UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources | Nutrition Policy Institute

2022 White House Conference on Hunger, Nutrition and Health

Issue: Lead in school and childcare tap water

Problem: There is too much lead in some school and childcare tap water.

Pillars: *Improve food access and affordability; Enhance nutrition and food security research*

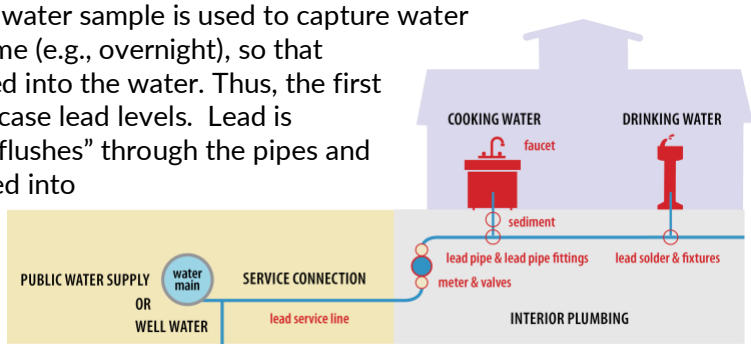
Recommendations (details are below)**:**

1. **EPA, Office of Ground Water and Drinking Water, Protection Branch:** EPA, with inter-agency assistance, should maximize use of tap water lead testing "3Ts" guidance and electronic reporting via EPA's new "eTrackers." Further, direct and enable EPA to obtain analyses of Water Infrastructure Improvements for the Nation (WIIN) Act of 2016 lead testing program strategies and results.
2. **EPA and Child and Adult Care Food Program (CACFP):** In upcoming Lead and Copper Rule Improvements (LCRI), EPA should extend Lead and Copper Rule Revision tap water lead testing requirements from 2 taps per facility to all taps used for drinking and cooking water.[1]
3. **School Nutrition Programs (NSLP, SBP, SFSP, CACFP Afterschool Snack/Supper):** Request that USDA expand the on-site Administrative Review by adding specific checkpoints to ensure that there is effective oversight of drinking water safety in school nutrition programs.
4. **Child and Adult Care Food Program (CACFP):** Request that USDA add specific checkpoints to CACFP monitoring site visit instruction to ensure that there is effective oversight of drinking water safety.
5. **Convene relevant agencies, researchers and advocacy groups** to develop consensus on an action level for lead in childcare and school drinking water and best practices for testing and remediation.

Why does it matter? Drinking water contributes about 20% of overall lead exposure (the primary exposure is from lead in soil and dust), however since no level of lead is safe and lead levels in tap water can be very high, it is important to address this source of children's lead exposure.[2] Four reports highlight presence of lead in school drinking water.[3] Children who consume formula reconstituted with tap water are at particular risk if there is lead in the water. Outside of home, children spend most of their time in schools and childcare facilities. Low-income children, in particular, are likely to spend time in schools participating in the National School Lunch Program (NSLP) and the Child and Adult Care Food Program (CACFP). To support healthy hydration, the Healthy, Hunger-Free Kids Act of 2010 (HHFKA) imposed a requirement that *potable* water be made available in federal school and childcare nutrition programs. We must ensure that not only school cafeterias and CACFP programs have safe water, but that all public school and licensed childcare drinking and cooking water does not contain dangerous levels of lead.

U.S. tap water may be contaminated if (a) the utility is in violation of drinking water standards for regulated contaminants, (b) water is contaminated with an unregulated substance (for example, PFAS), (c) water supply is from a contaminated privately-owned well, and/or (d) lead is present in premise plumbing.[4]

A short explanation of lead in tap water. Lead can enter tap water if lead is present in the service line from the water main, or if interior plumbing parts, such as solder, faucets or pipes, contain lead. Lead in tap water can only be reliably detected by sending a sample of water to a certified lab for analysis. Lead may be "particulate" (when a random flake of lead detaches from corroded pipes, leading to a very high lead reading (typically in the 1000s of parts per billion (ppb)), or dissolved. A "first draw" water sample is used to capture water that has been stagnant for a period of time (e.g., overnight), so that testing will pick up lead that has dissolved into the water. Thus, the first draw sample aims to detect most worst-case lead levels. Lead is generally effectively removed as water "flushes" through the pipes and fresh water from the water main is carried into the building. Other methods to eliminate lead include replacement of leaded plumbing parts or filtration using a filter certified for lead that is replaced in a timely fashion.



Five problems, with recommendations to tackle each:

Problem 1: We still do not know how pervasive is lead in school and childcare drinking water.

We lack a solid database. For example, in our "Early Adopters" study of the 24 states (and D.C.) that embarked on school tap water testing post-Flint, only half of the states could provide useable data.[5] There are only a few peer-reviewed analyses of lead-test results from school drinking water, and they suggest that elevated lead is very location-specific. For example, in Massachusetts, 64% of *schools* had least one tap with lead over 15 ppb; only 12% of all *taps* had a lead exceedance but 90% of them were located in just 34% of MA schools.[6] On the other hand, in California, only 3% of *schools* had at least one tap sample over 15 ppb.[7]

Childcare drinking water lead levels have had little investigation, but exposures could be higher, not lower, than in schools since childcare sites are more likely than schools to have lead service lines. (Lead service lines are too narrow in diameter to serve most large institutional buildings.)

Congress and the Environmental Protection Agency (EPA) have recently taken important steps (see[8,9]) to address the risk to children's health and development from lead that can be present in drinking water. Data are starting to come out from WIIN-funded state testing programs.

Recommendation 1. EPA, Office of Ground Water and Drinking Water, Protection Branch: WIIN Act lead testing results have the potential to be a national dataset on lead in school and childcare tap water and these data on lead concentrations deserve scrutiny and analysis.

EPA should use full powers as well as inter-agency cooperation to disseminate EPA's tap water lead testing "3Ts" guidance and new "eTrackers." All WIIN grantees should be required to submit eTracker forms electronically. School and childcare facility testing undertaken independent of WIIN grants should be strongly encouraged to use and submit the same forms to aid national data collection. All data should be publicly available electronically and made easily available for detailed analysis. [Note: these recommendations were provided in an EPA public comment period.[10]] Further, direct/enable EPA to obtain analyses of WIIN Act lead testing strategies and resultant data. (We are talking with EPA Office of Ground Water and Drinking Water and they are interested in a way to analyze them.)

Given the EPA "3Ts" guidance and sample work plan components as part of the WIIN Act grant funding, the work plans submitted by each state should be analyzed to gain a better understanding of how features of state program actions in specified areas (e.g., communication, training, testing and taking action) have been organized and structured.

Most states are far from completing school and childcare tap water lead testing.[11] Understandings from these two studies could enable EPA to provide guidance for strategies that have been beneficial in promoting better water quality in school and childcare drinking water — and potentially also inform EPA's planned Lead and Copper Rule Improvements.

More information here.[12]

Problem 2: Young children are the most vulnerable to the toxic effects of lead. All water used for drinking, formula preparation and cooking in CACFP and all childcare programs should be safe. Very little is known about the prevalence of lead in childcare tap water. Studies to date indicate that individual taps within a building can differ greatly in lead emissions.

Recommendation 2. EPA: In their Lead and Copper Rule Improvements (LCRI), EPA should extend Lead and Copper Rule Revision tap water lead testing requirements from 2 taps per facility to all taps used for drinking and cooking water.[13] [Note: this recommendation was provided in an EPA public comment period.[14]]

Problem 3/4: Onsite Administrative Review (AR) (for school nutrition programs) and monitoring inspectors (for CACFP) do not have adequate guidance to assure water safety and access. For example, compare the AR Water Safety (Section 1300) with the Food Safety (Section 1400) that has detailed instructions.

Recommendations 3 & 4. Boost drinking water safety by using Administrative Review and CACFP monitoring more effectively. Request that USDA report to Congress on how they have added specific checkpoints to on-site Administrative Review and CACFP monitoring to ensure that there is effective oversight of drinking water safety in all sites operating federal child nutrition programs. [Note: this set of recommendations has been provided to USDA FNS and highlighted in letters to Congressional CNR committees.[15,16,17]]

- **NSLP:** On-site AR procedures should be revised to provide specific checkpoints in order to ensure that water in NSLP cafeterias and kitchens meets safety standards, for example:
    - Food Service Director has obtained and read the public water supplier's (utility's) most recent water quality report (Consumer Confidence Report)
    - Facility is in compliance with state/federal mandates for tap water testing for lead
    - Consider using Hazard Analysis Critical Control Point (HACCP) program criteria (as used for Food Safety) to ensure drinking water safety
- **CACFP:** Monitoring should be revised to help ensure that water in CACFP facilities meets safety standards, for example:
    - Facility Director has obtained and read the public water supplier's (utility's) most recent water quality report (i.e., Consumer Confidence Report)
    - Facility is in compliance with state/federal mandates for tap water testing for lead
    - Facility Director has identified type of water service line (lead, suspected lead, copper, unknown) and if suspected or confirmed lead, detail steps for replacement or mitigation

Problem 5. The U.S. lacks consensus on requirements and strategies around reduction of lead in tap water. One example is determining an appropriate action level for lead in tap water and, particularly, for school and childcare tap water. State action levels vary from 20 ppb and down: the World Health Organization calls for a 10 ppb limit; EPA sets an action level of 15 ppb; states name standards between 5-20 ppb.[18] The American Academy of Pediatrics calls for a 1 ppb goal, a number taken up by many advocates while many scientists in the field consider this may be unnecessarily stringent. The action level also impacts determination of the pervasiveness of the problem. In California, while only 3% of *schools* had at least one sample over 15 ppb, 16% of *schools* had a sample over 5 ppb (the FDA standard for bottled water).[19]

Another example is appropriate techniques for remediation. As cases in point, after extensive testing and consideration, Chicago Public Schools replaced certain plumbing elements and determined that regular "flushing" of school plumbing could reduce lead to <3 ppb and that using filtration was unfeasible,[20] while some advocacy groups call for placing a filter on each and every drinking water outlet.

Recommendation 5. Convene multi-agency, research and advocacy groups to develop consensus on an action level for lead in childcare and school drinking water and best practices for testing and remediation.

The above recommendations are supported by the Bipartisan Policy Center's January 2022 report, "Strengthening the Child Nutrition Programs."[21] Under Policy Recommendation 2, "Strengthen nutrition in the school nutrition programs," the report includes, "Address school drinking water safety and accessibility." Page 23 of the report states,

> To further support a healthy school environment, federal policy could address school drinking water safety and accessibility. A 2017 GAO survey found that 41% of school districts had not tested for lead within the last year. Of the 43% who reported testing for lead, 37% found elevated levels. Testing for lead in all schools, as well as any necessary remediation, could be required and funded. Testing could be done on all taps used for drinking and cooking, including in school cafeterias, kitchens, and water fountains … The bipartisan Infrastructure Investment and Jobs Act enacted in December 2021 dedicated $55 billion to expand access to clean drinking water for households, businesses, schools, and childcare centers. These funds could be used for lead testing and remediation in schools, child care centers, and other youth-serving facilities.

These recommendations are also supported by the Robert Wood Johnson Foundation's October 2021 report, "From Crisis to Opportunity: Reforming Our Nation's Policies to Help All Children Grow Up Healthy."[22]

> Local, state, and federal governments should work together to ensure safe drinking and cooking water in all schools, including by requiring and funding testing and remediation for lead in school cafeteria and kitchen tap water, and requesting that USDA report to Congress on specific checkpoints USDA has added to on-site administrative review to ensure that there is effective oversight of drinking water safety and access.

Who can act? Congress, EPA, USDA, DHSS; state and local health and social service departments; state departments overseeing tap water lead testing programs and childhood lead poisoning prevention programs; federal, state and public-private partnerships, e.g., with public water utilities (see WIC memo for an example), university research teams, local and state school boards, advocacy groups.

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Footnotes and citations:

[1] EPA's Lead and Copper Rule Revision of 2021 requires utilities to sample tap water for lead in those childcare facilities served by the water system – but only every 5 years, and at only 2 outlets per facility. By 10/16/2024, EPA hopes to have finalized Lead and Copper Rule Improvements (LCRI), its next step in lead reduction, intended to strengthen regulatory frameworks. (US Environmental Protection Agency. (2021). National primary drinking water regulations: Lead and copper rule revisions. Fed. Regist., 84(219)).

[2] Levallois P, Barn P, Valcke M. et al. Public Health Consequences of Lead in Drinking Water. *Curr Envir Health Rpt* 2018;5, 255–262.

[3] Recent reports on school drinking water quality and lead testing all find lack of uniformity in approach and all find lead is a problem

- Harvard-University of California report, State Approaches for Testing School Drinking Water for Lead in the United States, 2019.
- U.S. Government Accountability Office report, Lead Testing of School Drinking Water Would Benefit From Improved Federal Guidance, 2018.
- Center for Green Schools white paper, Perspectives on State Legislation Concerning Lead Testing in School Drinking Water, 2018.
- Environment America report, Get the Lead Out: Ensuring Safe Drinking Water for our Children at School, 2019.

[4] Patel AI, Hecht CE, Cradock A, Edwards MA, Ritchie LD. 2020. Drinking Water in the United States: Implications of Water Safety, Access and Consumption. *Ann Rev Nutr* 40:345-373.

[5]Cradock AL, Barrett JL, Poole MK, Flax CN, Vollmer LY, Hecht CA. Lead concentrations in US school drinking water: testing programs, prevalence, and policy opportunities, 2016-2018. *AJPH*. In press.

[6] Rome M, Estes-Smargiassi S, Masters SV, Roberson A, Tobiason JE, Beighley RE, Pieper KJ. Using the Lead and Copper Rule Revisions Five-Sample Approach to Identify Schools with Increased Lead in Drinking Water Risks. *Environmental Science & Technology Letters* 2022 9(1): 84-89

[7] Umunna IL, Blacker LS, Hecht CE, Edwards MA, Altman EA, Patel AI. Water Safety in California Public Schools Following Implementation of School Drinking Water Policies. *Prev Chronic Dis* 2020;17:200366

[8] The Infrastructure Investment and Jobs Act of 2021 expands the existing Voluntary School and Child Care Program Lead Testing Grant Program by adding compliance monitoring and remediation of lead contamination in drinking water, with $200M authorized over 5 years. Section 50110, amends Section 1464 of the Safe Drinking Water Act (42 U.S.C. 300j– 24) and states, "the Administrator shall establish a voluntary school and child care program lead testing, compliance monitoring, and lead reduction grant program to make grants available to States to assist local educational agencies, public water systems that serve schools and child care programs under the jurisdiction of those local educational agencies, and qualified nonprofit organizations in voluntary testing or compliance monitoring for and remediation of lead contamination in drinking water at schools and child care programs under the jurisdiction of those local educational agencies." (H.R.3684 - 117th Congress (2021-2022): Infrastructure Investment and Jobs Act. (2021, November 15). https://www.congress.gov/bill/117th-congress/house-bill/3684/text).

[9] The EPA Lead and Copper Rule Revision (LCRR), enacted in December 2021, requires regular testing in elementary schools and childcare sites constructed before 2014, specifically, two tap water samples in childcares and five samples in schools ("two drinking water fountains, one kitchen faucet used for food or drink preparation, one classroom faucet or other outlet used for drinking, and one nurse's office faucet, as available"), testing 20% of all utility-served facilities annually so that each site is tested every five years. It has a compliance deadline 10/16/2024, by which time EPA hopes to have finalized its next step in lead reduction, Lead and Copper Rule Improvements (LCRI) that will strengthen regulatory frameworks. (US Environmental Protection Agency. (2021). National primary drinking water regulations: Lead and copper rule revisions. Fed. Regist., 84(219)).

[10] Cradock AL, Hecht CA. 2021. *Comment on Lead and Copper Rule: No. EPA-HQ-OW-2021-0255* At, https://ucanr.edu/sites/NewNutritionPolicyInstitute/files/355674.pdf

[11] US EPA. *WIIN 2107 (School and Child Care Lead Testing and Reduction Grant Program) Best Management Practices Workshop.* Microsoft Teams. 5/17/2022.

[12] The combined research teams of Angie Cradock (Harvard), Christina Hecht (UC) and Anisha Patel (Stanford) are in ongoing conversations with EPA, Office of Ground Water and Drinking Water, Protection Branch. EPA ODW (Ying Tan) says, "We do have plans to post some of the Lead Testing data on our EPA website and it is currently under development. We have gotten approvals and are currently finalizing some details before we post. We certainly would like to speak further regarding plans for the data that is coming in for the Voluntary School/Child Care Lead Testing Program with you and your team. With the new Bipartisan Infrastructure Law, we are looking that the data set will change in the future. The 3Ts team was looking at some data analytics with the 3Ts website, and one of the things we were looking at was the eTracker tool. We look forward to hearing more ideas from your team regarding how we could find out how the tools we produced are helping school/child care facilities with their programs." P.c. Ying Tan, 5/2022.

[13] EPA's Lead and Copper Rule Revision requires utilities to sample tap water for lead in those childcare facilities served by the water system – but only every 5 years, and at only 2 outlets per facility. By 10/16/2024, EPA hopes to have finalized Lead and Copper Rule Improvements (LCRI), its next step in lead reduction, intended to strengthen regulatory frameworks. (US Environmental Protection Agency. (2021). National primary drinking water regulations: Lead and copper rule revisions. Fed. Regist., 84(219)).

[14] Cradock AL, Hecht CA. 2021. *Comment on Lead and Copper Rule: No. EPA-HQ-OW-2021-0255*

At, https://ucanr.edu/sites/NewNutritionPolicyInstitute/files/355674.pdf
[15] P.c. Christina Hecht to Congressional offices including Boozman, Casey, DeSaulnier, Gillibrand, Leahy, Scott, Senate Ag R & D staff, 8/6/2019; Leahy, 8/7/19; Roybal-Allard, 10/2/19.
[16] National Drinking Water Alliance. 2021. *Letters to Senate Agriculture Committee and House Education and Labor Committee*. See, https://ucanr.edu/sites/NewNutritionPolicyInstitute/files/368453.pdf
[17] National Drinking Water Alliance. 2022. Letters to Senate Agriculture Committee and House Education and Labor Committee. See, https://ucanr.edu/sites/NewNutritionPolicyInstitute/files/365141.pdf
[18] Cradock AL, Hecht CA, Poole MK, Vollmer LY, Flax CN, Barrett JL. *State approaches to testing school drinking water for lead in the United States.* Boston, MA: Prevention Research Center on Nutrition and Physical Activity at the Harvard T.H. Chan School of Public Health; 2019. Available at https:// www.hsph.harvard.edu/prc/projects/ school-research/early-adopters.
[19] Umunna IL, Blacker LS, Hecht CE, Edwards MA, Altman EA, Patel AI. Water Safety in California Public Schools Following Implementation of School Drinking Water Policies. *Prev Chronic Dis* 2020;17:200366
[20] Robert Christlieb, Senior Manager of Construction, Chicago Public Schools, p.c. 11/2/2017
[21] Bipartisan Policy Center. 2022. *Strengthening the Child Nutrition Programs*. At, https://bipartisanpolicy.org/download/?file=/wp-content/uploads/2022/01/BPC_Strengthening-the-Child-Nutrition-Programs.pdf
[22] Robert Wood Johnson Foundation. 2021. *From Crisis to Opportunity: Reforming Our Nation's Policies to Help All Children Grow Up Healthy*. At, https://media.stateofobesity.org/wp-content/uploads/2021/10/12132618/State-of-Childhood-Obesity-10-13-21-Final-WEB.pdf , see page 27.