals evaluated their decontamination protocols, extending participation beyond employees to community volunteers. Thirteen hospitals collaborated with Florida Poison Information Centers (Jacksonville, Tampa, and Miami regions) by reporting symptoms from several mock patients via the toll free number. This enabled the Florida Poison Information Centers to enter and monitor case data and assess staff response capabilities. In addition, toxicologists evaluated the symptoms and provided feedback concerning patient exposure. The level of participation enabled the Chemical Threat Program to extend Chemical Threat Preparedness Training to several hospitals in the Miami, Tampa, and Jacksonville regions.

Exercise participants are now aware of possible issues that may occur during a chemical exposure event and the scope of agency interaction during a response. Exercises are invaluable tools for disaster preparedness and for fulfilling the Florida Department of Health's mission "to protect, promote, and improve the health of all people in Florida through integrated state, county, and community efforts."



