

Historic legacy of lead pollution persists despite regulatory efforts

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Efforts to reduce lead pollution have paid off in many ways, yet the problem persists and will probably continue to affect the health of people and animals well into the future, according to experts speaking at the annual meeting of the American Association for the Advancement of Science (AAAS) in Boston.

"Things have substantially improved with the virtual elimination of leaded gasoline, restrictions on [lead paint](#), and other efforts to limit releases of industrial lead into the environment. But the historic legacy of lead pollution persists, and new inputs of industrial lead are adding to it," said A. Russell Flegal, professor of environmental toxicology at the University of California, Santa Cruz.

The good news, he said, is that atmospheric lead concentrations in the United States have fallen by 89 percent in the past three decades, and average blood lead levels in U.S. children have shown a corresponding decline, from 15 micrograms per deciliter (ug/dL) in 1976 to 1.3 ug/dL in 2008.

The bad news is that blood lead levels are still about 100 times higher than the natural background level, and there is no known threshold for lead toxicity. In other words, even tiny amounts of lead in the body can be harmful.

Lead pollution is a 5,000-year-old problem, Flegal said, citing elevated [lead levels](#) in Chinese [lake sediments](#) deposited during the Bronze Age.

Recent records from U.S. lake sediments show decreases in lead pollution since the phasing out of leaded gasoline began in the 1970s. But industrial activities around the globe continue to release more lead into the environment. Major sources of lead emissions include the burning of coal, especially in developing countries such as China and India. Lead from these sources spreads around the globe, so that environmental lead contamination can be detected even in "pristine" environments such as the Arctic and the [Swiss Alps](#), Flegal said.

In addition, consumer products contaminated with lead continue to enter the U.S. from other countries through global trade. These include some foods, health products, and children's toys. Just last year, U.S. customs officials seized 1,400 Halloween pirate costumes imported from China that contained 11 times the allowable level of lead.

Unlike organic pollutants, lead never degrades. To illustrate the persistence of lead in the environment, Flegal cites a 2005 study showing that 90 percent of the current atmospheric lead pollution in the Los Angeles basin originally came from [leaded gasoline](#). Lead particles continue to be deposited on the ground and resuspended into the air decades after their original source was eliminated. Studies by Flegal and others also show that forest fires in California remobilize [lead](#) that was deposited in soils decades ago.

"It will take decades to centuries to purge these historic depositions from the environment," Flegal said.

Provided by University of California - Santa Cruz

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