Healthy Kids Metals Information

DEPARTMENT OF HEALTH

Metals are naturally found in the environment and get into food, air, and water.

Some metals are essential nutrients at low levels. They are also used in industry and farming and can be found in some products we purchase including foods. If children are exposed to high levels of certain metals, it may harm their health. Some possible health effects include learning and behavior problems, allergic reactions, damage to the lungs, heart and kidneys, and an increase in cancer risk as an adult.

> Finding metals in a child's urine is normal and does not mean their health will be affected. For most chemicals, scientists are still learning what levels may be unsafe.

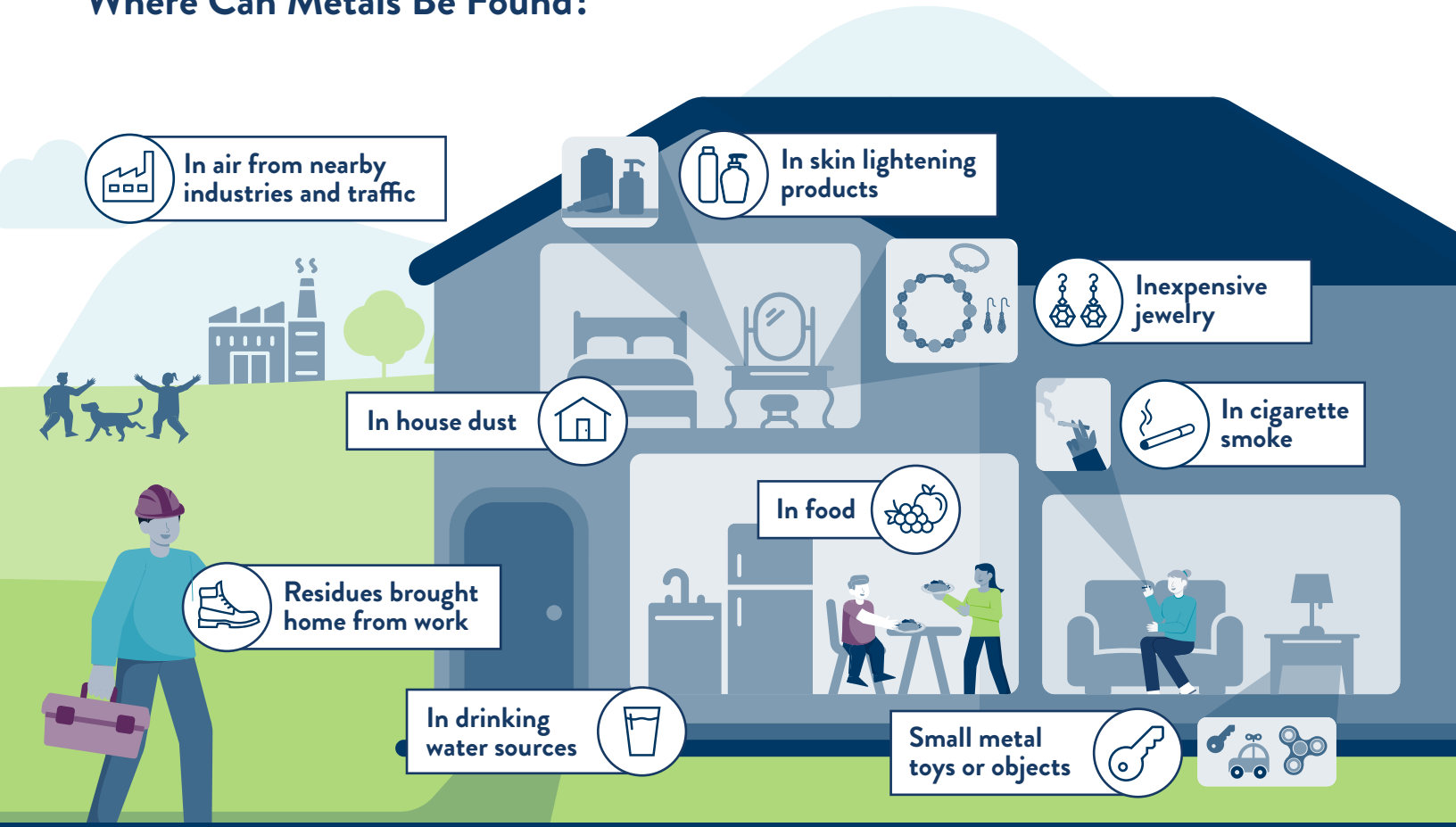
Important Note Regarding Lead: Exposure to lead has many harmful health effects for children. Testing urine is not a good way to check for lead so it is not one of the metals included in Healthy Kids Minnesota. **If you are concerned about lead exposure, speak to your child's health care provider or local clinic.**

For more information and resources, please visit our webpage:

Healthy Kids MN

health.mn.gov/HealthyKidsChemicals

Where Can Metals Be Found?



Priority Metals Tested in Your Child's Urine

Healthy Kids Minnesota tested for twelve metals in children's urine. We know a lot about how to limit exposures to three priority metals we tested: arsenic, manganese, and mercury.

Mercury

Mercury is naturally found in water, food, and air. Mining and industrial sources release mercury into the environment.

Left: Skin lightening products that have been found to contain mercury.

Common Exposures:

Skin Lightening Products: These products can contain high levels of mercury. The sale of mercury-containing products is illegal in Minnesota but they can be purchased online and in some ethnic markets. Use of these products releases mercury into indoor air and can expose children.

Household Products: Mercury used to be common in some products like thermometers. Mercury is still common in fluorescent light bulbs. When these products break, mercury can get into air.

Fish: Large, locally caught fish such as bass, walleye, and northern pike, tend to have the highest levels of mercury. Some store-bought fish, including tuna, do too.

Ways to Lower Exposure:

Do not purchase or use any skin lightening products. Mercury in these products cannot be seen or smelled, and often the product ingredient list is not complete.

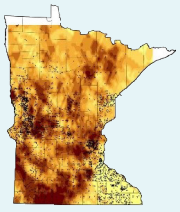
If a glass mercury thermometer or fluorescent light bulb breaks, it must be cleaned up properly following recommended guidelines. Do not sweep or vacuum the mercury.

Follow MDH's safe-eating guidelines to reduce mercury exposure from fish.

Note: Healthy Kids Minnesota urine results don't provide information about your child's exposure to the type of mercury found in fish.

Manganese

Manganese occurs naturally in water, rocks, soil, food, and air. Your body needs some manganese to stay healthy, but too much can be harmful. Manganese from the diet is not a health concern.



Projected Manganese Levels in Private Wells

Lower levels

Higher levels

Common Exposures:

Drinking Water: About 50% of private wells in Minnesota are estimated to have a manganese level higher than what is safe for an infant to drink (see map).

Jobs and Hobbies: Adults who weld or work in a factory where steel is made may be exposed to high levels of manganese. They can bring the manganese home on clothes or other surfaces.

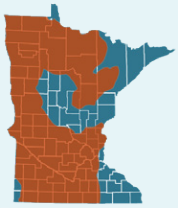
Ways to Lower Exposure:

Test your private well water. If an unsafe level of manganese is detected consider installing a treatment unit or using a different drinking water source.

Follow safe working practices and avoid bringing dust home. Shower and change clothes and shoes when you finish work.

Arsenic

Arsenic occurs naturally in rocks and soil. Some arsenic in the environment is from human activities. It was an ingredient in pesticides and wood preservatives.



Arsenic Levels in Groundwater

Lower levels

Higher levels

Common Exposures:

Food: Arsenic is in certain foods, including:

- Rice and rice products like rice milk, cereals, and snacks
- Fruit juice, especially apple, pear, and grape

Drinking Water: About 40% of private wells in Minnesota have arsenic (see map). You cannot see, taste, or smell arsenic in drinking water.

Wood Structures: Children can be exposed by playing on older outdoor wood structures, like decks or play equipment, if they are not cedar or redwood.

Ways to Lower Exposure:

Rice is the main source of arsenic in food. If your child eats rice or rice products multiple times per day:

- Eat a variety of rice types and brands because some types of rice have more arsenic. White rice has lower arsenic than brown rice.
- Check where the rice is grown. White basmati rice from California, India, and Pakistan and sushi rice from the U.S. may have less arsenic.
- Cook the rice in extra water like you cook pasta – use 6 times as much water as rice and then drain.
- Try serving other grains in place of rice such as oats, quinoa, or corn.
- Eat less of other rice products.

Limit your child's apple, pear, and grape juice to 4 oz. or less per day.

Test your private well water. If arsenic is detected, consider installinga treatment unit or using a different drinking water source.

Have your children wash their hands after playing on older wooden structures, and do not burn this wood.

Note: The form of arsenic (called organic arsenic) found in fish and seafood is not a health concern.

Other Metals Tested

Sb Antimony | Cd Cadmium | Cr Chromium | Co Cobalt | Mo Molybdenum

Ni Nickel | Ti Thallium | W Tungsten | U Uranium

These metals are found naturally in rock and can get into air, water, soil, and food. Children are exposed to them through everyday activities like eating, drinking, and playing. Human activities, like fossil-fuel burning and industry, can increase the amount of metals in the environment. Here are ways kids can come in contact with them and tips for lowering exposure.

Ways to Lower Exposure:

Metals in House Dust

Metals from outside air, soil, and consumer products can build up in house dust. Children are exposed to house dust when they crawl and play on the floor and put their hands or objects in their mouths.

- Clean floors and surfaces in your home, especially where your child plays.
- Wash hands before eating.

Ways to Lower Exposure:

Metals Brought Home from Work

Some jobs and hobbies involve metals, such as welding, soldering, plating, and electronics recycling. Metal dust can attach to you. Children may be exposed to this dust.

- Follow safe practices when working to minimize exposure.
- Shower and change your clothes and shoes right after work.

Metals in Cigarette Smoke or E-cigarette Vapors

Tobacco is naturally higher in certain metals such as **cadmium.** Children are exposed through second-hand smoke. Metal coils in e-cigarettes may add metals such as **cadmium, chromium,** or **nickel** into the vapor.

- Smoke or vape outside of the home or car and away from your child.
- For assistance with quitting smoking, call 1-800-QUIT-NOW (784-8669) or visit www.quitpartnermn.com.

Metals in Inexpensive Jewelry, Small Toys, and Other Small Objects

Children often chew or suck on metal jewelry or other small metal objects. They may also accidentally swallow these items. **Cadmium** and **nickel** are of particular concern.

- Keep inexpensive jewelry out of children's reach.
- Ensure your child is not chewing or sucking on small metal objects such as zippers, keys, or toys.

Metals in Certain Foods

Foods may have higher levels of certain metals such as **cadmium** based on the type of plant or where it is grown.

*Note: Two of these metals – **chromium** and **molybdenum** – are needed by the body in small amounts but too much can be harmful.*

- Offer your child a variety of foods to help them get essential nutrients. This also makes it less likely for them to be exposed to the same metal from thesame food many times.

Metals in Drinking Water

Corrosion of water pipes or household plumbing can increase certain metals like **chromium** or **nickel** in drinking water. There may also be local contamination issues.

- If you suspect you have corroded pipes in your household plumbing, consult a plumber.
- If you have a private well, be aware of any groundwater advisories from your local health or environmental department.

www.health.mn.gov
To obtain this information in a different format, email:
health.biomonitoring@state.mn.us

Minnesota Department of Health
Biomonitoring Program
625 Robert St N, PO BOX 64975
St. Paul, MN 55155-2538

For more information and resources, please visit our webpage:
health.mn.gov/healthykidsmn