

BIOMONITORING

California

Matters

Why is Biomonitoring Important?

When we hear about an environmental disaster—like lead in Flint, Michigan, drinking water—we want to spring into action to pro-

tect ourselves, our communities, and the most vulnerable among us.

The fact is that we are all exposed to thousands of chemicals every day. Some are essential to life, some are harmful to people and the environment, and others we know nothing about. New chemicals are constantly being created and put into products that appear on store shelves. Some find their way into our environment and our bodies without having been tested for possible effects on health. Even newborn babies come into this world having already been exposed to toxic chemicals in the womb.

Continued on pg. 2



Rare Opportunities—A Participant's Perspective

When the opportunity to be a researcher in her hometown arose, Salinas teenager Maritza Cárdenas jumped on it. The Health and Environmental Research in Make-up Of Salinas Adolescents (HERMOSA) Study wasn't just looking for volunteers to participate in the study, they were looking for research assistants who could help make the study a success. Research wasn't something high school students did in Salinas, but Maritza's parents had instilled the importance of education, and her sisters had taught her how to apply that education in service of her community.

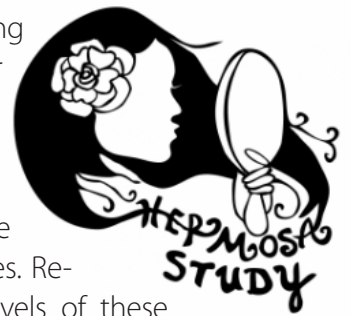
"Advocacy is something I learned from my sisters," Maritza explained, "and opportunities like this don't come to Salinas often."

The HERMOSA Study was a youth-led research project that examined how girls were exposed

to hormone-disrupting chemicals through their cosmetics, and how using lower-chemical products can reduce the levels of hormone disruptors in their bodies. Researchers tested the levels of these chemicals, such as phthalates (used in fragrance), parabens (used in makeup), and triclosan (an antibacterial found in some personal care products) in 100 teenage girls. The study participants then replaced their cosmetic products with lower-chemical alternatives.

"It was interesting to see how in just three days, the chemical levels dropped 25 to 45 percent," Maritza said. And even more interesting to see how engaged the community was. The impact

Continued on pg. 2



What is Biomonitoring?

BIOMONITORING CALIFORNIA

MEASURING CHEMICALS IN CALIFORNIANS

Biomonitoring is a way to measure the chemicals in a person's body. To do this, scientists take samples of blood and urine to measure the chemicals that are present. These measurements help us determine if a person has been exposed to harmful chemicals. What we learn from biomonitoring studies can be used to help keep harmful chemicals out of our environment and the products we buy.

Why is Biomonitoring Important?, continued from pg. 1

This is why measuring the chemicals in our bodies—or “biomonitoring”—is so important. By conducting biomonitoring across the state and over time, we can begin to understand our exposures to chemicals—and how the places we live and work, and the choices we make, such as what we eat, affect our body burden.

Biomonitoring California is bringing biomonitoring studies to diverse communities throughout the state. These studies help answer questions like: Is my family being exposed to toxic chemicals through our drink-

ing water? Does eating a certain diet expose us to high levels of mercury? Do the choices I make at the store affect the levels of flame retardants in my family's bodies?

By regularly measuring chemicals in Californians across the state, we can find the people and places that are more heavily impacted by chemical pollution, and track how the chemicals we are exposed to change over time. Our studies support communities and individuals in taking action to reduce chemical exposures and promoting a healthier environment for everyone.

Rare Opportunities, continued from pg. 1

of the work spread from the girls to their families. The work touched Maritza personally.

“The HERMOSA Study made a really big difference in the products I use. To this day, I look

at the ingredient list. Being involved in the HERMOSA study also turned me on to environmental health. It had a lot to do with me getting into the University of California, Berkeley. I'd been interested in science for a while, but this experience shaped my story and my passions and why I am interested in medicine.”

“Programs like this can help change the narrative of communities like Salinas. As much as there is a lot of praise for its agriculture, there's also a lot of violence. We're often better known for our troubles—like youth violence—than resilience.”

Maritza plans to be a part of that change. After graduation she hopes to return to Salinas. She wants to work on programs to expand access to health care for her community, and support more opportunities for youth.



Spotlight on Chemicals: Mercury

California is known for many things: natural beauty, nice weather, great food, and... mercury? That's right; mercury has been part of the California environment since its widespread use during the Gold Rush, and can end up in the fish we eat.

What is mercury?

Mercury is a naturally occurring metal that is released into the environment when coal is burned and from past use in gold mining. It enters our air and water, and gets into freshwater and ocean fish. Mercury can also be found in some traditional health remedies and skin creams imported from countries such as China, India, and Mexico.

What's the concern?

Mercury can harm brain development in infants and children who are exposed when their mothers are pregnant with them, and cause learning and behavior problems later on. In adults, mercury can harm the brain, nerves, and kidneys, causing a range of health problems, including loss of coordination or memory, and changes in vision, speech, or mood.

How can biomonitoring help?

Biomonitoring California regularly measures mercury in its studies. We work with participants who have elevated mercury levels to help them figure out how they may have been exposed and advise them on reducing their exposures. In one study, we discovered that a pregnant woman had used a skin cream from Mexico that contained mercury and unknowingly exposed herself, her baby, and other family members to toxic levels of mercury. We then alerted the public to the danger of mercury in some skin creams from other countries (<http://biomonitoring.ca.gov/mercury-poisoning-skin-creams>).

We will be measuring mercury in a statewide biomonitoring study beginning in 2018. This



study will help Californians learn about mercury exposures across the state.

How can you reduce your exposure to mercury?

- Choose seafood lower in mercury, including salmon, tilapia, trout, canned light tuna, sardines, anchovies, and oysters.
- Avoid fish high in mercury, including swordfish, shark, orange roughy, bluefin and big-eye tuna, tilefish, and king mackerel.
- Don't use imported skin-lightening or anti-aging creams, or acne treatments, unless you're sure they do not contain mercury. Check the label for "mercury," "mercurio," "calomel," or "mercurous chloride" and do not use any products with these ingredients. If a product has no label, it's safer not to use it.
- Properly recycle compact fluorescent light (CFL) bulbs, to prevent release of mercury (<http://recyclenation.com>).
- Properly clean up broken thermometers, CFL bulbs, and other items containing mercury (www.epa.gov/mercury/spills).



QUICK TIP: Handwashing—It Really Works!

Yes, we've all heard it a million times—handwashing helps fight germs—but did you know that washing your hands is also one of the easiest ways to reduce your exposure to chemicals? It's true! Simply washing your hands with regular soap and water, especially before preparing and eating food, can reduce the amount of chemicals like lead, flame retardants, and BPA that gets into your body.

Reaching New Communities



Environmental justice has always been a core value for Biomonitoring California. Our studies help identify communities that are disproportionately exposed to toxic chemicals. We can apply what we learn in these communities to California as a whole. For example, the Asian/Pacific Islander Community Exposures (ACE)

Project looked at mercury, other metals, and fluorinated chemicals in a Chinese community in San Francisco, but what it tells us about contaminants in fish, rice, and other foods can be used to help improve everyone's health.

Biomonitoring California is starting a new project to learn about the issues that are of greatest concern to local communities. We are creating a database of California organizations that are engaged in environmental justice issues. This year, we'll interview more than three dozen groups about how biomonitoring can help their work. Information from these interviews will be used to build new relationships and help design future studies. Does your organization want to be involved? You can join our database by visiting <http://bitly.com/2krGIG4>. You can also sign up on our email list by clicking on "Join Our Email List" on biomonitoring.ca.gov.

Celebrating 10 years with Biomonitoring California



We would like to thank everyone who joined us at our ten-year anniversary celebration on March 8th! The event gave us an

opportunity to highlight Biomonitoring California's contributions to public health. We heard from a number of inspiring guest speakers, including: Maritza Cárdenas, who shared what she learned as an HERMOSA Study participant and researcher; and Captain Jeanine Nicholson of the San Francisco Fire Department, who talk-

ed about her personal experiences as a firefighter routinely exposed to carcinogens and other toxic chemicals. We also thank everyone associated with Biomonitoring California who could not be at the celebration—we appreciate all those who have advised the program, participated in a study, or used findings to further public health efforts in your community. We look forward to working with you and many new partners in the years to come.

biomonitoring.ca.gov/10th-anniversary

Biomonitoring California is a joint program of the California Department of Public Health, Office of Environmental Health Hazard Assessment, and Department of Toxic Substances Control.

Visit us at biomonitoring.ca.gov, email us at biomonitoring@oehha.ca.gov, or call 1-866-470-6116.