

Public Health and Lead

MWRA Forum on Lead in Drinking Water

June 29, 2017

Michael Celona, R.S.
Chief of Water Toxics

Environmental Toxicology Program
Bureau of Environmental Health
Massachusetts Department of Public Health



How does lead get into someone's body?

- Low levels may be present in food, drinking water, soil, dust, and air.
- Everyone is exposed to small amounts from these sources.
- It is not uncommon for individuals to have low levels of lead in their body.
- Main source for children is lead paint.



How can lead make someone sick?

- Developing brains of infants, young children, and developing fetuses are at greatest risk.
- The amount of lead in a child's body depends on several factors: age, nutritional status, and the various sources of lead in their environment.
- Lead exposure to young children and pregnant women should be reduced as much as possible.

Blood Lead Testing in Massachusetts

- Children are required to be screened for elevated blood lead levels.
- Children are tested at 9-12 months, ages 2 and 3, and sometimes at age 4, if they live in a High Risk community.
- This approach helps identify lead poisoned children, and eliminate lead sources.



Blood Lead Testing in Massachusetts

- MA currently defines lead poisoning as a venous blood lead level of 25 $\mu\text{g}/\text{dL}$ or greater.
- Lowering the definition of lead poisoning to a venous blood lead level of 10 $\mu\text{g}/\text{dL}$ is a key piece of proposed regulatory changes.



CLPPP Case Management

- The MDPH/BEH Childhood Lead Poisoning Prevention Program (CLPPP) currently offers home visiting services and inspections to all children in MA with blood lead levels 10 µg/dL or greater.
- If a child is lead poisoned (25 µg/dL or greater), then services are mandatory including home inspection and deleading of lead hazards in the home.
 - A lead hazard is defined by regulation as loose lead paint, lead paint on a moveable/impacted part of a window, or lead paint on woodwork like doors and door jambs.
 - Soil, water, folk remedies, etc. are not legally defined as a lead hazards, but they can be a source of exposure. CLPPP investigates and offers guidance for alternative sources.

Water Testing Results

- In October 2016, CLPPP began to include water testing in all homes where families received home visiting services.
- CLPPP has worked closely with MWRA to have many of these samples analyzed at the MWRA lab.
- CLPPP uses EHS Laboratories for those communities not within MWRA's jurisdiction.
- As of June 21, 2017, 104 families have had their water tested.
- There has been one exceedance.
 - The second draw was non-detect.
 - This was not in MWRA's service area.
 - CLPPP is providing guidance to the family and helping to prioritize possible sources of exposure, including loose lead paint and the elevated dust lead levels found in the child's home.

Where can I get additional information?

www.mass.gov/dph/lead-source

The screenshot shows the Massachusetts Department of Public Health website. The main heading is "Sources of Lead Besides Lead Paint". Below the heading, there is a list of sources including ceramic dishes, brass containers, foreign antique tea kettles, stained glass, large bathtubs, bullets, fishing sinkers, and folk medicines. There are also sections for "Lead gets into water from lead pipes" and "Take these steps to reduce the lead exposure from water".

Copper in Drinking Water FAQ for School and Childcare Facilities

This fact sheet answers frequently asked questions about copper and health, how copper may get into the drinking water at your school or childcare facility, and how children, teachers, and staff can avoid exposure. Copper is a naturally occurring and essential nutrient for good health in low levels. Exposure to high levels of copper can harm health. Parents of infants and young children, pregnant women, and people with Wilson's disease or liver disease should be aware of possible health effects following exposure to high levels of copper and

lead. Our bodies have a natural mechanism to maintain the proper level of copper.

WHAT IF COPPER LEVELS IN THE DRINKING WATER AT SCHOOL OR CHILDCARE ARE HIGH?

If the copper levels are higher than the U.S. Environmental Protection Agency's (EPA) action

Lead in Drinking Water FAQ for School and Childcare Facilities

This fact sheet answers frequently asked questions about lead and health, how lead may get into the drinking water at your school or childcare facility, and how children, teachers, and staff can avoid exposure. Lead can be found in all parts of the environment. Although lead is found in nature, most exposure comes from human activities or use. Lead-based paint and lead-contaminated dust are the primary sources of exposure for children. Infants, young children, and developing fetuses are most sensitive to the effects of lead because their body systems are not fully developed. Precautions should be taken to minimize lead exposure.

HOW DOES LEAD GET INTO DRINKING WATER?

In Massachusetts, most drinking water sources from reservoirs and groundwater are lead free. When lead is present in water, it is typically due to the water flowing through lead pipes or plumbing in buildings with lead parts or solder. Service lines, which are the pipes that connect homes, schools, or other buildings to the water main, could have lead in them. Inside the school or facility, there may also be lead pipes, pipes connected with lead solder, or brass faucets or fittings containing lead. Lead levels are highest when the water has been sitting in lead pipes for several hours. Additionally, using hot water can draw lead out of pipes, solder or fixtures, releasing it into the water.

HOW DOES LEAD GET INTO SOMEONE'S BODY?

Lead is present in typically low levels in a variety of different sources, such as food, drinking water, soil, dust, and air. Individuals are exposed to lead from eating food, drinking water, accidentally swallowing soil and dust, and from breathing air that contains

lead. Other less common sources of lead include some handmade pottery and imported cookware, home remedies, toys, candy, jewelry, and canned food. Lead-based paint and lead-contaminated dust are the primary sources of exposure for children, but drinking water can be an important contributing source to overall exposure.

Since everyone is exposed to small amounts of lead in their daily life, it is not uncommon for a low level of lead to be present in someone's body.

IS IT SAFE TO BATHE IN WATER WITH ELEVATED LEVELS OF LEAD?

Yes. Lead is not easily absorbed through the skin. It is not a problem to wash hands, bathe, and/or shower in water containing lead.

WHAT IF LEAD LEVELS IN THE DRINKING WATER AT SCHOOL OR CHILDCARE FACILITIES ARE HIGH?

If the lead levels are higher than the Massachusetts Department of Environmental Protection (MassDEP) action level of 15 parts per billion (ppb), your school or childcare facility should work to determine the source. Once a school is aware of a water lead exceedance, they should prevent access to any tap or fountain above the action level and provide an alternate source of water. MassDEP can provide technical assistance to schools and childcare facilities with regard to testing and follow-up measures. There are a number of ways lead can be reduced in school drinking water, such as by replacing pipes and fixtures, reducing the corrosiveness of the water, or initiating a flushing program. Your school or childcare facility should keep parents, teachers, and staff updated

Lead in Drinking Water FAQ

This fact sheet answers frequently asked questions about lead and health, how lead gets into your drinking water, and what you can do to protect yourself and your family from lead exposure. Lead can be found in all parts of the environment. Although it is naturally occurring, most exposure comes from human activities. Young children, infants, and pregnant women are most vulnerable to the effects of lead and precautions should be taken to minimize their lead exposure.

HOW DOES LEAD GET IN MY DRINKING WATER?

In Massachusetts, most drinking water sources

Most children come into contact with lead by being exposed to the paint in old homes. When old paint that contains lead peels and cracks it creates lead dust and chips. Home renovation may also create significant amounts of lead dust and must be done with caution. Lead dust can be breathed in or get onto hands and toys. Lead intake often occurs when children put their hands and toys in their mouths.

Since everyone is exposed to small amounts of lead in their daily life, it is not uncommon for a low level of lead to be present in someone's body.

It is Massachusetts law that children be tested for lead at ages 0, 1, 2, 3, and

Preguntas frecuentes sobre el contenido de plomo en agua potable

En esta hoja de información se responden preguntas frecuentes sobre el plomo y la salud, la manera en que el plomo ingresa al agua potable y las medidas que usted puede tomar para protegerse y proteger a su familia de la exposición al plomo. El plomo puede encontrarse en todas partes en el ambiente. Si bien ocurre naturalmente, la mayor parte de la exposición proviene de actividades humanas. Los niños pequeños, los bebés y las mujeres embarazadas son más vulnerables a los efectos del plomo, y se deben tomar precauciones para minimizar su riesgo a la exposición.

¿De qué manera ingresa el plomo al agua potable?

En Massachusetts, la mayoría de las fuentes de agua potable, como tanques y agua subterránea, no tiene plomo. Si hay plomo en el agua, generalmente se debe al agua que corre por tuberías o plomería de plomo con partes o soldaduras de plomo en los hogares. Las conexiones a la red, que son las tuberías que conectan su casa con la tubería maestra, pueden tener plomo. Dentro de su casa, es posible que tenga tuberías de plomo, tuberías de cobre con soldaduras de plomo, o grifos o accesorios de bronce que tienen plomo. Los niveles de plomo son más altos cuando el agua ha estado en tuberías de plomo durante varias horas. El agua caliente provoca que el plomo ingrese al agua más rápidamente.

¿De qué manera ingresa el plomo al organismo?

En muchos casos, la mayor exposición al plomo proviene de polvo de pintura, partículas de pintura y suelo contaminado con plomo. El plomo también puede ingresar al organismo al beber o cocinar con agua con plomo. Los niños pequeños absorben plomo con mayor facilidad que los adultos, y una madre puede pasarle plomo al bebé. Por estos motivos, el plomo en el agua potable puede ser una fuente importante de exposición para mujeres embarazadas, niños pequeños y bebés alimentados con fórmula en polvo.

Datos resumidos sobre la exposición al plomo

- Descripción general:**
- Los bebés, los niños pequeños y las mujeres embarazadas son especialmente vulnerables a los efectos nocivos de la exposición al plomo.
 - La mayor parte de la exposición al plomo se debe a polvo y partículas de pintura con plomo.
 - La mayoría de las fuentes de agua pública en Massachusetts no tienen plomo, pero puede haber plomo en el agua de su casa debido a tuberías, soldaduras o accesorios antiguos de plomo.
- Medidas que se deben tomar:**
- Hable con el médico de su hijo sobre la exposición al plomo y para que le realicen un análisis de detección de plomo a su hijo.
 - Averigüe en su casa si tiene pintura con plomo o tuberías/accesorios de plomo.
 - Use agua fría para beber y cocinar.
 - Llame al departamento local de agua para averiguar sobre la línea de servicio de su hogar y para analizar el agua.

Who can I contact with additional questions?

For questions about health effects from potential exposure to lead, contact:

Massachusetts Department of Public Health
Bureau of Environmental Health
(617) 624-5757

www.mass.gov/dph/lead-source



For questions about the Childhood Lead Poisoning Prevention Program, contact:

Terry Howard, Director of CLPPP

Terry.Howard@state.ma.us

Additional information on blood lead screening rates and numbers of elevated children by community is available at:

www.mass.gov/eohhs/researcher/community-health/environment-health/lead