

Occupational Lead Exposure: An Alert for Workers

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- Many workplaces contain lead
- Lead can harm your health
- You can protect yourself

What is lead?

Lead is a soft, bluish-gray metal found in small amounts throughout the environment. This chemical element has been used almost since the beginning of civilization. Lead can combine with various other substances to form numerous lead compounds. Some modern day uses of lead include manufacturing ammunition, batteries, chemical compounds, explosives, glassware, and metal products. To prevent rust and corrosion, lead is also used in containers and pipes, and most steel bridges are painted with lead-based paint.

Lead in the workplace

These jobs and work activities may have problems with lead exposure:

General Industry:

- ◆ Lead production or smelting
- ◆ Brass, copper or lead foundries
- ◆ Lead fishing weight production
- ◆ Thermal stripping or sanding of old paint
- ◆ Welding or cutting of old painted metal
- ◆ Machining and grinding lead alloys
- ◆ Battery manufacturing and recycling
- ◆ Radiator manufacturing and repair
- ◆ Scrap metal handling
- ◆ Lead soldering
- ◆ Indoor firing ranges
- ◆ Ceramic glaze mixing

Construction Jobs/Tasks:

- ◆ Home renovation/remodeling
- ◆ Demolition of old structures
- ◆ Steel bridge maintenance
- ◆ Welding or cutting of old painted metal
- ◆ Thermal stripping or sanding of old paint

Top 5 industries in Washington State with the most lead-exposed workers (5/93 - 12/98 Occupational Lead Exposure Registry data)

1. Bridge, tunnel, and elevated highway construction
2. Automotive repair shops
3. Painting and paper hanging
4. Electronic and other electric equipment
5. Motor vehicle parts and accessories

Lead away from work

You may carry lead dust home on your work clothes, work shoes, or areas of the body not covered by protective clothing such as hands or hair. Lead can harm the health of others in your home. Young children are very sensitive to lead's harmful effects. If a pregnant woman is exposed to lead, it may harm her unborn child.

Sources of lead in the environment include:

- ◆ paint on houses built before 1978 and soil contaminated with paint dust and chips.
- ◆ drinking water contaminated by lead solder.
- ◆ soil and air near buildings where people work (or have worked) with lead.
- ◆ soil in areas where lead-containing pesticides had been used.

Some hobbies expose you to lead. Creating leaded glass pieces, using pottery glazes containing lead, firearm use (especially at indoor ranges), or pouring your own fishing weights may expose you to harmful levels of lead.

Lead and your health

Although the toxic effects of lead have been known for centuries, lead exposure is still widespread in the United States. Overexposure to lead is common in certain industries and jobs.

Lead metal can enter your body in two ways:

- ◆ You can breathe in lead dust, mist, or fumes.
- ◆ You can swallow lead dust if it gets on your hands or face or if it gets in your food, drinks or tobacco.

Once lead gets into your body, it stays there for a long time. Even if you are exposed to small amounts, it can build up in your body over time. Too much lead in your body can damage your brain, nerves, kidneys, and blood cells. Lead can also cause infertility in men and harm the unborn child.

Many people with high lead levels do not feel sick or poisoned. These high lead levels can still seriously affect health. The longer you have a high level, the greater the risk of health problems. Damage done by lead may be permanent.

Each person responds to lead differently. Some of the early symptoms of lead poisoning or overexposure may include:

- irritability
- muscle or joint pains
- stomach aches and cramps
- trouble concentrating
- tiredness

It is important to note that it is possible to have an overexposure and not experience any symptoms. If you are exposed to lead and experience any of these symptoms, or suspect you have been overexposed to lead, contact your doctor.

Understanding your blood lead test

The most common test for lead is called the blood lead level, which measures how much lead is in your bloodstream. Blood lead levels are presented as micrograms of lead per deciliter of blood ($\mu\text{g}/\text{dl}$).

Is there a problem?

This table presents the range of health effects associated with various ranges of blood lead levels and is for general guidance.

Severity of Health Problem	Blood Lead Level	Changes happening in body
Severe health effects may happen quickly and be permanent	110	<ul style="list-style-type: none"> • Brain damage • Dangerous reduction in blood's ability to carry oxygen
	100	
	90	
	80	
Serious health effects may occur	70	<ul style="list-style-type: none"> • Decreased blood production
	60	
	50	
Lead <u>may</u> have effects <u>without</u> symptoms	40	<ul style="list-style-type: none"> • Male infertility • Nerve damage
	30	
Lead starts building up in your system	20	<ul style="list-style-type: none"> • Decreased hearing • Increase in blood pressure • Effects on unborn child in pregnant women
	10	
	0	
Average level for healthy adults	3	
	0	

Factors such as differences in person-to-person susceptibility and how long you have been exposed may affect the blood lead level at which these health problems appear. Speak with your doctor if you have any questions about your blood lead level and your health.

Your employer's responsibilities

Under federal and state regulations (the Lead Standards for General Industry and Construction), employers have a responsibility to ensure that workers are protected from harmful lead exposure. This includes making sure that lead in the air of the workplace is not at hazardous levels (i.e., greater than 50 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$] averaged over an eight-hour period).

Your rights as a worker

Your employer is responsible for providing you with the following:

- ◆ A safe and healthful workplace. Your employer is required to comply with standards established to prevent harmful exposure to lead. Your employer must provide protective equipment at no cost to employees.
- ◆ A copy of air monitoring results (upon request);
- ◆ A copy of the lead standard (upon request);
- ◆ Medical monitoring. Your employer must make available blood lead testing, medical exams, and consultations for employees potentially exposed to lead above $30 \mu\text{g}/\text{m}^3$ of lead in the air on any day at work; and
- ◆ Under certain conditions, you can be transferred to a non-lead exposed job without loss of pay or benefits (i.e., "medical removal").

You have the right to file a confidential complaint with the Department of Labor and Industries (L&I) if you believe there may be a serious hazard. You also have the right to file a complaint if you believe you are being discriminated against for exercising one of your Washington Industrial Safety and Health Act

(WISHA)-protected rights. It is against WISHA law for an employer to discriminate against a worker for bringing up safety or health concerns or for filing a complaint with WISHA. You may call 1-800-4BESAFE (1-800-423-7233) or the nearest L&I office for assistance.

Protecting yourself with safe work practices

There are some things you can do right away to protect yourself and your family from lead exposure:

- ◆ Wash your hands and face before you eat, drink or smoke.
- ◆ Eat, drink and smoke only in areas free of lead dust and fumes.
- ◆ Work with your employer to ensure that you are not overexposed to lead in your workplace. Sometimes this may include special ventilation equipment or the use of a properly-fitted respirator.
- ◆ Avoid stirring up lead-containing dust with dry sweeping or blowing. Wet cleaning and vacuuming are generally safer.
- ◆ Use separate work clothes and shoes/boots while at work.
- ◆ Keep your street clothes in a clean place.
- ◆ Don't wear your work clothes and shoes/boots home.
- ◆ If possible, shower at work before going home.
- ◆ Launder your clothes at work. (If you must take work clothes home, wash and dry them separately.)

The occupational lead exposure registry

Preventing lead poisoning is a national priority because blood lead levels above 25 µg/dl are considered to be harmful. Consequently, the U.S. Public Health Service aims to eliminate workplace exposures that result in workers having blood lead levels above 25 µg/dl. To accomplish this, the National Institute for Occupational Safety & Health (NIOSH) funds Occupational Lead Exposure Registries in several states. The aim of the registries is to track where high blood lead levels are occurring and increase awareness about lead exposure and health effects amongst employees and employers.

In Washington State, the Occupational Lead Exposure Registry is administered by the Department of Labor and Industries' Safety & Health Assessment & Research for Prevention (SHARP) program. SHARP receives workplace-related adult blood lead data from the Department of Health, stores the data in a confidential database, mails educational materials, and conducts telephone interviews with lead-exposed workers. SHARP contacts employers if particularly high exposures are seen.

Additional Resources

Your doctor or other health care provider

See a doctor if you are concerned about lead overexposure for yourself or others in your household. The doctor can arrange for blood lead level testing and help you interpret any exposure and health effects. It is important for your doctor to know about your lead exposure even if you don't have any symptoms. An occupational physician is trained to recognize diseases associated with work and may be able to diagnose a lead-related disease more readily than a doctor not trained in occupational illnesses.

Your safety officer or industrial hygienist

Find out if your work area has been checked for lead dust or fumes and find out how you can avoid exposure by using protective equipment and engineering controls.

L&I's WISHA Services

L&I enforces the lead standard. These are rules for employers on using lead safely and ensuring that workers are protected from the harmful effects of lead. L&I offers free assistance and information to both employers and employees upon request. L&I also investigates complaints from workers who feel they are being overexposed to lead or other chemicals. Call 1-800-4BESAFE (1-800-423-7233). Visit WISHA's web site at www.lni.wa.gov/wisha.

L&I's SHARP Program

The Safety & Health Assessment & Research for Prevention (SHARP) program performs research and analysis of workplace health and safety issues. SHARP administers the Occupational Lead Poisoning Registry and can provide further information on work-related lead poisoning to interested employers, workers, and health professionals. Call 1-888-667-4277 or (360) 902-5669. Visit SHARP's web site at www.lni.wa.gov/sharp.

The Washington State Department of Health

The Department of Health provides information and assistance for cases of lead overexposure in children. Call (360) 361-2850.