MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

# Biomonitoring

## Measuring Environmental Chemicals in the Body

**WHAT ARE ENVIRONMENTAL CHEMICALS?**
Environmental chemicals are in the air, water, food, soil, dust and products you buy. We are exposed to environmental chemicals every day. It is not possible to avoid environmental chemicals completely.

**WHAT IS BIOMONITORING?**
Biomonitoring is a way to measure environmental chemicals in the human body. Biological samples like blood or urine are tested for environmental chemicals. The results can show how much of an environmental chemical is in the body. An example of biomonitoring is testing a child's blood to make sure they do not have high levels of lead.

**WHY IS BIOMONITORING PERFORMED?**
By looking at many people's biomonitoring results together, public health professionals may be able to see trends. Looking at trends can help determine whether public health efforts are needed in certain communities.

**WHAT DO BIOMONITORING RESULTS TELL US?**
Results can help determine whether a person has been exposed to an environmental chemical. They can also show whether the person has a level that is higher than what is typical. Based on results, public health professionals can provide easy ways to potentially reduce a person's exposure to environmental chemicals.

**IS IT NORMAL TO HAVE ENVIRONMENTAL CHEMICALS IN BLOOD OR URINE?**
Yes. It is normal to have environmental chemicals measured in a person's blood or urine. If an environmental chemical is measured in blood or urine, it doesn't always mean that it will cause health effects. Whether a person has health effects depends on their sensitivity to the chemical, how much of the chemical the person was exposed to, and how long they were exposed.

**WHAT CHEMICALS CAN BE MEASURED?**
Urine and blood may be tested for metals, such as lead and mercury. They may also be tested for a family of chemicals called polychlorinated biphenyls (PCBs).

**HOW ARE BIOMONITORING SAMPLES EVALUATED?**
Blood and urine samples are analyzed at the MDPH State Public Health Laboratory. Results are interpreted by the MDPH Environmental Toxicology Program.

**WHO IS MOST SUSCEPTIBLE TO ENVIRONMENTAL CHEMICAL EXPOSURES?**
People with pre-existing medical conditions, the elderly, pregnant women, women who may become pregnant, and children may be more susceptible. People in these groups may be more susceptible due to their stage of development. They may also have less ability to eliminate chemicals from the body.

**WHO RECEIVES BIOMONITORING SERVICES?**
In Massachusetts, young children are tested for lead exposure with a blood lead test. Biomonitoring may be offered as a public service to residents who are exposed to a chemical by accident, such as after a spill. People living near contaminated waste sites or who may be drinking contaminated water may also receive biomonitoring.

## For More Information

For more information about Biomonitoring efforts in Massachusetts please contact:


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