



# Public Health Laboratories:

## Analysis, Answers, Action

When health risks emerge or re-emerge, public health laboratories analyze the threat, provide the answers needed to mount an effective response and act to protect the public in collaboration with other decision makers. Unlike private medical laboratories that perform tests to diagnose illnesses and conditions afflicting individual patients, public health laboratories safeguard entire communities.

In one way or another, their work affects the life of every American. Due to fragmented federal funding, a gutted workforce and outdated infrastructure, these labs are in jeopardy...and so too is the health of the nation.

### **What are public health laboratories?**

Public health laboratories are state and local governmental health labs that conduct complex testing to protect us from diseases and other health threats. Such testing requires highly trained staff, sophisticated instrumentation and specially-designed facilities. There are approximately 300 public health laboratories in the US; in many cases, the services they provide are unavailable elsewhere in their jurisdiction.

### **What is the critical role of a public health laboratory?**

Public health laboratories serve as the nation's early warning system for diseases and other health hazards. They protect our health by monitoring continuously for diseases and other health hazards.

### **How do public health laboratories interface with federal health agencies?**

Public health laboratories work very closely with the Centers for Disease Control and Prevention and other federal health agencies. In many respects, they function as the "CDC laboratory" within their state or community.

In collaboration with CDC and the World Health Organization, for example, public health laboratories monitor influenza viruses to identify changes that can affect their transmissibility and severity and their response to anti-viral drugs.

### **How do public health laboratories respond to emerging health threats?**

Public health laboratories are the nation's laboratory first responders. During the outbreak of 2009 H1N1, for example, public health laboratories tested over 100,000 specimens in one month (almost as many as they normally test in one year). In addition, public health laboratories:

- Screen 97% of the babies born in the US for potentially life-threatening metabolic and genetic disorders.
- Monitor communities for pathogens that spread in food or through contact with people or animals.
- Perform almost all testing to detect and monitor newly emerging infectious diseases like West Nile virus, SARS and H1N1 influenza.

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- Test drinking and some recreational water for bacteria, parasites, pesticides and other harmful substances.
- Rapidly identify suspect agents, as in 2001 when public health laboratories tested over 1,200 specimens a day during the anthrax attacks, ultimately conducting over one million laboratory analyses.

**If public health laboratories are so vital to safeguarding the public's health, why are they so poorly funded?**

Federal funding for public health laboratories goes up when a crisis hits and drops as soon as it is over. But laboratory capacity cannot be built overnight when a crisis hits; it takes time to locate and hire a molecular scientist or to acquire and validate new laboratory equipment. Moreover, federal funding for public health laboratories has been scattered among programs for influenza, HIV/AIDS, STDs and other diseases. It's not possible to maintain a national laboratory system with fragmented and episodic funding.

Meanwhile state and local funding for public health laboratories has been slashed as a result of the economic downturn. State laboratories saw their budgets cut by an average of \$405,000 each (or \$39 million nationally) in 2008, and cuts have only deepened in 2009.

**Do public health laboratories have an adequate IT infrastructure for transmitting test results and other health data?**

No. Data critical for national disease control is being delayed by outmoded, laborious reporting methods. Presidential

Directive #21 calls for a networked system to facilitate data exchange among public health laboratories, health officials and clinicians, but no such system yet exists.



With an electronic system for exchange of test results, data would travel instrument-to-instrument without human intervention. Currently, each test result must be manually entered. This process delays communication of test results and introduces the possibility of error.

**Why are there concerns about the staffing level at public health laboratories, and what are the potential ramifications of this on the public's health?**

Despite increased demands, public health laboratories have lost 10% of their workforce in the last year (600 of 6,000 positions), and more cuts are anticipated. Unfortunately, public health laboratories often train staff only to lose them within a few years to better-paying clinical and research labs because salaries are simply not competitive. In addition, laboratory leaders are retiring or leaving the public sector at a rapid rate, and there are no young professionals with the necessary experience and credentials to replace them.

A sustained health emergency could compromise the ability of public health laboratories to deliver other critical services, such as newborn screening and food safety testing. And, as one state public health laboratory director put it, "The biggest threat is BURN-OUT...without adequate staffing you threaten the health and longevity of good staff. People can only do so much, before they'll start looking elsewhere."

**MORE INFORMATION**

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