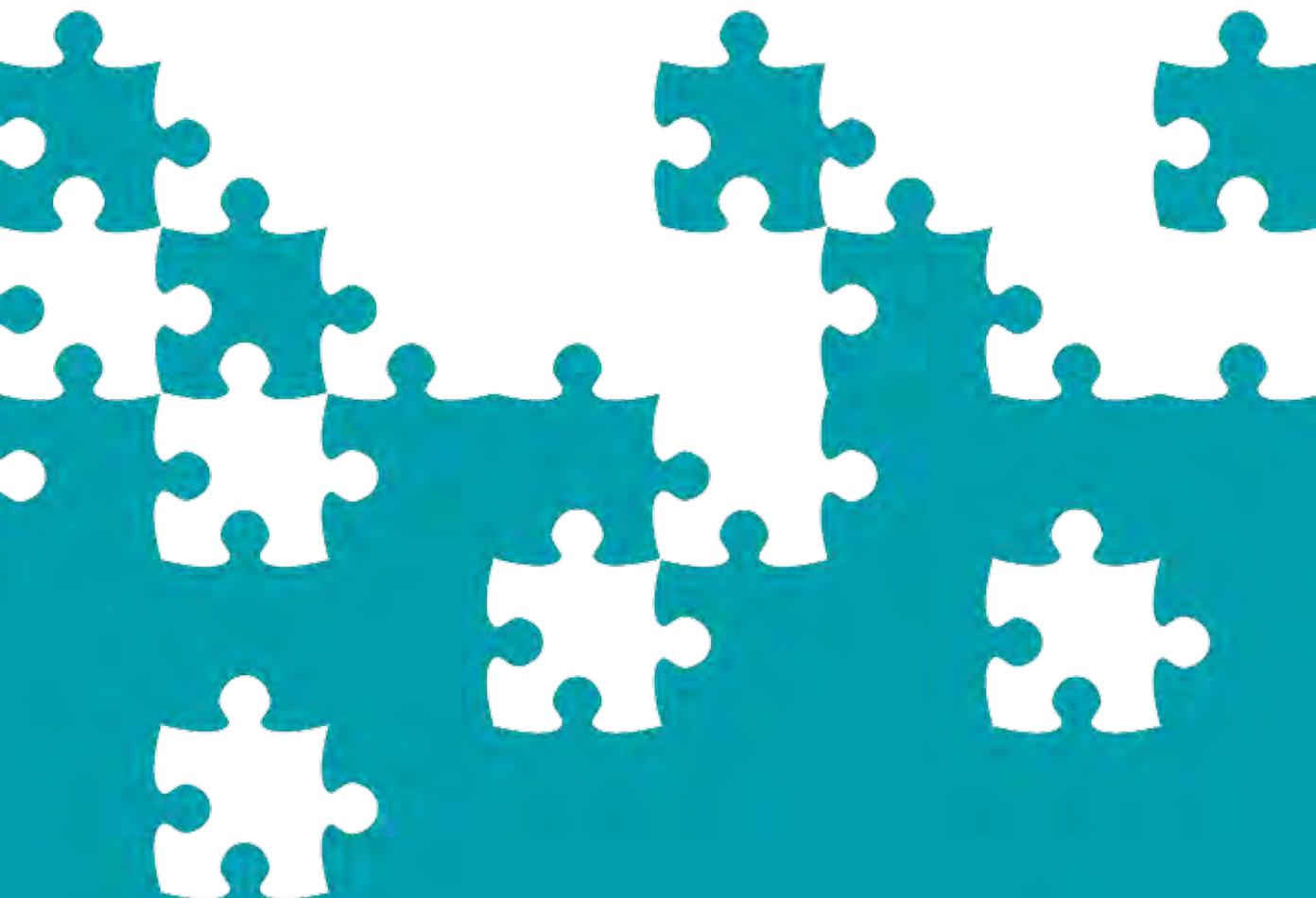


# NATIONAL BIOMONITORING PLAN

for Public Health Laboratories

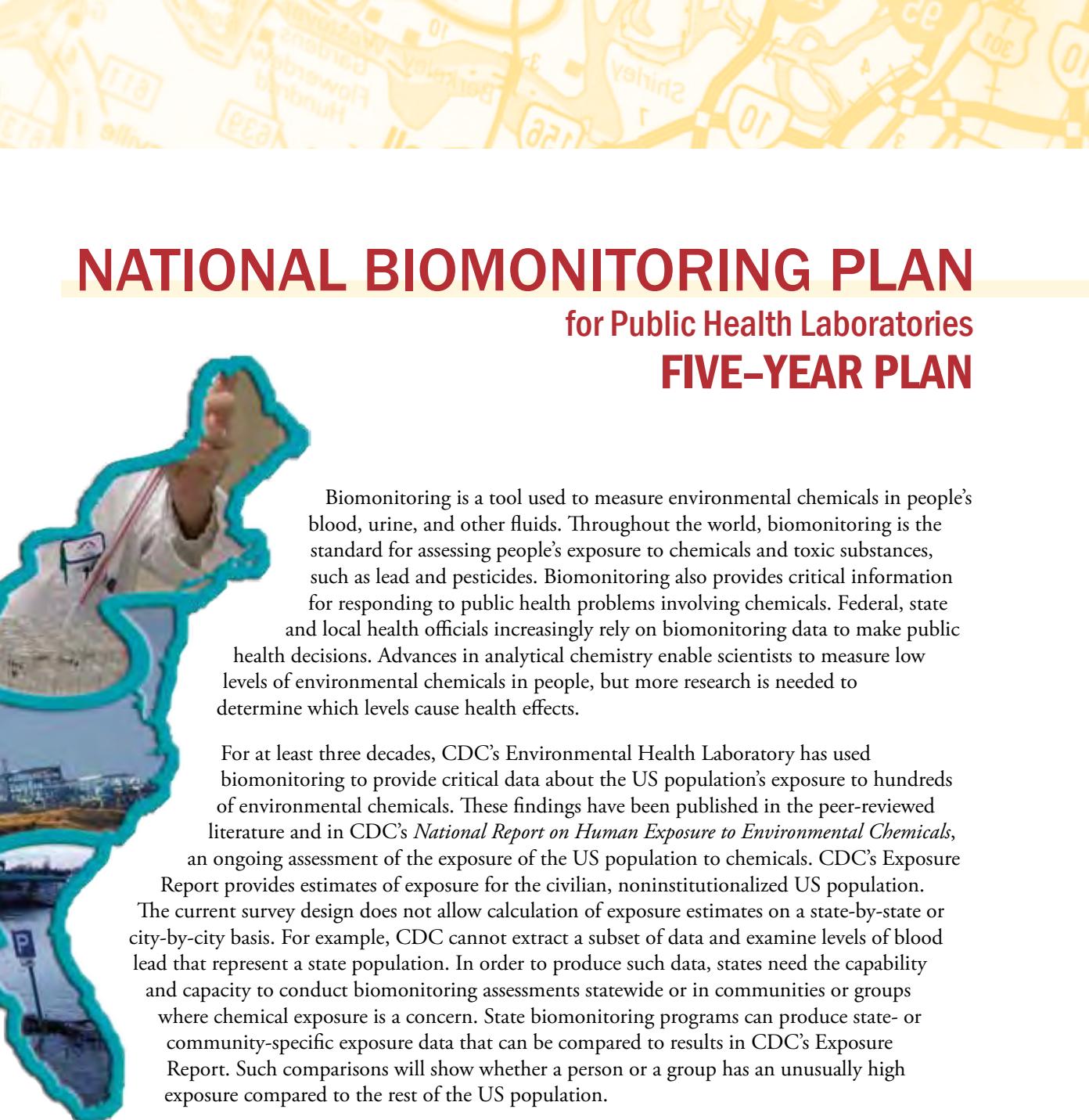
## FIVE-YEAR PLAN



**APHL** ASSOCIATION OF  
PUBLIC HEALTH LABORATORIES







# NATIONAL BIOMONITORING PLAN

for Public Health Laboratories

## FIVE-YEAR PLAN

Biomonitoring is a tool used to measure environmental chemicals in people's blood, urine, and other fluids. Throughout the world, biomonitoring is the standard for assessing people's exposure to chemicals and toxic substances, such as lead and pesticides. Biomonitoring also provides critical information for responding to public health problems involving chemicals. Federal, state and local health officials increasingly rely on biomonitoring data to make public health decisions. Advances in analytical chemistry enable scientists to measure low levels of environmental chemicals in people, but more research is needed to determine which levels cause health effects.

For at least three decades, CDC's 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 the peer-reviewed literature and in CDC's *National Report on Human Exposure to Environmental Chemicals*, an ongoing assessment of the exposure of the US population to chemicals. CDC's Exposure Report provides estimates of exposure for the civilian, noninstitutionalized US population.

The 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 biomonitoring assessments statewide or in communities or groups where chemical exposure is a concern. State biomonitoring programs can produce state- or community-specific exposure data that can be compared to results in CDC's Exposure Report. Such comparisons will show whether a person or a group has an unusually high exposure compared to the rest of the US population.



# VISION

*To improve the health of the nation through biomonitoring.*

Our vision is to have a network of public health laboratory biomonitoring programs at the national, state and local levels able to respond to environmental health concerns.



# MISSION

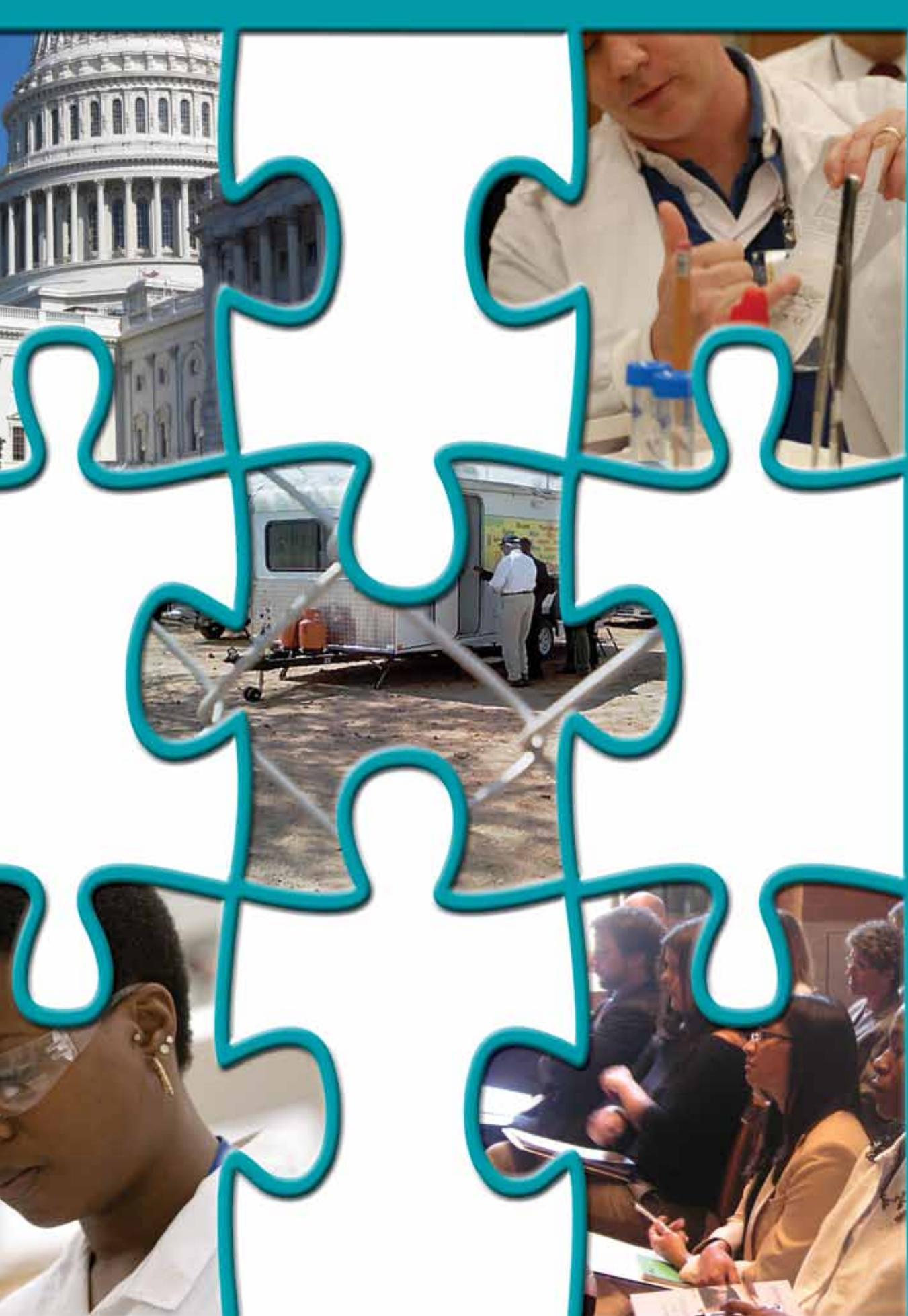
*To provide accurate human exposure data that will inform important public health decisions.*

Federal, state and local health officials increasingly rely on scientific data to make public health decisions. Arming them with accurate human exposure data relevant to specific populations will empower them to make better decisions and to develop policies to better protect the public's health.

# GUIDING PRINCIPLES

The development and implementation of this National Biomonitoring Plan will be guided by the following principles:

- 1.** The process for developing and implementing a national plan and its related activities will be highly collaborative by including feedback from key stakeholders.
- 2.** The plan and related activities will also include relevant contextual information to promote appropriate use and interpretation of human exposure data.
- 3.** This plan builds on existing activities in the field of biomonitoring and is meant to provide a coordinated national approach to addressing public health issues related to chemical exposures.
- 4.** The guidance developed to support the plan will reflect scientific norms and standards where feasible in order to enable benchmarking and comparisons across studies.
- 5.** Laboratory science will remain the focus of this plan. We recognize that success in this focus requires contributions from other important public health program areas, and so there will be an organized feedback process to develop and implement this plan.



# GOALS

1



## Foster Collaboration Among Environmental Public Health Programs

Agencies, organizations and entities with a vested interest in biomonitoring will accelerate the impact of the network. Strengthening these partnerships will enable the design and implementation of sound exposure studies and provide credible biomonitoring data to inform public health decisions.

3



## Advance Biomonitoring Science and Research

Conducting sound biomonitoring studies is critical to the success of a national network. Adopting scientific principles and sound methodology to meet the needs of state-based biomonitoring programs will lead to a generation of useful and scientifically defensible population exposure data.

5



## Develop a National Biomonitoring Network

Using biomonitoring data from a network of federal, state and local laboratories will better inform public officials as they develop and evaluate effective public health interventions that protect the public's health from exposure to harmful chemicals.

2



## Disseminate Biomonitoring Information to Guide Policy and Practice

Federal, state and local public health practitioners, healthcare providers, policymakers and others will gain a better understanding of what biomonitoring is, how this tool can be used and what actions can be taken to reduce potentially harmful exposures. Developing and disseminating materials that explain how to comprehend, interpret and apply biomonitoring information will raise awareness and increase fundamental understanding of the complex information being communicated, especially when findings are uncertain and when information is limited.

4



## Enhance Biomonitoring Workforce and Infrastructure

Improving infrastructure and developing the workforce will ensure that essential services are provided for addressing concerns about existing and emerging environmental chemicals. Sustainability of the network depends on the availability of trained workforce, adequate laboratory infrastructure and equipment, and sound quality assurance systems.

# GOAL 1: Develop a National Biomonitoring Network

Using biomonitoring data from a network of federal, state and local laboratories will better inform public officials as they develop and evaluate effective public health interventions that protect the public's health from chemicals of concern.

## Objective 1.1: Ensure that resources to develop biomonitoring capacity and capability are available to all interested states.

### APHL:

- Activity 1.1.1: Draft guidance for laboratories interested in establishing biomonitoring programs, including how to develop a research agenda.
- Activity 1.1.2: Produce a draft plan identifying goals and objectives for building a National Biomonitoring Network.
- Activity 1.1.3: Hold a stakeholder meeting to develop recommendations for creating a national biomonitoring system.
- Activity 1.1.4: Propose models for a National Biomonitoring Network (e.g., regional labs, LRN-C model, each state establishing its own program).
- Activity 1.1.5: Establish a clearinghouse of: a) current biomonitoring methods and capacities; b) biomonitoring studies conducted by communities and states; and c) relevant state and federal biomonitoring legislation.

## Objective 1.2: Build capacity at the state and national level.

### APHL:

- Activity 1.2.1: Educate policymakers about the benefits of biomonitoring and the need to support programs at the national and state levels.
- Activity 1.2.2: Work with the National Conference of State Legislatures (NCSL) to develop best practices for state biomonitoring legislation.

### CDC:

- Activity 1.2.3: Fund three state-based biomonitoring programs:
  - Establish a training program for funded states,
  - Develop a quality assurance program for biomonitoring measurements,
  - Evaluate experiences and effectiveness of funded programs and states.
- Activity 1.2.4: Support additional states as funding becomes available<sup>1</sup>.

<sup>1</sup> Note that all activities in this Plan depend upon funding.

# GOAL 2:

## Foster Collaboration Among Environmental Public Health Programs

Agencies, organizations and entities with a vested interest in biomonitoring will accelerate the impact of the network. Strengthening these partnerships will enable increased use of biomonitoring data to inform public health decisions.

### **Objective 2.1: Create opportunities for stakeholders to relay relevant information and challenges for biomonitoring.**

#### **APHL:**

Activity 2.1.1: Coordinate with CSTE and CDC to organize a session on biomonitoring and best practices at the APHL Annual Meeting in June 2010.

#### **CDC:**

Activity 2.1.2: Ensure biomonitoring is a component of the National Conversation on Public Health and Chemical Exposures.

### **Objective 2.2: Compile existing, and develop new, resources for laboratorians to learn about basic epidemiology, toxicology study design, and protection of human subjects.**

#### **APHL:**

Activity 2.2.1: Collaborate with CDC and EPA to identify methods for sharing existing toxicology data.

Activity 2.2.2: Coordinate with CSTE and ASPH to develop and disseminate basic epidemiology and toxicology training courses that focus on using biomonitoring as a component of studies.

### **Objective 2.3: Compile existing, and develop new, resources for non-laboratorians to learn about laboratory principles and methods related to biomonitoring.**

#### **APHL:**

Activity 2.3.1: Collaborate with CSTE, ASTHO and ASPH to develop a “biomonitoring 101” session for non-laboratorians.

Activity 2.3.2: Work with CSTE and ASTHO to present a “biomonitoring 101” session at the CSTE and ASTHO annual meetings.

# GOAL 3:

## Disseminate Biomonitoring Information to Guide Policy and Practice

Federal, state and local public health practitioners, healthcare providers, policymakers and others will gain a better understanding of what biomonitoring is, how this tool can be used and what actions can be taken to reduce potentially harmful exposures within populations. Developing and disseminating materials that explain how to interpret, communicate and apply biomonitoring information will raise awareness and increase fundamental understanding of the complex information, especially when findings are uncertain and when information is insufficient.

### **Objective 3.1: Develop information to assist in communicating biomonitoring findings to different audiences.**

#### **CDC:**

Activity 3.1.1: Conduct formative research on communicating biomonitoring data to different audiences and make findings available through publications and conference presentations.

### **Objective 3.2: Increase understanding of what biomonitoring is to both the public health community and general population.**

#### **APHL:**

Activity 3.2.1: Publish a summary of biomonitoring efforts within state and local laboratories and disseminate the summary to policymakers at the national and state levels.

Activity 3.2.2: Coordinate with NCSL to organize a “biomonitoring in action” session at a NCSL national meeting highlighting how biomonitoring solves public health problems for states.

#### **CDC:**

Activity 3.2.3: Continue publishing the National Report on Human Exposure to Environmental Chemicals (Exposure Report), and present findings from the Exposure Report at the APHL National Meeting “best practices” session.

Activity 3.2.4: Highlight biomonitoring uses within the workgroups of the National Conversation on Public Health and Chemical Exposures.

Activity 3.2.5: Disseminate information on the benefits and uses of biomonitoring to internal stakeholders (HHS, OMB) and to sister agencies (EPA, FDA, NIH and USGS).

# GOAL 4: Advance Biomonitoring Science and Research

Conducting sound biomonitoring studies is critical to the success of a national network. Enhancing the science to meet environmental health, public policy and research needs—particularly for state- and community-based programs—will build on the existing body of knowledge and strengthen new and existing programs.

## **Objective 4.1: Support state laboratory efforts to adapt and improve existing testing methods and to develop new methods for emerging contaminants.**

### **APHL:**

Activity 4.1.1: Develop a database of available biomonitoring resources at the state laboratory level.

### **CDC:**

Activity 4.1.2: Present data at conferences (such as the APHL Annual Meeting) on new methods for emerging contaminants.

## **Objective 4.2: Develop trainings, guidelines and best practices to ensure biomonitoring studies are appropriately designed and implemented, including the assurance of appropriate levels of human subject protection.**

# GOAL 5:

Improving infrastructure and developing the workforce will ensure that essential services are provided for addressing concerns about existing and emerging environmental chemicals. Sustainability of the network depends on a trained workforce and adequate equipment, data and tools to produce robust results.

## **Objective 5.1: Address informatics needs.**

### **APHL/CDC:**

Activity 5.1.1: Determine minimal and optimal infrastructure requirements for biomonitoring programs.

Activity 5.1.2: Determine minimal laboratory staffing and equipment needs.

Activity 5.1.3: Develop a framework for data exchange.

## **Objective 5.2: Build biomonitoring expertise through workforce development.**

### **APHL:**

Activity 5.2.1: Facilitate, design, and distribute training courses and materials.

## **Objective 5.3: Assess implementation of this plan.**

### **APHL:**

Activity 5.3.1: Conduct a 50-state survey on progress of biomonitoring.

Activity 5.3.2: Work with CDC to review and update plan activities on an annual basis.

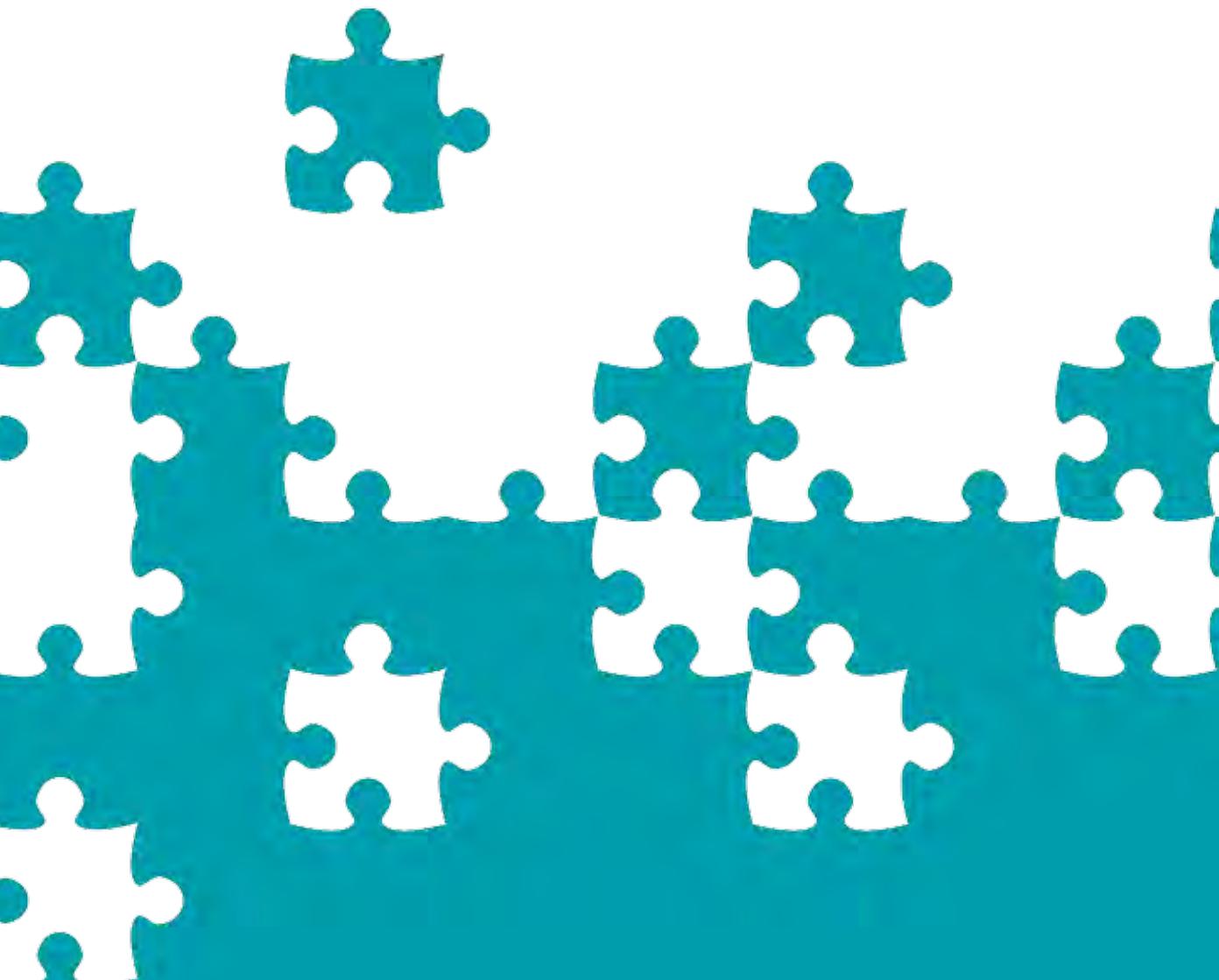


This publication was supported by Cooperative Agreement Number #U60/CCU303019 from the Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC.

To order additional copies, please contact:

Association of Public Health Laboratories  
8515 Georgia Avenue, Suite 700  
Silver Spring, MD 20910  
Call 240.485.2745.

Email Jennifer Pierson at [jennifer.pierson@aphl.org](mailto:jennifer.pierson@aphl.org).



**APHL** ASSOCIATION OF  
PUBLIC HEALTH LABORATORIES

**Association of Public Health Laboratories**

**8515 Georgia Avenue • Suite 700 • Silver Spring, MD 20910**  
**Phone: 240.485.2745 • Website: [www.aphl.org](http://www.aphl.org) • E-mail: [info@aphl.org](mailto:info@aphl.org)**