# Population-Based Biomonitoring is a Fundamental Public Health Practice That Should Be in Every State

APHL POSITION STATEMENT

## Statement of Position

APHL recommends population-based biomonitoring to assess exposure to environmental chemicals as a fundamental public health surveillance practice to be supported in every state.

Recommended by: **APHL Environmental Health Committee**
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## Background

Limited resources have prevented most states from establishing critical population-based biomonitoring surveillance programs. These vital public health programs provide information related to environmental chemical exposures and their impact on human health by measuring levels of chemicals in bodily fluids or tissues. The Centers for Disease Control and Prevention (CDC) National Health and Nutrition Examination Survey (NHANES)[1, 2] provides a nationally representative estimate of human exposure to environmental chemicals, but these data have limitations when used for state-level comparisons. States vary significantly in demographics, geography, current and past land use practices and regulation, leading to considerable variability in exposure and risk. Therefore, APHL believes state population-based surveillance biomonitoring programs are necessary for public health officials to understand the unique risks faced by their residents and evaluate the effectiveness of intervention programs.

Two examples of environmental chemical exposures are lead and per- and polyfluoroalkyl substances (PFAS), both serious, ongoing health threats. National biomonitoring data show that childhood blood lead levels (BLL) have dramatically declined in the United States, however, population-based surveillance of childhood BLLs has identified remaining at-risk groups and helped identify the Flint, Michigan water crisis in 2014-2015 and monitor efficacy of interventions[4]. In contrast, there has been limited comprehensive state or regional level surveillance of PFAS due to lack of funding and expertise, leading to a patchwork evaluation of overall population exposures and risks. National level exposure studies in the United States have detected these substances in the blood of 97 percent of Americans[5]; however, to understand and respond to different exposures, state population-based biomonitoring surveillance is critical.

While CDC has engaged in national population-based biomonitoring surveillance for thirty years through NHANES, expansion to the states has been limited by funding. Since 2009, the CDC has funded the State Biomonitoring Cooperative Agreement program to increase state capability and capacity to conduct biomonitoring and assess human exposure to environmental chemicals. In 2009, three states were funded, in 2014 nine states were funded, but in 2019, only six states were funded, which was only a third of the states that applied for funding in 2019. On average, only six grantees are awarded funding every five years[6]. Most state programs have focused on investigations of known contamination or exposure and need additional funding to create or expand surveillance efforts. CDC's Biomonitoring Quality Assurance Support Program (BQASP) provides vital technical support and quality assurance services to state public health laboratories and conducts site visits. As state biomonitoring programs expand, BQASP should have additional funding to support these efforts.

In 2018 APHL launched the National Biomonitoring Network (NBN) to help increase the number of states conducting biomonitoring, leverage biomonitoring knowledge and resources across the states, and allow them to share information and best practices[7]. To date, twenty states have joined the NBN. APHL created the NBN with a skeleton budget. Dedicated funding and technical assistance are necessary for the NBN to help states identify people who are exposed to chemical contaminants by producing comparable biomonitoring data so that regional differences can be accurately assessed, actions implemented and policy measures compared. Biomonitoring surveillance data complements community investigations by establishing regional baselines against which investigation data can be assessed.

The linkage of environmental health data with human biomonitoring data can further inform timely public health action. The CDC's Environmental Public Health Tracking Network includes standardized environmental and health outcome data at the national, state, and local levels that can be linked to biomonitoring data. Currently, the program funds 25 states and one city to build state/local Tracking Networks. Nationwide expansion which includes state-specific population-based

surveillance data is important in order to serve more of the US population and the growing concerns regarding environmental exposures and potential health effects.

## APHL's Recommendations

### State, Local, Tribal and Territorial Governments

- APHL recommends that state, local, territorial and tribal governments help fund population-based surveillance programs, including use of the data for public health-based decision making.
- APHL recommends that states join and utilize the National Biomonitoring Network to harmonize study design, data collection, test measurements, data analysis and data sharing.
- APHL recommends an integrated systems approach to population-based surveillance, including collaboration with environmental epidemiology, toxicology and risk assessment.
- APHL recommends an integrated systems approach to population-based surveillance, including collaboration with CDC's Environmental Public Health Tracking program for data visualization and dissemination.
- APHL recommends that results be reported back to study participants of population-based surveillance to the greatest extent possible.
- APHL recommends state, local, territorial, and tribal governments explore private sector and academic engagement for funding, and technical support for, biomonitoring activities.

### Congress

APHL recommends expanded Congressional funding of CDC's State biomonitoring grants program and the Environmental Public Health Tracking program to allow all states to perform successful population-based biomonitoring.

### CDC

- APHL recommends CDC fund expansion of its existing state biomonitoring cooperative agreement program.
- APHL recommends CDC fund expansion of its quality assurance assessment initiative, the Biomonitoring Quality Assurance Support Program, to serve all jurisdictions implementing population-based surveillance.
- APHL recommends CDC provide dedicated funding to expand the National Biomonitoring Network.

### CMS

APHL recommends CMS ensures CLIA inspectors be knowledgeable about biomonitoring and include biomonitoring program inspections in their public health laboratory certification inspections.

### Partner Organizations

APHL recommends partner organizations and agencies, such as the Council of State and Territorial Epidemiologists (CSTE) and Association of State and Territorial Health Officials (ASTHO), support population-based surveillance in the states.

## References


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5. APHL (2017, Fall). Biomonitoring: Protecting Communities from Chemicals of Concern. *Lab Matters*. Retrieved from https://www.aphl.org/aboutAPHL/publications/lab-matters/Pages/protecting-communities-from- chemicals-of-concern.aspx
6. CDC. *State Biomonitoring Programs.* Retrieved from https://www.cdc.gov/biomonitoring/state_grants.html
7. APHL. *National Biomonitoring Network*. Retrieved from https://www.aphl.org/programs/environmental_health/nbn/Pages/default.aspx


## Association of Public Health Laboratories

APHL works to strengthen laboratory systems serving the public's health in the US and globally. APHL's member laboratories protect the public's health by monitoring and detecting infectious and foodborne diseases, environmental contaminants, terrorist agents, genetic disorders in newborns and other diverse health threats.