ENVIRONMENTAL RESEARCH GROUP

FACT SHEET

Quantifying Costs of Lead in Drinking Water

High-profile examples of lead poisoning in American cities, namely in Flint, Michigan, have raised public awareness of the impact of lead in drinking water. However, the broader economic and health costs of lead poisoning remain understudied.

Economic Costs of Lead

Lead contamination has been shown to have detrimental economic effects: the economic impact of lead in the US and Europe is large–$50.9 billion and $55 billion, respectively.[1] Early childhood lead exposure has been linked by multiple studies to increased crime. In the US, the direct cost of lead-linked crimes is $1.8 billion, with an additional $11.6 billion being lost through indirect costs.[2] Early childhood lead exposure has also been linked to the development of ADHD; in fact, costs relating to lead-linked ADHD total $267 million annually.[1] Early childhood lead exposure can even lead to decreased IQ, a metric that is correlated with lifetime earnings.

Furthermore, work done to remediate or prevent lead poisoning has been shown to have clear economic benefits. A study published in *Environmental Health Perspectives* found that every dollar invested in lead paint hazard control has a return of $17-$221, or net savings of $181-$269 billion.[1] Efforts to mitigate lead poisoning are not only impactful from a welfare perspective, but are also a smart economic choice.

Schools and Childcare Facilities

Lead's detrimental impact on youth has been extensively documented in scholarly literature. Lead contamination within children is linked to anemia, as well as kidney and brain damage. A report from the U.S Government Accountability Office found that over 40% of K-12 school districts had not tested for lead in 2016-2017.[3] Lead is more likely to be present in facilities that are closed for extended periods of time, like schools that are typically open on the weekends. Thirty-seven percent of school districts in the report were found to have elevated lead levels.[3] These districts serve millions of children annually, which makes annual testing all the more important.

Children can come into contact with lead in many different ways, through means such as lead paint, pipes, and certain dust particles. Notably, buildings built before the 1980s are more likely to contain one or more of these potential lead contaminants due to the common usage of lead paint, as well as housing policies from the time. Stricter lead provisions have been enacted in recent years. For instance, in 2017, all Illinois child-care facilities and schools constructed before 2000 were required to test their water sources for lead by December 2018.[4] While a survey conducted in 2017 showed that all school districts were consistently self-reporting compliant, the GAO study showed that 41% of school districts, serving about 12 million students, had not tested for lead within the year before the survey was completed.[3]

Testing all these components can be an expensive and tedious process; furthermore, much of the legal documentation stipulates that testing must be paid for by those requesting it. Because 83% of schools in Illinois are inadequately funded, many children attend schools that cannot afford lead testing.[5]

Lead and Environmental Justice

Due to residential segregation and underinvestment in public infrastructure, Black and brown communities bear the brunt of lead poisoning. Even accounting for economic differences between neighborhoods, communities with greater proportions of Black and brown residents are at a higher risk of lead exposure.[6,7] Black children nationwide are 2.8 times more likely than their white counterparts to have an elevated blood lead level (EBLL), and children in poverty are particularly susceptible. EBLL is present within 1 in 6 Black children living below the poverty line.[8]

Black children are three times as likely to develop lead poisoning as white children, and Hispanic children are twice as likely to develop lead poisoning as white children.[9] Other minority groups including Asians and Pacific Islanders have also shown high rates of EBLL in recent years.[9] Despite these higher rates, children from minority groups–especially Black children– continue to be under-tested in comparison to white children. This shortage raises issues for these minority groups, since testing is the means by which access to health services and specialized care is granted. To resolve this issue, state governments can boost investment into public testing, and lower the threshold to gain access to medical services for lead treatment.[9]

From an environmental justice perspective, the rate of lead service lines in schools becomes even more troubling. Chicago Public Schools are highly segregated; the vast majority of schools have a single dominant racial group within their student populations. This is despite the racial diversity of students within the district as a whole. Of Chicago's 659 public schools, 179 have dangerously high levels of lead in their water. Every one of these schools has a student population that is majority Black and/or low-income.[10] This disparity is of particular concern as Black children compose just 35.8% of the CPS student body.[11]

The same racial disparity is visible among pregnant women, for whom exposure to metals can be especially harmful. Black and Black-Hispanic women exhibit lead levels that are 35% higher than white, non-Hispanic women, raising concerns about perinatal and infant mortality.[12]

Solution: Service Line Replacement

Most current policy proposals to address lead in drinking water revolve around lead service line replacement, a process in which drinking water pipes that contain lead are excavated and new pipes are installed. Unfortunately, this process can be expensive, at an average cost of $7,700 per replacement. In the aggregate, the total cost of lead service line replacement in Illinois amounts to $5.2 billion.[13] Despite $15 billion of appropriations in 2021, federal funding still covers less than half of the expected national cost of replacement.

While lead service line replacement is expensive in a vacuum, the literature suggests that the benefits outweigh the costs. For example, a 2016 report found that a $600 million investment in stopping lead poisoning could reduce poisoning in children by 70%—and pay for itself within 3 years.[14]

Lead in drinking water remains a pressing issue with severe health and economic effects. In particular, lead poisoning poses risks for schools and childcare facilities, as well as communities of color. While lead service line replacement is the best solution in the status quo, policymakers should focus on generating innovative and cost-effective solutions for the issue.

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