BIOMONITORING CALIFORNIA
MEASURING CHEMICALS IN CALIFORNIANS
CELEBRATING 15 YEARS

15 Years of Impact

In 2006, California enacted legislation creating the nation's first biomonitoring program. Biomonitoring California measures chemicals in our bodies, which makes it unique among environmental health programs in the state.

The founding legislation focused on four priorities:

- **Understanding exposures** across the California population.
- **Empowering Californians** who participate in biomonitoring studies with information about their individual exposures.
- **Advancing health equity** by identifying disproportionately impacted communities.
- **Protecting our future** by identifying and monitoring emerging chemicals of concern.

Through these priorities, Biomonitoring California helps us **understand and reduce** exposures to harmful chemicals.

Reflecting on Fifteen Years of Impact for Californians

In its first 15 years, Biomonitoring California built a foundation to reduce environmental health risks through its innovative, multi-disciplinary approach to identify and monitor chemical exposures. Through extensive collaboration at the local, state, and national levels, the program has successfully identified and measured emerging chemicals of concern; higher chemical exposures among certain groups; and the chemical burden on current and future generations. Today, Biomonitoring California remains a pioneer in the field and a guide for other state biomonitoring programs.

Californians are commonly exposed to multiple chemicals every day… Biomonitoring studies will provide data that will help California scientists, researchers, public health personnel, and community members explore linkages between chemical exposures and health, … and assess effectiveness of public health efforts and regulatory programs...
– Senate Bill No. 1379 (2006)

Understanding Exposures

Biomonitoring California has conducted nearly 30 studies and biomonitored almost 8000 Californians. Our studies have demonstrated that:

- Chemical exposures are ubiquitous. Every single person biomonitored has a mixture of chemicals, such as metals, PFASs, and plasticizers, in their body.
- There are differences in how people are exposed, across race and ethnicity, sex, occupation, and where they live.
- Chemical exposures are coming from many different sources, including drinking water, personal care products, and home furnishings.
- Individual actions can lower chemical body burdens.
- Environmental regulations and changes to product formulations, sometimes resulting from public pressure, can reduce exposures across the population.

*"Being able to talk about levels of chemicals in people is the most direct way that people understand that these things impact our health and can harm us. … **What's measured in people is powerful**."*

-Veena Singla, former Scientific Guidance Panel member

Collaborative Success

Biomonitoring California was established as a multi-agency collaboration and works effectively across departments and disciplines, benefitting from multiple perspectives and diverse expertise. Biomonitoring data has been used by other programs to:

- Demonstrate exposure to chemicals of concern for the Safer Consumer Products Program.
- Provide California-specific evidence of exposures to support consideration of chemicals such as perfluorooctane sulfonic acid (PFOS) and bisphenol S for inclusion on the Proposition 65 List.
- Provide evidence demonstrating widespread exposure to per- and polyfluoroalkyl substances (PFASs) to support the California Attorney General's lawsuit against PFAS manufacturers.

Internationally Recognized Laboratories

Measuring even one chemical in blood or urine takes sophisticated equipment and highly trained staff. The Environmental Health Laboratory (Department of Public Health) and the Environmental Chemistry Laboratory (Department of Toxic Substances Control) are internationally recognized experts in biomonitoring.

Currently, the labs can measure over 200 chemicals in biological media.

200+

The labs provide this expertise to Biomonitoring California studies as well as to research collaborators across the nation.

A primary goal for the Program is to develop newer and more efficient methods such as non-targeted screening to measure the ever-expanding list of chemicals of concern. Our laboratories are also exploring technologies to more easily identify the mixture of chemicals to which we are all exposed.

"It's particularly valuable to me to be able to have conversations on interpretation with the expertise that the laboratory folks bring to the table."

-Peggy Reynolds,
University of California – San Francisco

Empowerment and Equity

Biomonitoring California was created with strong right-to-know principles. The Program has led the way in providing individuals with their biomonitoring results in a manner that is culturally and linguistically appropriate. Participants can learn about their own levels, potential sources of exposure, and how they can take personal and collective actions to reduce exposures.

The Program provides follow-up and personalized feedback to participants with elevated levels of heavy metals and works to raise awareness among clinicians and community organizations of potential sources of heavy metal exposures.

Making environmental health information accessible to study participants and the public is one of the key goals of the Program. The Program has produced over 35 chemical factsheets in multiple languages. These materials are used as a resource by other programs across the state and nation.

Biomonitoring California has also developed an accessible and user-friendly website, which provides a comprehensive source for information on the Program's activities, study findings, chemical fact sheets, and more.

Environmental equity is one of Biomonitoring California's highest priorities.

50+

The Program has met with over 50 community organizations to learn how biomonitoring can address environmental concerns.

The Program works closely with community partners to ensure that study designs are appropriate and educational materials are accessible.

Biomonitoring California has also addressed equity concerns by designing biomonitoring studies to provide insight into how exposures are distributed across the population. Both general surveillance and community-focused studies have been used to understand whether there are communities that are more highly exposed, and if there are sources of exposure that can be targeted for reduction.

From studying the role that fish consumption plays in high PFAS exposures in Asian communities to evaluating how air filters might reduce exposures to air pollution, Biomonitoring California is working to reduce the impacts of environmental exposures.

*"With all the collaborations [Biomonitoring] California has, we refer to them as the **gold standard** of statewide biomonitoring programs."*

-Eric Bind, New Jersey Biomonitoring Program

Protecting Our Future

New chemicals are introduced into the environment every day. As some chemicals are phased out, new substitutions, sometimes equally harmful, are brought into use. To address the ever-growing numbers of chemicals of concern on the market, the Program regularly updates and maintains lists of Designated and Priority chemicals.

The Program's Scientific Guidance Panel (SGP) recommends additions to these lists, based in part on Program scientists' review of chemical toxicity and exposure data. Chemicals on these lists can be measured in Biomonitoring California studies; the lists are also used as a resource by many other programs, such as the Safer Consumer Products program.

Looking Forward in California

As a trusted partner and resource, Biomonitoring California has been dedicated to protecting the health of Californians for over 15 years. With its strong foundation and lasting collaborations around the state, the Program is well prepared to face future challenges as it builds a healthier and more equitable state for all Californians.