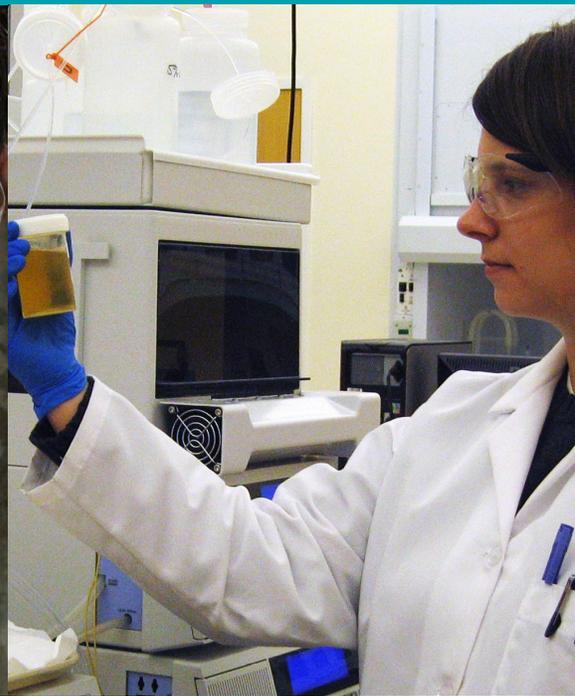


National Biomonitoring Plan



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INTRODUCTION

Biomonitoring is a useful tool in assessing human exposure to chemicals in the environment. Public health and environmental agencies use biomonitoring in many ways:

- Determining people's exposure to a chemical following an incident
- Gathering information on trends
- Evaluating public health interventions

The utility of biomonitoring continues to rise as the number of chemicals in the marketplace increases.

The Association of Public Health Laboratories (APHL) recognized the need for biomonitoring capability at both the state and local level. With support from the broader environmental health community, APHL finalized a five-year [National Biomonitoring Plan for Public Health Laboratories](#) in 2009. The plan **sought to build an integrated network of public health laboratories**, while also providing guidance and support in tracking the population's exposure to chemicals. Now, a little more than five years after the original plan's inception, a developing network exists.

This loosely-organized network structure includes local, state and federal partners communicating about biomonitoring and exposure assessment. Comprehensive guidance documents assist laboratories and epidemiologists interested in beginning a biomonitoring program, while an online toolkit features document libraries, a discussion board and relevant links.

Here we introduce a new five-year plan with equally ambitious goals. This plan seeks to:

- Formalize the network structure
- Harmonize biomonitoring measurements
- Fully incorporate biomonitoring measurements into routine public health surveillance

With the implementation of this new five-year national plan, chemical exposures will be better identified through standardized, high-quality biomonitoring programs across the country.

THE NEED FOR CONTINUED ACTION

For the last three decades, the US Centers for Disease Control and Prevention's (CDC) Environmental Health Laboratory has used biomonitoring to provide critical data about the US population's exposure to hundreds of environmental chemicals. These findings have been published in peer-reviewed literature and in CDC's *National Report on Human Exposure to Environmental Chemicals*, an ongoing assessment of exposure for the civilian, non-institutionalized US population.

CDC's current survey design does not allow calculation of exposure estimates on a state-by-state or city-by-city basis. For example, CDC cannot extract a subset of data and examine levels of blood lead that represent a state population. In order to produce such data, states need the capability and capacity to conduct their own biomonitoring assessments (statewide or in groups) where chemical exposure is a concern. With this capability, state biomonitoring programs can produce state or community-specific exposure data, comparable to CDC's national biomonitoring data.

This National Biomonitoring Plan serves as a guide for building a nation-wide, state-based system for biomonitoring. It will allow data comparison across multiple jurisdictional levels and will ultimately enable public health practitioners to better address community exposures.

PLAN VISION AND MISSION

Vision

Improved health due to the incorporation of biomonitoring into routine public health practice.

Mission

To provide accurate human exposure data that will inform public health and environmental programs, as well as consumer decisions.

THE WORK PLAN

1 GOAL: Determine the success of the 2009-2014 five-year plan.

Activities	Accountability
1.1 Publish a report on how well the goals and objectives from the original plan were met.	1.1 APHL

2 GOAL: Build capacity at the state and national level.

Activities	Accountability
2.1 Fund six state-based biomonitoring programs.	2.1 CDC
2.2 Support additional states as funding becomes available.	2.2 CDC

3 GOAL: Formally establish the National Biomonitoring Network (NBN).

Activities	Accountability
3.1 Hold a stakeholder meeting to develop recommendations for creating a national biomonitoring system.	3.1 APHL
3.2 Establish a national biomonitoring network steering committee (NSC) of up to 12 volunteers.	3.2 APHL
3.3 Establish an NBN Advisory Board.	3.3 NSC
3.4 Develop an NBN charter to: <ul style="list-style-type: none"> • Lay out network requirements • Establish member benefits, requirements, responsibilities and recognition • Set up formal governance structure & application process. 	3.4 APHL, BMS
3.5 If deemed necessary by the NSC, APHL will establish workgroups which report to the NSC. These groups may: <ul style="list-style-type: none"> • Prioritize methods to be standardized • Develop a strategic communications plan • Address issues related to data • Develop quality assurance standards. 	3.5 APHL, NSC
3.6 Work with NIST to develop additional reference materials.	3.6 CDC
3.7 Develop a sampling guidance document to improve sample quality and define suitability of specimens.	3.7 CDC
3.8 Develop a brand.	3.8 APHL
3.9 Establish NBN Membership.	3.9 APHL

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GOAL 4: Communicate about biomonitoring to public health professionals.

Activities	Accountability
4.1 Finalize and publish the National Biomonitoring Plan document.	4.1 APHL
4.2 Develop an NBN newsletter.	4.2 NSC
4.3 Evaluate the results of the Environmental Laboratories Capabilities survey(s) and track trends on the uptake of biomonitoring practices in the US. Communicate those results to a larger audience.	4.3 APHL
4.4 Increase awareness of the NBN among stakeholders through a comprehensive communication strategy.	4.4 APHL w/help from ECOS, NEHA, ASTHO, CSTE, CDC & o/ stakeholders
4.5 Strengthen CDC’s communication plan for biomonitoring activities.	4.5 CDC
4.6 Conduct biomonitoring-specific sessions at professional meetings such as the International Society for Environmental Epidemiology (ISEE) and the International Society of Exposure Science (ISES).	4.6 CDC, APHL, BMS
4.7 Improve the Biomonitoring Toolkit, including lists of relevant publications, proficiency testing programs, methods and study results.	4.7 CDC, APHL, BMS
4.8 Encourage the use of biomonitoring to address consumer concerns.	4.8 CDC, APHL, BMS

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GOAL 5: Collate information to assist in communicating biomonitoring findings to public audiences.

Activities	Accountability
5.1 Develop communications toolkits for public health programs to engage and inform the public and future study participants about the benefits, value and limitations of biomonitoring.	5.1 APHL
5.2 Interface with National Conference of State Legislatures (NCSL) about timely environmental health issues and how biomonitoring could provide important data for decision making.	5.2 APHL, NSC, NCSL
5.3 Participate in broader environmental health partner activities.	5.3 APHL, CDC
5.4 Evaluate and estimate the economic impact of biomonitoring.	5.4 APHL
5.5 Educate policymakers about the value of state and local biomonitoring programs.	5.5 APHL, Partners

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GOAL: Improve communication between biomonitoring programs and study participants.

Activities	Accountability
6.1 Produce a webinar on best practices in communicating biomonitoring results to study participants.	6.1 APHL
6.2 Develop communications toolkits for public health programs to use when sharing study results with participants and for physicians to use when discussing environmental exposures with patients.	6.2 CDC, APHL, BMS, ASTHO

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GOAL: Integrate biomonitoring into emergency response.

Activities	Accountability
7.1 Incorporate biomonitoring into national response plans, exercises and training programs.	7.1 APHL

THE FUTURE

Increased awareness about biomonitoring, data sharing among states and an established network built on quality systems may lead to additional long-term benefits. For example, public health laboratories may find opportunities to expand work beyond traditional biomonitoring to the following areas:

- Nutritional biomarkers such as fatty acids, iron and folic acid
- Markers of chronic disease, such as cardiovascular indicators, toxic stress (cortisol) and oxidative stress
- Hormones, such as testosterone.

GLOSSARY

APHL: Association of Public Health Laboratories

ASTHO: Association of State and Territorial Health Officials

ATSDR: Agency for Toxic Substances and Disease Registry

BMS: Biomonitoring Subcommittee. The Biomonitoring Subcommittee is a subcommittee of the Environmental Health Committee, an advisory committee of the Environmental Health Program of APHL.

CDC: Centers for Disease Control and Prevention

CSTE: Council of State and Territorial Epidemiologists

ECOS: Environmental Council of the States

NCSL: National Council of State Legislatures

NEHA: National Environmental Health Association

NBN: National Biomonitoring Network

NSC: Network Steering Committee. The National Biomonitoring Steering Committee is the steering committee for the National Biomonitoring Network. It operates under the sponsorship of APHL to manage the activities of the National Biomonitoring Network.

Association of Public Health Laboratories

The 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.



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