

Flint lead crisis adds up to \$395 million in social costs

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The social costs related to lead poisoning in Flint, Michigan, amount to \$395 million from April 2014, when the city switched its water source from Lake Huron to the Flint River, to the present day, not counting the \$58 million already spent by the state on medical care and water provisions. The analysis by Peter Muennig at Columbia University's Mailman School of Public Health appears as a letter in the journal *Health Affairs*.

Muennig used data from the Centers for Disease Control and Prevention on the number of children in the United States exposed to low-levels of [lead poisoning](#) (5-9 µg/dL) and research on the related lifetime economic losses (a conservative estimate of \$50,000 in lifetime economic losses for every exposed child). He estimated that there were roughly 90,000 poisonings nationwide in 2014. Flint, with its more than 8,000 cases, accounted for approximately 5 percent of all exposures between April 2014 to April 2015.

According the study, the societal cost of all low-level lead exposures in the U.S.—measured as lost economic productivity, welfare use, and criminal justice system costs—was over \$4.5 billion in 2015. Using an epidemiological measure known as quality-adjusted life years (QALYs), one year's worth of exposures also resulted in 18,000 years of perfect health lost, equivalent to 275 children's lives. The Flint exposures amounted to about \$395 million and 1,760 QALYs, equivalent to 27 children's lives.

During the year when Flint's drinking water was sourced from the Flint River to save money, the city's lead pipes were corroded, leading to elevated blood lead levels in some residents. "The city's decision to switch its water supply was penny wise and pound foolish," says Muennig, a professor of Health Policy and Management. "In an effort that would have saved approximately \$5 million, the city of Flint will suffer losses 80-fold greater."

Muennig's research is published as a response to an article by David Rosner, professor of Sociomedical Sciences, titled "A Lead Poisoning Crisis Enters Its Second Century," published in *Health Affairs* in May. Reflecting on the history and politics of lead poisoning in the United States, Rosner wrote, "many policymakers consider the costs of action primarily in economic and financial terms and ignore the costs of inaction on human health and communities' livelihoods."

"We should never ignore the human costs of lead poisoning," responds Muennig. While many reports have focused on the ways have devastated individual lives of Flint residents, he says, "the sheer magnitude of the cumulative costs to the whole community—in terms of life, sickness, suffering, and actual money—ought to guide policymakers as they consider ways to protect our health. Updating the country's infrastructure will be expensive, but not only is it the right thing to do, these investments will pay huge dividends for all Americans."

In a 2009 article in *JAMA Pediatrics*, Muennig estimated the economic benefits of reducing blood lead levels to less than 1 $\mu\text{g}/\text{dL}$ in the United States. He found that the societal benefits would amount to \$50,000 per child annually and an overall savings of \$1.2 trillion by reduced crime and increased rates of on-time high school graduation.

Since the 1960s, the U.S. lead health standard has been lowered six times, from 60 $\mu\text{g}/\text{dL}$ to the current standard of 5 $\mu\text{g}/\text{dL}$. In the 1970s,

the mean [blood lead level](#) was 15 µg/dL. Today it is 2 µg/dL. But according to the Centers for Disease Control and Prevention, "No safe [blood lead](#) level in children has been identified."

According to Muennig, "Even relatively low levels of exposure may rob children of IQ points and predispose them to violent behavior later in life. If we act now to reduce [lead](#) within the pipes feeding the highest risk homes, it will not only save money, but also lives."

Provided by Columbia University's Mailman School of Public Health

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