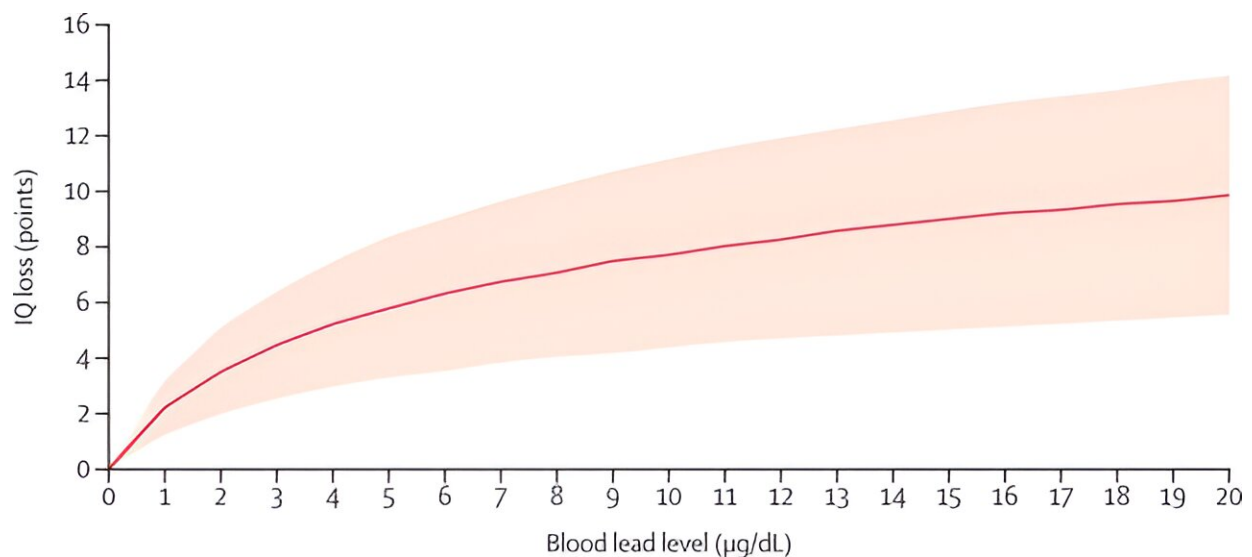


Lead poisoning causes far more death, IQ loss than thought: study

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Blood lead level IQ loss function from Crump and colleagues. The blood lead level is mean lifetime blood lead level in children younger than 5 years. The solid line is the central estimate and the shaded area is the 95% CI as per the study by Crump and colleagues. IQ=intelligence quotient. Credit: *The Lancet Planetary Health* (2023). DOI: 10.1016/S2542-5196(23)00166-3

Lead poisoning has a far greater impact on global health than previously thought, potentially contributing to over five million deaths a year and posing a similar threat to air pollution, modeling research suggested Tuesday.

The study, described as "a wake-up call", also estimated that exposure to the toxic metal causes [young children](#) in developing countries to lose an average of nearly six IQ points each.

Lead pollution has been shown to cause a range of serious health problems, particularly relating to [heart disease](#) and the brain development of small children, resulting in [leaded gasoline](#) being banned worldwide.

But people can still be exposed to the [potent neurotoxin](#) via food, soil, cookware, fertilizers, cosmetics, lead-acid car batteries and other sources.

The two World Bank economists who authored the study, published in the *Lancet Planetary Health* journal, said it was the first to assess the impact of lead exposure on heart disease deaths and child IQ loss in wealthy and developing nations.

Lead author Bjorn Larsen told AFP that when the pair first saw the figure their model calculated, "we didn't even dare to whisper the number" because it was so "enormous".

Their model estimates that 5.5 million adults died from heart disease in 2019 because of lead exposure, 90 percent of them in low- and [middle-income countries](#).

That is six times higher than the previous estimate, and represents around 30 percent of all deaths from [cardiovascular disease](#)—the leading cause of death worldwide.

It would mean that lead exposure is a bigger cause of heart disease than smoking or cholesterol, Larsen said.

\$6 trillion cost

The research also estimated that children under five lost a cumulative 765 million IQ points due to lead poisoning globally in 2019, with 95 percent of those losses coming in developing countries.

That number is nearly 80 percent higher than previously estimated.

The World Bank researchers put the economic cost of lead exposure at \$6 trillion in 2019, equivalent to seven percent of global gross domestic product.

For the analysis, the researchers used estimates of blood lead levels in 183 countries taken from the landmark 2019 Global Burden of Disease study.

Previous research had measured only lead's effect on heart disease when it came to raising [blood pressure](#). But the new study looked at numerous other ways lead affects hearts, such as the hardening of arteries that can lead to stroke, resulting in the higher numbers, Larsen said.

Roy Harrison, an expert in [air pollution](#) and health at Birmingham University in the UK, who was not involved in the study, told AFP it was "interesting, but subject to many uncertainties".

For example, the relationship between lead in blood and [heart](#) disease is based on a survey in the United States, and whether those findings could be applied worldwide "is a huge jump of faith", he said.

Harrison also pointed out that the model used estimations—not tests—of lead in blood in many developing countries.

If the results were confirmed, "they would be of major public health

significance, but at present, this is simply an interesting hypothesis", he said.

'Piece of the puzzle'

Richard Fuller, president of the NGO Pure Earth, said that when surveys in developing countries did test for lead in blood, they mostly found higher levels than estimated in the new study.

This means "the impact of lead might be worse than the report describes", he told AFP, calling it a "wake-up call".

Larsen said "we're still a little in the dark" when it came to understanding how much different sources of lead contribute to blood contamination.

Fuller said part of this "missing piece of the puzzle" was revealed in a Pure Earth report released on Tuesday, which analyzed 5,000 samples of consumer goods and food in 25 developing countries.

It found high rates of lead contamination in metal pots and pans, ceramic cookware, paint, cosmetics and toys.

"This is why poorer countries have so much [lead poisoning](#)," Fuller said. "It's items in the kitchen that are poisoning them."

More information: Bjorn Larsen et al, Global health burden and cost of lead exposure in children and adults: a health impact and economic modelling analysis, *The Lancet Planetary Health* (2023). [DOI: 10.1016/S2542-5196\(23\)00166-3](https://doi.org/10.1016/S2542-5196(23)00166-3)

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