

Children living near toxic waste sites experience higher blood lead levels resulting in lower IQ

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Children living near toxic waste sites in lower and middle income countries such as India, Philippines and Indonesia may experience higher blood lead levels, resulting in a loss of IQ points and a higher incidence of mental retardation, according to a study presented today by Kevin Chatham-Stephens, MD, Pediatric Environmental Health Fellow at the Icahn School of Medicine at Mount Sinai, at the Pediatric Academic Societies (PAS) annual meeting on May 6 in Washington, DC.

The study titled, "The Pediatric Burden of Disease from Lead Exposure at [Toxic Waste](#) Sites in Low and [Middle Income Countries](#) in 2010," was a joint research partnership between Mount Sinai and the Blacksmith Institute.

Researchers measured lead levels in soil and drinking water at 200 toxic waste sites in 31 countries then estimated the [blood lead](#) levels in 779,989 children who were potentially exposed to lead from these sites in 2010. The blood lead levels ranged from 1.5 to 104 µg/dL, with an average of 21 µg/dL in children ages four years and younger. According to Dr. Chatham-Stephens, first author of the study, these higher blood [lead levels](#) could result in an estimated loss of five to eight IQ points per child and an incidence of mild mental retardation in 6 out of every 1,000 children.

"The average blood lead level in an American child is approximately 1.3

µg/dL," said Dr. Chatham-Stephens. "Our research found an average predicted blood lead level of 21 µg/dL, which is very high. Lead has serious, long-term [health consequences](#) such as the potential to impair cognitive development in children and cause mental retardation." The condition of [mental retardation](#) is defined as having an IQ below 70.

"On a global level, this analysis highlights the importance of assigning more public health resources to identify, evaluate and remediate lead-contaminated toxic waste sites in these countries," said Philip Landrigan, MD, MSc, Dean for [Global Health](#) at the Icahn School of Medicine at Mount Sinai, one of the authors of the study. "In order to prevent further detrimental effects on neurodevelopment in children, these countries should create programs to identify toxic wastes and reduce lead exposure."

"This study is important because, to our knowledge, the burden of disease from these toxic waste sites has never been calculated before," said Dr. Chatham-Stephens. "We are showing that children who were chronically exposed to toxic waste sites in lower and middle income countries could have had high lead blood levels."

Provided by The Mount Sinai Hospital

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