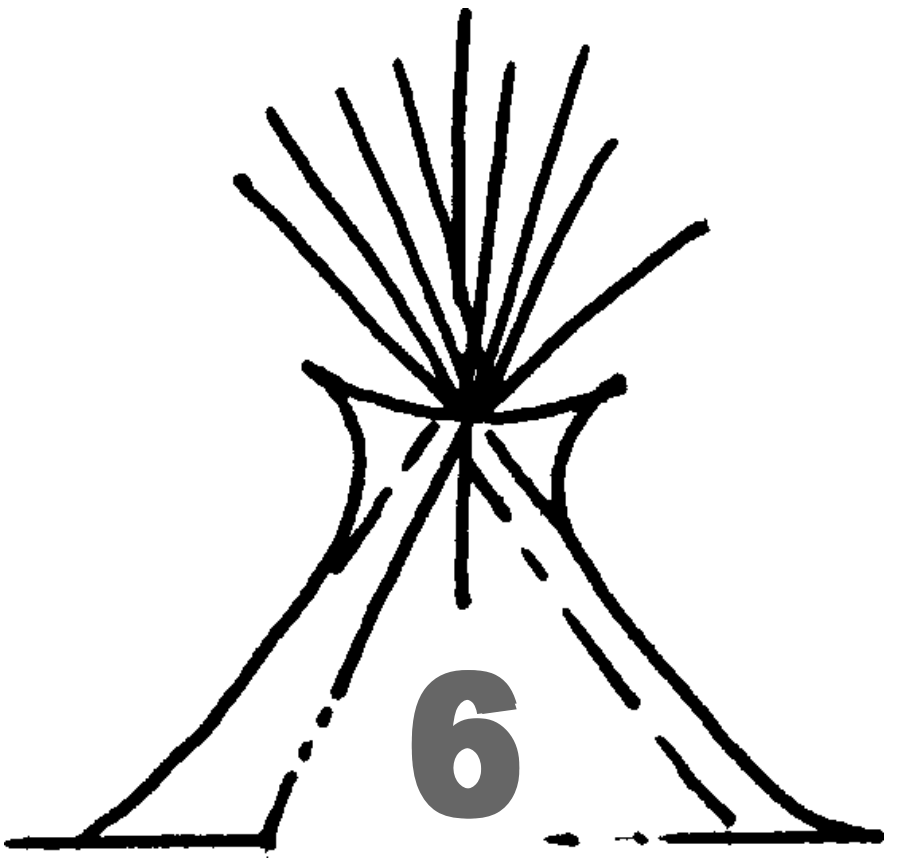
LEAD IN AND AROUND THE HOME



Lead poisoning can seriously harm your family's health and your *children run the highest risk.* The good news is that you can take steps to prevent it.

This fact sheet tells where you might find lead in and around your home and explains the health risks that exposure to lead can cause.

1. Lead Sources in Your Home: *Lead-based paint in or on pre-1978 homes and lead in drinking water*

2. Lead Sources Outside Your Home: *Lead in exterior paint, automobile exhaust and industry*

3. Health Risks for Children: *Ways children may be exposed to lead and effects and symptoms of lead poisoning*

Connected to the Earth

Grandfather, Sacred One, teach us love and compassion that we may heal the Earth and heal each other.

—Ojibwa Prayer

The dangers of lead

Lead is a soft metal that has been used in ammunition, ceramics, printer's ink, solder, paint, coins, leaded crystal, water pipes, gasoline, and for many other purposes. It is dangerous because it is so widely used and it lasts forever in the environment. It *never* breaks down into a harmless substance. You cannot completely avoid lead, but you can take steps to reduce how much you are exposed to. Reducing exposure is especially important for children.

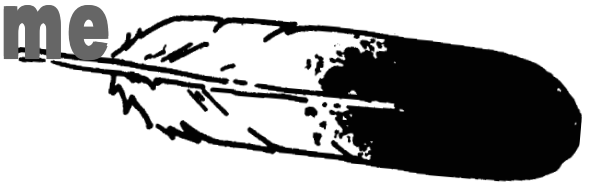
Lead poisoning is a serious health problem that you can prevent. Many tribal health experts consider it the **number one** environmental health problem in the United States. The chief suspect is lead-based paint from older homes. Families can also be exposed to lead from their drinking water and other sources.

Lead, depending upon the level, can have wide-ranging effects on human health. Even very low levels in children can slow their mental development and cause learning and behavioral problems. Lead can cause high blood pressure in adults. Higher levels may permanently damage the nervous system and the reproductive system. Sadly, the damages caused by lead poisoning often cannot be undone.

Lead in and around your home

The most common sources of lead are lead-based paint, household dust (which can contain lead dust from paint or remodeling), soils (which may have lead from gasoline exhaust or paint-dust), and water that has touched lead pipes or lead solder. Over the years, lead has been eliminated by law in household paint, gasoline, solder, and water pipes, but many older homes still have lead paint. Even newer homes may contain lead from other sources. Unlike many chemicals, lead can remain for long periods in paints, dusts, and soil.

PART 1 • Lead Sources In Your Home



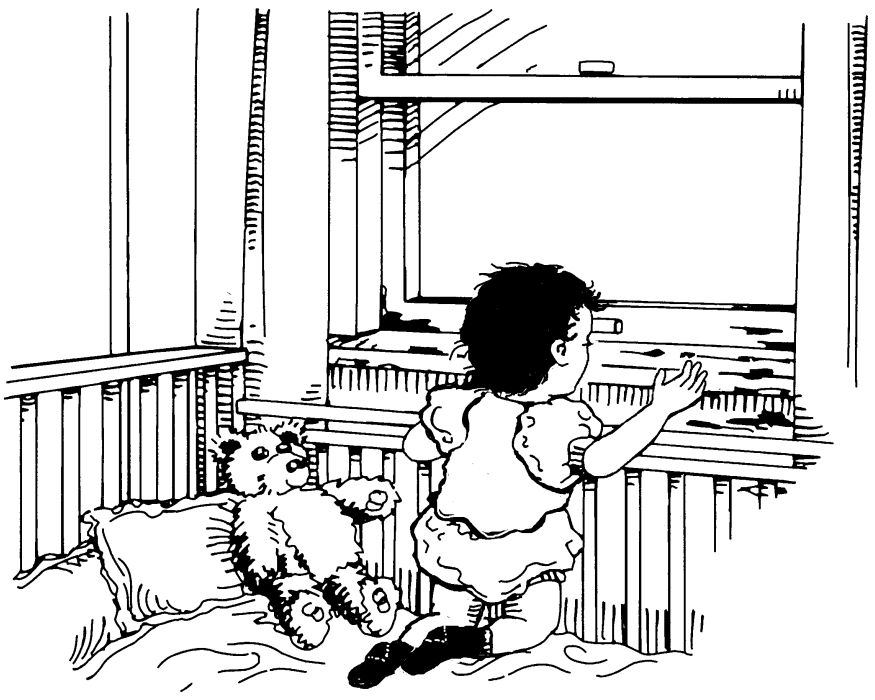


Figure 6.1 Lead-based paint chips can easily be eaten by children, but dust from lead-based paint is an even more common way that children are exposed.

It is important to look for lead sources in and around your home, and it is up to you to do it. The next few pages tell about how to find lead sources and what to do about them. There is a table at the end of this part to help you rate your risks.

When was your home built?

About ***three quarters*** of all homes built before 1980 contain potentially dangerous levels of lead paint (according to the U.S. Department of Housing and Urban Development). Lead has been banned from house paint since 1978, but most homes were built before then. Homes built before 1950 are ***very likely*** to have high lead levels, especially in paint used on windows and exterior (outer) surfaces. Levels as high as 35% lead by weight are common in paints. Some paint made before 1950 was 50% lead.

Does your paint have lead in it?

Children most often contact lead through household dust contaminated by lead based paint, not from eating paint chips. As paint gets older or surfaces rub against each other, dust with lead in it is made. If your lead-based paint (LBP) is in perfect condition, the risk of family members accidentally inhaling or swallowing lead dust is less. If the paint is cracking, chipping, flaking, or being rubbed by contact, the danger of lead exposure is much higher.

Testing for lead

To find out if your paint contains lead, have it tested. Experts can test samples in a lab or look at paint in your home with a portable device called an *X-ray fluorescence (XRF) detector* that detects lead. Professional inspectors can "***surface-wipe***" to get dust samples to test in the lab. Some labs will analyze surface-wipe samples collected by the homeowner. Do-it-yourself test kits are also available, but it is best to have testing done by a professional. The kits show whether or not lead is present, but they don't show how much is there, and they may not be reliable. Check with local tribal health officials or state or national lead information resources to find out what testing options are available.

If you find lead...

Remodeling areas where you have found lead in your paint is especially risky. Scraping, sanding or burning lead based paint creates extremely hazardous conditions. Strict precautions need to be followed, especially if children, pregnant women or pets are around. Use a certified lead inspector and lead-abatement contractor to get rid of lead based paint, if possible. You can have the paint professionally removed, lead-painted parts (such as windows, door jambs, and moldings) can be replaced, leaded surfaces can be taken from your property and disposed of, or paint-like products called ***liquid encapsulants*** can be used to seal lead-contaminated surfaces. Get advice on what option is best for your home. It's important to remember that workers who are not trained to use the right methods and equipment to remove lead based paint can create an even more dangerous situation than just leaving the paint alone.

Lead in painted trim

Lead was once added to paint to keep mold from growing on it. So paints with higher lead levels were used where moisture is greatest: on windows, doors, and exterior walls. If high-lead LBP is in perfect condition, it poses little risk. But if it is chipping or chalking off, or if is scraped or sanded during repairs, the risk of exposure is high. Hazardous lead dust is likely to come from weathering (chalking) paint and especially from surfaces that rub or slide together, like a window does in its frame.

Figure 6.2 A state-certified laboratory can provide a water sample container and instructions on how to take a water sample.

Is your drinking water lead-free?

Lead is not usually as concentrated in drinking water as it is in paint or soil, but it can still pose risks to your family. Lead can get into your water from several points: lead pipes that bring water to the home, lead pipe connectors, lead-soldered joints in copper plumbing, and brass faucets and pump components that contain lead. In some wells, underwater pumps with brass fittings can cause higher lead concentrations in drinking water, especially with new pumps or if the water is soft. Water that is soft or acidic tends to dissolve lead from pipes and fittings more easily. If there is lead in your water system, a home water softener may increase the amount of lead leached into your drinking water.

HOW MUCH LEAD IS IN YOUR PAINT?

Keep good records of any testing so you and future owners can care for painted surfaces safely. Write the results of lead tests here:

Location of paint sample	Amount of lead found (percentage by weight or milligrams/square centimeter)	Date of test

Figure 6.3 Bottled water for drinking and cooking is one option for dealing with lead-contaminated water.

If lead is found in your water

Water testing will show if there is lead in your water and whether your water is "aggressive" (acidic or soft). Contact a state-certified laboratory or tribal health agency to find out how to take a water sample (figure 6.2). If lead levels are greater than 15 parts per billion (ppb), you need to do something about it.

A simple way to reduce lead concentrations is to flush your plumbing system. If your water system has not been used for more than four hours, flush the system by running the cold water for a minute or two before using it for drinking or cooking. Before using this method of risk reduction you need to test a sample from the *flushed* water to be sure that it is below the lead level of 15 ppb.

Also, always use cold tap water for cooking and drinking. Hot water is more likely to dissolve lead. Never use water with high lead levels (over 15 ppb) to mix infant formula. For severe lead contamination, you may need to install a water treatment device, like a reverse osmosis system, a distillation system, or an activated carbon filter. Buying bottled water for drinking and cooking may be the easiest and least expensive option for dealing with severe lead contamination. Be aware, however, that bottled water is not necessarily lead-free; call or write to the company and request a copy of their most recent water test results.

Do Table 1 - Lead Sources in Your Home

Use the table below to rate your lead-related indoor health risks. For each question write your risk level in the right-hand column. Some choices may not fit exactly to your situation, but choose the answer that fits best.

Responding to risks

Try to lower your risks. Record any medium- and high-risks from the table below in the action checklist at the end of this fact sheet. Then make a plan to reduce your risks.

Table 1 - Lead Sources in Your Home

	LOW RISK	MEDIUM RISK	HIGH RISK	YOUR RISK
Age of home	Built after 1978.	Built between 1950 and 1978.	Built before 1950	❒ Low ❒ Medium ❒ High
Interior paint	No lead-based paint.	Lead-based paint present but intact.	Defective lead-based paint: it is chipping, peeling, or chalking or recent remodeling has disturbed the paint.	❒ Low ❒ Medium ❒ High
Windows and doors	No lead-based paint, or windows and doors with lead-based paint have been replaced.	Lead-based paint present but intact.	Defective lead-based paint: it is chipping, peeling, or chalking or untrained workers have recently removed the paint.	❒ Low ❒ Medium ❒ High
Water supply	No lead water pipes, leaded solder, or brass fixtures used in plumbing.	Lead present in plumbing, but water has been tested and precautions have been taken.	Lead likely to be present in plumbing, but water has not been tested and no precautions have been taken.	❒ Low ❒ Medium ❒ High
Water acidity or corrosiveness	Hardness is around 80 milligrams/liter. pH = 7.5-8.5	Hardness is 60-80 milligrams/liter. pH = 6-7.5	Hardness is 60 milligrams/liter or less. pH = less than 6	❒ Low ❒ Medium ❒ High

HOW ELSE CAN LEAD GET INTO YOUR HOME?

1. **Products you buy.** Lead can be found in lead-crystal glassware and leaded wine bottle neck wraps made before 1990. It may also be in some foreign-made products such as painted toys, miniblinds, chalk, crayons, and food cans made with lead solder. Lead is now less common in printing inks, but it may be in food packaging labels and newspaper print.
2. **Your workplace.** If you work in construction, bridge building, sandblasting, shipbuilding, plumbing, battery manufacturing, auto radiator repair, furniture refinishing, or foundry casting: lead-contaminated dust from your work site can be carried into your home on your clothing or skin. If you are exposed to leaded dusts, shower and change clothes before you go home.
3. **Hobby and recreation supplies.** If your hobbies include stained glass, furniture refinishing, pottery (using lead glazes), or collecting pewter or lead figurines, you may be exposing yourself and others to lead. Hunters and fishers who use or make lead bullets and lead sinkers also come in contact with lead. Exposure can also occur at indoor firing ranges.
4. **Some ethnic medicines and cosmetics**. Various Hispanic and Asiatic communities use mixtures that contain high levels of lead. Some of the stomach preparations are actually quite toxic.

PART 2 • Lead Sources Outside Your Home

Lead in the Soil

The soil around your home can expose your family to lead. Levels tend to be highest where house walls meet the ground (figure 6.4). Children can be exposed to contaminated soil when they play outdoors, and lead contaminated soil may be tracked into the home. Vegetables grown in contaminated soil are a risk, too. Lead can get into soil from flaking, peeling, or chalking lead-based paint, especially in the “drip line” area, where water drips off of the eaves.

In high traffic areas, leaded gasoline exhaust has caused high levels of lead in soil, with levels highest near major roadways. The shift to unleaded gasoline has reduced this risk, but after years of contamination, lead levels can still be high.

If you live near industrial places like incinerators, lead smelters and battery recyclers, you should be concerned about lead in your soil. If you live in a town or city, consider testing your soil before planting a vegetable garden.

What Soil Tests Show

Testing your soil is the only way to detect a lead problem. Many labs can provide this testing. Some tribal health departments or Cooperative Extension offices may also test soil for free or a small fee. If high lead levels are found, there are several steps you can take. Planting grass or covering soil with mulch can keep your family from tracking the soil indoors or breathing soil dust. In some cases, you may need to remove and replace heavily contaminated topsoil.

What level is safe?

Natural lead levels in soils range from non-detectable to 200 parts per million (ppm). Soils with lead levels of 500 ppm or more should not be used for growing vegetables unless the top 6 to 8 inches are replaced with fresh uncontaminated topsoil. (Lead is usually found in the top 2 to 3 inches of soil.)

Figure 6.4 Chipped paint can cause lead contamination. The area near a home’s foundation usually has more lead in it.

Lead levels in soil within 85 feet of busy roadways are typically 30 to 2,000 ppm higher than natural levels. Some soils have as much as 10,000 ppm. Soils near houses with leaded exterior paint may also have lead levels as high as 10,000 ppm. Levels near industrial sources can be dangerously high, especially in areas downwind. Old orchards may also have high lead levels due to lead-containing pesticides used in the 1940s.

Do Table 2 - Lead sources outside the home

Use the table below to rate your lead-related outdoor health risks. For each question write your risk level in the right-hand column. Some choices may not fit exactly to your situation, but choose the answer that fits best.

Responding to risks

Try to lower your risks. Record any medium- and high-risks from the table below in the action checklist at the end of this fact sheet. Then make a plan to reduce your risks.

Table 2—Lead Sources Outside the Home

	LOW RISK	MEDIUM RISK	HIGH RISK	YOUR RISK
Lead-based paint (LBP) on exterior of house	No LBP, or LBP is present but intact.There is a lawn or dense landscape plantings around the side of the home.	LBP is weathered or chalking. There is LBP in the soil around the home, but foot traffic is kept away.	LBP is chipping, peeling, or chalking.There is bare soil or foot traffic below painted walls.	❒ Low ❒ Medium ❒ High
Major roadways	No major roadway nearby.		Major roadway within 85 feet.	❒ Low ❒ High
Lead-related industry	No lead-related industry or incinerators in the area.		Lead smelter, battery manufacturer or recycler, or other lead related industry.	❒ Low ❒ High

PART 3 • How Lead Can Harm Children

Test children for lead

Children six years old and younger are much more likely to be affected by lead than adults. Since they put their hands to their mouths more frequently, they are more likely to accidentally ingest lead. Children are at greatest risk from lead because their bodies are developing, and they absorb up to 50% of the lead they ingest. Adults absorb only about 10%.

Most children with elevated blood-lead levels don't show visible symptoms. A blood test is the only way to detect the problem (figure 6.5). Even the lowest levels of lead poisoning that have no outward symptoms can damage the brain. At higher levels of poisoning, symptoms may include tiredness, a short attention span, restlessness, poor appetite, constipation, headache, sudden behavior change, vomiting, and hearing loss. Many of these symptoms may be mistaken for other illnesses.

Since lead is widespread in our environment, it is almost impossible to have a zero level in the blood.

Figure 6.5 A blood test is the only way to detect elevated blood lead levels in children.

Do Table 3 - How Lead Can Harm Children

Contact your family physician, pediatrician or public health clinic to have your children (or children who spend time in your home) tested for lead. Use the table below to rate their lead-related health risks. For each question write your risk level in the right-hand column. Some choices may not fit exactly to your situation, but choose the answer that fits best.

Responding to risks

Try to lower your risks. Record any medium- and high-risks from table 3 in the action checklist. Then make a plan to reduce your risks.

Table 3 - How Lead Can Harm Children

	LOW RISK	MEDIUM RISK	HIGH RISK	YOUR RISK
Blood test results	Blood-lead level is under 10 µg/dL.	Blood-lead level is 10-19 µg/dL.	Blood-lead level is 20 µg/dL or higher.	❒ Low ❒ Medium ❒ High

TAKE ACTION

Go over the three assessment tables in this fact sheet to make sure you have recorded all of your high and medium risks in the action checklist below. Next, write the actions or improvements you plan to make. Use the information provided in this fact sheet to help pick an action you are likely to complete. Write down a date for carrying out your plan. You don't have to do everything at once, but try to eliminate the most serious risks as soon as you can. Often it helps to tackle the inexpensive actions first.

Action Checklist

Lead in and around the home: Identifying and Managing its Sources

Write all high and medium risks below.	What can you do to reduce the risk?	Set a target date for action.
Sample: House was built in 1935. Paint has not been tested for lead.	Arrange for inspection of the condition of the paint. Test for lead-contaminated dust.	One week from today: April 3

For More Information

Blood tests

Contact your family physician or pediatrician or public health clinics.

Testing of paint samples and drinking water

Contact your local tribal health department or private testing laboratories.

Educational information for parents and others

Contact the nearest Cooperative Extension office.

National Lead Information Center

To order a packet of materials about lead, including information specific to your state and locality, call the center toll-free at (800) LEAD-FYI. For personal assistance on a lead-related question, call (800) 424-LEAD.

Publications

"Preventing Lead Poisoning in Young Children." October 1991. Centers for Disease Control (CDC), U.S. Department of Health and Human Services. Contact the CDC at 4770 Buford Highway, Atlanta, GA 30341-3724; phone (770) 488-7330.

"Lead in Your Drinking Water: Actions You Can Take to Reduce Lead in Drinking Water." Publication EPA/810/F93/001. June 1993. U.S. Environmental Protection Agency fact sheet. Available from the National Center for Environmental Publications and Information, P.O. Box 42419, Cincinnati, OH 45242-2419; fax (513) 489-8695.

"Reducing Lead Hazards When Remodeling Your Home." Publication EPA/747/R94/002. April 1994. U.S. Environmental Protection Agency. Available from the National Center for Environmental Publications and Information—see contact information above.

Acknowledgments

This fact sheet has been revised from the original, written by Karen Filchak, Extension Educator, University of Connecticut Cooperative Extension, Brooklyn, Connecticut.

Poison control center

Write your state's toll-free number here:

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and keep it by your phone.

MONTANA STATE UNIVERSITY EXTENSION SERVICE

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To obtain additional fact sheets in the *Connected to the Earth* series, contact your local Extension office or call Montana State University's Extension housing program at (406) 994-3451.