

# CDC's Environmental Health Laboratory

*CDC 24/7: Saving Lives. Protecting People from Health Threats. Saving Money Through Prevention.*

## Environmental Health

Your environment is everything around you—the air you breathe, the water you drink, the community you live in, the places where your food is grown or prepared, your workplace, and your home. When your environment is safe and healthy, you are more likely to stay healthy. But when your environment exposes you to dangerous events or toxic substances, your health can be negatively affected.

CDC is committed to saving lives and protecting people from environmental hazards by responding to natural and man-made disasters, supporting state and city public health programs, educating communities, and advancing scientific knowledge. We help maintain and improve the health of Americans by promoting a healthy environment and preventing premature death and avoidable illness caused by environmental and related factors. We also identify how people might be exposed to hazardous substances in the environment and assess exposures to determine if they are hazardous to human health. CDC invests in prevention to improve health and save money by reducing health care costs. We strive to maximize the impact of every dollar entrusted to the agency.



The Environmental Health Laboratory supports:

- Biomonitoring capacity in California, Washington, and New York to measure environmental chemicals in blood and urine (5-year grants).
- Newborn screening quality testing for more than 500 laboratories to ensure the accuracy of tests in U.S. state labs and labs in 67 countries.
- Training and proficiency testing to build state laboratory capacity for measuring chemical threat agents.
- Implementation of newborn screening testing for Severe Combined Immunodeficiency in Michigan and Minnesota (2-year grant).

## Environmental Health Laboratory

**CDC's Environmental Health Laboratory provides unique laboratory science that improves the detection, diagnosis, treatment and prevention of diseases resulting from exposure to environmental chemicals and selected other diseases that require advanced laboratory measurement for accurate diagnosis.**

The Environmental Health Laboratory helps detect, diagnose, treat, and prevent disease through

- Testing methods that are not available in any other lab.
- Emergency laboratory response to deaths or illness from unknown causes, emergency chemical exposures, chemical and radiologic threat agents, toxins, anthrax and botulism.
- The most comprehensive assessment of exposure of the U.S. population to 246 environmental chemicals using biomonitoring (blood and urine measurements) of participants in the National Health and Nutrition Examination Survey (NHANES).
- High quality biomonitoring exposure measurements in more than 50 studies per year of populations exposed to environmental chemicals to better determine safe and unsafe human exposure levels. This exposure information helps identify unsafe chemical exposures, protect health, avoid unnecessary regulation and reduce health care costs.
- The most comprehensive assessment of the nutritional status of the U.S. population by measuring more than 50 nutritional indicators of participants in NHANES.
- Standardization of tests for cholesterol, related lipids, testosterone, estradiol, and selected other chronic diseases to ensure accurate, reliable, and precise lab testing for correct patient diagnosis and care.
- Quality assurance for tests that are essential for early disease detection, such as newborn screening for treatable diseases that cause malformation, mental retardation, and death.

National Center for Environmental Health  
Agency for Toxic Substances and Disease Registry



Program Funding: Environmental Health Laboratory	
Year	Funding Level
FY 2010	\$43,419,000
FY 2011	\$42,628,000
FY 2012	\$42,383,000

## Public Health in Action: Environmental Health Laboratory

Environmental Health Laboratory activities have resulted in substantial public health benefits:

- Biomonitoring methods to measure more than 350 chemicals in blood and urine.
- More than 50 studies yearly to improve understanding of safe and unsafe levels of environmental chemicals and identify population groups at high risk for adverse health effects.
- A testing method that detects anthrax 24 hours before symptoms start.
- A first-time method to measure trans fats, successfully used to document a 58% decline in trans fats in U.S. white adults.
- A new, faster, more accurate and precise method to quantify influenza vaccine dose.
- Standardization of total cholesterol, HDL-cholesterol, LDL-cholesterol, and triglycerides testing in U.S. laboratories that saves \$2 billion to \$4 billion annually by improving diagnosis of cardiovascular disease.
- Accurate testing for congenital diseases in more than 98% of newborns in the U.S. and correct identification of treatable diseases in approximately 6,000 babies yearly that may have otherwise died or been severely disabled.
- New, CDC-funded state screening programs and a diagnostic test improved by CDC identified more than 10 cases of severe combined immunodeficiency (SCID), a deadly disease that is treatable if detected early.
- Unique laboratory methods to test for botulism that
  - » are much faster and more sensitive than previous methods using mice,
  - » are used to verify vaccine effectiveness,
  - » have identified affected persons in multiple botulism outbreaks,
  - » provide exposure information in studies of clinical outcomes, and
  - » identified a previously unknown subtype, botulinum B7.
- Unique 24/7 chemical threat laboratory response capability that identifies human exposure to 150 chemical threat agents within 36 hours using CDC's *Rapid Toxic Screen*.
- The *Urine Radionuclide Screen* can determine
  - » if persons have ingested or inhaled any of 10 priority radionuclides from poisoned food or water, a "dirty bomb," or other release of radioactive material, and
  - » who should be treated and with what medical countermeasures.
- Using the *Urine Radionuclide Screen*, measurement of radiation exposures in Americans working in Japan during the Fukushima Daiichi Nuclear Power Plant radiation release found very low levels that posed no health threat.

