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Chronic exposure to lead, cadmium and arsenic increases risk of cardiovascular disease

Monitoring exposure to contaminant metals in air, water and soil is important for reducing inequities in CVD risk, according to a new American Heart Association scientific statement

Chronic exposure to low levels of lead, cadmium and arsenic through commonly used household items, air, water, soil and food is associated with an increased risk of cardiovascular disease, according to a new American Heart Association scientific statement published in the [Journal of the American Heart Association](#), an open access, peer-reviewed journal of the American Heart Association.

The statement was chaired by **Gervasio A. Lamas, M.D., FAHA, chairman of medicine and chief of the Columbia University Division of Cardiology at Mount Sinai Medical Center.**

“Large population studies indicate that even low-level exposure to contaminant metals is near-universal and contributes to the burden of cardiovascular disease, especially heart attacks, stroke, disease of the arteries to the legs and premature death from cardiac causes,” explains Dr. Lamas.

Statement Highlights:

- Around the world, most people are regularly exposed to low or moderate levels of lead, cadmium and arsenic in the environment, increasing risk of coronary artery disease, stroke and peripheral artery disease, according to a new American Heart Association statement.
- These metals, considered contaminant metals, have no function in the human body. They are found in groundwater, water pipes, paint, tobacco products, fertilizer, plastic, electronics, gasoline, batteries, some foods and other commonly used items.
- Lead, cadmium and arsenic are absorbed via the respiratory and/or gastrointestinal tract. People who live in lower economic neighborhoods often have high exposure to these metals.
- A multi-faceted approach to reducing the cardiovascular risks of contaminant metals may include public health measures, such as environmental monitoring and abatement; individual testing; further evaluation of the consequences of metal exposure and the development of treatments.

This scientific statement reviews evidence linking chronic exposure to low or moderate levels of three contaminant metals — lead, cadmium and arsenic — to cardiovascular diseases including [coronary artery disease](#), [stroke](#) and [peripheral artery disease](#). It highlights clinical and public health implications. Traditional risk factors for cardiovascular disease do not currently include environmental toxicants. The field of environmental cardiology identifies exposure to pollutants including contaminant metals as modifiable risks for cardiovascular disease.

“These metals interfere with essential biological functions and affect most populations on a global scale,” said vice chair of the statement writing group Ana Navas-Acien, M.D., Ph.D., a professor of environmental health sciences at Columbia University’s Mailman School of Public Health and the director of the Columbia University Northern Plains Superfund Research Program in New York City. “After exposure, lead and cadmium accumulate in the body and remain in bones and organs for decades. In the U.S. alone, one large study suggested that more than 450,000 deaths annually could be attributed to lead exposure.”

The scientific statement outlines global epidemiologic research confirming that lead, cadmium and arsenic are associated with premature death, due in large part to increased cardiovascular disease risk.

“Cardiovascular health may be improved with a multi-pronged approach that recognizes environmental cardiology and includes environmental monitoring and biomonitoring of contaminant metals; controlling for sources of exposure; and developing clinical interventions that remove metals or weaken their effects on the body,” said Lamas, who is also a professor of medicine at Columbia University Irving Medical Center in New York City.

About Mount Sinai Medical Center

*Founded in 1949, Mount Sinai Medical Center is the largest independent, private, not-for-profit teaching hospital in South Florida. Mount Sinai’s mission is to provide quality health care to a diverse community enhanced through teaching, research, charity care, and financial responsibility. Mount Sinai’s Centers of Excellence combine technology, research, and academics to provide innovative and comprehensive care in cardiology, neuroscience, oncology, urology, and orthopedics. One of the original statutory teaching hospitals in the state of Florida, Mount Sinai is the hospital of choice for those who seek the level of expertise and care that only a teaching hospital can offer. Mount Sinai currently offers nine convenient locations in Miami-Dade County, including three emergency centers, and two specialty care offices and a primary care office in Monroe County. For more information on Mount Sinai Medical Center, visit msmc.com or call **305.674.CARE** (2273).*

About the American Heart Association

The American Heart Association is a relentless force for a world of longer, healthier lives. We are dedicated to ensuring equitable health in all communities. Through collaboration with numerous organizations, and powered by millions of volunteers, we fund innovative research, advocate for the public’s health and share lifesaving resources. The Dallas-based organization has been a leading source of health information for nearly a century. Connect with us on heart.org, [Facebook](#), [Twitter](#) or by calling 1-800-AHA-USA1.