

Human Biomonitoring Programs Are Essential for Improving Health

APHL POSITION STATEMENT | SUNSETS JUNE 2031



Statement of Position

With the support of federal, state, local and tribal governments, along with community partners, academic and other public health organizations, state-level human biomonitoring programs provide important information on exposures unique to residents and improve health.

Recommended by: **APHL Environmental Health Committee**

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Background

Human exposure to environmental chemicals can occur from multiple sources, such as air, water, soil, food and consumer products.¹ While testing for many chemicals in these environmental sources routinely occurs, testing for these same chemicals in people—known as biomonitoring—is not routinely done. Biomonitoring information can be used to reduce chemical exposures through behavior change, contaminant removal, regulatory action and legislation, benefiting current and future generations. Unfortunately, limited resources have prevented the establishment of state biomonitoring programs nationwide to monitor residents' exposures.

Biomonitoring requires the participation and support of many players: community members; federal, state, local and tribal governmental leadership; academia; epidemiologists, toxicologists and non-governmental organizations like the Association of Public Health Laboratories' [National Biomonitoring Network \(NBN\)](#).² The NBN supports states conducting biomonitoring by sharing knowledge, best practices, and networking, communication and outreach with other laboratories. A well-resourced biomonitoring program includes these important partners and funding for advanced laboratory equipment, quality testing and trained scientists.¹

States vary significantly in demographics, geography, current and past land use practices, and regulations. This leads to considerable variability in exposure and risk. For example, [national biomonitoring data](#) show that the average levels of inorganic arsenic, a harmful type of arsenic that can cause bladder cancer, are low in the general population;^{3,4} however, they are alarmingly high in certain states, like New Hampshire. Through targeted state biomonitoring, the [Biomonitoring New Hampshire](#) program discovered that residents with private drinking water wells may be unknowingly exposed to unhealthy levels of arsenic in their home drinking water. This is because New Hampshire does not regulate private drinking water wells, unlike public water systems which must abide by Safe Drinking Water Act standards. This state-level biomonitoring helped identify an at-risk group and highlights how state biomonitoring programs are critical to understanding the unique risks faced by residents.⁵

Well-resourced Biomonitoring Programs

Robust biomonitoring programs include laboratory equipment, trained staff, validated methods, quality assurance and control systems, data and informatics infrastructure, epidemiology, toxicology, outreach, education, risk communication, community engagement and follow-up. Biomonitoring is an effective tool to address community concerns about environmental exposures; however, few states have the resources for this work. The [CDC State Biomonitoring Cooperative Agreement](#) has successfully funded three to six programs annually since 2009,⁶ but most states continue to lack the financial resources needed to create and maintain programs. States funded by federal grants or state legislatures, such as [New Jersey](#), [New York](#), [Minnesota](#), [Massachusetts](#) and [California](#), demonstrate how well-resourced biomonitoring programs improve health.

1. Funded by CDC State Biomonitoring cooperative agreements and the New Jersey state government, the New Jersey Public Health and Environmental Laboratories partnered with Rutgers Health at University Hospital to establish the first [prenatal screening program for lead and mercury](#). Since 2019, the program has performed approximately 27,000 tests for lead and mercury in pregnant women and newborns, finding harmful levels of these chemicals in thousands of babies. Pregnant women were educated on eating different foods and not using contaminated products, which resulted in large decreases of lead and mercury in their blood.⁷ These behavior changes reduced the babies' likelihood of poor health effects like low IQ, seizures and brain damage. Biomonitoring results informed prenatal screening legislation ([A4848/S3616](#)) passed by the New Jersey legislature in December 2025 which requires lead screening on certain pregnant women.⁸
2. In 2016, New York's well-resourced biomonitoring program responded to perfluorooctanoic acid (PFOA) contamination of drinking water in Hoosick Falls, New York. PFOA, a man-made chemical that belongs to the per- and polyfluoroalkyl substances (PFAS) class of chemicals, contaminated both the public drinking water supply and private drinking water wells. PFOA exposure may be linked to many health effects like kidney and testicular cancer, high cholesterol, low birth weight and high blood pressure during pregnancy,⁹ so reducing contact with these chemicals was key to improving health. The New York State Department of Health launched a campaign that provided biomonitoring for PFOA to concerned residents. Approximately 3,400 people from the Hoosick Falls village and surrounding area were tested, and PFOA levels in their blood were found to be approximately 27 times higher than the general population. In 2018, a second round of biomonitoring testing for PFOA was offered to assess water treatment efforts initiated in 2016, and 685 Hoosick area residents participated. Biomonitoring results from the second round of testing provided direct evidence that the residents' blood PFOA levels had declined by 40%, confirming the effectiveness of the mitigation efforts.¹⁰

Well-resourced human biomonitoring programs are essential for assessing exposure to harmful contaminants and improving health. With the support of federal, state, local and tribal governments, along with community partners, academic and other public health organizations, state-level human biomonitoring can provide important information on exposures unique to residents. Biomonitoring programs should be well-resourced in every state to assess locally significant chemical exposures and inform efforts to improve health.

APHL's Recommendations

Congress

- Increase federal funding for the CDC Environmental Health Laboratory to expand the National Biomonitoring Program and support public health partner organizations that provide guidance and technical assistance to state and local public health departments.
- Increase federal funding for the CDC State Biomonitoring Cooperative Agreement program to increase the number of grant awards which will address gaps in state public health laboratory biomonitoring capability and capacity (i.e., workforce, equipment, test components, etc.).

CDC

- Provide sustainable and predictable funding to state public health departments, so public health laboratories can make permanent biomonitoring program investments.
- Provide testing and study design technical assistance for new biomonitoring test development, result risk communication and project assessment.
- Improve access to and use of biomonitoring data from the states and national program by modernizing the environmental health data system.
- Coordinate with states and APHL to design biomonitoring projects and address emerging chemical threats.

State and Local Governments

- Provide funding and resources (i.e., staffing and training) to create and support biomonitoring programs.
- Collaborate across state and local agencies to provide information on environmental monitoring, including potential sources of exposure.
- Implement legislation to create and maintain biomonitoring activities.
- Public health laboratory scientists should actively cultivate relationships with epidemiologists, toxicologists, environmental health partners and national organizations.

Environmental Health Partners and National Organizations

- Strengthen state biomonitoring programs by providing resources (technical expertise and funding) and supporting biomonitoring investigations.
- Partner organizations such as the Association of State and Territorial Health Officials and the Council of State and Territorial Epidemiologists should support building and maintaining collaborative relationships with public health laboratories in order to integrate biomonitoring programs into the environmental public health system.

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