



Frequently Asked Questions

Lead Exposure: the Risks and Remedies

Q. What is lead?

A. Lead is a naturally occurring toxic metal that is harmful if inhaled or swallowed. Lead can be found in air, soil, dust, food, and water. Lead is commonly used in plumbing materials and water service lines. Exposure to elevated lead levels can result in adverse health effects, especially in fetuses, infants and children up to the age of six.

Q. How does lead get into a school or child care center's drinking water?

A. Typically, the lead in plumbing pipes, solder and other plumbing materials, such as water coolers and faucets, is the source of lead in drinking water. The most common cause is corrosion. Corrosion is a chemical reaction between the water and the lead pipes and solder. Corrosion is accelerated by water characteristics such as low pH (acidity), low mineral content, high temperature, and extended contact time with plumbing pipes. For example, corrosion accelerates when water in the plumbing system stands overnight, over the weekend, and throughout term breaks when there are no classes.

Q. If testing and monitoring the quality of drinking water is not specifically mandated by state or local law, why should a school or child care center devote resources to such a course of action?

A. School and child care administrators have a professional responsibility to ensure the health and safety of the children entrusted to their care. Ensuring that the water provided in the facilities is safe for children to drink is a fundamental responsibility that must be proactively addressed. Moreover, in addition to the health advantages, schools and child care facilities that voluntarily sample drinking water and make lead levels and remediation plans available to the public will enjoy the following benefits:

- 💧 Enhanced credibility
- 💧 Positive publicity
- 💧 Parental and community support
- 💧 Stature as a standard-setting "best practices" facility

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Q. What are the health risks associated with lead exposure?

A. Lead poses a significant health risk to young children, especially infants and fetuses, where the danger is very severe. This is because growing children absorb lead more rapidly and are negatively impacted by a level of lead exposure that would have little effect on an adult. A child's mental and physical development can be irreversibly impaired by over-exposure to lead. EPA estimates that drinking water can make up 20% or more of a person's total exposure to lead. Infants who consume mostly mixed formula can receive 40% to 60% of their exposure to lead from drinking water.

Q. How much lead in drinking water is too much?

A. In school or child care settings, EPA has set a guidance level of 20 ppb (0.020 mg/L) when testing 250 ml first-draw samples from water fountains and outlets. (First draw refers to the first water to come out of the tap after an 8-18 hour period of inactivity.) When results show lead levels exceeding 20 ppb, those fountains and outlets should be taken out of service until remediation is complete.

Q. Is lead exposure at schools significant to my child's health?

A. The Centers for Disease Control and Prevention (CDC) recommend that as a community we should reduce all sources of lead exposure as much as possible, because it can have adverse health effects even at low concentrations. The school may take actions to reduce lead exposure in their facilities, but parents also should realize that exposure to lead may occur in the home. Actions in the home to reduce lead exposure are just as important as the step the school is taking to reduce lead.

Q. What is remediation?

A. Remediation refers to the short- and long-term steps that can be taken to reduce the levels of lead in drinking water if test results indicate that a school or child care facility has a lead problem. The implementation of remediation plans is impacted by many factors, including cost, likelihood of success, availability of water, and staffing requirements.

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Q. If a problem is identified at a school or child care center, what are the options available for reducing lead levels in the drinking water?

A. Based on available human and financial resources, the following routine, short-term and long-term steps will help mitigate the problem:

Routine Control Measures

Below are examples of routine activities that should be conducted to prevent exposure to elevated levels of lead:

- 💧 Clean debris from all accessible screens frequently. If you discovered sediments in faucet screens, have the sediments tested for lead and continue to clean your screens frequently, even if the analysis finds no lead.
- 💧 Use only cold water for food and beverage preparation. Hot water will dissolve lead more quickly than cold water and is likely to contain increased lead levels. If hot water is needed, it should be taken from the cold water tap and heated on a stove or in a microwave oven.
- 💧 Instruct the users (students and staff) to run the water before drinking or staff could run the water before students arrive, so they are drinking water that has not been in contact with the faucet interior since faucets are often a major source of lead in drinking water.
- 💧 Placard bathroom sinks with notices that water should not be consumed. You should use pictures if there are small children using bathrooms.

Interim (Short-Term) Control Measures

(Please see the *3Ts for Reducing Lead in Drinking Water in Schools* for a more detailed description of the interim control measures.)

- 💧 "Flush" the piping system in your building.
- 💧 Provide bottled water.
- 💧 Shut off problem outlets.

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Permanent Remedies

After obtaining an understanding of your water supply and the lead conditions in your facility (as a result of testing), you should examine the permanent treatment options and select those most appropriate to your situation. (Please see the *3Ts for Reducing Lead in Drinking Water in Schools* for a more detailed description of the permanent remedies.)

- 💧 Replace outlets.
- 💧 Reduce lead levels at the tap. For example, install point-of-use (POU) devices that reduce lead at the tap.
- 💧 Check grounding wires. Electrical current may accelerate the corrosion of lead in piping materials.
- 💧 Lead pipe replacement. Lead pipes within the school and those portions of the lead service lines under the water supplier's jurisdiction can be replaced.
- 💧 Reconfigure plumbing. In some facilities, the plumbing system might be modified so that water supplied for drinking or cooking is redirected to bypass sources of lead contamination.
- 💧 Manual flushing. Flushing individual problem outlets or all outlets may also represent a permanent, albeit ongoing, solution.
- 💧 Automated flushing. Time-operated solenoid valves can be installed and set to automatically flush the main pipes (headers) of the system.
- 💧 Bottled water. If other treatment fails or is impractical, bottled water can be purchased for consumption by the building community.
- 💧 Use lead-free materials. Make sure that any plumber who does repair or replacement work on the facility's plumbing system uses only "lead-free" solders and other materials.
- 💧 Shut off problem outlets.