

POLICY BRIEF FOR FEDERAL POLICYMAKERS, LEADERS 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.

The report notes that more than 500,000 children ages 1 to 5 years had dangerously elevated blood lead levels according to the latest data from the Centers for Disease Control and Prevention.¹ And, while every child can be at risk and no level of lead in blood is safe,² low-income and minority populations are more likely to live in older homes with lead paint, contaminated soil and lead pipes that leach into the drinking water.³ Children also come into contact with lead in their communities and schools—from drinking fountains or on playgrounds through soil and, possibly, lead paint.

Lead poisoning is devastating for children and can lead to lifelong problems,

including decreased IQs and poor academic performance, memory and executive function. 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.⁴

As such, much can be gained from preventing lead poisoning, mitigating the effects and addressing the disparities. The report outlines the policy steps that can be taken at a federal level that will lead to a great return on investment for society.

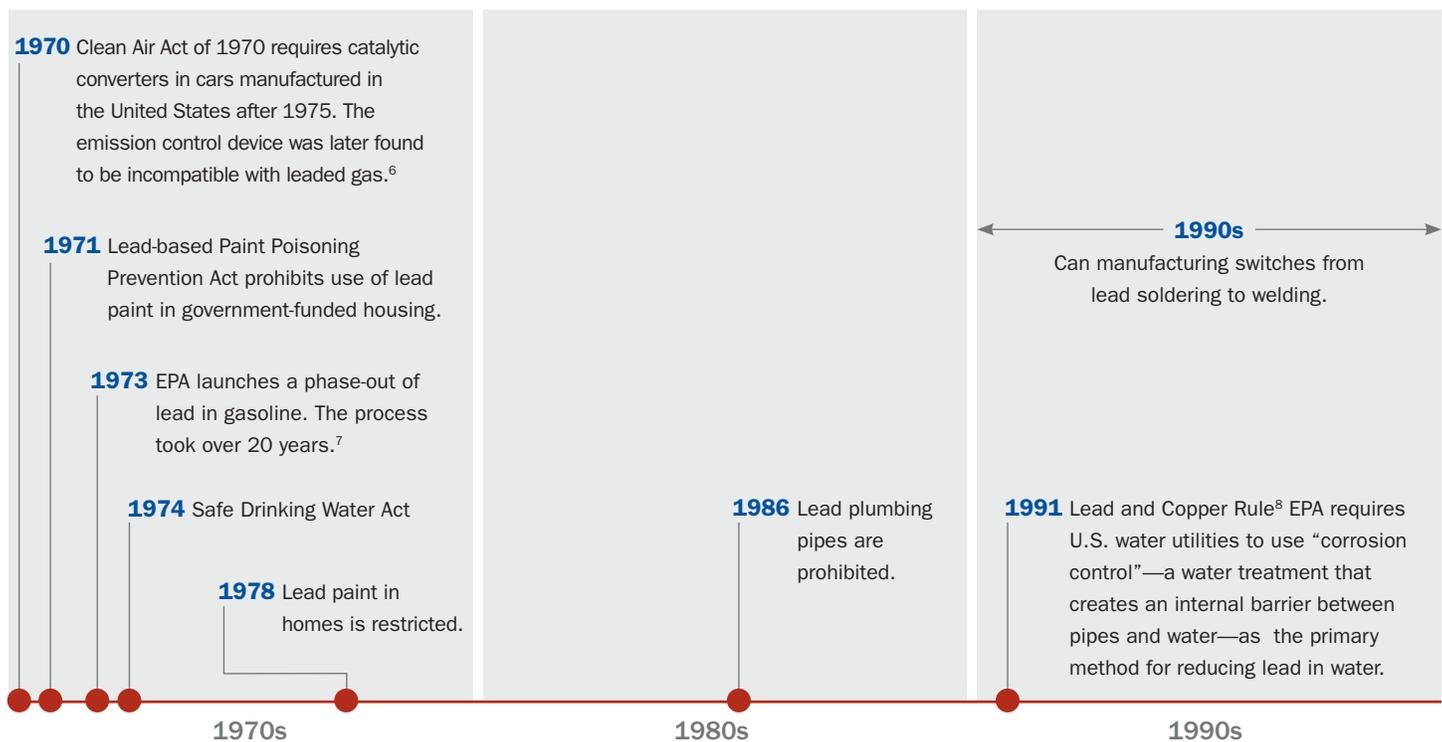
Societal Benefits

Keeping children born in 2018 lead-free could generate \$84 billion in future benefits, including nearly \$18.5 billion for the federal government.* And, more children would thrive, resulting in less public spending on services such as healthcare and special education and improved high school and college graduation rates, leading to greater employment, higher paying jobs and increased tax revenue.

THE REPORT ALSO FOUND THAT SPECIFIC INTERVENTIONS WOULD HAVE SIGNIFICANT POSITIVE RESULTS.

- Removing Lead Water Pipes** from homes would protect more than 350,000 children and yield \$2.7 billion in future benefits (about \$1.33 per \$1 invested).
- Eradicating Lead-Paint Hazards** from the homes of children from low-income families would protect more than 311,000 children and provide \$3.5 billion in future benefits (approximately \$1.39 per \$1 invested).
- Lead-Safe Contractor Practices:** Increasing enforcement of the Environmental Protection Agency's (EPA) Renovation, Repair and Painting (RRP) Rule would protect about 211,000 children in 2018 alone and provide future benefits of \$4.5 billion (about \$3.10 per \$1 spent).
- Airplane Fuel:** In 2018, 226,000 children will be born and live near airports. Curbing lead emissions from airplane fuel would generate \$262 million in future benefits and remove roughly 450 tons of lead from the environment every year.
- Targeted Interventions:** Providing the roughly 1.8 million children with past lead exposure with targeted, evidence-based interventions could increase their lifetime family incomes by more than \$100,000.⁵

TURNING POINTS TIMELINE



* 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.

Ten Policy Recommendations

1. Reduce lead in drinking water in pre-1986 homes and other places children frequent.

Replacing lead service lines (LSLs) is the only way to permanently reduce lead in drinking water. **Removing lead drinking water pipes would protect more than 350,000 children and yield \$2.7 billion in future benefits, or about \$1.33 per dollar invested.**⁹

- 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

The U.S. Centers for Disease Control and Prevention's (CDC) School Health Policies and Practices Survey's 2014 data show that nationwide, fewer than half (49 percent) of schools test their drinking water for lead and other contaminants.¹²

EPA's Drinking Water State Revolving Loan 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.¹⁰ 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.¹¹

Sources of drinking water contamination include corrosion of lead service lines (LSLs), brass plumbing fixtures, and lead solder installed before Congress limited the use of lead in plumbing and pipes in 1986.

(CACFP). And, for schools and child-care sites participating in NSLP and CACFP, the USDA should establish a fund for testing and remediation costs. The 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) for Women, Infants and Children (WIC) whose home tap water contains harmful levels of lead to purchase bottled water.

2. Remove lead-paint hazards from low-income housing built before 1960.

Over the past few decades, research has shown a stark racial divide in the occurrence of lead poisoning. For example, a study of children in Rochester, New York, found that Black children were at higher risk of elevated blood lead levels than their peers of other races.¹³

Low-income and minority communities face a disproportionate risk of lead exposure from old housing and water infrastructure and a lack of funds to perform maintenance on their homes. And, children living in poverty have significantly higher average blood lead levels than their more affluent counterparts, with Black children's levels well above their peers,¹⁴ in part, because low-income families tend to rent rather than own and renters are more likely to face issues associated with inadequate housing, such as lack of complete plumbing facilities in the unit, have more serious constraints on funding for improvements, and depend on landlords to make their homes lead-safe.¹⁵

By eradicating lead-paint hazards from the homes of children in low-income

families, the nation would receive \$3.5 billion in future benefits, protect more than 311,000 children and generate \$1.39 for every \$1 invested.¹⁶

- HUD, the U.S. Environmental Protection Agency and the Center for Disease Control and Protection should work with states and local governments to replace windows coated with lead paint, fix peeling paint, clean up contaminated dust and treat toxic soil in and around low-income homes built before 1960. HUD should also make sure that these homes remain affordable.
- The U.S. Department of Energy should encourage the replacement of lead-painted windows with new energy-efficient ones by including the benefits of preventing lead exposure under its Weatherization Assistance Program (WAP).¹⁷
- The Centers for Medicare & Medicaid Services (CMS) and Title V Maternal and Child Health Services Block Grant Program should train home healthcare workers and other home-based aides to identify potential lead hazards in houses with children.
- EPA and state and local governments should offer funding to schools and child-care providers to support lead paint hazard identification and mitigation.
- EPA should update its standards for lead paint, dust and soil and work with state and local governments to fund efforts to identify and mitigate lead-paint hazards in schools and child-care facilities.

3. Enforce the federal Renovation, Repair and Painting Rule, requiring contractors to control the amount of lead dust and debris created by workers.

- EPA should use their power to regulate the over 4 million renovation jobs each year and work with states and local agencies to ensure compliance.¹⁸ The agency should require that contractors perform dust testing after completing work to make sure that the home is safe.
- EPA should fund state and local agencies to support compliance and educate businesses and consumers about the hazards of unsafe renovation.
- The Occupational Safety and Health Administration (OSHA) should enhance protections for workers and their children by updating standards for lead exposure to reduce on-the-job risks and the hazards of bringing lead home from their jobsites.

4. Remove lead from food and consumer products.

The United States relies on the standards of other countries and an international committee called the Codex Alimentarius General Standard for Contaminants and Toxins in Food and Feed. The federal government,

through participation in the Codex committee, should encourage expedited reduction of international limits on lead in foods, particularly those that young children and babies are likely to consume.



5. Reduce air lead emissions.

Aviation gas used by piston-engine aircraft (PEAs) is the nation's largest source of lead emissions into the air, at about 450 tons a year.¹⁹ Recently, the EPA found that about half of emissions remain in the vicinity of the airport—with approximately 16 million people living near airports and 3 million children attending school near an airport.²⁰

If the nation lowered lead emissions from aviation fuel, 226,000 children would be protected in 2018 alone and the nation would generate \$262 million in future benefits.²¹

Several policy interventions are available that could address air emissions, notably:

- The Federal Aviation Administration (FAA) should expedite efforts to find suitable alternatives to leaded fuel and eliminate its use;
- EPA could help to expedite the elimination of lead in aviation fuel by using its authority under the Clean Air

Amount of lead emissions generated by piston engine aircraft per year



Act to issue an “endangerment finding,” indicating that leaded aircraft fuel emissions are polluting and harmful to public health, which would then require the FAA to adopt regulations.

- Also, EPA should implement the Children’s Health Protection Advisory Committee’s recommendation to reduce the National Ambient Air Quality Standard for lead to 0.02 $\mu\text{g}/\text{m}^3$.

6. Clean up contaminated soil.

- EPA and other federal agencies should collaborate with each other and businesses to remediate dangerous conditions near homes, factories and facilities that extract lead from batteries and electronics.
- EPA and states should further investigate neighborhoods near current and former lead smelter sites and other industrial and hazardous waste facilities. Findings should be shared in partnership with organizations trusted by local communities.

- EPA and HUD should coordinate Superfund efforts and lead hazard control so that when an area is treated for contaminated soil, home interiors are also made lead-safe.
- Congress should restore EPA’s authority to tax crude oil, imported petroleum products and hazardous chemicals to provide additional resources for Superfund cleanup.

7. Improve blood lead testing among children at high-risk of exposure and find and remediate the sources of their exposure.

Prevention is the most critical step in addressing childhood lead exposure. But blood lead testing for at-risk children is sporadic.

Federal health agencies should work with parents of lead-poisoned children, healthcare providers, Medicaid and the Children’s Health Insurance Program to remove barriers to lead testing and reporting. Specifically:

- CDC should work with the American Academy of Pediatrics and other professional organizations to determine the factors that contribute to the lack of appropriate testing of high-risk children.
- The Centers for Medicare and Medicaid Services should work with state Medicaid agencies to increase the

number of states that include blood lead testing of Medicaid-enrolled children as a Healthcare Effectiveness Data and Information Set (HEDIS)—which elevates the performance of more than 90 percent of America’s health plans—measure;

- The U.S. Department of Health and Human Services (HHS) and CDC should provide funding to upgrade and improve blood lead surveillance at the state and local levels to ensure that health agencies can provide follow-up care for children exposed to lead.

Just 41 percent of Medicaid-enrolled 1- and 2-year-olds are tested for blood lead levels, despite a federal requirement that 100 percent be tested.²²

8. Ensure access to developmental and neuropsychological assessments and appropriate high-quality programs for lead-exposed children.

HHS and the U.S. Department of Education should work with state agencies to improve access to high-quality early and middle childhood education programs for children with a history of lead exposure.

CMS should provide adequate reimbursement for comprehensive follow-up services for children affected by lead, including lead hazard

remediation and developmental and neuropsychological assessments.

USDA should increase funding for programs such as WIC and Supplemental Nutrition Assistance Program to improve their ability to provide children’s nutrition and supplemental benefits and bottled water where water is not potable.

The Administration for Children and Families provides grants to states and communities through the Head Start/Early Head Start program to deliver high-quality early learning opportunities to low-income infants, toddlers and young children. Given the federal support and focus on addressing disparities, Head Start could be a valuable way to reach children who have been exposed to lead.²³

9. Improve public access to local data.

CDC should work with community organizations, local health agencies and private philanthropy, to collect census tract level data on blood lead level results; the presence of leaded drinking water pipes; and lead in water, dust, paint and soil of homes, schools, child-care facilities and other places children spend time.

CDC should use data to produce culturally competent and accessible community reports on sources of lead and prevalence rates that are broadly disseminated to healthcare providers, school administrators and child-care operators.

10. Fill gaps in research to better target state and local prevention and response efforts.

Federal, state and local agencies and philanthropic organizations should provide support for and conduct their own research to identify sources of lead exposure and populations at greatest risk with the goal of improving the nation's knowledge of lead poisoning and intervene at the earliest possible stages. To improve knowledge of lead poisoning and enable interventions at the earliest possible stages.

- The federal government should support a national survey of children's blood lead levels and sources of environmental exposure.
- EPA should develop and validate a standardized method for sampling water for homes, schools and child-care facilities that can be implemented in the field by environmental health professionals.
- EPA should identify barriers to optimal corrosion control and methods to overcome them, including widespread education of the public and water utilities.

- HUD should work with EPA to design and implement a study of water from a representative sample of housing to estimate how much lead is getting into water systems and undertake large-scale studies to test the effect of soil treatments over time to inform cleanup programs.
- HUD should research the effectiveness of various lead hazard control treatments in preventing blood lead level increases.
- Federal, state and local agencies and philanthropy should conduct small-area population-based studies to identify relative risks among communities compared to the general population.
- The National Institute for Environmental Health Sciences should fund studies on the relationship between prenatal and early childhood lead and high-incidence adult conditions, including hypertension, cardiac disease and stroke.

Conclusion

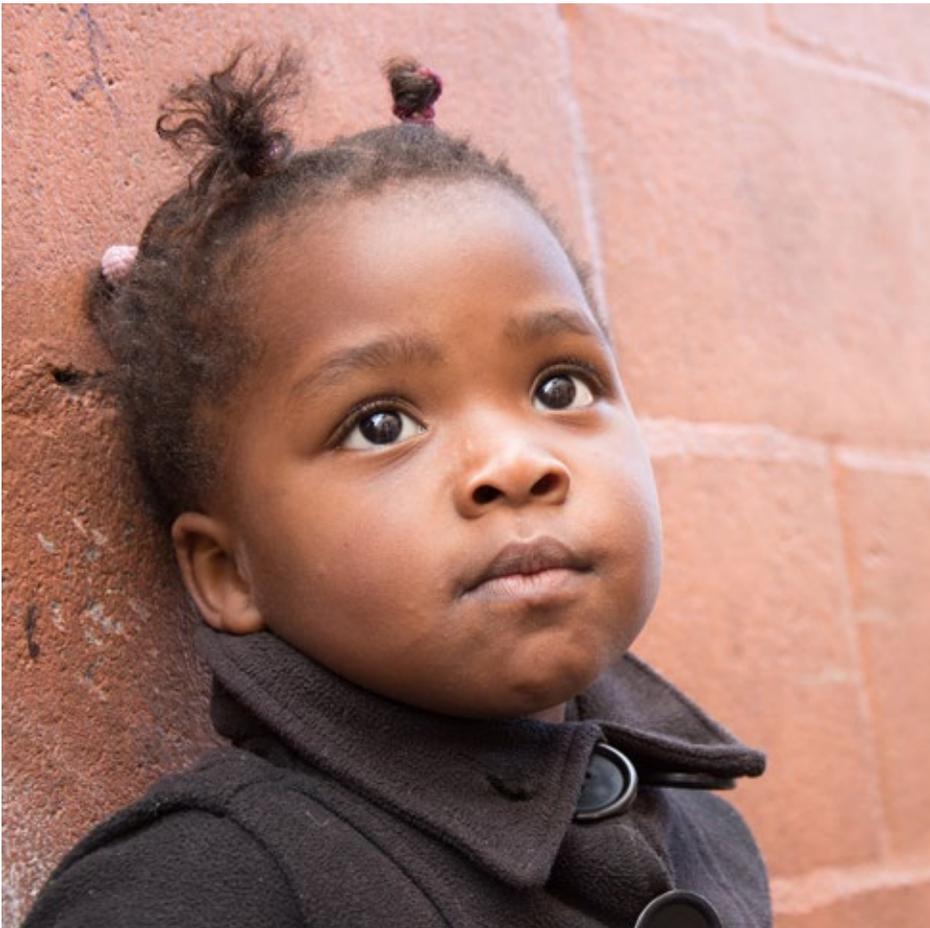
Childhood lead poisoning is preventable.

There is urgent need for continued attention and action to protect children from the harmful effects of lead.

Eliminating lead hazards from the places where children live, learn and play will pay dividends and could yield \$84 billion in long-term benefits per birth cohort.

While prevention is the priority, the best opportunity for children who have already been exposed²⁴ is to receive evidence-based, high-quality early and middle childhood interventions that have been shown to reduce skill deficits and behavioral issues.

By abating the lead sources harmful to children and supporting interventions to help lead-exposed children overcome the obstacles they face, the federal government can save billions of taxpayer dollars, develop a stronger pool of employees, generate thousands of jobs and improve the quality of life for millions of families across the nation.



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