



Environmental Health Laboratory QUESTIONS & ANSWERS

Q: What is environmental health?

A: Environmental health is the science and practice of preventing human injury and illness and promoting well-being by:

- Identifying and evaluating environmental sources and hazardous agents, and
- Limiting exposures to hazardous physical, chemical, and biological agents in air, water, soil, food, and other environmental media or settings that may adversely affect human health.¹

Q: How do environmental health laboratories protect human health and the environment?

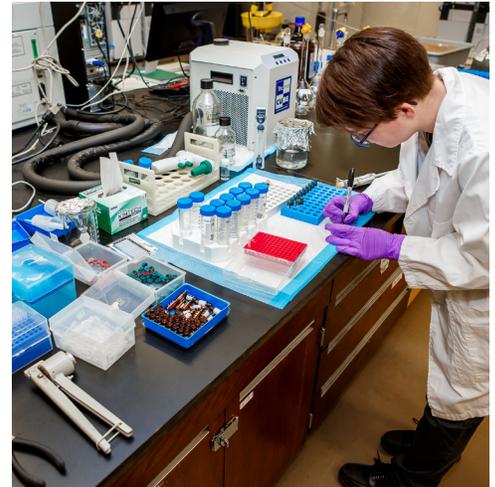
A: Environmental health laboratories are one part of a greater environmental health system. They are specialized to identify and monitor contaminants present in the environment, food and manufactured products; some laboratories also conduct biomonitoring, which tests blood and urine for contaminants.

Environmental health laboratories are a critical line of defense against chemical contamination. Alerted by the data gathered from environmental and human samples, environmental health professionals can decontaminate a community's water source, remediate a house with lead-based paint, remove a tainted product from the market or understand the scope of a chemical event. Laboratory data also guide policy and regulatory changes, such as the removal of lead from gasoline, which has dramatically decreased blood lead levels in children over the last two decades.

Q: What is biomonitoring?

A: Biomonitoring measures the total amount of specific chemicals in a person's body at a given time; it cannot usually tell us where the contamination originated. For example, biomonitoring can measure the total level of lead in a child's blood, but the test will not indicate if the lead came from paint, drinking water, food, soil, air or a combination of sources.

When samples are collected broadly and systematically, biomonitoring data can help identify trends, such as geographic regions with higher than normal exposure levels, or exposures to emerging contaminants. It can also let us know when exposure is no longer a concern, perhaps as the result of a public health intervention.



Which Laboratories Are Considered “Environmental Health” Laboratories?

Governmental laboratories that conduct testing to protect human health and the environment vary in name and capability. They are all **environmental health laboratories**—meaning they protect humans from environmental exposures—but they may be named “environmental,” “environmental health” or “public health” laboratories, and they may test environmental samples—air, water, soil, surfaces, food and manufactured products—or human samples to determine if people have been exposed to an environmental contaminant.

¹ National Environmental Health Association, “Definitions of Environmental Health” Accessed April 5, 2019: <https://www.neha.org/about-neha/definitions-environmental-health>

Q: How do environmental health laboratories respond to emergencies such as toxic spills, natural disasters and terrorist attacks?

A: Many environmental health labs are members of lab networks that work together to ensure timely and accurate response to routine monitoring demands, contamination events, and human-caused and/or natural disasters. The [Laboratory Response Network \(LRN\)](#) was founded by CDC, the FBI and APHL to respond quickly to biological and chemical threats and other high priority public health emergencies through training, rapid testing, timely notification and secure messaging of laboratory results.

Many laboratories that test environmental samples participate in the EPA's [Environmental Response Laboratory Network \(ERLN\)](#), which provides training, technical assistance and coordination to help them respond to environmental emergencies. As part of the ERLN, the [Water Laboratory Alliance](#) is responsible for handling threats to the nation's drinking water supply. The ERLN also works closely with the LRN to detect these threats in human specimens.

Q: How do environmental health laboratories sustain their operations?

A: Government funding—in varying combinations from federal, state, territorial or local governments—is usually their primary funding source, though some laboratories also earn revenue from testing fees.

As a result, laboratory budgets are subject to the restrictions of, or changes in government appropriations and policies. This can be challenging for laboratories to make long-range plans, keep highly-trained staff and maintain the sophisticated instruments required for testing.

Q: How does APHL support environmental health laboratories?

A: APHL works to strengthen environmental health laboratories and the system in which they by providing training, communications and technical assistance. By strengthening the environmental health laboratory system, states and local governments are better equipped to identify hazards, implement appropriate public health interventions and assess how effective those actions are.

Q: How can I learn more about environmental health laboratories?

A: To learn more about these laboratories, visit [APHL's environmental health website](#) or [blog](#). Additional information can be found on the websites of [EPA](#), [CDC](#) and [FDA](#) and of state and local government laboratories supporting public health and environmental health programs.

Environmental health laboratories conduct testing to identify and monitor for contaminants in the environment, such as air, water, soil, food and manufactured products; some laboratories also conduct biomonitoring, which tests blood and urine for contaminants.

