

**DRINKING WATER POLICY BRIEF FOR POLICYMAKERS
AND ADVOCATES:**

**Recommendations to Prevent and
Mitigate the Effects of Lead Poisoning**



In August 2017, the Health Impact Project, a collaboration between the Robert Wood Johnson Foundation and Pew Charitable Trusts released a report: *Ten Policies to Prevent and Respond to Childhood Lead Exposure*. The Trust for America's Health, National Center for Healthy Housing, Urban Institute, Altarum Institute, Child Trends and many researchers and partners contributed to the report.

This brief outlines recommendations for federal, state and local policymakers and advocates to ensure drinking water is safe for children in their homes, schools and child-care centers.

The report notes that over 500,000 children in the United States, ages 1 to 5 years, had dangerously elevated blood lead levels according to the most recent data from the Centers for Disease Control and Prevention (CDC).¹ While every child can be at risk and no level of lead in blood is safe,² the most affected are children of color and those living in low-income communities.

Urban children are more likely to live in older homes containing, among other

problems, lead pipes that leach into the drinking water.⁴ In contrast, American Indian and Alaska Native children are much more likely than other children to be exposed to potentially lead-contaminated runoff from former mining sites.⁵

Regardless of the source or setting, lead poisoning is devastating for children and can lead to lifelong problems, including decreased IQs and poor academic performance. Even at very low levels, lead exposure affects impulse control and the ability to grasp information, making children more likely to struggle in school, drop out, get into trouble with the law and, later, underperform at work.⁶

Among the Report's 10 Policy Priorities: Reduce lead in drinking water in homes built before 1986 and in other places children frequent.

Removing leaded drinking water service lines from the homes of children born in 2018 would protect more than 350,000 children and yield \$2.7 billion in future benefits—about \$1.33 per \$1 invested.*

The amount includes health and education savings and increased tax revenue of \$480 million for the federal government and \$250 million for states and municipalities.³

* Cost data are not available for all the interventions that contribute to total prevention of lead poisoning. However, cost-benefit ratios are provided in the report for several strategies, including lead water line replacement, lead paint eradication, and lead-safe renovation and repair practices.

- Replacing lead service lines (LSL) is the only permanent method to remove lead from drinking water.
- Many federal, state and local laws regarding lead hazards in housing do not address drinking water. Replacement of leaded pipes or plumbing, for example, is not an eligible expense under the Department of Housing and Urban Development's (HUD) grant program, where the relevant statute specifies only paint, dust and soil hazards.⁷
- States and municipalities, with support from federal agencies, should fully replace lead service lines, from street to structure, that provide drinking water to homes built before Environmental Protection Agency (EPA) banned their use.
- EPA should strengthen its requirements to reduce the corrosivity of drinking water, improve water sampling protocols and create a science-based household water lead action level—the amount that requires intervention—to help families and communities assess their risks.
- Recent research has demonstrated that lead concentrations increase during and after partial remediation, raising concerns about the safety of partial LSL replacement.⁹



An analysis in **Washington, DC** found children living in homes with lead in at least some part of their service lines were twice as likely as those living in homes without LSLs to have elevated blood lead levels. The same study did not find a statistically significant difference between blood lead levels of children from homes with partial versus full LSLs, indicating that partial replacements—in which only one portion of a line is updated—are inadequate to protect children from exposure.⁸

Drinking Water in Schools

There are dramatic differences in the quality of school drinking water.

- A 2015 study of 3,100 taps across 63 Seattle schools found lead levels from less than 1 part per billion (ppb) lead to 1,600 ppb.
- Samples taken from the Los Angeles Unified School District after water sat in the pipes overnight showed a range of 0.2 to 13,000 ppb.
- A 2004 study of Philadelphia schools found that about 57 percent of buildings had water lead above the EPA action level.
- One-third of Chicago schools tested had at least one sample above 15 ppb.¹⁰
- The Centers for Disease Control and Prevention School Health Policies and Practices Survey's 2014 data show that nationwide, only 46 percent of schools test their drinking water for lead and other contaminants.¹¹
- In 2017, the American Society of Civil Engineers rated school infrastructure and drinking water quality as poor.¹²
- Most schools and child-care facilities are not subject to any federal requirements, although EPA recommends testing and a standard of 20 ppb.¹³

Federal-Level Policy Recommendations

- By 2019, EPA and states should require water utilities to submit plans for full lead service line replacement, including specific efforts by utilities to reduce the financial burden on low-income customers. The plans should include strategies for ensuring customer safety following replacement, such as flushing, monitoring and provision of water filters. For example, Lansing, Michigan; St. Paul, Minnesota; and Madison, Wisconsin, have nearly completed replacement of their LSLs.
- EPA should develop an action level for lead in a home's drinking water. Health Canada's proposed maximum allowable concentration of 5 ppb could serve as an interim level with the goal of getting to 1 ppb over time.
- EPA should increase the number of household drinking water taps that are tested for lead under its Lead and Copper Rule requirements.
- EPA and states should require utilities to take immediate protective steps when partial LSL replacements occur, including optimized corrosion control, flushing, monitoring, sampling, and clear and timely communication to affected residents.
- EPA should provide funding to train water system personnel to improve the consistency and effectiveness of corrosion control across systems of different sizes and water chemistries.
- To increase the number of water samples drawn from places where vulnerable children spend time, EPA's Lead and Copper Rule should require utilities to collect and test water from schools and licensed child care facilities in their service districts.
- HUD and EPA should require drinking water sampling as part of lead risk assessment procedures. And, both agencies should coordinate funding for addressing lead in low-income housing so it includes the replacement of LSLs and plumbing as well as removal of paint hazards.
- USDA should work with EPA to define water quality for the National School Lunch Program (NSLP) and the Child and Adult Care Food Program (CACFP). And, for schools and child care sites participating in NSLP and CACFP, USDA should establish a fund for testing and remediation costs. USDA should ensure that schools and child care facilities meet water quality standards through its NSLP Administrative Reviews and CACFP Monitoring.
- USDA should provide supplemental benefits for participants in the Supplemental Nutrition Assistance Program (SNAP) and the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) whose home tap water contains harmful levels of lead to purchase bottled water.

EPA's Drinking Water State Revolving Fund (DWSRF) offers a potential way to offset some of the challenges associated with LSL replacement. The DWSRF was created in 1996 as an amendment of the Safe Drinking Water Act and is appropriated annually by Congress.¹⁴ The program provides infrastructure grants to the states, the District of Columbia and Puerto Rico for eligible projects, such as facility upgrades to improve drinking water quality and installation of water storage tanks. Grant awards are based on the most recent Drinking Water Infrastructure Needs Survey and Assessment, and states must provide 20 percent in matching funds. As water systems repay loans, the principal and interest go back into the fund. In total, the DWSRF has provided more than \$32 billion to water systems through nearly 13,000 grants.¹⁵

State-Level Policy Recommendations

- States should require all properties be inspected for drinking water lead risks before sale or lease.
- State Medicaid agencies should seek approval from the Centers for Medicare & Medicaid Services (CMS) to use Children’s Health Insurance Program (CHIP) funding for testing and remediation of lead in water in children’s homes and child care facilities.
- States should require that schools and licensed child-care providers test for lead in drinking water and release the results publicly. California, New York, and Rhode Island already require testing at the tap in these facilities.¹⁶



In 2016, CMS authorized an amendment to allow **Michigan’s** CHIP to pay for the removal of water pipes and fixtures from the homes of low-income children—the first such approval. The state is using special federal CHIP matching funds for non-coverage-related expenditures with a maximum value of 10 percent of the state’s total amount paid for program benefits.¹⁷ Initiatives targeted at improving children’s health, translation and interpretation services and payments for specialty care not

included in the benefit package are among the eligible activities.

While any property in the state with a resident under 19 who qualifies for Medicaid or CHIP is eligible, Flint’s contaminated properties receive first priority. Michigan will spend \$333,000 in fiscal year 2017 and \$119 million over 5 years. \$23.5 million will be paid in federal funds. Lead-paint hazard control for eligible statewide residences is an allowable expense under the initiative.¹⁸



Local-Level Policy Recommendations

- Municipalities should require developers to conduct full LSL replacement when a structure is sold, demolished or rebuilt. With support from federal agencies, cities and towns—instead of treating LSL replacement as a last resort—should, proactively, fully replace LSLs that provide drinking water to homes built before EPA banned their use.
- Schools and licensed child-care facilities should implement EPA’s 3Ts recommendation to test water for lead. And, local governments should investigate and mitigate drinking water hazards in schools and child-care facilities.
- The risk to consumers from their home drinking water may be



Woonsocket, **Rhode Island**, requires builders to replace the entire LSL when a building is sold, demolished or replaced. The property owner is responsible for the cost of the private side, and the city pays for its part at the same time, if it has not already been replaced.¹⁹

underestimated because utilities typically draw too few samples within each home, and the samples are not consistently taken after the water has sat in the pipe. Cities and towns should ensure that there is better sample collection, testing and reporting.

CASE STUDY: MUNICIPAL LSL REPLACEMENT



Milwaukee requires full replacement of lead service lines with copper pipe if a leak or failure is discovered or if the utility-owned portion is replaced on a planned or emergency basis. The city is using \$2.6 million in state grants to replace lines at 300 day care centers and 300 residences as well as \$3.6 million of its own funds to cover replacement of the city-owned portion of 600 other residential lines. The city’s total \$3.9 million budget for the program also includes funds to help pay for replacement of privately owned LSLs at the same time that the city updates the public portions and to provide water filters and bottled water to property owners during the work.

Under the program, property owners are responsible for no more than one-third of the cost of replacement up to \$1,600 if the work is done by a city contractor, and they can pay their share over 10 years. Previously, a property owner was responsible for the full cost, which could be as much as \$7,000.

Milwaukee Water Works will use customer water payments to cover the balance of the cost to replace the city-owned portions, and property taxes will cover the difference for the private portion. The program is expected to take several decades to complete, reaching about 600 properties a year until all 68,300 known residential LSL are replaced.²⁰

Misunderstandings About Drinking Water

Participants in 16 focus groups organized by the report's research team recognized that lead in water from fixtures, solder and pipes can be a source of childhood exposure. Many also knew that they could reduce the risk by flushing taps and using bottled or filtered water. But, some community residents had misperceptions about lead in drinking water, believing that it would appear as a brown tint or you could visibly see particles in the water. A few participants said that boiling water could protect against lead. In fact, boiling can actually increase the concentration.²¹

Conclusion

Childhood lead poisoning is preventable.

While over the past few decades, successful policies have removed a significant amount of lead in places where children live, learn and play, there is an urgent need for continued attention and action to protect children from lead's harmful effects.

Without lead exposure, hundreds of thousands of children would be more likely to reach their full potential in school and less likely to become teen parents, be incarcerated or underperform in school and at work.

Removing leaded drinking water service lines from the homes of children born in 2018 would protect more than 350,000 children and yield \$2.7 billion in future benefits (about \$1.33 per \$1

invested). The amount includes health and education savings and increased tax revenue of \$480 million for the federal government and \$250 million for states and municipalities.²²

Although the benefit of the intervention is broad—affecting hundreds of thousands of children—children living in low-income communities with aging infrastructure would reap the greatest benefits from the replacement of lead service lines.

Endnotes

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