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The State of Drinking Water in Schools

In the fall of 2014, Americans across the country became aware of a public health issue many had never worried about before: lead in drinking water. At the time, few were also unfamiliar with [Flint, Michigan](#), but the city quickly put itself on the map as the poster child for contaminated drinking water. Within months of the original issues arising, a state of emergency was called by then-President Obama, meaning news of the water crisis in the greater Detroit suburb had traveled all the way to Washington.

Since then, the public's understanding of drinking water quality has shifted dramatically. The Flint water crisis expanded education around our nation's drinking water quality and infrastructure while paving the way for increased transparency and action regarding lead in water—particularly in schools.

Why Should I Be Concerned About Lead?

According to the Environmental Protection Agency (EPA), there are no known “safe” levels of lead in drinking water. Lead is a naturally occurring metal that is toxic to humans. Children and pregnant women are an especially vulnerable population when it comes to lead, with the potential for brain and nervous system damage.

The EPA states, “Young children, infants, and fetuses are particularly vulnerable to lead because the physical and behavioral effects of lead occur at lower exposure levels in children than in adults. A dose of lead that would have little effect on an adult can have a significant effect on a child. In children, low levels of exposure have been linked to damage to the central and peripheral nervous system, learning disabilities, shorter stature, impaired hearing, and impaired formation and function of blood cells.”

Currently, the EPA’s Lead and Copper Rule (LCR) as it stands now requires Public Water Systems to test a limited number of homes on a biannual, annual, or triennial basis for lead and copper. The law primarily serves as check on water treatment and was not written to help systems strategically locate lead sources. A very limited number of schools and childcare facilities are considered Non-Community Non-Transient Water Systems and are required to test a portion of fixtures under the LCR. Typically, these facilities are either on a well or provide some water treatment on site.

Water chemistry varies with a particular building and determines the time, composition, and extent of lead leaching into drinking water. High lead concentrations in large buildings can be influenced by corrosive water, leaded brass and leaded solder commonly found in plumbing materials and intermittent fixture use (Elfland et. al., 2010). Although older facilities are particularly at risk, lead in drinking water will likely be an issue for most schools and daycares. To understand why, we will first look at how the meaning of “lead free” plumbing has evolved over the years.



Fixtures

Faucets, water coolers, fountains, coffee makers, ice machines, and other plumbing products conveying drinking or cooking water



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How Did We Get Here?

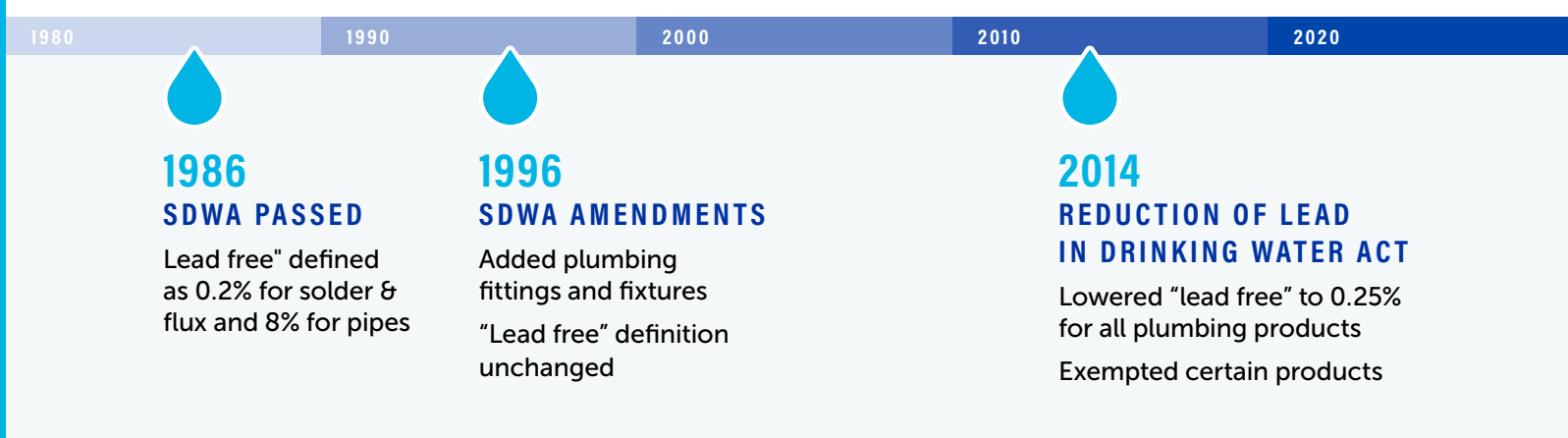
THE HISTORY OF LEAD PLUMBING

Although we are more aware of the dangerous effects of lead, prior to the 20th century, lead was widely used in water distribution systems and plumbing hardware. Lead pipes, leaded solder, leaded alloys and lead goosenecks (also called lead service connections) were commonly used due to their durability and flexibility.

In 1996, the Safe Drinking Water Act (SDWA) was amended to include plumbing products (elbows, shut-off valves, faucets, water coolers, etc.). In 2014, following the realization that plumbing products with 8% lead could still leach high levels of this contaminant into drinking water, the EPA lowered the maximum allowable lead content of plumbing products to 0.25%.

As of 2017, the average public school building was approximately 44 years old or built around 1973 (Edweek, 2017). This is twenty-three years before congress passed any lead regulation for plumbing products, which suggests many schools across the country will have unknowingly installed leaded faucets, water coolers, and plumbing parts throughout buildings. As explained above, leaded fixtures and plumbing parts in schools and childcare facilities will always present a potential threat to children's health because water chemistry can be highly variable in large buildings.

FIGURE 1.
Regulatory
history of
"lead-free"
plumbing
definitions
and standards
in the U.S.



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Funding and Legislative/ Voluntary Efforts

Federal funding for lead testing in schools does exist through the Water Infrastructure Improvements for the Nation Act (WIIN). Funding is provided by the EPA and is available to all 50 states and US territories through noncompetitive grant application. Two main goals of the program are to:

1. **Reduce children's exposure to lead in drinking water**
2. **Help states target funding toward schools unable to pay for testing**

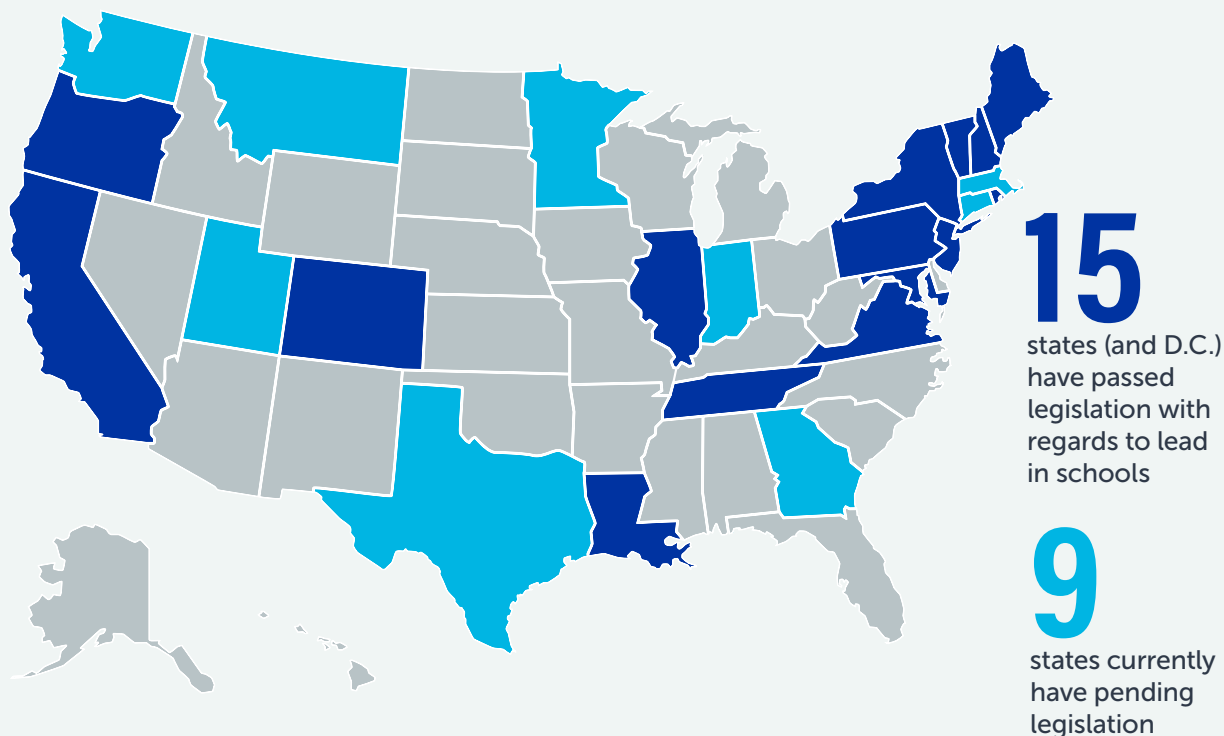
One caveat of WIIN grant funding is that the dollars are only allowed to be used for lead testing, not remediation, which can range from providing filters for all drinking water sources to removing known lead service lines. In addition, those who apply for the grant must follow the below transparency and communication guidelines if they receive funding:

- **Make available a copy of the results of any testing for lead in drinking water carried out using grant funds, if applicable, in the administration offices and, to the extent practicable, on the internet website of the local educational agency for inspection by the public**
- **Notify parent, teacher, and employee organizations of the availability of the results.**

Despite industry knowledge around the prevalence and dangers of lead in drinking water, there has yet to be a federal mandate for testing water in schools and childcare facilities, although such a mandate is on the horizon. The community-driven response to lead risks in children's drinking water is a colorful patchwork quilt of voluntary and mandatory state programs with a wide variety of standards. Programs exhibit different sampling protocols, remediation thresholds, and levels of funding and technical support (Cradock et al., 2019).



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SCHOOL PROGRAMS*

As of this report, 15 states and Washington D.C. have passed or promulgated lead sampling laws and regulations for schools, 9 states have pending legislation and 21 states have made little to no progress in regards to statewide legislation for school lead testing (SimpleLab).

**It is important to note that this report looks only at state-driven programs and does not account for lead sampling efforts initiated by school districts.*

State-wide programs in Massachusetts and Indiana have pioneered the way in school sampling programs, and their testing has revealed that some sources of lead were present throughout all their drinking water systems.

Although WIIN funding is available, awareness of and involvement in programs is still remarkably low, and participation in programming has only decreased during the pandemic. Many school leaders and local officials are either not aware of the ability to receive free lead testing or are concerned about the workload and accuracy of testing if handled by the school, but proper testing is vitally important to the health of future generations. We encourage local leaders across the country to connect with their local utility or state regulatory agency to determine if WIIN funding is available for drinking water testing and how to access it.

FIGURE 2.
Based on the
school water
crisis data from
[Simple Water](#).



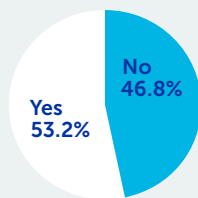
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Market Insights

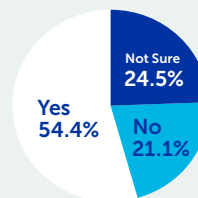
Recently, 120Water conducted market polling to parents and school leaders to determine the awareness around lead testing in schools. Nationally, 500 school administrators and 1000 parents of school-aged children were voluntarily polled and while some data was promising, other stats were quite concerning.

For starters, a surprising **34%** of parents polled have little to no knowledge of the **dangers of lead** in drinking water for their children. And, barely over half of polled parents and school leaders know the last time their schools were tested for lead:

SCHOOL LEADERS:
Do you know the last time your school's water was tested for lead?

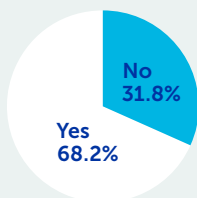


PARENTS:
Do you know if your child's school has tested its water within the last 3 years?

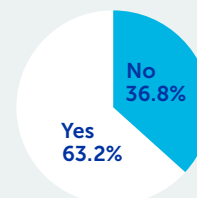


When it comes to knowing who to contact in regards to lead testing for schools, surprisingly, over 60% of parents and school leaders claim to be aware of the right party to connect with, but whether contact is actually initiated is uncertain.

SCHOOL LEADERS:
Do you know who to contact in your community to have your school's water tested for lead?



PARENTS:
Do you know who to contact in your community to request that your child's school drinking water be tested for lead?



When asked if they would **participate in a voluntary lead testing program**, an unexpected **60%** of school leaders said they would either **not participate** or would **only participate if the program was free**, which signals a significant lack of engagement in drinking water safety and awareness around funding for water quality testing.



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120Water Lead in Schools Insights

As a leader in managing school testing efforts, 120Water has sampled over 43,000 drinking fountains and taken over 209,000 samples from fixtures in schools and facilities across the country.

EPA regulations require local water systems to take action if lead levels in drinking water is over 15 parts per billion (PPB), and soon utilities will have to have an action plan at the ready if levels exceed 10 PPB. However, as we have yet to identify a “safe” level of lead in drinking water, the American Pediatrics Association advocates for only 1 PPB as the desired threshold.

80.73%

greater/equal
to 1 PPB is 169,496
out of 209,944

Of the 209K+ samples taken by 120Water, almost 7% had lead levels equal or greater than 10 PPB, and over 80% had levels equal to or exceeding 1 PPB.

13.64%

greater/equal
to 5 PPB is 28,635
out of 209,944

6.6%

greater/equal
to 10 PPB is 13,852
out of 209,944

4.51%

greater/equal
to 15 PPB is 9,466
out of 209,944

If protecting future generations and safeguarding public health is something our nation values, then awareness must be spread and action must be taken soon to update the water infrastructure of our nation's schools.



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Future of Testing Programs (LCRR)

Thankfully, as public attention around the safety of our nation's drinking water has grown, legislation has followed. Most significantly, the imminent passage of revisions to the EPA's Lead and Copper Rule (the first significant changes since it was introduced in 1991) will require the first federal mandate for school lead testing.

Under the new revisions (which may not take effect until 2024), utilities must sample 20% of elementary schools (both public and private) and 20% of all childcare facilities in their service area each year. In addition, any non-elementary school can request sampling during that time and the system is required to comply. After 5 years, any school or childcare facility can request testing at any time.

The goal of this provision is to inform schools and childcare facilities whether remedial action is needed and to measure the effectiveness of corrosion control within plumbing systems. Each system will also be required to provide results to the facility, state agencies and local health department. Systems would only be required to sample 5 fixtures at schools and 2 fixtures at childcare facilities, which is a small number of fixtures typically found in these buildings.



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What is Needed from Local Leaders?

120Water has worked with state-wide programs and local initiatives across the country to provide testing for lead in schools. We encourage local school leaders and elected officials to join voluntary programs if one is available in your state or area. If no such program exists, review your available resources and consider performing a round of samples before the EPA's revisions to LCR go into effect.

Since there are more than 5 fixtures in a particular school building, for schools actively participating in a program, we recommend sampling water from as many fixtures as possible to ensure comprehensive testing. Because many schools and childcare buildings are older than the earliest laws reducing lead in plumbing materials, our experience suggests a majority of schools and childcare facilities will discover at least some sources of lead throughout their drinking water systems. Results from several state-wide programs in Massachusetts and Indiana support this (IFA, 2019; MDEP, 2017).

Environmental justice and equity is a concern as many facilities in low income areas may not have the ability to both test and remediate. We believe environmental and public health agencies are in a good position to provide assistance if they are given adequate financial support.

We recommend that local school leaders and elected officials stay vigilant in the fight to protect the health of our nation's children, which involves working in tandem with their water systems to discover funding opportunities (such as WIIN programs) for testing and remediation, perform testing and develop an action plan if lead is found, and communicate efforts to relevant stakeholders, particularly parents.

The future of our nation resides with our younger generations, and setting them up for success includes the assurance that children in all demographic areas have access to clean, safe drinking water

The 120Water solution has proudly assisted sampling and communication efforts for school testing programs across the country, and it is our mission to continue supporting more programs and individual school districts in the fight to protect public health. To learn more, visit [120WATER.COM](https://120water.com).



Resources

Cradock AL, Hecht CA, Poole MK, Vollmer LY, Flax CN, Barrett JL. State approaches to testing school drinking water for lead in the United States. Boston, MA: Prevention Research Center on Nutrition and Physical Activity at the Harvard T.H. Chan School of Public Health; 2019.

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EPA. "WIIN Grant: Lead Testing in School and Child Care Program Drinking Water." EPA. Environmental Protection Agency. Accessed August 19, 2021. <https://www.epa.gov/dwcapacity/wiin-grant-lead-testing-school-and-child-care-program-drinking-water>

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Massachusetts Department of Environmental Protection. 2017. Massachusetts Assistance Program for Lead in School Drinking Water. Final Report.

SimpleLab, and Tap Score. "The School Water Crisis." Lead in Schools Report Card. Accessed August 23, 2021. <https://simplewaterdata.com/school-lead>.

Learn more about our mission to support more programs and individual school districts in the fight to protect public health.



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