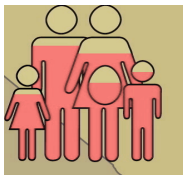


We monitor the pollution in our air, our water, and even our fish. It's time to start looking at the pollution in our bodies.

Commonweal Biomonitoring Resource Center

Biomonitoring

Background

- Over 80,000 synthetic chemicals are registered for use today in the United States, with an additional 1,000 new chemicals added each year, yet less than 10 percent of these chemicals have been tested for their effects on human health. Large numbers of these chemicals are found in products we come into contact with every day. Many of these chemicals persist in the environment and accumulate in the human body.
- Many toxic chemicals are now credibly linked to serious chronic diseases. Furthermore, new science demonstrates that even very small amounts of some chemicals can have adverse health effects, particularly in pregnant mothers, infants and small children.
- An estimated 125 million Americans, have at least one chronic illness. Cancer, asthma, birth defects, endometriosis, and infertility are increasingly common. Nearly 12 million school-age American children are affected by developmental and learning disabilities. Mounting evidence links both the incidence and severity of these diseases to exposure to environmental toxicants.

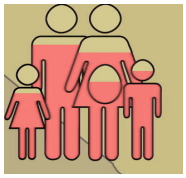
Why biomonitoring?

Biomonitoring, or "body burden," studies, are scientific tools that detect the presence of chemicals in the body. The federal government has been conducting biomonitoring studies since 2001 and has encouraged states to develop their own programs. The data produced through biomonitoring can:

- Support efforts to improve public health by indicating trends in chemical exposures.
- Identify highly exposed communities.
- Assess the effectiveness of current regulations and set priorities for legislative and regulatory action.

What have biomonitoring studies found?

- The Centers for Disease Control and Prevention (CDC) has measured and analyzed 148 chemicals in the blood and urine of Americans of all ages and races. Among the findings are that Mexican Americans have three times the levels of the pesticide DDT as other participants. CDC also found that children have twice the level of the pesticide Dursban than adults, and women have higher levels of phthalates than men.
- A 2005 study by the Environmental Working Group detected 287 chemicals in the umbilical cord of newborn infants with each sample containing chemicals that cause cancer, brain damage, birth defects and reproductive damage.



Biomonitoring Facts

Sound Science

FACT: Biomonitoring is an established scientific tool which has been used for many years in many countries around the world for public health surveillance and disease control. This type of research helps identify and reduce exposures that are toxic to human health. For example, biomonitoring studies examining lead levels in blood resulted in changes that have dramatically reduced those levels in today's children, benefiting all of society. Biomonitoring of breastmilk in Germany and Sweden led to policy changes that reduced levels of toxic chemicals, protecting the health of the youngest, most vulnerable population. The U.S. Centers for Disease Control and Prevention (CDC) conducts national biomonitoring surveys, saying that this type of research will "provide unique exposure information to scientists, public health officials, and physicians to help prevent disease that results from exposure to environmental chemicals."

Research

FACT: We have very little information about chemicals in the environment. Most of them are untested before being approved for commerce. We have a great need for exposure information that can be extremely helpful for environmental health decision makers. There is no more precise way to measure exposures in the body than through biomonitoring. We already measure what's in the air, food, and water – but only biomonitoring tells us what's actually in people. The data collected through Environmental Working Group and Commonweal's biomonitoring projects provides essential data on community exposures to chemicals of concern. The research EWG conducted and publicized about flame-retardants in breast milk led directly to legislative initiatives in several states that will limit exposure to this set of chemicals.

Personal Pollution

FACT: Just as individuals have a right to informed consent before undergoing medical procedures, they have a right to know what industrial chemicals are in their bodies that could be harmful to their health. Many people want to know their level of personal pollution, so they can take personal or political action to protect themselves and their families from harmful exposures. In no other circumstance would it be suggested people are better off not knowing about the state of their health. As biologist Sandra Steingraber has commented, "I don't think public health is ever served by keeping secrets, and the idea that nursing mothers should be protected against knowledge of what's in their milk is profoundly condescending. Certainly, as a nursing mother myself, I want to know what's in my milk – in the same way I want to know about infant car seat recalls." (from NPR's *"Living on Earth")*

Increasing Levels

FACT: Human bodies are able to metabolize and excrete most (but not all) naturally chemicals in the environment. Since World War II, however, the vast increase in the petrochemical industry means there are now some 80,000 synthetic chemicals registered for use. These chemicals simply did not exist during the childhoods of many people alive today. Shockingly, however, fewer than 10 percent of synthetic chemicals have been tested for their effects on human health. This is irresponsible approach to public health and chemicals policy. The presence of hundreds of industrial chemicals in the body does not mean it is "normal." We never gave anyone permission to put untested chemicals in our bodies, and we have the right to know more about what harm these may chemicals cause, what products they are in, and how we are exposed to them.

Healthier than Ever?

FACT: An estimated 125 million Americans, 43 percent of the population, have at least one chronic disease. Approximately 60 million of these have multiple chronic conditions. The lifetime risk of cancer is 1 in 3 for women and 1 in 2 for men, and cancer is the second most common cause of death. People are living longer in part because of costly medical protocols for treating increasing rates of cancer and other chronic diseases. Furthermore, mounting evidence links environmental toxicants to diseases that are becoming increasingly common, such as asthma, Alzheimer's Disease, autism, birth defects, impaired fertility, developmental disabilities, multiple sclerosis, and Parkinson's Disease.

Chronic diseases cost the billions of dollars per year in public health care costs. For example, the estimated total annual cost of asthma in California alone is $1.27 billion. The estimated lifetime costs of medical and other treatments, plus lost productivity for all affected individuals born in 1988 with one or more of the 18 most common birth defects, exceeds $1 trillion. Special education for California children with learning disabilities, estimated to be more than one million, carries an annual price tag of $12 billion.

Healthy Economy

FACT: Exposures to hazardous chemicals in the workplace result in the premature death of over 60,000 U.S. workers each year. There are more than 800,000 new cases of occupational disease each year. The annual cost of occupational disease in the U.S. is $25.5 billion, representing a substantial drain on the U.S. economy, not to mention on the lives of workers and their families With the information from biomonitoring, we can better protect workers and communities from disease and illness. Biomonitoring data can tell us who is highly exposed to industrial chemicals and pollutants in the workplace, enabling employers to design effective interventions that increase productivity, cut costs, and protect the health of workers, their families, and the wider community.

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