

Over the past few months, what has come to be a pressing safety concern amongst the public and surfacing in the news, is the issue of lead exposure. You may have more patients testing in the higher levels for lead toxicity through HMA and I am writing to inform you of a few things to be aware of so that you can more effectively screen and help your patients.

Health Canada and the World Health Organization agree there is no safe level of lead. In Canada, it has been banned in paint and gasoline, tin cans and toys. Today, drinking water and food are the leading source of lead for Canadians.

Earlier this year, Health Canada changed the guideline for acceptable lead levels in drinking water to five parts per billion (ppb), previously ten ppb. Several research studies showed that exposure at levels as low as five caused reduction in IQ levels. At high levels of exposure, lead can damage the prefrontal cortex, contribute to anti-social behavior, behavioural problems in children, cause prenatal growth abnormalities and is an established risk factor for hypertension, chronic kidney disease and tremors in adults.

A yearlong investigation by more than 120 journalists from nine universities and 10 media organizations, including the Associated Press and the Institute for Investigative Journalism at Concordia University in Montreal, collected test results that properly measure exposure to lead in 11 cities across Canada. Since 2014, out of 12,000 tests, 33% exceeded the national safety guideline of five ppb and 18% exceeded the US limit which is 15 ppb.

Lanphear, who is a professor of health sciences at Simon Fraser University, said that Canada could reduce cases of illnesses such as hypertension and coronary heart disease if it focused on reducing lead exposure, which is a major risk factor. He noted that cases of both illnesses dropped dramatically in recent decades in North America after companies stopped using them in both gasoline and paint.

In Canada, there are no federally-mandated control methods, lead pipe removal requirements or lead test protocols. Health Canada recommends lead testing at residential taps, but some provinces like B.C. and Alberta don't require municipalities to do so. Many provinces feared the high costs of testing and were not in agreement with the proposed guidelines as they figure there is not enough "cause and effect" data to prove lead exposure.

Not just a Canadian concern, over the past month, there has been in the news the concern over the amount of lead found in several schools. In Shelby County, Tennessee, 35 schools have tested positive for high levels of lead in their water. This is very concerning and the appropriate measures are being taken to absolve this issue.

One of the most vulnerable populations when it comes to lead exposure is children. Lead can alter how the brain and nervous system grow. In addition to children, pregnant women, infants-especially if they are formula fed using tap water and children under the age of 6 are most at risk.

In addition to lead pipes affecting the schools, lead pipes affect residential homes. In the City of Toronto alone, there are approximately 437,000 residential customers and of these, it is estimated that approximately 31,250 contain lead water service pipes.

If you live in Toronto or service clients from this area, Toronto Public Health recommends those with lead pipes take the following actions. This can extend to any region in which lead pipes are found.

Replace the entire lead water service pipe.

It is recommended that you replace both the City-owned portion of the pipe, as well as the portion on your private property. Cutting the pipe to replace just one side can cause particles of lead to enter drinking water, which can cause a temporary spike in lead levels.

Flush your pipes

If it has been a few hours since you have used water, run a tap until the water is very cold, and then let it run for at least one more minute. This will pull fresh water from the watermain into the pipes.

Use cold water for cooking and drinking

Lead in pipes moves more readily into hot water than into cold water. Cold water is less likely to contain lead, even after flushing the pipes.

Install an end-of-tap water filter

If you are pregnant and/or have a child under the age of six, look for filters certified by the National Sanitation Foundation for lead removal and reduction. Install this filter on the tap you use most often for cooking or for water to drink. The City offers a faucet rebate to eligible homeowners.

Feeding your baby

If you have a baby at home and are breastfeeding, continue to breastfeed your baby. If you are feeding your baby formula use cold filtered tap water, boil it and then let it cool. Use within 30 minutes. Until you have a filter, consider using bottled water for making baby formula, or ready-to-feed formula.

Signs and Symptoms of Lead Exposure

Whether or not you have treated patients with lead poisoning, it is important that you be aware of the signs and symptoms of lead poisoning. Most often, lead toxicity is a result

of chronic low level exposure. This can be found in the results of an HMA. These are some things to be on the lookout for in your patients.

- ✓ abdominal pain/cramps
- ✓ aggressive behavior
- ✓ constipation
- ✓ sleep problems
- ✓ headaches
- ✓ irritability
- ✓ loss of developmental skills in children
- ✓ loss of appetite
- ✓ fatigue
- ✓ high blood pressure
- ✓ numbness or tingling in the extremities
- ✓ memory loss
- ✓ anemia
- ✓ kidney dysfunction

Since a child's brain is still developing, lead can lead to intellectual disability. Symptoms may include:

- ✓ behavior problems
- ✓ low IQ
- ✓ poor grades at school
- ✓ problems with hearing
- ✓ short- and long-term learning difficulties
- ✓ growth delays

A high, toxic dose of lead poisoning may result in emergency symptoms.

- ✓ severe abdominal pain and cramping
- ✓ vomiting
- ✓ muscle weakness
- ✓ stumbling when walking
- ✓ seizures
- ✓ coma
- ✓ encephalopathy, which manifests as confusion, coma, and seizures

As a practitioner, it is very important that we are aware of exposure and we are doing what we can to protect the health of our patients and communities at large. Please share this information with your patients and colleagues and be sure to ask about the

lead levels in your area and patient's area. If you are not sure, the HMA is a great tool to assess lead toxicity.

Thanks for reading and I wish you continued success in your practice.

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