



Perspectives on State Legislation Concerning Lead Testing in School Drinking Water

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Executive Summary

Schools play a critical role in the lives and health of children, and existing federal laws are insufficient to ensure that school drinking water does not expose students and teachers to lead contamination. State laws can fill this gap and provide assurance that school drinking water is tested and that necessary actions are taken to reduce exposure.

The Center for Green Schools at the U.S. Green Building Council undertook this study to inform state legislators and advocates as they consider new state laws to address lead contamination in school drinking water. We reviewed the growing body of state laws concerning testing of lead in school water, and we identified relevant reports that could help us understand the effectiveness of the laws. We also contacted stakeholders with knowledge of the implementation and impact of the state laws. Finally, we analyzed how each law addresses key elements that may relate to the effectiveness of a law in terms of the coverage of schools, implementation of testing, risk reduction, and disclosure.

Why States Are Taking Action

Most schools are served by Community Water Systems; about 10% have their own water system and are directly regulated. Under the Lead and Copper Rule, water systems test representative water outlets (such as faucets and drinking fountains) among their customers, but schools are not a priority category for testing. The U.S. Environmental Protection Agency (EPA) has issued guidance for reducing lead exposure at schools, but it is voluntary. The result of the existing federal regulatory framework is that without state action—whether administrative or legislative—many school outlets will not be tested for lead. Without identifying and addressing elevated levels that may be present in schools, any exposure of students and staff to lead will continue unabated.

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Approaches that Impact Effectiveness of State Legislation

Mandatory or voluntary

State laws mandating testing will be more likely than voluntary programs to accomplish testing at most schools. In voluntary programs, the impact of funding assistance on effectiveness—that is, getting a large number of schools to participate—is uncertain. For example, one state's funding program was considerably undersubscribed. Other factors such as outreach, funding for remedial action, and/or technical assistance may be more important for a successful voluntary program.

Responsibility and enforcement

Another key element is where a state law places responsibility for testing and whether it provides for enforcement. Voluntary programs rely on schools or local education agencies to take initiative. Most states with mandatory programs also focus on local education agencies. However, three states charge state agencies with testing responsibility, and one state makes water systems responsible. These alternatives have proven to be effective in accomplishing testing.

Scope of testing

Since any school outlet used for consumption could introduce lead exposure, in our view the most protective approach is to test all outlets at all schools. State laws have typically applied to a subset of K-12 schools, and laws vary in the number of outlets required to be tested at each school.

Reporting and disclosure

The state laws vary widely in their reporting and disclosure provisions. As a general principle, laws that specify how and to whom lead testing results are reported, or alternately direct a state agency to develop requirements, will be more effective from the perspective of disclosure. Statewide databases or reports that are accessible to the public are an effective complementary approach to notifying parents and guardians of results.

Risk reduction

The ultimate public health goal of testing for lead in school drinking water is to reduce the risk of lead contamination reaching students

and staff; however, not all of the state laws specify actions to be taken when lead is found. Most of the state laws specify action levels for reporting and/or remediation. When lead contamination is detected, clear requirements in law or directed regulation about what actions should be taken would be most effective. Tracking specific remediation actions in state databases can also support effectiveness and inform affected communities.

Reevaluating the Action Level for Lead Contamination

EPA regulation sets the Maximum Contaminant Level goal for lead, based on health considerations, at zero. The regulation sets the “action level” for water systems at 15 ppb based on a statistical analysis of all samples across the system. Note that the action level is determined with first-draw samples, which generally represent worst case conditions for contamination. The action level is a regulatory trigger for water systems and was not intended to indicate whether an individual tap is safe.

In 2006, EPA issued the *3Ts for Reducing Lead in Drinking Water*, guidance for schools on how to test school water outlets for lead and how to interpret the results. In October 2018, EPA issued a significant revision to the 3Ts guidance, replacing the 2006 version. While the old guidance suggested a remediation trigger for individual outlets of 20 ppb, new guidance does not state a recommended level for remediation, instead directing schools to consult with local and state health agencies and emphasizing that there is no safe level of lead for children.

States that previously established an action level for individual water outlets on the basis of the EPA 2006 3Ts guidance should consider (1) reevaluating the levels they use for remedial action, and (2) rescreening prior data for potential lead exposures and taking additional action or making notifications accordingly.

For more information, visit EPA’s web site at <https://www.epa.gov/ground-water-and-drinking-water>.

Considerations for Future Legislation

Drawing from our analysis, the Center for Green Schools offers these perspectives for prospective state legislation:

- Laws establishing mandatory programs will be more effective at ensuring widespread testing and can account for state-specific context through elements such as responsibility for testing, accountability and enforcement, and financial responsibility.
- Generally, *all* K-12 schools should be included in testing programs to ensure all schoolchildren are equally protected.
- State legislatures should exercise caution in establishing an action level in law and should consider directing relevant state agencies to develop and regularly update guidance concerning remediation requirements.
- Remediation requirements backed by funding may be helpful to schools, as these measures together support school officials in making the case for addressing the problem and for spending money on remediation.
- The Center for Green Schools places a high value on transparency and disclosure to aid in informed decision making. Limited reported data (such as exceedances only) may be significantly less helpful to community members, researchers, and lawmakers. Robust statewide reporting platforms help all parties protect children and ensure elevated lead levels are addressed.
- Legislation should aim to address recurring, rather than one-time, testing. It may be most appropriate to authorize state agencies to determine requirements for recurring testing after initial rounds are complete.

Though the 16 laws analyzed herein are a promising start, a great deal of progress is still needed before we have systems in place to assure that school drinking water in America is safe and free of lead. The remainder of states have an opportunity to build on these examples to find even better, more efficient ways to ensure that lead contamination in schools is found and addressed.

Introduction

When schools, parents, and governments know whether the drinking water in schools is contaminated with lead, they can take critical action to safeguard student and staff health. Lead is a colorless, odorless neurotoxin that can negatively affect nearly every body function and can hinder many aspects of brain development in children.¹ Lead is generally not present in water sources, but as water travels from water system supplies and through school pipes, valves, fixtures, and other infrastructure, it can corrode the metal, causing particles of lead to enter the water. Federal law mandates that regulated water systems test both their supply of water and representative outlets for contaminants, but it lacks a requirement that the water system or local education agency test the water in schools.²

In the absence of a federal mandate, it is up to the discretion of states and local education agencies to determine if outlets in schools should be tested for lead. A 2018 survey by the Government Accountability Office found that 43% of school districts had tested water outlets for lead, while 41% of districts had not tested, with the remaining 16% not knowing whether or not they had tested.³ Every school that has not been tested could potentially be exposing students to contaminated water and the risk of adverse health effects.

State lawmakers have the opportunity to require, support, or encourage the testing of school drinking water. At the time of this report's publication, 15 states and the District of Columbia had recently passed laws intended to ensure that local education agencies have the information they need to protect students from this health threat. This report provides a preliminary review of existing state laws that address lead in school drinking water, with the objective to aid in the development of similar legislation in additional states. The need for action is clear; the time is now for lawmakers to pass the legislation needed to keep students healthy and safe.

About this Report

The research summarized in this paper aimed to examine key features determining the effectiveness of state laws in reducing exposure to lead in school drinking water.

While states may also use regulations or administrative policies to require or encourage lead testing of school drinking water, we focused on state legislation in this report because a law is presumed to be more durable as well as more likely to be followed and enforced.⁴ Nonetheless, some states have implemented successful programs for lead testing of school drinking water without a specific law. Massachusetts and New Jersey are good examples of states using administrative authority (see Appendix C for a summary of New Jersey's regulation). In many states, however, legislation may be needed to provide authority or clear direction to relevant agencies, water systems, and local education agencies.

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To conduct the analysis presented in this report, we first identified state laws focused on or expressly including provisions for lead testing of school drinking water. We include both voluntary and mandatory approaches. We have included several state law appropriations of funds where those laws also had substantive effect, such as establishing a program, authority, or requirements; however, we do not include appropriations laws that only provide funding. We also have not included state laws related to testing in regulated water systems—which include schools that operate their own systems—with one exception, where there was a special provision related to testing of schools.

¹ Wani, A. L., Ara, A., & Usmani, J. A. (2015). Lead toxicity: a review. *Interdisciplinary Toxicology*, 8(2), 55–64. <http://doi.org/10.1515/intox-2015-0009>.

² Outlets generally refer to faucets, drinking fountains, and other taps such as icemakers that are used for consumption (drinking or cooking).

³ U.S. Government Accountability Office. (2018, July). *Lead Testing of School Drinking Water Would Benefit from Improved Federal Guidance*. Retrieved from <https://www.gao.gov/assets/700/692979.pdf>.

⁴ For a review of best practices in administrative rules, see *Get the Lead Out*, PennEnvironment (2017).

We reviewed the laws and available supporting documents and identified common attributes and differences among the state laws. We sought to examine associations between the features of each law and its effectiveness. We considered effectiveness to include:

- **Coverage:** The proportion of K-12 schools subject to the law, with the premise that all schools should be tested
- **Testing implementation:** Whether schools covered by the law actually completed testing
- **Risk reduction:** Whether the testing resulted in, or would be expected to result in, reduced risk through required responses to elevated lead levels
- **Disclosure:** Whether the law ensures testing results are disseminated to the school population and relevant authorities

We requested and searched for reports on the outcome or effectiveness of each of the state laws. Because most states have not yet completed the first round of water outlet testing under their respective laws, only three states' testing reports were identified and reviewed. After our initial research, we contacted individuals from state agencies and stakeholder organizations who had knowledge of how the law was being implemented in their respective states, and we conducted interviews with those who responded. See Appendix B for the list of interviews.

We distilled anecdotal information regarding the experiences of state agencies and other stakeholders into recurring themes and lessons learned. These individuals can have valuable firsthand knowledge and insight into implementation and outcomes, which can help guide improvements within their states as well as additional state legislative efforts.

This paper presents an explanation of the current legal setting, a brief summary of public health concerns about lead exposure in children, a summary of each state's laws and corresponding reports that indicate outcomes or effectiveness, and an analysis of the similarities and differences between laws.

Additional Resources

Three recent documents provide information about how the EPA and states are addressing lead in school drinking water:

GAO 18-382, *K-12 Education: Lead Testing of School Drinking Water Would Benefit from Improved Federal Guidance* (2018): This report examines the extent to which (1) school districts are testing for, finding, and remediating lead in drinking water; (2) states are supporting these efforts; and (3) federal agencies are supporting state and school district efforts. GAO made several recommendations for EPA and the U.S. Department of Education.

***3Ts for Reducing Lead in Drinking Water Toolkit*, updated in October 2018 by the U.S. EPA:** The new guidance for schools, child care facilities, states, and water systems replaces previous EPA guidance and serves as the foundation for the department's grants and programs to reduce children's risk of lead exposure. Notably, EPA's prior 3Ts guidance recommended a remedial action threshold of 20 ppb for individual outlets, but the new 3Ts guidance does not recommend a specific threshold. The new guidance states that schools should implement remediation measures if results show elevated levels of lead, emphasizing that there is no safe level of lead for children.

***Get the Lead Out*, issued by PennEnvironment and written by John Rumpler and Christina Schlegel of the Environment America Research & Policy Center (2017):** This report reviews and grades 16 states' policies including both law and regulation. The authors provide a critique of testing-based approaches and advocate for prevention-focused action through replacement of lead-containing plumbing and fixtures and the use of filters, alongside testing in the interim. The report provides recommendations for states and communities and for federal action.

The Public Health Risks of Lead Exposure in School Drinking Water

Lead is a toxic metal that can cause health effects even at low levels of exposure, which is why the EPA has set the contaminant level goal for lead in drinking water at zero.⁵ This goal is particularly important in schools. In the U.S., over 50 million children attend public schools,⁶ where they spend hours every day in a facility intended to support education and well-being.

The risk posed to children by lead contamination in drinking water is especially serious, because children can absorb 4 to 5 times more ingested lead into their bodies than adults from a given source.⁷ Additionally, children are more vulnerable to the neurotoxic effects of lead because their blood-brain barrier and liver detoxification systems are not fully developed.⁸ As a result, the EPA finds, “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.”⁹ When children are exposed to higher levels of lead, the World Health Organization finds, “Lead attacks the brain and central nervous system to cause coma, convulsions and even death.”¹⁰

Lead exposure can also affect educational outcomes, another reason that remediation

efforts are a worthwhile investment by schools. A study of over 48,000 Chicago students found that children with blood lead levels over 5 µg/dL were at least 30% more likely to fail third grade reading and math tests.¹¹ Another study of more than 57,000 children in North Carolina found that a blood lead level as low as 4 µg/dL can significantly increase the likelihood that a child is classified as learning-disabled in elementary school.¹²

The ramifications of childhood lead exposure last well into the future. A longitudinal study in the *Journal of the American Medical Association* finds, “Greater childhood lead exposure was also associated with greater declines in IQ from childhood to adulthood and greater declines relative to parents in occupational socioeconomic status.”¹³

Public schools contain a large number of staff; roughly 6 million adults work in public school facilities daily.¹⁴ Adults exposed to lead can also face long-term health risks, including decreased kidney function, increased blood pressure and incidence of hypertension, and other cardiovascular effects.¹⁵ Many school employees are women of childbearing age; during pregnancy, lead exposure for the mother can present severe vulnerability to a developing fetus. The World Health Organization finds, “Exposure of pregnant women to high levels of lead can cause miscarriage, stillbirth, premature birth and low birth weight, as well as minor malformations.”¹⁶

⁵ U.S. Environmental Protection Agency. (2016, December). Basic information about lead in drinking water. Retrieved from <https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water>.

⁶ U.S. Department of Education, National Center for Education Statistics. (n.d.). Fast facts. Retrieved from <https://nces.ed.gov/fastfacts/display.asp?id=372>.

⁷ World Health Organization. (2018, February 9). Lead poisoning and health. Retrieved from <http://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health>.

⁸ Abelsohn, A. R., & Sanborn, M. (2010). Lead and children: Clinical management for family physicians. *Canadian Family Physician*, 56(6), 531-535.

⁹ U.S. Environmental Protection Agency, 2016.

¹⁰ World Health Organization, 2018.

¹¹ Evens, A., Hryhorczuk, D., Lanphear, B. P., Rankin, K. M., Lewis, D. A., Forst, L., & Rosenberg, D. (2015). The impact of low-level lead toxicity on school performance among children in the Chicago Public Schools: a population-based retrospective cohort study. *Environmental Health*, 14, 21. Retrieved from <http://doi.org/10.1186/s12940-015-0008-9>.

¹² Miranda, M. L., Maxson, P., & Kim, D. (2010). Early childhood lead exposure and exceptionality designations for students. *International Journal of Child Health and Human Development*, 3(1), 77-84.

¹³ Reuben, A., Caspi, A., Belsky, D. W., Broadbent, J., Harrington, H., Sugden, K., Moffitt, T. E. (2017). Association of Childhood Blood Lead Levels with Cognitive Function and Socioeconomic Status at Age 38 Years and With IQ Change and Socioeconomic Mobility Between Childhood and Adulthood. *Journal of the American Medical Association*, 317(12). doi:10.1001/jama.2017.1712.

¹⁴ Filardo, M. (2016) *State of Our Schools: America's K-12 Facilities 2016*. Washington, DC.: 21st Century School Fund and Center for Green Schools at USGBC. Retrieved from <http://stateofourschools.org>.

¹⁵ U.S. Environmental Protection Agency, 2016.

¹⁶ World Health Organization, 2018.

The Gap in Federal Regulation of Lead in School Drinking Water

Water and the way it is supplied is vital in any society. In the United States, drinking water quality is regulated by the federal government and state governments and managed by both public entities (including municipalities and special districts) and private water companies. There are over 151,000 public water systems in the United States, which supply water to 90 percent of Americans.¹⁷ These public water systems are responsible for water sources, treatment if required, and distribution. Understanding the classifications and shortcomings of public water system management and which parties are responsible for which aspects is critical when legislating water quality monitoring.

EPA categorizes water systems by several classifications, two of which are relevant to schools.¹⁸ The first classification is Community Water System (CWS), which is a public water system that supplies water to the same population year-round. Most major cities, and the schools therein, are served by community water systems. The second is Non-Transient Non-Community Water System (NTNCWS), which is a public water system that regularly provides water to at least 25 of the same people for at least six months of the year. These are generally schools, hospitals, and other institutions that have their own, independent water systems. According to a study by PennEnvironment Research & Policy Center, about 10 percent of schools operate their own water systems and are subject to direct regulation.¹⁹ Beyond these classifications, the EPA also defines water systems by their size and how many people they serve, as well as whether the water is sourced from ground or surface water. Each classification is regulated

differently under EPA's water regulations, as amended, and the Safe Drinking Water Act.

The Safe Drinking Water Act

Passed in 1974 and amended in 1986 and 1996, the Safe Drinking Water Act (SDWA) was created "to protect public health by regulating the nation's public drinking water supply" and authorizes the EPA to set standards for drinking water to protect against both artificial and naturally occurring contaminants.²⁰ These contaminants include microorganisms, disinfectants, disinfection byproducts, inorganic chemicals, organic chemicals, and radionuclides.²¹ To regulate these contaminants, EPA delegates "primary enforcement responsibility," or "primacy," to most states and Native American Tribes to ensure water quality from the public water systems. States must meet certain requirements to attain primacy, such as adopting regulations for water contaminants that are no less stringent than the EPA's regulations, active policy to enforce such regulations, and adequate authority to enforce regulations.²²

The Lead and Copper Rule

One of the EPA regulations that must be adopted and enforced by states with primacy is the Lead and Copper Rule (LCR). Notably, lead contamination of drinking water generally occurs by lead leaching from a system's pipes, fittings, solder, and flux, or the plumbing within individual buildings. All buildings, including schools, with plumbing installed before 2014 may have pipes, fittings, and plumbing fixtures containing lead. The approach outlined in the LCR modifies the chemical characteristics of drinking water in public water systems where lead is present due to leaching to reduce the leaching. The LCR requires systems to work toward removing lead pipes that are part of the system, but there are no federal requirements

¹⁷ U.S. Environmental Protection Agency, O. W. (2015a, September 21). Information about Public Water Systems [Collections and Lists]. Retrieved from <https://www.epa.gov/dwreginfo/information-about-public-water-systems>.

¹⁸ The third classification is Transient Non-Community Water System (TNCWS), which is a public water system that supplies water to places where people do not stay for long periods of time, such as gas stations or campgrounds.

¹⁹ U.S. Environmental Protection Agency, 2015a.

²⁰ U.S. Environmental Protection Agency, (2004). *Understanding the Safe Drinking Water Act*. Retrieved from <https://www.epa.gov/sites/production/files/2015-04/documents/epa816f04030.pdf>.

²¹ U.S. Environmental Protection Agency, O. W. (2015c, November 30). National Primary Drinking Water Regulations [Overviews and Factsheets]. Retrieved from <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>.

²² U.S. Environmental Protection Agency, O. W. (2015b, September 21). Primacy Enforcement Responsibility for Public Water Systems [Collections and Lists]. Retrieved from <https://www.epa.gov/dwreginfo/primacy-enforcement-responsibility-public-water-systems>.

to replace lead-containing pipes and plumbing in buildings, including schools.

The LCR regulation establishes requirements for water systems to test their water for lead and copper and to report results to the primacy agency. The testing requirements include that the water system establish and obtain approval for a testing plan of customer locations.²³ The required number of sample locations is based on the water system's size (e.g., service population). Systems identify locations for testing, with priority given (under EPA regulations) to Tier 1 locations, which are single family houses that may be more likely to be at risk for lead.²⁴ Systems are not prohibited from testing additional non-Tier 1 locations, provided their compliance testing meets requirements. We did not identify any state laws that included a requirement that testing plans for Lead and Copper Rule compliance include schools served by the system.

The required frequency of testing may be reduced if conditions are met, such as testing results being consistently below the action level. Some systems only test once every 3 years, or as little as once every 9 years if the system is free of lead-containing and copper-containing materials.

EPA has established testing protocols under the LCR. Notably, samples are to be taken after water has been motionless for at least six hours (e.g., the tap has not been used and no water has run); this is referred to as "first-draw" or "stagnation" samples.²⁵ Requiring first-draw samples is intended to ensure the tests reflect conditions most conducive for lead to enter water from piping and plumbing. As explained above, because lead generally enters drinking water by sitting in contact with plumbing, the length of time that water is in the plumbing can affect the amount of lead in water. This makes testing protocols and interpretation complex. First-draw samples may indicate worst-case

lead contamination and not necessarily reflect exposure over the course of a day when water is running frequently. A precautionary approach would be to react to worst-case lead results, even if they may not represent daily exposure.

EPA Grant Programs

While the federal government does not require lead testing in school drinking water, in 2018 two new federal grant programs were announced by the EPA.

The Lead Testing in School and Child Care Program Drinking Water Grant, authorized under the Water Infrastructure Improvements for the Nation Act (WIIN Act), allocates funding to states to assist schools and child care programs in testing for lead in drinking water. The grant program requires the awarded schools and child care programs to utilize the EPA's *3T's for Reducing Lead in Drinking Water in Schools* guidance, or applicable state program or regulations that are no less stringent than the 3T's. Local education agencies that receive funds must also make the test results available to the public and notify parents, teachers, and employee organizations of the results.

The WIIN Act also created a federal grant program to reduce elevated levels of lead in school drinking water through remediation. The grant requirements and timeline for application were not yet made public at the time of this paper's publishing.

More information is available at <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-grants>

²³ Required testing also includes testing for the presence of lead and copper in water supplies (e.g., untreated sources of water such as groundwater, reservoirs, rivers, etc.).

²⁴ Tier 1 sampling sites are defined in the LCR as single-family structures that contain copper pipes with lead solder installed after 1982 or contain lead pipes; and/or served by a lead service line. The age of a building's plumbing is used as an indicator of lead in its components (e.g., solder, pipes, or fixtures), because federal law prohibited installation or repair of components that are not "lead-free" in most potable water applications beginning in June 1986; lead-free was defined as an allowable maximum lead content of 8.0 percent for pipes. The Reduction of Lead in Drinking Water Act revised the definition of lead-free to lower the allowable maximum lead content to a weighted average of 0.25 percent of the wetted surfaces of plumbing products and established a method for the calculation of lead content, taking effect in January 2014. (More information can be found at https://www.epa.gov/sites/production/files/2016-10/documents/lcr_sample_site_selection_and_triennial_monitoring_wsg200.pdf).

²⁵ 40 C.F.R. § 141.86(b) (2018).

While there is no safe level for lead ingestion—that is, lead can have adverse health effects at any level—the regulation establishes an action level of 15 parts per billion, which triggers additional actions intended to reduce the risk of lead contamination in the water.²⁶ The system’s lead testing results are evaluated by comparing the 90th percentile, meaning the lead concentration at which only 10% of the monitoring results are higher. Thus, for a large community water system with 100 monitoring locations, up to 10 of the samples can be above the action level without triggering additional steps. No action is required for the individual locations other than providing the test results to persons served at the site.²⁷

EPA is considering changes to the LCR; see Appendix E for more information.

States with primacy usually adopt EPA’s drinking water standards, although some states have increased stringency of specific standards or increased regulatory requirements based on need in the state or preference from constituents. States undertake a range of activities to support compliance by water systems, such as education, providing resources, developing guidelines, and other means, even if they do not adopt any more stringent requirements from federal rules. Michigan, for instance, creates specific guidelines for public water system operators to follow, which is meant to increase the operators’ understanding of, and compliance with, the standards.²⁸ The guidelines are intended to ensure that regulations are followed, and that there is clear communication of responsibilities.

The EPA is the primary regulator until the state develops policies and implementations to achieve primacy. In instances where a state

achieves primacy and then fails to maintain it, the EPA resumes primary authority. This is what occurred in Flint, Michigan, from 2014 to 2017, when a public water system operator switched the main supply of water for the City of Flint to the Flint River and failed to treat the water appropriately, leading to high levels of lead in the water. After the local and state governments attempted to remedy the problem, the EPA took over enforcement of the LCR in Michigan, including the ongoing Flint violation. The federal government declared a state of emergency and pursued the water system’s compliance, while the citizens drank from bottled water provided by the state.²⁹

The case of Flint, Michigan, illustrates the importance of testing and reporting in order to identify heightened risks of lead exposure.³⁰ Under federal law and regulations, most of America’s public schools are not required to be tested for lead in drinking water. Where schools are provided with water from a public water system, the system is responsible for system-wide testing, but schools are not a priority testing location under the SDWA. Only schools operating their own public water system are directly regulated under the SDWA.³¹

Despite the lack of priority, school drinking water has the potential to pose a critical point of lead exposure to children given the amount of time they spend at school.³² The gap in federal testing requirements, whereby testing for lead in most schools’ drinking water is largely voluntary and not federally required, can lead to situations where lead exposure in schools is not identified and can therefore persist. Several state legislatures have acted to fill this gap, and these state laws are the focus of this paper.³³

²⁶ The system must also inform the public about steps they should take to protect their health and may have to replace lead service lines under their control.

²⁷ 40 C.F.R. § 141.80(g) (2017).

²⁸ Government of Michigan. (2013). *New Community Water System Capacity Guideline Document*. Michigan.gov. Retrieved from http://www.michigan.gov/documents/deq/Appendix_11_Misc_Helpful_Information_346561_7.pdf

²⁹ C.N.N. (2017, November 28). Flint Water Crisis Fast Facts. Retrieved March 5, 2018, from <https://www.cnn.com/2016/03/04/us/flint-water-crisis-fast-facts/index.html>

³⁰ C.N.N., 2017.

³¹ U.S. Environmental Protection Agency. (2017, May 19). Lead in Drinking Water in Schools and Childcare Facilities. Retrieved from <https://www.epa.gov/node/116045>.

³² Wines, M., McGeehan, P., & Schwartz, J. (2016, March 26). Schools Nationwide Still Grapple with Lead in Water. *The New York Times*. Retrieved from <https://www.nytimes.com/2016/03/27/us/schools-nationwide-still-grapple-with-lead-in-water.html>.

³³ NCEL. (2018). NCEL: Lead Contamination. Retrieved March 5, 2018, from <https://www.ncel.net/lead/>.

Summary of State Laws

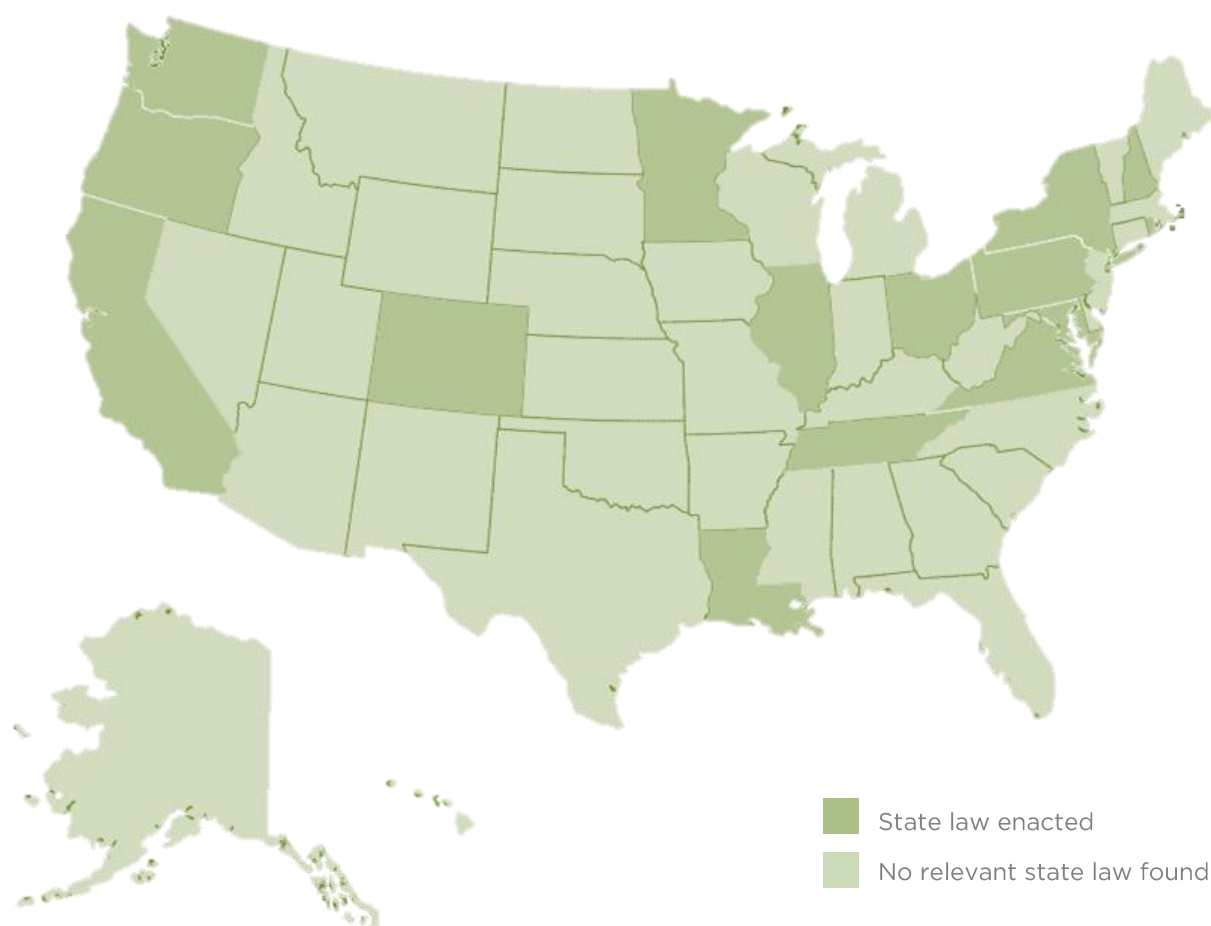
Fifteen states and the District of Columbia have enacted laws concerning testing for lead in school drinking water.³⁴ These laws have been enacted recently, many in response to new awareness stemming from the lead crisis in Flint. Rhode Island passed the first law mandating testing school drinking water for lead in July 2016, while Pennsylvania passed the most recent law, related to voluntary school testing, in June 2018.

The 16 laws described in this section establish programs or requirements for testing. A seventeenth law we reviewed, Ohio 2016 Am. Aub. HB 512, authorizes the Ohio Department of Environmental Protection to require schools that operate their own water systems to conduct lead testing on additional locations, beyond LCR requirements. Because this law is distinct in not establishing a program per se, it is not included in the analysis of this paper; however, a summary is provided in Appendix D.

Appendix A provides a table of state laws, describing each law and its key characteristics.

Figure 1. State Laws Concerning Lead Testing in School Drinking Water

States indicated in dark green have state laws that specifically address testing for lead in school drinking water.



³⁴ In addition to the laws concerning substantive programs, there are also some appropriations laws that provide funding related to lead testing requirements or programs, or that authorize funds to be spent on such activities. Generally, funding-only laws are not included in this report; however, in several states, appropriations laws have, in addition to funding, also established a program, requirements, and/or authorities, and in these cases have been included in this compilation.

California, Statutes Ch. 746 (enacted October 13, 2017)³⁵

Requires Community Water Systems (CWSs) that provide water to schools to test for lead contamination in local educational agency school buildings constructed before January 1, 2010, with some exceptions. Local education agencies include school districts, public charter schools, and county offices of education. The CWS must test for lead in the schools' potable water—defined as fountains and faucets used for drinking or preparing food—before January 1, 2019. The CWS must report its findings to the school and if lead levels should exceed 15 ppb, the CWS System must then test for lead at the point where the school's potable water system connects to the CWS, to determine if the source of lead contamination is the school site or the CWS.

Should the lead contamination level exceed 15 ppb, the local education agency is required to notify the parents and guardians of students attending the school and are required to immediately shut off faucets and fountains that may be contaminated. The local education agency is also required to provide potable drinking water to each contaminated school site. Each CWS is required to work with local education agencies to develop a sampling plan and implementation methods.

Colorado, Safe Water in Schools Act (enacted June 6, 2017)³⁶

Establishes a grant program to pay for lead testing in public schools, charter schools, and schools managed through boards of cooperative services that receive water from public water systems. The law allows the Department of Public Health and Environment to specify testing protocols and guidelines and provide technical assistance to applicants and grant recipients regarding

sampling plans and communication. It also allows the Water Quality Control Commission to adopt rules for the implementation of the program and make rules that consider a local education agency's ability to pay for testing.

The grant allocation for the state-wide program is \$300k per year, and the Department must prioritize grant recipients in the following order: (1) oldest public elementary schools, (2) oldest public non-elementary schools, and (3) all other public schools. Best efforts should be applied to complete all testing and analysis by June 30, 2020. A public school that receives a grant must comply with testing protocols and provide test results to its local public health agency, its water supplier, school board, and the Department. The Department is required to submit annual reports by February 1 of each year (until February 1, 2021) on the grant program, including the participating schools and a summary of the results.³⁷

District of Columbia, Childhood Lead Exposure Prevention Amendment Act of 2017 (effective September 23, 2017 subject to funding)³⁸

This law imposes new requirements, subject to funding. A subsequent law provides partial funding for the requirements and is anticipated to take effect October 27, 2018.³⁹ The law requires that, for all public schools and public charter schools, the Department of General Services locate and install filters at all sources of drinking water within their school buildings. Sources are those reasonably expected to be used for consumption or cooking.

The law also requires conspicuous signs to be posted at water sources that are not for drinking and requires annual testing of all drinking water. All results are to be posted on the Department website, along with other

³⁵ 2017 Cal. Stat., ch. 746 (A.B. 746), codified at Cal. Health & Safety Code § 116277. Retrieved from: https://leginfo.ca.gov/faces/codes_displaySection.xhtml?lawCode=HSC§ionNum=116277.

³⁶ 2017 Colo. Sess. Laws, ch. 399, (HB 1306), codified at Colo. Rev Stat. §§ 25-1.5-203, 25-8-608. Retrieved from: https://leg.colorado.gov/sites/default/files/documents/2017A/bills/sl/2017a_sl_399.pdf.

³⁷ For current information about lead testing results, see <https://www.colorado.gov/pacific/cdphe/lead-school-testing-grants> and <https://environmentalrecords.colorado.gov/HPRMWebDrawer/RecordView/1166305>.

³⁸ 64 D.C. Reg. 10159 (B22-0029) (eff. Sept. 23, 2017). Retrieved from: <https://www.dcregs.dc.gov/Common/NoticeDetail.aspx?NoticeId=N0065762>.

³⁹ D.C. Act 22-442. Fiscal Year 2019 Budget Support Act of 2018. Available at <https://code.dccouncil.us/dc/council/code/sections/38-825.01a.html> and <https://code.dccouncil.us/dc/council/acts/22-442.html>

information. Should the tests reveal that there are more than 5 ppb of lead contamination, the school must shut off the water within 24 hours of receiving the test results, notify parents and guardians of the test results, determine actions that must be taken for remediation, provide clean drinking water, and post regular updates on the remediation and steps being taken online.

Illinois Public Act 099-0922 Section 25 (enacted January 16, 2017)⁴⁰

Requires school districts or chief school administrators to test for lead and to notify parents of sampling results. The requirement only applies to school buildings constructed before January 1, 2000 that are occupied by more than ten students in pre-K through 5th grade. For schools built prior to January 1, 1987, the testing deadline is December 31, 2017. For schools built between January 2, 1987 and January 1, 2000, the deadline is December 31, 2018. The Department of Public Health is to determine, by June 30, 2019, whether it is necessary and appropriate to protect public health to require schools constructed in whole or in part after January 1, 2000 to conduct lead testing.

The law also specifies sampling protocols, including first and second-draw samples. All results must be posted on the school website or sent to parents and guardians and must be sent to the Department of Public Health. Notification of results above 5 ppb must be mailed or emailed to parents and guardians. Within 90 days of the Act's passage, the Department of Public Health was required to post guidance on mitigation actions for lead in school drinking water on its website.⁴¹ The act also provides that community water systems may cover the costs of school testing, and if so, may access certain funds to defray such costs. Uniquely, the Illinois law excludes school testing results from being used for public water system compliance with the LCR.

Louisiana 2018 Act No. 632, Safe Drinking Water (May 30, 2018)⁴²

Establishes a pilot program in the state Department of Health. The Department is to select 12 schools that are public elementary schools built prior to 1986 or susceptible to contamination and then conduct lead testing of water. The Department is to submit an annual report of findings and outcomes to the relevant House and Senate committees by December 31st each year.

Maryland Laws Ch. 366 (enacted June 1, 2017)⁴³

Requires that the Department of the Environment, in consultation with the Department of Education, develop and adopt regulations to require periodic testing for lead in school drinking water outlets, such as fountains and certain sink faucets (both public and nonpublic schools are covered). The law requires the regulations be issued before January 1, 2018, and that the regulations require initial testing to be completed by July 1, 2018.

If the results indicate that the lead level in a school drinking water outlet is above the standard recommended by EPA in technical guidance, parental notification is required. In addition, the outlet must be shut off, remediation must be undertaken, and clean drinking water must be provided until the remediation is complete. The law requires the establishment of a stakeholder group to make recommendations during the development of regulations.

Minnesota, Lead in School Drinking Water Act (enacted May 10, 2017)⁴⁴

Adopted in the state's omnibus education funding bill, this provision requires the commissioners of health and education to develop a model plan to test for lead in water in

⁴⁰ 225 ILL. Comp. Stat. 320/35.5 (Pub. Act 099-0922, §25) (2017). Retrieved from: <http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1343&ChapterID=24>.

⁴¹ Illinois DPH website: <http://www.dph.illinois.gov/topics-services/environmental-health-protection/lead-in-water>.

⁴² 2018 La. Sess. Law Serv. Act 632 (H.B. 633) (WEST).

⁴³ 2017 Md. Laws, ch. 366 (H.B. 270). Retrieved from: http://mgaleg.maryland.gov/2017RS/chapters_noln/Ch_386_hb0270T.pdf.

⁴⁴ Minn. Stat. § 121A.335 (H.F. 2) (2018). Retrieved from: <https://www.revisor.mn.gov/statutes/cite/121A.335#stat.121A.335.3>.

public school buildings serving K-12 students. By July 1, 2018, the board of each school district must adopt the model plan or develop and adopt an alternative plan to efficiently test for the presence of lead in water in school buildings serving pre-K students and K-12 students. The plan must include a testing schedule that requires each building to be tested at least once every five years. Testing must begin by July 1, 2018 and be completed within five years. Each district must make the results of the testing available to the public and notify parents of the availability of the results.

New Hampshire Laws Ch. 4 (enacted February 8, 2018)⁴⁵

New Hampshire's law establishes and strengthens standards and requirements for lead testing and remediation across both paint and water. With regards to school drinking water, this bill requires testing every five years for the presence of lead and specifies the start date for testing. If the concentration of lead in school drinking water exceeds a certain limit, the results must be reported to the parents of guardians of the students of the school. A remediation plan must be put into effect, and potable water must be supplied for the time before the problem is fixed.

New York Laws Ch. 296 (enacted September 6, 2016)⁴⁶

Requires all school districts and boards of cooperative educational services to test all occupied school buildings for lead in drinking water, pursuant to regulations required of the commissioner of health. Each local education agency must make a copy of all testing results and any lead remediation plans available to the public. The commissioner is authorized to apportion money to any school district for testing and for installation of qualified remedial measures in cases where lead is confirmed. The

law also required the commissioners of health and education to submit a joint report on initial testing results with recommended remediation measures to the governor and senate leaders by December 1, 2016.

The regulations promulgated pursuant to the Act require school districts and boards of cooperative educational services to conduct lead testing of drinking water in specified outlets in schools. Outlets include fixtures used or potentially used for drinking or cooking. Initial testing was to be completed in 2016, with second round testing by 2020, and ongoing testing every 5 years thereafter. If water testing exceeds the action level, 15 ppb, the school must notify the local health department and must prohibit use of the outlet and provide occupants with a supply of safe water until future tests indicate safe lead levels.

Ohio Laws Assembly Substitute House Bill 390 (enacted May 25, 2016)⁴⁷

As part of the biennial appropriation bill, this law directed the state Facilities Construction Commission to implement Lead Plumbing Fixture Replacement Assistance Grants. Eligible schools include traditional public schools, community schools, or chartered nonpublic schools that are housed in buildings constructed before 1990.

The law appropriated \$12 million for the grants, including reimbursement to schools for the cost of an assessment (lead testing) performed by a certified laboratory, provided the assessment follow testing protocols consistent with EPA guidelines. If the assessment finds that a fixture or piping is the cause of lead above the federal action level in drinking water, the school may apply for reimbursement for replacement. The law authorizes the Commission to establish guidelines.

⁴⁵ 2018 N.H. Laws, ch. 4 (S.B. 247).

⁴⁶ 2016 N.Y. Laws, ch. 296 (A.B. 10740) (as added by §1110, Pub Health L; as amended by §§ 3602,1950, Ed L). Retrieved from: <https://www.nysenate.gov/legislation/bills/2015/A10740>.

⁴⁷ 2016 Ohio Laws Am. Sub. H.B. 390. Retrieved from: <ftp://sosftp.sos.state.oh.us/free/publications/SessionLaws/131/131-HB-390.pdf>.

Oregon Laws Ch. 700 (enacted August 8, 2017)⁴⁸

Requires each school district, education service district, or public charter school to develop and adopt a plan that addresses environmental conditions at the facility. Plans must include provisions to test for, and reduce exposure to, elevated levels of lead in water used for drinking or food preparation, as required under guidelines to be adopted by the Oregon Health Authority.⁴⁹ Proposed regulations would require all taps used for drinking or food preparation be tested by 2020 and every 6 years thereafter. The proposed regulation would also establish required responses if a level of 15 ppb is exceeded.

While testing is not expressly required in the law, the law does require each district or school to provide a certification that it is in compliance with any testing requirements under its plan, and in this way, incorporates the testing requirements of the proposed regulations. The Department of Education is required to develop a model plan to provide guidance to local education agencies. Local education agencies must provide a copy of their plans to the Department of Education. Test results conducted under a plan must be made available to the public, with emails sent to parents and staff, within ten business days of receiving the results. The law also established a Healthy School Facilities Fund, through which the Department of Education can give grants for costs associated with lead testing.

Pennsylvania Laws Act No. 39 § 742, Lead Testing (enacted June 22, 2018)⁵⁰

This law establishes that any schools that students attend may test for lead in drinking water. If a school does test and has an

“elevated” result, which is any result above zero,⁵¹ the law requires the school to report it to the department of education and for it to be posted on the department’s website. The school is also required to implement a plan to prevent exposure to lead contaminated drinking water and ensure alternative sources are available. If a school does not test, the school entity shall “at a public meeting, discuss lead issues in the school facilities.”

Rhode Island, Lead and Copper Drinking Water Protection Act (enacted July 12, 2016)⁵²

Directs the Department of Health to expend certain funds⁵³ to conduct testing of water supplies at all public schools in the state for compliance with all state and federal laws, rules, and regulations pertaining to lead and copper levels in drinking water supplies.⁵⁴ The Department must submit a report of its findings to the speaker of the house and senate president by April 30, 2017. The report must include a plan for ensuring compliance with the aforementioned laws, rules and regulations.

Tennessee Public Acts Chapter 977 (enacted May 23, 2018)⁵⁵

Requires each local board of education to implement a program to reduce lead contamination of drinking water in public schools that incorporates, at a minimum, periodic (at least biennial) testing of lead levels in school buildings that were constructed prior to January 1, 1998. If the results exceed 15 ppb but are below 20 ppb, the school shall conduct annual lead tests until retesting confirms that the level is less than 15 ppb. If the result exceeds 20 ppb, the school shall: immediately remove the drinking water source from service until retesting confirms that the lead level is

⁴⁸ 2017 Or. Laws, ch. 700 (S.B. 1062).

⁴⁹ The Oregon Health Authority issued a notice of proposed rulemaking in September 2018. See <https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/DRINKINGWATER/RULES/Pages/rules.aspx#lead>.

⁵⁰ 2018 Pa. Legis. Serv. Act 2018-39 (H.B. 1448) (WEST).

⁵¹ The law refers to “lead levels in excess of the maximum contaminant level goal or milligrams per liter” as set by the EPA. The EPA maximum contaminant level goal for lead is zero milligrams per liter; and the action level is 0.015 mg/l (15 ppb). Thus, the law appears to define an elevated result as any result above zero.

⁵² 2016 R.I. Pub. Laws, ch. 439 (H 8127 Substitute A). Retrieved from: <http://webserver.rilin.state.ri.us/PublicLaws/law16/law16439.htm>.

⁵³ Specifically, drawn from its portion of federal capitalization grants for the drinking water state revolving fund.

⁵⁴ State licensed daycare facilities are also included.

⁵⁵ 2018 Tenn. Pub. Acts, ch. 977 (S.B. 619) (amending Tenn. Code Ann. tit. 49, ch. 2, pt. 1). Retrieved from: <https://publications.tnsosfiles.com/acts/110/pub/pc0977.pdf>.

below 20 ppb; notify parents within five days; notify the Departments of Education and Health, local governing body, and others within 24 hours; and retest the drinking water source within 90 days of any corrective action.

Virginia Acts Ch. 628 (enacted March 20, 2017)⁵⁶

Requires local school boards to develop and implement a plan to test and, if necessary, remediate potable water from sources that the U.S. EPA has identified as high priority for testing (bubbler-style and cooler-style drinking fountains, cafeteria or kitchen taps, classroom combination sinks, etc.). Testing plans should give priority to school buildings that were constructed before 1986.

Washington Session Laws Ch. 299 (enacted March 27, 2018)⁵⁷

Appropriates annual funding for two years to pay for voluntary testing of drinking water fixtures in public schools for the presence of lead. Priority is given based on age of children attending, age of buildings, and the date of last test. It also requires the Department of Health to develop guidance and testing protocols that include actions to take if the federal action level is exceeded, recommendations to schools on prioritizing fixture replacement, and recommendations for communicating test results to parents and the community.



Figure 2. Timeline of State Laws Profiled and Related Key Dates

⁵⁶ Va. Code Ann. § 22.1-135.1 (SB 1359) (2017). Retrieved from: <https://law.lis.virginia.gov/vacode/22.1-135.1>.

⁵⁷ 2018 Wash. Sess. Laws, ch. 299 (SB 6032). Retrieved from: <http://lawfilesexst.leg.wa.gov/biennium/2017-18/Pdf/Bills/Session%20Laws/Senate/6032-S.SL.pdf>.

Indications of Legislation Effectiveness: Published Reports

Colorado

Colorado's 2017 law (HB1306) provides grant funding to test drinking water in public schools, but it does not mandate testing in all schools. The law requires the Department of Public Health and Environment to submit an annual report to the general assembly's committees that have jurisdiction over public health that includes: the number, types, names, and locations of applicant public schools; the number of grants that have been issued, along with the amount of money awarded and the names of recipient schools; a summary of the test results; and any legislative proposals that the department believes are warranted. The first and most recent report was released on February 1, 2018, assessing the period from July 2017 - January 2018, or the first calendar year of the program.⁵⁸

The law allocated \$300,000 for grants each fiscal year for three years. By the end of the first year, 22 applications were received from two school districts, serving a combined population of 7,500 students.⁵⁹ As of the release of the Department's report, these applicants were funded and are currently in the contracting phase. The two applicants will sample 1,680 fixtures with a combined \$73,585 in grants. Grant recipients submit results based on the approved lead testing sampling plan that was submitted with their application.⁶⁰ As of the release of their report, no lead test results had been received. However, a spreadsheet of results is available on the Department's website, showing that results have since been sent in for all the outlets at one school building.⁶¹ Due to the current lack of data, the Department had no legislative proposals to recommend.

New York

New York's September 2016 law (AB10740) required the commissioners of health and education to submit a joint report on initial testing results to the governor and state senate leaders, which occurred on January 27, 2017. New York has nearly 4,700 public schools in about 700 districts, among which approximately 2,940 schools are outside New York City and 1,720 in New York City (NYC).⁶² All occupied school buildings in the jurisdiction of school districts and boards of cooperative educational services were required to sample, with the deadline for pre-K through grade 5 schools set at September 30, 2016, and grade 6 through grade 12 schools set at October 31, 2016. Within ten business days of receiving results from testing labs, schools were required to enter results into the state database.⁶³

By the time of the state report's publishing, 96% of schools outside NYC had tested every outlet, though only 88% of schools outside the city had sent in results. The schools that reported results tested 236,600 outlets, of which 86% had lead levels below the action level of 15 ppb. The New York City Department of Education (NYC DoE) had submitted results for 541 buildings—or 46,654 outlets—into the state database by the time of the state's report, indicating that 91% of outlets had lead levels below the action level. The NYC DoE expected to have completed results in mid-2017.⁶⁴

The NYC DoE had conducted lead testing in its schools prior to the law's passage, but it was unable to obtain exemption from the mandatory sampling. Not all outlets had been tested (as required) and the sampling protocols used were not compliant with the ones cited in the law. Specifically, pre-stagnation flushing, in which water lines are flushed the night before testing, occurred in many instances before

⁵⁸ Colorado Department of Public Health and Environment, Water Quality Control Division. (2018, February). *Safe Water in Schools Act Annual Report to Legislature*. Retrieved from <https://environmentalrecords.colorado.gov/HPRMWebDrawer/RecordView/1166305>.

⁵⁹ Ibid., 2018.

⁶⁰ Ibid., 2018.

⁶¹ Colorado Department of Public Health and Environment. (n.d.). School lead testing results. Retrieved from <https://www.colorado.gov/pacific/cdphe/school-lead-testing-results>.

⁶² New York State Department of Health. (2017, January 27). *Lead in School Drinking Water Status Report*. Retrieved from https://www.health.ny.gov/press/releases/2017/docs/lead_in_school_drinking_water_report.pdf.

⁶³ New York State Department of Health, 2017.

⁶⁴ Ibid., 2017.

sample collection, increasing the risk of false-negative results.⁶⁵

On April 28, 2017, the new results for NYC schools were released. Under the previous testing, 1% of all outlets had elevated lead levels and two-thirds of all school buildings had no outlets with elevated levels. In contrast, the new results showed that 8% of all outlets had elevated lead levels and 83% of school buildings had at least one outlet with elevated lead levels.⁶⁶ The law requires schools to prohibit use of an outlet with elevated levels and provide safe water until the outlet is returned to service; published news reports suggest NYC had some challenges. According to an article by WNYC, nearly a year later, NYC reported that “all problematic fixtures have been replaced;” however, “a WNYC analysis found only 20 percent of [the schools that had shut off outlets because of contamination] have notified parents that the water has been retested and is safe to drink.”⁶⁷

The state agencies’ report has not yet been updated.⁶⁸ The New York Department of Health, however, maintains a publicly accessible web database, Health Data NY, which includes a dataset of school lead testing data.⁶⁹ The data is self-reported by the schools in response to a Department of Health electronic survey and transferred to Health Data NY.

Beyond the state agencies’ 2017 report, the National Resource Defense Council (NRDC) issued a report in 2018. In February 2018, NRDC downloaded the publicly available testing data and conducted its own analysis of the results.⁷⁰ The researchers identified and excluded from analysis 250 schools for incomplete form submissions and 10 schools that had listed not testing any outlets. Discussions with stakeholders in the state indicate that the

Department of Health is currently identifying and working with some of these schools to help complete results.⁷¹ Among many findings, the NRDC analysis included the following observations:⁷²

- Around 82 percent of public school buildings reported one or more taps that tested above the state lead action level (15 ppb).
- Over 56 percent of school buildings statewide tested above 15 ppb at 5 percent or more of their water outlets, with a higher proportion of taps closed for schools outside NYC than inside.
- Almost 2 percent of school buildings statewide found elevated levels in half or more of the outlets tested, with a higher rate outside NYC than inside.

While the NRDC findings provide an updated analysis and an independent picture of how widespread lead contamination is and where it is concentrated, this picture is still limited in understanding current risks. The report points out that the state data does not include the cost of testing or remediation actions taken,⁷³ both of which would be useful in crafting future regulation. Additionally, researchers identified limitations in the state online database. Recognizing that it is important to understand the severity of lead contamination, since it plays a role in determining the extent of health risks and the cost of remediation, they noted that the statewide data does not specify the exact level of lead found in samples, but only whether the action level was exceeded.⁷⁴

⁶⁵ New York State Department of Health, 2017.

⁶⁶ Taylor, K. (2017, April 28). Most New York City Schools Had High Lead Levels, Retests Find. Retrieved from <https://www.nytimes.com/2017/04/28/nyregion/new-york-schools-lead-water.html>.

⁶⁷ Pattani, A. (2018, March 6). NYC lags in reinstating public school water fountains after finding lead. Retrieved from WNYC News website: <https://www.wnyc.org/story/nyc-lags-repairing-water-fountains-lead-public-schools/>.

⁶⁸ New York State Department of Health. (n.d.). Lead Testing of School Drinking Water. Accessed September 2018 at https://www.health.ny.gov/environmental/water/drinking/lead/lead_testing_of_school_drinking_water.htm.

⁶⁹ New York State Department of Health. (n.d.). Health Data NY. Accessed September 2018 at <https://health.data.ny.gov/Health/Lead-Testing-in-School-Drinking-Water-Sampling-and/rkyy-fsv9/data>.

⁷⁰ Matthews, J. L. (2018a, March 13). School drinking water gets an F for lead. National Resources Defense Council. Retrieved from: <https://www.nrdc.org/experts/joan-leary-matthews/school-drinking-water-gets-f-lead>.

⁷¹ Interview J.

⁷² Matthews, 2018a.

⁷³ Matthews, J. L. (2018b, April 12). Grade F to A? Getting rid of lead in school drinking water. Natural Resources Defense Council. Retrieved from: <https://www.nrdc.org/experts/joan-leary-matthews/f-get-rid-lead-school-drinking-water>.

⁷⁴ Matthews, 2018b.

Rhode Island

Rhode Island's law (House Bill H 8127 Substitute A) required the Department of Health to create a report of its findings that was to be sent to the Speaker of the House and Senate President by April 30, 2017. The report given to lawmakers notes that funding limitations prevented the Department from sampling and testing every water outlet at each school.⁷⁵ Rather, a minimum of three samples per school building was offered. A handful of school districts had already done testing and sent their results, while nearly all other school districts and charter schools participated in the state-run testing.⁷⁶ Private and parochial schools were exempt, which concerned one advisory group of stakeholders convened by the Department, since the state's health requirements typically apply to all schools.⁷⁷

Public water systems serve 342 public schools in the state; the report includes results for 305 schools that had samples taken through the state-run testing program.⁷⁸ The report also includes data from schools that use their own wells for water, though these water systems are considered non-transient non-community systems and accordingly must conduct tests under the LCR regulations. The report states that 1,034 total samples were taken, with 83% of samples showing results below 5 ppb, 11% of samples showing results between 5 and 14 ppb, and 6% (62 samples) at or exceeding 15 ppb. The Department of Health website has since published updates to the data. The website states that 1,114 samples had been collected and tested, with 65 samples exceeding 15 ppb as of August 22, 2017.⁷⁹ The report includes the following findings:

- Faucets, whether located in a kitchen or a bathroom, were more likely than fountains to exceed 15 ppb.

- Schools with previous sampling programs often took samples in summer months; these samples often had higher lead levels because water had been stagnant for a long time.
- Flushing (letting the water run for one minute before sampling) effectively reduced the lead levels at most sample sites to less than 15 ppb, though this is not a viable long-term solution.

The Department of Health's report notes that, while school districts were interested in lead testing, they expressed concerns over the financial implications of discovering elevated levels of lead and their capacity to identify funds for replacement plumbing or fixtures. Moreover, "[s]chools frequently stated there is a need for clear and consistent guidance to properly address potential lead sources."⁸⁰ Since the law did not require schools to report lead reduction efforts, anecdotes from a limited number of districts indicate that, after flushing and re-testing, some schools are replacing water fountains, faucets, and valves. Several districts are implementing aerator cleaning and replacement plans, and many schools are posting signs in bathrooms to simply remind individuals not to use the faucets for drinking.⁸¹ The report recognizes that the current legislation has broad language and suggests that the program would benefit from more clearly defined guidance for data collection, reporting, and remediation.

The report arrives at many recommendations, among which are a mandatory action level for first-draw and flushed samples, regulations for clear sampling and remediation requirements, periodic lead testing for all schools (including private schools), a centralized database for testing results that can be managed by a state agency, and a mechanism for schools to provide results to parents and the community.

⁷⁵ Rhode Island Department of Health. (2017, May 1). *Testing Drinking Water for Lead at Public Schools and State Licensed Child Care Centers*. Retrieved from <http://www.health.ri.gov/publications/generalassemblyreports/2017LeadInSchoolDrinkingWater.pdf>.

⁷⁶ Rhode Island Department of Health, 2017.

⁷⁷ Ibid., 2017.

⁷⁸ Ibid., 2017.

⁷⁹ Rhode Island Department of Health. (n.d.). Lead in school and daycare facility drinking water. Retrieved from <http://health.ri.gov/data/schools/water/>.

⁸⁰ Rhode Island Department of Health, 2017.

⁸¹ Ibid., 2017.

Perspectives on Key Features of State Laws

Our analysis identified a set of key features that influence the effectiveness of a state law. These key features and their connection with effectiveness, as we have defined it, is shown in Table 1. Each of the state laws reviewed for this study has a unique approach to these features. In this section, we address each key feature and the range of approaches (and, where available, outcomes) taken in the state laws.

Table 1. State Law Features Influencing Potential Effectiveness

Marks indicate that the feature identified is considered to have an impact on the specified aspect of effectiveness.

Feature	Coverage	Testing Implementation	Risk Reduction	Disclosure
Nature of lead testing (e.g., mandatory or voluntary)		<input type="checkbox"/>	<input type="checkbox"/>	
Responsibility for testing		<input type="checkbox"/>		
Accountability and enforcement		<input type="checkbox"/>	<input type="checkbox"/>	
Financial burden		Varying *	<input type="checkbox"/>	
Scope of testing: <ul style="list-style-type: none"> - Schools covered - Age of school buildings - Outlets tested 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
Subsequent testing and frequency			<input type="checkbox"/>	
Action level			<input type="checkbox"/>	<input type="checkbox"/>
Communication of testing results: <ul style="list-style-type: none"> - Reporting to parents & guardians - Reporting to the public - Reporting to state & local agencies 			<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
Stakeholder advisory group		<input type="checkbox"/>	<input type="checkbox"/>	

* The impact of financial burden on whether testing is implemented is more important for voluntary programs.

Nature of Lead Testing

A key distinction among the state laws is whether they require lead testing of school drinking water or establish a program for voluntary testing. Most of the state laws—eleven—set forth required testing across large categories of schools, while four establish voluntary programs of various scales. Among these, one state law (Louisiana) establishes a small pilot program to include 12 schools. Colorado’s law provides for voluntary testing but mandatory remedial action to remediate if elevated lead levels are found.

Logically, voluntary approaches would be expected to be less effective than mandates in achieving widespread testing, and available data supports this supposition. In Colorado and Washington, for example, the law does not mandate school drinking water testing for lead but rather allows schools to voluntarily opt-in to testing. In Colorado, only 22 schools signed up for testing in the first year.⁸² A state official in Washington confirmed that 246 schools out of the state’s 2,400 schools had signed up for testing in the first year.⁸³ Voluntary programs could leave students vulnerable to lead contamination, since many schools will not participate. Stakeholders interviewed for this report speculated that school districts may avoid signing up for free lead testing because it leaves them with a public relations problem if lead is found and the high costs of remediation cannot be met with existing resources. Additionally, the application and grant process can be challenging and time-consuming.⁸⁴

Responsibility for Testing

Most of the state laws put the local education agency or schools in charge of testing. Local education agencies can either have their own staff learn the testing process from state guidance or hire an outside consultant to conduct testing for them. In the state of Washington, the Department of Health’s Office

of Drinking Water is in charge of testing and sends personnel to school buildings to take samples and have them analyzed on behalf of the school, without charging the school for testing. This process helps ensure that tests are correctly conducted in accordance with state testing protocols, though it requires the state to have ample resources allocated to the effort. An interview with a stakeholder in the state suggests that the Office of Drinking Water has been able to conduct all the requested tests without issue.⁸⁵ However, testing is voluntary in Washington, and so a limited number of schools have requested lead tests.

Rhode Island, District of Columbia, and Louisiana laws charge state agencies with responsibility for testing. In Rhode Island, the Department of Health was responsible for conducting testing (which it carried out through a contract with the University of Rhode Island Cooperative Extension⁸⁶), though in some cases schools took their own samples.⁸⁷ In Rhode Island, Department resources were a greater limitation than in Washington; although the Department initially sought to test all outlets in every school, the Department could only afford to test approximately 3 outlets per school and struggled to meet project deadlines.

Uniquely, California puts Community Water Systems (CWSs) in charge of testing all schools to which they provide water. CWSs must arrange sampling plans with school districts, come to buildings to test outlets, and pay for all testing. When elevated lead levels are found, the burden of remediation shifts to the school district. A state official in California explained that, so far, CWSs have been generally well-equipped to handle the costs of water testing, though some smaller systems may have more difficulty than larger ones.⁸⁸ Because CWSs have experience with lead testing, they already have personnel with technical knowledge, making them efficient partners.⁸⁹ One stakeholder noted that the inclusion of CWSs was helpful because many schools would not have had the funds to conduct testing.⁹⁰

⁸² Colorado Department of Public Health and Environment, 2018.

⁸³ Interview H.

⁸⁴ Interviews F and H.

⁸⁵ Interview H.

⁸⁶ Rhode Island Department of Health, n.d.

⁸⁷ Rhode Island Department of Health, 2017.

⁸⁸ Interview E.

⁸⁹ Interview K.

⁹⁰ Interview K.

Accountability and Enforcement

Another factor affecting the extent to which a law achieves widespread testing is whether the law establishes a state agency with enforcement responsibility. Many of the state law mandates do not specify enforcement mechanisms. In the absence of enforcement processes, compliance may rely on pressure from parents and communities to ensure that districts comply with testing rules, according to various state officials.⁹¹ Minnesota's website directly tells the public that the mandate is not enforced and that parent teacher organizations should try to hold schools accountable.⁹² If accountability relies on community pressure, the responsibility falls to the state to inform communities about what school districts are expected to do. Rhode Island's report to state legislators warns that, though community pressure can spur some additional testing efforts, testing may not be as consistent and comprehensive as parents would prefer.⁹³

A stakeholder noted that proper enforcement is most feasible when state agencies collect results in such a way that they can clearly identify which districts have not been testing.⁹⁴ Specifically, state agencies should collect thorough data from all schools, regardless of whether elevated lead levels are found. The New York Department of Health, by collecting such data, can identify which schools did and did not comply. Thus, the Department states in its joint report that, if a district is not willing to comply, "a hearing will be scheduled that could result in fines and an order to complete the required testing."⁹⁵ California similarly is collecting complete data about all schools, regardless of testing results. A state official in California noted that enforcement will occur and that a mechanism will be decided upon next year when the testing period finishes.⁹⁶ Though Oregon's law does not specify that results must be sent to a state agency, a state official explained that administrative rules will

require school districts to submit an annual certification that shows they are complying with their lead testing plans or risk losing state funding.⁹⁷ (Note: complete reporting requirements are reviewed later in this paper.)

California's model of shared responsibilities between Community Water Systems (CWSs) and school districts can also promote accountability. During the testing process, school districts can notify the state government if a CWS fails to perform testing or does not comply with testing protocols. CWSs are responsible for reporting remediation efforts to the state and can inform the state if a school district does not engage in remediation.⁹⁸ In this way, each actor is held accountable to the other.

Financial Burden

In some cases, states will cover the costs of lead testing, which may include the expenses for collecting samples and/or fees for lab analysis. In other cases, states may also cover the costs of remediation, which can include paying for the replacement of plumbing or fixtures or the installation of new filters.⁹⁹

Many school districts would engage in temporary remediation measures, like daily flushing of pipes, [...] but could not afford to make longer-term improvements like installing filters, replacing fixtures, or removing lead pipes.

New York and Washington, D.C. have provided or are providing funds to help with some of the costs of both testing and remediation, pursuant to provisions in the respective laws.¹⁰⁰ The laws in Louisiana, Maryland, Minnesota, New Hampshire, and Virginia, do not provide for

⁹¹ Interviews C, D, and G.

⁹² Minnesota Department of Health. (2017). *Lead in School Drinking Water Legislation 2017*. Retrieved from <http://www.health.state.mn.us/divs/eh/water/schools/leadlegis.pdf>.

⁹³ Rhode Island Department of Health, 2017.

⁹⁴ Interview E.

⁹⁵ New York State Department of Health, 2017.

⁹⁶ Interview E.

⁹⁷ Personal Communication L.

⁹⁸ Interview E.

⁹⁹ For example, drinking water state revolving loan ("SRF") programs, which leverage and receive federal funds, include some types of remedial actions as eligible projects.

¹⁰⁰ U.S. Government Accountability Office. (2018, July). *Lead Testing of School Drinking Water Would Benefit from Improved Federal Guidance*. Retrieved from <https://www.gao.gov/assets/700/692979.pdf>.

funding assistance or establish cost responsibility outside of the schools and school districts; while the laws in Rhode Island, Washington, and Oregon specify a source of state funding to cover the costs of or potentially reimburse some testing costs for schools. Colorado's law establishing a grant-based, voluntary testing program, provides for the state to fund 90% of the testing cost, leaving any districts that receive grants to pay the other 10%.¹⁰¹ California requires that Community Water Systems pay for testing in all schools to which they provide water. While not included in the California law, the state is establishing a fund for schools to apply for assistance with remediation costs.¹⁰² Illinois law provides for Community Water Systems to pay costs of testing, although schools are responsible to carry it out. Note that other states may offer financial assistance for remediation through programs established separately from the lead testing law that is the focus of this review.

Many stakeholders highlighted the importance of state assistance for funding both testing and remediation, especially for smaller school districts with tight budgets. Stakeholders from Virginia and New Hampshire, states that do not cover any costs, expressed concerns that many small school districts would face major budget impacts and struggle to afford meeting the requirements.¹⁰³ The Maryland Association of Boards of Education, despite supporting the removal of lead in schools, opposed the Maryland lead testing bill since the costs would be too burdensome without financial assistance.¹⁰⁴ A state official in Rhode Island, where the cost of remediation is not covered, noted that many school districts would engage in temporary remediation measures, like daily flushing of pipes and putting "out of order" signs on outlets, but could not afford to make longer-term improvements like installing filters, replacing fixtures, or removing lead pipes.¹⁰⁵ One stakeholder noted that, if the state assisted schools in funding long-term remediation

efforts, such as lead pipe removal, it would reduce the need for and cost of testing and remediation in the future.¹⁰⁶

A facilities manager interviewed in California noted the importance of having public water systems pay for and conduct testing. Due to personnel limitations, the costs of testing would have been a serious burden on the district. Instead, the facilities manager said the district was able to focus all available funds on remediation, allowing it to replace fixtures without causing major budget issues.¹⁰⁷

Scope of Testing: Schools Covered

Limitations on Grade Level of Students

Several state laws focus on lower grades, presumably because younger children are typically considered most vulnerable to lead poisoning. For example, Illinois only requires testing for buildings with students 5th grade and below; Maryland phases in its testing requirement, beginning with schools that serve prekindergarten through 5th grade students (and other factors). As explained above, research finds that there is no safe level of lead exposure for any age, and that adults, especially pregnant women, can suffer major consequences from lead exposure.

Research finds that there is no safe level of lead exposure for any age, and that adults, especially pregnant women, can suffer major consequences from lead exposure.

To the best available knowledge of the authors, none of the states have evaluated or tracked lead health effects or blood lead levels with exposure to lead in school drinking water (as compared to other potential sources). Such data would help researchers and policymakers understand whether age-based limitations for

¹⁰¹ Colorado General Assembly. (n.d.). Test lead in public schools' drinking water. Retrieved from <https://leg.colorado.gov/bills/hb17-1306>.

¹⁰² State Water Resources Control Board. (n.d.). Lead sampling of drinking water in California schools. Retrieved from https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/leadsamplinginschools.html.

¹⁰³ Interviews C and D.

¹⁰⁴ Maryland Association of Boards of Education. (2017, February 24). *MABE Testimony House Bill 270* [Press release]. Retrieved from <https://www.mabe.org/wp-content/uploads/2017/03/HB-270.LeadTestingDrinkingWater.pdf>.

¹⁰⁵ Interview A.

¹⁰⁶ Interview B.

¹⁰⁷ Interview K.

lead testing in school drinking water is warranted.

Limitations on Age of School Buildings

Another limitation in several state laws is related to the age of school buildings. Illinois only requires testing for buildings built before 2000. Tennessee only requires testing for those built before 1998. Virginia gives priority to buildings built prior to 1986. Washington prioritizes elementary schools that have not had recent testing. Colorado prioritizes the oldest elementary schools, then the oldest non-elementary schools. Maryland phases in its testing requirement, beginning with schools built before 1988 (and schools that serve prekindergarten through 5th grade students).

It is understandable for state-funded programs with a limited budget, such as those in Colorado and Washington, to prioritize buildings that are likely to have lead contamination due to the age of their infrastructure. However, it is unclear whether the age of a building is as strong an indicator of the risk of lead exposure as some state laws assume. For example, a school facilities manager interviewed for this research explained that some of the outlets in his district with the highest levels of lead contamination were some of the newest ones, built only five years ago; the pipes had no role in the lead contamination, but rather the faucets appeared to be leaching lead into the water.¹⁰⁸

Even newer infrastructure can pose a major risk in some circumstances. For example, lead service lines may contaminate water before it reaches the school building, and thus the risk is irrespective of school building age. Additionally, brass fixtures installed before the lead-free standard was changed often contain lead and, where water is corrosive, can introduce lead into the water.¹⁰⁹ Further, “lead-free” plumbing and fixture requirements do not apply to non-potable services like irrigation, outdoor watering, toilets, and similar outlets where the water is not anticipated to be used for human consumption. If the incorrect fixtures are used, it could present a source of lead contamination.

Scope of Testing: Outlets Tested

Outlets Included

Some state laws, such as those in New York and New Hampshire, specify that all outlets that may be used for drinking or cooking should be tested in schools covered by the law. Other state laws, such as those in California and Rhode Island, do not specify. For example, the California law simply states, “A community water system [...] shall test for lead in the potable water system of the school site,” defining “potable water system” as “water fountains and faucets used for drinking or preparing food.”¹¹⁰ In such cases, the state agency has made a determination of the minimum number of samples to be taken, focused on drinking water sources. The California Water Resources Control Board has required Community Water Systems to test a minimum of five outlets chosen by the school district in a school building, and testing of additional outlets may be commissioned.¹¹¹ Rhode Island initially did not intend to limit testing, but due to limited resources could only test a minimum of three outlets per school.¹¹²

Subsequent Testing and Frequency

While the California, Rhode Island, and Illinois laws only require testing one time, the other state laws call for subsequent testing. The retesting schedules vary by state. Minnesota and New York require testing every five years, Maryland requires testing every three years, Tennessee requires that the schedule not exceed biennial testing, and D.C. requires annual testing. Multiple stakeholders noted that there is no perfect, health-based testing schedule and that schedules are somewhat arbitrary. A community member in Minnesota expressed concern that a schedule less frequent than every four years means “a freshman starting school in August might never have his or her water tested before he or she

¹⁰⁸ Interview K.

¹⁰⁹ Massachusetts Water Resources Authority. (n.d.). Lead and Faucets – Questions & Answers. Retrieved October 2018 from http://www.mwra.state.ma.us/O4water/html/Lead_Faucets.htm.

¹¹⁰ Cal. Health and Safety Code, § 116277. (a) (1), (f)(2).

¹¹¹ Interview E.

¹¹² Interview A.

graduates.”¹¹³ A school facilities manager in California expressed that testing every outlet every year or two would be unreasonable but suggests that a plan which has a proportion of all outlets tested each year could be more feasible and ensure that there is always access to safe drinking water.¹¹⁴

Action Level

Most of the state laws identify an action level for individual samples, which triggers actions such as reporting and, in some cases, remediation. Other states, such as Virginia, do not specify an action level, leaving it up to local education agencies.

New guidance from EPA suggests that agencies and legislatures of those states using an action level of 15 or 20 ppb, based on prior EPA guidance, should consider reevaluating.

State laws with action levels have used one of three distinct bases for the level. As explained above, because there is no safe level for lead, EPA has established the maximum contaminant level goal for lead at zero. EPA also established an action level for lead of 15 ppb; for regulatory purposes the action level is not applicable to individual samples, but is compared to a value that is statistically determined from the pool of sample locations.¹¹⁵ Nonetheless, of the states with an identified action level, most use the EPA action level of 15 ppb at an outlet as the trigger for action (reporting and/or other steps).

In 2006, EPA released technical guidance on lead testing for school drinking water, called “The 3Ts for Reducing Lead in Drinking Water in Schools.”¹¹⁶ This guidance recommended remediation when lead levels are above 20 ppb, and this recommendation has been incorporated into several state laws. This guidance document is the reason Maryland, Tennessee, and Minnesota have adopted 20 ppb as their action levels.

In October 2018, EPA issued revised guidance.¹¹⁷ The new guidance does not recommend a single level but instead suggests that the local entity should set its own remediation level to *the lowest possible* and in consideration of any binding remediation trigger, such as from a state or local health department.¹¹⁸ This new guidance suggests that agencies and legislatures of those states using an action level of 15 or 20 ppb, based on prior EPA guidance, should consider reevaluating.

Several states use a lower action level of 5 ppb. Illinois law uses a threshold of 5 ppb to determine whether individual notification of sampling results must be sent to parents (although remediation is not required by the law). Washington, D.C. also chose to use this more stringent action level. Lower levels are more consistent with health-based recommendations. For example, the Natural Resources Defense Council recommends that states lower their action levels to 5 ppb to be consistent with a more stringent standard used by the federal Food and Drug Administration for lead in water bottles.¹¹⁹ The American Academy of Pediatrics notes that the only health-based action level is that of 1 ppb.¹²⁰ While any amount of lead greater than 0 ppb can create health risks, a state official notes that

¹¹³ Schemedemann, D. A. (2018, May 28). Statewide view: Get lead out of water in Minnesota schools. Retrieved from Duluth News Tribune website: <https://www.duluthnewstribune.com/opinion/columns/4452461-statewide-view-get-lead-out-water-minnesota-schools>.

¹¹⁴ Interview K.

¹¹⁵ U.S. Environmental Protection Agency. (2004). *Understanding the Safe Drinking Water Act*. Retrieved from <https://www.epa.gov/sites/production/files/2015-04/documents/epa816f04030.pdf>.

¹¹⁶ U.S. Environmental Protection Agency. (2006, October). *3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance*. Retrieved from <https://nepis.epa.gov/Exe/tiff2png.cgi/20017JVA.PNG?-r+75+-g+7+D%3A%5CZYFILES%5CINDEX%20DATA%5C00THRU05%5CTIFF%5C00000886%5C20017JVA.TIF>.

¹¹⁷ U.S. Environmental Protection Agency (2018, October). *3Ts for Reducing Lead in Drinking Water in Schools and Child Care Facilities: A Training, Testing, and Taking Action Approach, Revised Manual*. Available at https://www.epa.gov/sites/production/files/2018-09/documents/final_revised_3ts_manual_508.pdf.

¹¹⁸ U.S. Environmental Protection Agency, 2018. p 36.

¹¹⁹ Matthews, 2018b.

¹²⁰ American Academy of Pediatrics. (2016, June 20). With no amount of lead exposure safe for children, American Academy of Pediatrics calls for stricter regulations. Retrieved from <https://www.aap.org/en-us/about-the-aap/aap-press-room/pages/With-No-Amount-of-Lead-Exposure-Safe-for-Children,-American-Academy-of-Pediatrics-Calls-For-Stricter-Regulations.aspx>.

it may be difficult to get consistent samples below 1 ppb, even after fixture replacement or filter installation.¹²¹

Finally, regardless of the legal action level in a state, schools and state agencies may take or seek action, respectively, at lower levels. Several stakeholders in states with action levels of 15 ppb and 20 ppb have noted that some local education agencies will voluntarily use a much lower action level to further protect student health.¹²²

Communication of Testing Results

Most of the state laws include a provision regarding reporting or communication of results. Five state laws do not include such provisions; but in four of those states, the agencies have rules or guidance concerning reporting. Requirements and guidelines for reporting testing results vary in three major aspects: to whom results are reported, whether all results or only exceedances are reported, and the method of reporting.

Additionally, Colorado, Louisiana, New York, and Rhode Island laws require that reports on testing results be sent to state legislatures.

Reporting to Parents and Guardians

Several state laws require parent and guardian notification either of the results or of the availability of the results. Of these, California, the District of Columbia, Maryland, New Hampshire, Pennsylvania and Tennessee require parent and guardian notification only for elevated results (based on the state's action level). Minnesota and Ohio require notification to parents and guardians of the availability of all results.

Under some laws, agencies have developed reporting requirements or guidelines. Washington simply requires that the Department of Health develop guidance that includes recommendations for communicating test results and the associated risk to parents and the community, specifying that communications should mention that there is no safe level of lead and that action may still be warranted for results below the action level.

Reporting to the General Public

Reporting to the public usually consists of posting results on the school website or a state agency website. District of Columbia, Illinois, and Oregon results are required to be posted on websites, while Minnesota and New York laws more generally require all results to be available to the public.

Reporting to State and Local Agencies

Several state laws specifically require results to be reported to local agencies. For example, Colorado requires that school districts provide test results to local public health agencies, while New York requires that results are provided to the county health departments. Not all state laws provide for a state agency to receive all data, however. New York and Colorado laws provide that schools must notify their respective state departments regardless of the lead concentration while New Hampshire law only requires notice to the state agency that oversees testing when the action level is exceeded. California requires Community Water Systems to report results to the Division of Drinking Water regardless of the lead concentration.

When testing happens, parents often flood local health offices with calls and concerns, making it important that these offices are kept aware of testing details.

Reporting: Perspectives from Stakeholders

One stakeholder suggested that specific guidance from the state about how to communicate results to the public would be helpful in making sure worried parents get a clear understanding of results.¹²³ Stakeholders also acknowledged that local health departments can be important partners for schools if they are notified before testing and after results are released and if they are involved in communication with the public. When testing first happens, parents often flood local health offices with calls and concerns, making it important that these offices are kept aware of testing details.¹²⁴ Additionally, local

¹²¹ Interview H.

¹²² Interviews E, J, and K.

¹²³ Interview K.

¹²⁴ Interviews D and K.

health departments can be effective at giving parents the information they need and educating the community through information campaigns.¹²⁵

Multiple stakeholders recognized the importance of state agencies collecting, consolidating, and releasing information after being sent results by school districts.¹²⁶ Government officials and external researchers use this consolidated data to assess the scope of lead contamination and identify areas of concern that may warrant new legislation. For state laws to support these uses of data, it is important that the state agencies collect all testing data; that is, where states only collect results from schools that exceed action levels, data can be incomplete and hard to analyze.

As data sets are emerging out of efforts to comply with new state legislation, additional ideas for collecting useful information are also emerging. For example, if states began to record which remediation strategies are being used at specific schools, the public could more readily understand the efforts being taken to address lead contamination. Researchers could then assess the effectiveness of different remediation strategies over time as future data is entered. California has attempted to collect and display such information by including a “follow-up action” column in released test results; however, nearly all entries in the column state “corrective action started,” “resampled,” or “fixture removed from service.”¹²⁷ While useful in displaying action taken, these entries require more detail on the remediation strategies to help researchers and the broader public.

Highlights: Reporting Results in Rhode Island

While the Rhode Island testing law did not address reporting, the Rhode Island Department of Health developed a publicly accessible website. This site allows residents to select a town from a drop-down menu and browse its test results, providing a separate spreadsheet of data for each town.¹²⁸ This layout makes it easy to identify results belonging to places of interest. Each spreadsheet entry includes the location and type of the outlet, the concentration of lead in the sample, and one of three recommended action lists. The database does not record whether any recommendations were implemented, nor any other information from the schools themselves. Because Rhode Island’s Department of Health conducted the testing, it did not set up a data entry platform for schools to report further information.

Highlights: Reporting Results in New York

A state official from New York noted that it was not feasible to create a new data system for schools to send information about lead in drinking water, due to timeline and resource limitations.¹²⁹ Instead, the state used an existing database called the Health Electronic Response Data System (HERDS) that was already in use for reporting immunization records, since schools already had access to it. A few implementation problems arose in having schools report their test results through this system, requiring adaptations in the system to be made over time.¹³⁰ The dataset is available to view online, and it lists the number of outlets at a school, the number of outlets below the action level, and the number of outlets above.¹³¹ Data on individual outlets cannot be viewed, and no information on remediation is given.

¹²⁵ Interview D.

¹²⁶ Interviews B, E, and J.

¹²⁷ State Water Resources Control Board, n.d.

¹²⁸ State of Rhode Island Department of Health, n.d.

¹²⁹ Interview J.

¹³⁰ Boards of cooperative educational services are not required to report immunization records, but are required to test for lead, and so they had to be added into the data system. Previously, only school nurses had access to report information into the system. A School Lead in Drinking Water Reporter role had to be added into the system so that school districts could be assign someone else to report data into the system. Because only the assigned person can report data, staff turnover in schools can cause issues with reporting. (Interview J).

¹³¹ New York State Department of Health (2016, September 22). Lead Testing in School Drinking Water Sampling and Results: Most Recently Reported Beginning 2016. Retrieved from <https://health.data.ny.gov/Health/Lead-Testing-in-School-Drinking-Water-Sampling-and-Results/rkyy-fsv9> (updated July 2018).

Highlights: Reporting Results in California

Each Community Water System is required to update the State Water Resources Control Board with the results of all lead tests they conduct and the status of remediation efforts by respective school districts. The Division of Drinking Water within the Control Board developed an online portal where CWSs can create site IDs and submit data from labs into a database.

The Division of Drinking Water maintains a publicly available spreadsheet of database entries that is frequently updated.¹³² Each spreadsheet entry includes the names of the water system and school, location of the outlet, the concentration of lead, the follow-up action if the action level is exceeded, and the status of the follow-up. A detection level of 5 ppb is used, so levels of lead ranging from 0 to 5 ppb cannot be distinguished. The Division of Drinking Water also maintains an online map with geo-located testing results. Schools are color-coded into three categories: no action level exceedance, action level exceedances with completed follow-ups, and action level exceedances with pending follow-ups.¹³³

Stakeholder Advisory Group

Another element that may affect the ultimate impact of a state lead testing law on reducing risk is stakeholder engagement. Notably, only two of the state laws include provisions for stakeholder input, while agencies in at least two other states undertook stakeholder processes absent the specific legal requirement.

Maryland's law requires that a stakeholder group consisting of representatives from school administrations, community advocates, members of state agencies, and others make recommendations regarding the development of regulations and guidance on the specific rules for lead testing. Oregon's law required that a group of interested stakeholders help the Department of Education develop a model plan to provide guidance on how schools should form their own lead testing plans.

Rhode Island, though not required by its law, convened an advisory group to help develop a strategy for water sampling and communicating results.¹³⁴ Similarly, the New York Department of Health voluntarily convened a large workgroup of community stakeholders to help develop guidance and address school concerns.

Only two of the state laws included provisions for stakeholder input, while agencies in at least two other states undertook stakeholder processes absent the specific legal requirement.

Multiple state agency members interviewed for this report expressed that convening stakeholder groups can be helpful because the extra communication keeps school administrators in the loop, helping them become aware of what is happening at the state level and what actions are expected of their schools, while making them feel engaged in the process and more accepting of lead testing rules.¹³⁵ Additionally, interviewees noted that school stakeholders gave valuable practical insight on the development of testing guidance, since they have an understanding of what is and is not feasible on the ground and how buildings operate. They can also relay unique issues faced by schools and possible points of confusion within the regulations.¹³⁶

¹³² State Water Resources Control Board, n.d.

¹³³ Ibid., n.d.

¹³⁴ Rhode Island Department of Health, 2017.

¹³⁵ Interviews G, I, and J.

¹³⁶ Interviews G, I, and J.

Conclusion

State legislators have a unique—and often critical—role in ensuring that all students and staff can drink safe water in school. State laws have shown to be drivers in developing important information about lead in school drinking water. This paper illustrates key provisions within state laws that can have an effect on each law's ability to minimize lead contamination in school drinking water. Interviews with state agency staff, school district staff, and nonprofit stakeholders indicated that state laws can be most effective when they include clear and specific provisions that require the testing of all outlets that could be used for drinking or cooking in all school buildings and specify reporting requirements that will benefit the public and the state's own ability to hone its approach into the future.

From our stakeholder interviews and analysis of state reporting, we observe that programs have the best results where the state was able to mandate testing and put in place requirements for enforcing compliance. It is clear that conducting testing and remediation at every school can be a major financial burden on local education agencies, so funding assistance may be required for many schools. States may want to consider following the California model by giving testing responsibility to Community Water Systems instead. Under such a model, states can prioritize funding for remediation at schools and for smaller CWSs that have difficulty in handling the testing burden.

We also observe that a weakness of nearly half of the laws was the ability to assure reduction of the risk of lead exposure. Some state laws were silent on remediation, although in some cases state agencies included actions in regulation or guidance. Additionally, some states have relied on the EPA 3Ts guidance to establish and maintain an action levels for remediation, but EPA's updated guidance eliminated a specific recommended remedial level in favor of local and state determination.

Though these laws are a promising start, a great deal of progress is still needed before we have systems in place to assure that school drinking water in America is safe and free of lead for all students and staff. The remainder of states now have an opportunity to build on these examples to find even better, more efficient ways to ensure that lead contamination in schools is found and addressed.

Considerations for Future Legislation

Drawing from our analysis, we offer these perspectives for prospective state legislation:

- Laws establishing mandatory programs will be more effective at ensuring widespread testing and can account for state-specific context through elements such as responsibility for testing, accountability and enforcement, and financial responsibility.
- Generally, all K-12 schools should be included in testing programs to ensure all schoolchildren are equally protected.
- State legislatures should exercise caution in establishing an action level in law and should consider directing relevant state agencies to develop and regularly update guidance concerning remediation requirements.
- Remediation requirements backed by funding may be helpful to schools, as these measures together support school officials in making the case for addressing the problem and for spending money on remediation.
- The Center for Green Schools places a high value on transparency and disclosure to aid in informed decision making. Limited reported data (such as exceedances only) may be significantly less helpful to community members, researchers, and lawmakers. Robust statewide reporting platforms help all parties protect children and ensure elevated lead levels are addressed.
- Legislation should aim to address recurring, rather than one-time, testing. It may be most appropriate to authorize state agencies to determine requirements for recurring testing after initial rounds are complete.

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Appendix A

Table of State Laws: Key Attributes

State & Law	Responsibility for Testing	Scope of Testing	Funding	Public Disclosure	Risk Reduction Approach
California Statutes Ch. 746 (2017) ¹ <i>Passed October 13, 2017</i>	Community Water Systems	Mandatory: Local educational agency school buildings constructed before January 1, 2010 (with some exceptions, and does not include those that operate as their own public water system)	No	Local educational agency must notify parents and guardians if lead levels exceed 15 ppb. Community Water System to notify local educational agency of all results	Uses 15 ppb to trigger additional testing and shut-off of faucets and fountains that may be contaminated
Colorado Session Laws Ch. 399, Safe Water in Schools Act (2017) ² <i>Passed June 8, 2017</i>	Public schools	Voluntary: Public school district schools, charter schools, and boards of cooperative services	Yes, grant program	Grantee schools must provide test results to the local public health agency, water supplier, school board, and the state Department of Public Health and Environment	Not addressed
D.C. Register Volume Number 64, Page 10159 (2017), Childhood Lead Exposure Prevention Amendment Act of 2017 ³ <i>Passed September 23, 2017. Subject to funding, which is partially included in an act effective October 2018.</i>	Department of General Services (DGS) for public schools, and public charter schools	Mandatory: Drinking water sources (e.g., reasonably expected to be used for consumption or cooking) at public schools and public charter schools	Authorized	Requires all results to be posted on DGS website, and parent and guardian notification of lead results over 5 ppb	Requires installation of filters at all sources of drinking water in school buildings (regardless of test results); at tested level of 5 ppb, water must be shut off and a number of actions taken

¹ 2017 Cal. Stat., ch. 746 (A.B. 746), codified at Cal. Health & Safety Code § 116277. Retrieved from: https://leginfo.ca.gov/faces/codes_displaySection.xhtml?lawCode=HSC§ionNum=116277.

² 2017 Colo. Sess. Laws, ch. 399, (HB 1306), codified at Colo. Rev. Stat. §§ 25-1.5-203, 25-8-608. Retrieved from: https://leg.colorado.gov/sites/default/files/documents/2017A/bills/sl/2017a_sl_399.pdf.

³ 64 D.C. Reg. 10159 (B22-0029) (eff. Sept. 23, 2017). Retrieved from: <https://www.dcregs.dc.gov/Common/NoticeDetail.aspx?NoticeId=N0065762>.

State & Law	Responsibility for Testing	Scope of Testing	Funding	Public Disclosure	Risk Reduction Approach
Illinois Public Act 099-0922 § 25 (2017) ⁴ <i>Passed January 16, 2017</i>	School districts or administrators	Mandatory: In school buildings constructed before Jan 1, 2000 that are occupied by more than ten students in pre-K through 5th grade, each source that may be ingested by children or used for food preparation	Authorizes Community Water Systems to pay costs and to defray through an existing fee	Requires parent and guardian notification of results if exceed 5 ppb; all results must be noticed or posted on website and sent to the Department of Public Health	Not addressed
Louisiana Session Laws Act 632, Safe Drinking Water (2018) ⁵ <i>Passed May 30, 2018</i>	State Department of Health	Pilot program: Public elementary schools built prior to 1986 or susceptible to contamination, selected by Dept. of Health	No	Requires annual report of findings and outcomes to the relevant House and Senate committees	Not addressed
Maryland Laws Ch. 366 (2017) ⁶ <i>Passed April 4, 2017</i>	School systems and private schools	Mandatory: Occupied public and private schools that are not public water systems; waiver available based on prior testing	No	Parental notification and website posting required only for results exceeding 20 ppb; under accompanying regulation, all results to be sent to relevant state agencies and the local health department	Elevated levels trigger follow-up actions focused on the specific drinking water outlet (e.g., faucet or fountain), including shut-off, remediation measures, and retesting
Minnesota Statutes §121A.335, Lead in School Drinking Water (2018). ⁷ <i>Passed May 25, 2017</i>	School districts and charter schools	Mandatory: All public K-12 schools	No	All results are to be available for review, with parental notification of availability	No requirements; allows schools to include lead remediation in 10-year facilities plans

⁴ 225 ILL. Comp. Stat. 320/35.5 (Pub. Act 099-0922, §25) (2017). Retrieved from: <http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1343&ChapterID=24>.

⁵ 2018 La. Sess. Law Serv. Act 632 (H.B. 633) (WEST).

⁶ 2017 Md. Laws, ch. 366 (H.B. 270). Retrieved from: http://mgaleg.maryland.gov/2017RS/chapters_noln/Ch_386_hb0270T.pdf.

⁷ Minn. Stat. § 121A.335 (H.F. 2) (2018). Retrieved from: <https://www.revisor.mn.gov/statutes/cite/121A.335#stat.121A.335.3>. Also referred to as HB890, Article 5. Section 3.

State & Law	Responsibility for Testing	Scope of Testing	Funding	Public Disclosure	Risk Reduction Approach
New Hampshire Laws Ch. 4 (2018) ⁸ <i>Passed February 8, 2018</i>	Schools	Mandatory: Public and private schools; “all locations at the facility that are available for consumption by children”	No	Parent and guardian notification required if lead levels exceed EPA action level	If lead level exceeds EPA action level, schools are to provide drinking water that meets the standard and implement a remediation plan. If EPA changes the action level, schools are responsible for comparing the most recent results with the new level and taking action if exceeded.
New York Laws Ch. 296 (2016) ⁹ <i>Passed September 6, 2016</i>	School districts and boards of cooperative educational services	Mandatory: Every occupied school building in the jurisdiction of school districts and boards of cooperative educational services	Yes (authorized)	All results to be available to public for review	If a water outlet exceeds the action level, 15 ppb, the school must prohibit use of the outlet, provide a safe water supply, and notify the health department
Ohio Laws Assembly Substitute House Bill 390 (2016) ¹⁰ <i>Passed May 25, 2016</i>	Schools	Voluntary: Traditional public school, community school, or chartered nonpublic school that is housed in a building constructed before 1990; funding subject to meeting guidelines	Yes	Not addressed; guidelines issued by Ohio Facilities Construction Commission require all test records to be made available, upon request, as a public record.	Not addressed

⁸ 2018 N.H. Laws, ch. 4 (S.B. 247).

⁹ 2016 N.Y. Laws, ch. 296 (A.B. 10740) (as added by §1110, Pub Health L; as amended by §§ 3602,1950, Ed L). Retrieved from: <https://www.nysenate.gov/legislation/bills/2015/A10740>.

¹⁰ 2016 Ohio Laws Am. Sub. H.B. 390. Retrieved from: <ftp://sosftp.sos.state.oh.us/free/publications/SessionLaws/131/131-HB-390.pdf>.

State & Law	Responsibility for Testing	Scope of Testing	Funding	Public Disclosure	Risk Reduction Approach
<p>Ohio Laws Assembly Substitute House Bill 512 (2016)¹¹</p> <p><i>Passed May 25, 2016</i></p> <p>Note: this law is explained in Appendix D only; the law contains lead testing requirements generally applicable to regulated water systems but includes one provision specific to school testing</p>	Schools that run their own water systems	Mandatory: The Department of Environmental Protection can require schools to test additional locations based on presence of lead fixtures and materials	No	Applicable to all affected water systems (not only schools), the Department is to issue rules that require notice of tap results to persons served at the structure, and if a water system exceeds the action level, then notice to all the system's consumers	The Department was directed to issue rules that require actions for individual taps and for systems that exceed the lead action level
<p>Oregon Laws Ch. 700 (2017)¹²</p> <p><i>Passed August 8, 2017</i></p>	School districts, education service districts, and public charter schools	Mandatory: School districts, education service districts, and public charter schools	Yes	All results must be made available to the public, with emails sent to parents and staff	The proposed regulation would establish required responses if a level of 15 ppb is exceeded
<p>Pennsylvania Laws Act 39, §742, Lead Testing (2018)¹³</p> <p><i>Passed June 22, 2018</i></p>	Schools	Voluntary: Schools that students attend	No	If a test is elevated, it is to be reported to the department of education and posted on the department's website	If lead levels exceed EPA maximum contaminant level goal, school is to implement a plan to prevent exposure to lead contaminated drinking water and make alternative sources available

¹¹ 2016 Ohio Laws Am. Sub. H.B. 512. Retrieved from: <http://sosftp.sos.state.oh.us/free/publications/SessionLaws/131/131-HB-512.pdf>.

¹² 2017 Or. Laws, ch. 700 (S.B. 1062).

¹³ 2018 Pa. Legis. Serv. Act 2018-39 (H.B. 1448) (WEST).

State & Law	Responsibility for Testing	Scope of Testing	Funding	Public Disclosure	Risk Reduction Approach
Rhode Island Public Laws Ch. 439, Lead and Copper Drinking Water Protection Act (2016) ¹⁴ <i>Passed July 12, 2016</i>	Department of Health	Mandatory: All public schools	Yes	Not addressed	Not addressed, however the department was required to submit a report to the legislature including findings and a plan for compliance
Tennessee Public Acts Ch. 977 (2018) ¹⁵ <i>Passed May 23, 2018</i>	Local boards of education	Mandatory: Public schools constructed prior to January 1, 1998	No	Parental, state and local agency notifications required only for results exceeding 20 ppb	If a water outlet exceeds 20 ppb, the water source must be removed from service
Virginia Acts Ch. 628 (2017) ¹⁶ <i>Passed March 20, 2017</i>	Local school boards	Mandatory: Public schools, with priority to school buildings constructed before 1986; no deadline for compliance	No	Not addressed	Requires “remediation if necessary” but does not provide any guidance or definition
Washington Session Laws Ch. 299 (2018) ¹⁷ <i>Passed March 27, 2018</i>	Department of Health	Voluntary: Elementary schools, with priority given to those with youngest children and oldest buildings	Yes	The law does not address; the Department of Health is posting results on its website and provides guidance to schools regarding communication of results	Requires the Department of Health to issue guidance including actions to take if test results exceed the federal action level or public drinking water standard ¹⁸

¹⁴ 2016 R.I. Pub. Laws, ch. 439 (H 8127 Substitute A). Retrieved from: <http://webserver.rilin.state.ri.us/PublicLaws/law16/law16439.htm>.

¹⁵ 2018 Tenn. Pub. Acts, ch. 977 (S.B. 619) (amending Tenn. Code Ann. tit. 49, ch. 2, pt. 1). Retrieved from: <https://publications.tnsosfiles.com/acts/110/pub/pc0977.pdf>.

¹⁶ Va. Code Ann. § 22.1-135.1 (SB 1359) (2017). Retrieved from: <https://law.lis.virginia.gov/vacode/22.1-135.1>.

¹⁷ 2018 Wash. Sess. Laws, ch. 299 (SB 6032). Retrieved from: <http://lawfilesexternal.wa.gov/biennium/2017-18/Pdf/Bills/Session%20Laws/Senate/6032-S.SL.pdf>.

¹⁸ See <https://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/Contaminants/Lead/LeadinSchools/Testing>.

Appendix B

Index of Interviews Conducted

Interview A: Interview with June Swallow, Chief of the Center for Drinking Water Quality in the Rhode Island Department of Health. June 28, 2018.

Interview B: Interview with Joan Leary Matthews, director of the Urban Water Management program at the Natural Resources Defense Council. July 2, 2018.

Interview C: Anonymous. Interview with state agency official in New Hampshire. July 2, 2018.

Interview D: Anonymous. Interview with two state agency officials in Virginia. July 3, 2018.

Interview E: Anonymous. Interview with official from California Division of Drinking Water. July 6, 2018.

Interview F: Anonymous. Interview with state agency official in Colorado. July 9, 2018.

Interview G: Anonymous. Interview with two state agency officials in Maryland. July 9, 2018.

Interview H: Anonymous. Interview with two state agency officials in Washington. July 12, 2018.

Interview I: Anonymous. Interview with two state agency officials in Oregon. July 12, 2018.

Interview J: Anonymous. Interview with two state agency officials in New York. July 13, 2018.

Interview K: Anonymous. Interview with school district facilities manager and public information officer in California. July 16, 2018.

Personal Communication L: Personal communication via email with Michael Elliot, Office of School Facilities Team Lead in the Oregon Department of Education. July 18, 2018.

APPENDIX C

State Regulatory Program: New Jersey Example

While state legislation is often the most direct method to ensure lead testing of school drinking water, some states have been successful in using administrative authority to begin such programs. New Jersey serves as one example. In this section, we summarize and reflect on the effectiveness of this program.

New Jersey 6A:26-12.4 (regulation) (July 13, 2016)¹

Requires testing for lead in all local education agencies' drinking water outlets within 365 days of July 13, 2016 and at a minimum every six years thereafter. Each local education agency must develop a sampling plan that follows specified testing procedures and includes the names and responsibilities of all involved people. Samples must be sent to a certified testing lab for analysis. Each board of education must make all test results publicly available at the school building and on the school district website. If the permissible lead action level of 15 ppb is exceeded, written notification of results must be sent to all parents, staff, and the Department of Education. Districts are eligible for reimbursement for conforming testing conducted after January 1, 2016. The New Jersey Department of Education has stated that it does not have the resources to enforce testing regulations.²

New Jersey Assembly Bill 4284 (enacted May 11, 2017) and Senate Bill 2019

Makes appropriations to reimburse schools for the costs of testing for lead in drinking water.

Published Report

The regulation adopted in 2016 by New Jersey (6A:26-12.4 and AB4284) requires districts to submit their results to the Department of Education only if they show elevated lead levels, and it does not require the Department to compile and assess the lead testing results it receives. Therefore, the state does not have a mechanism in place to report to the public a full picture of how schools in the state are doing in providing uncontaminated drinking water to students. However, New Jersey Future, a nonprofit organization, requested that the Department forward results from school districts to them to analyze.³ New Jersey Future released a report of its findings in August 2017.

The report finds that, out of the nearly 600 school districts in New Jersey, only 95 districts had sent information on lead test results to the Department of Education. Within these 95 districts, at least 14,598 water outlets were tested, and over 300 schools had at least one water outlet showing results above the 15 ppb action level. 8.1% of the tested outlets exceeded the action level.⁴

One could presume that the remaining school districts did not send information to the Department because their results showed no elevated lead levels in any outlets. However, New Jersey Future also spot-checked results from other school districts outside the group that the state had received, and they discovered that numerous districts that had not submitted results to the Department of Education had notified the public of test results indicating elevated lead levels. The lack of consistent reporting makes it hard to know how many districts actually found outlets with elevated lead levels and accordingly makes it hard to know how widespread lead contamination in schools is. New Jersey Future believes lead to be pervasive in school drinking water across the state, based on the data they have found.⁵

¹ Although this paper focuses on laws, many of which require or lead to implementing regulations, the New Jersey regulation was promulgated without such a statutory directive.

² Markowitz, A., & Senn, E. (2017). Districts now required to test lead in drinking water. Retrieved from <https://www.niea.org/districts-now-required-to-test-lead-in-drinking-water/>.

³ New Jersey Future. (2017, August). *Lead in school drinking water in New Jersey* (Rep.). Retrieved from <https://www.nifuture.org/wp-content/uploads/2018/07/New-Jersey-Future-Analysis-of-Testing-for-Lead-in-School-Drinking-Water-August-2017.pdf>.

⁴ New Jersey Future, 2017.

⁵ Ibid., 2017.

The limited data received by the Department also suggests that lead contamination is present across New Jersey—in urban, suburban, and rural areas. School districts in all counties except one reported elevated lead levels to the Department, and the remaining county contained school districts that were found to have publicized elevated lead levels in the spot-check that New Jersey Future conducted. It remains difficult to assess the extent of lead exposure that children have had in schools with known contamination due to limitations on data collection. Many schools tested a large variety of water outlets beyond the required drinking water and food preparation sources, but the way the data was provided makes it difficult to differentiate types of outlets. Moreover, schools were not required to characterize the frequency of usage for each water outlet, making it hard to know which outlets pose the biggest dangers.⁶

The report finds that the 95 reporting districts seem to have strong compliance with other aspects of the regulation. Nearly all published their test results on their websites and notified parents as required; and, in most cases, the test results could be easily located on the district website. School districts also seemed to take the positive lead test results seriously and followed the Department of Environmental Protection's recommended remedial actions.⁷

New Jersey Future's report arrives at a series of recommendations based on its findings. The recommendations include a standardized electronic collection system in which all districts submit lead testing results, requirements for school districts to provide clarification as to the type of water outlet and frequency of usage by students, requirements to submit all positive and negative testing results to a state agency, and an informational campaign to remind communities to check results in their local district. The recommendations also highlight the importance of good data collection and compilation to help policymakers and researchers properly understand the economics of the issue and allocate sufficient resources.⁸

Appendix D

Ohio 2016 Am. Sub. HB 512 (enacted May 25, 2016)

This legislation affects only schools that operate their own water system. It requires the Department of Environmental Protection to issue rules requiring community and non-transient non-community water systems to conduct lead testing and establish lead thresholds for taps, notice requirements, and actions pursuant to an exceedance. The rules would also require systems to develop a map of areas of the system containing lead piping, solder, or fixtures, among other elements that can increase risk of lead exposure. With respect to schools, the law requires an owner or operator of a non-transient non-community water system that is a school to collect additional tap water samples in buildings identified in the map, as required by the Department.

Appendix E

Possible Updates to the Lead and Copper Rule

While the Lead and Copper Rule has substantially reduced the risk of lead exposure in drinking water, the EPA acknowledges the need to strengthen its requirements.⁹ The agency offers a white paper providing examples of revisions that could apply to the current rule, which include lead service line replacement, strengthening of tap sampling requirements, and public education requirements.¹⁰ While considering revisions to the current Lead and Copper Rule, the EPA is consulting with state and local government officials, initiating peer review, and consulting with stakeholders to inform their revisions.

⁶ New Jersey Future, 2017.

⁷ Ibid., 2017.

⁸ Ibid., 2017.

⁹ U.S. Environmental Protection Agency. (2018, January 16). Lead and Copper Rule Long-Term Revisions. Retrieved from <https://www.epa.gov/dwstandardsregulations/lead-and-copper-rule-long-term-revisions>.

¹⁰ U.S. Environmental Protection Agency. (2016, October). Lead and Copper Rule Revisions White Paper. Retrieved from https://www.epa.gov/sites/production/files/2016-10/documents/508_lcr_revisions_white_paper_final_10.26.16.pdf.