Preventing Take Home Lead Exposure: The Roles of the Employer and Employees to Protect their Families at Home

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Approximately 24,000 children in the United States have lead poisoning due to lead dust being brought home from work by parents.
Ways Employers Can Help Prevent Lead Exposure

• Provide lead-free materials when substitutions can be made.
• Use a separate “push/pull” ventilation system that delivers fresh air from behind the source of exposure and moves air downrange towards a HEPA filtered exhaust area. Make sure it is operating properly.
• Provide protective clothing to workers performing cleaning and maintenance tasks.

Ways Employers Can Help Prevent Lead Exposure

• Train workers to use dust suppression and proper cleaning methods such as HEPA vacuuming and/or wet methods when cleaning work areas and surfaces.
  • Do not allow them to dry sweep — this will create airborne dust. Not allowed under 1910.1025 or 1926.62.
• Give respirators to workers who perform dusty tasks such as changing filters, clean up, and cleaning out the ventilation system and vacuums.
• Provide workers with ready access to handwashing stations.
  • Provide wet wipes if sink not close to source of exposure.
### Where The Responsibility Lies

**Employer**
- Provide training to workers
- Perform air sampling and dust wipe sampling to determine extent of exposure
- Provide medical surveillance to employees exposed to airborne lead concentrations above the exposure limits
- Provide personal protective equipment (PPE)
- Investigate and install engineering controls
- Provide change rooms and washing facilities

**Employee**
- Follow Personal Protective Equipment (PPE) usage guidance
- Clean and properly store reusable PPE
- Follow decontamination procedures to clean up at the end of the day
- Participate in employer medical surveillance program
- Keep devices out of the workstation
- Keep work shoes out of car and home

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### Jobs or hobbies associated with take-home lead

- Battery manufacture
- Construction and demolition (including abrasive blasting)
- Radiator repair
- Lead smelting
- Lead, brass or bronze casting
- Foundry operations
- Ceramic and plastic manufacture
- Fishing tackle manufacture
- Firing range instructor or janitor
- Bridge construction or repair
- Home remodeling or renovation
- Ammunition/bullet manufacture
- Plumbing and pipefitting
- Soldering of electrical circuits
- Stained glass making
- Antique refinishing

Source: [https://www.health.state.mn.us/communities/environment/lead/gremlin.html](https://www.health.state.mn.us/communities/environment/lead/gremlin.html)
Change Rooms & Hygiene Facilities

- **Change rooms**
  - separate storage facilities for PPE and street clothes

- **Washing facilities**
  Wash hands and face:
  - at the end of the work shift
  - prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet

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How Exposures Are Brought Home

Source: [https://projects.seattletimes.com/2014/loaded-with-lead/3/](https://projects.seattletimes.com/2014/loaded-with-lead/3/)
GRAPHICS BY MARK NOWLIN / THE SEATTLE TIMES
Stopping The Exposure At the Source

Employee Exposed to Lead At Work → Gets Lead on Hands, Shoes, and Clothing → Children exposed to take home exposure → Child Tests for Lead Exposure → DPH is notified, Investigates Cause → Works with Alliance to Stop Exposure

How Lead Causes Damage

**ADULTS**
- **Brain**
  - Memory loss, lack of concentration, headaches, irritability, depression
- **Body**
  - Fatigue, joint and muscle pain
- **Cardiovascular**
  - High blood pressure
- **Digestive system**
  - Constipation, nausea and poor appetite
- **Nervous system**
  - Damage including numbness and pain in the extremities
- **Reproductive system**
  - Men: Decreased sex drive and sperm count, and sperm abnormalities.
  - Women: Spontaneous miscarriage

**CHILDREN**
- **Brain**
  - Behavior problems, lower IQ, hearing loss, learning disabilities
- **Body**
  - Decreased bone and muscle growth
- **Kidneys**
  - Damage
- **Nervous system**
  - Damage
- **Blood**
  - Anemia

*IMAGE SOURCE: MARK NOWLIN / THE SEATTLE TIMES*
Simple Steps to Reduce Exposure

• Don't eat, drink or smoke on the job.
• Wash hands before eating, drinking, smoking or touching your face.
• Wear the proper protective equipment on the job, including a respirator.
• Shower, wash your hair, and change into clean clothes before leaving work.

Source: https://www.health.state.mn.us/communities/environment/lead/gremlin.html

Simple Steps to Reduce Exposure

• Store street clothes in a separate locker from your work clothes.
• Wash work clothes separately from other laundry. After washing lead-contaminated clothing and removing them from the machine, run the rinse cycle once before using the washing machine again.
• Eat a well-balanced diet. Lead is more easily absorbed on an empty stomach. Proper nutrition can help reduce and prevent the absorption of lead.
• Get regular blood lead tests if your job or hobby involves working with lead.
Be cautious throughout the day

- Lead dust is so small, it cannot be seen by the naked eye.
- Protect yourself by wearing personal protective equipment (PPE) such as gloves, safety glasses, bodysuits, and a fitted respirator.
- Minimize transferring lead dust to your vehicle during breaks and after work by:
  - Keeping personal items clean and away from your work environment
  - Changing your shoes and leaving them at work

Source: https://www.health.state.mn.us/communities/environment/lead/gremlin.html

What if you think your home has been contaminated?

- There are two effective cleaning methods that will remove lead dust from your home:
  1. Wet washing
  2. Cleaning with a special HEPA vacuum— the most effective cleaning method combines vacuuming and wet washing at least once a week.
- Cleaning supplies checklist:
  - HEPA vacuum
  - Non-toxic household cleaner
  - 2 buckets
  - Disposable rags
  - Heavy duty trash bags
  - Rubber gloves
  - Disposable cloth sweeper

Source: https://www.health.state.mn.us/communities/environment/lead/gremlin.html
**Wet washing method**

**Step 1: Wash**

1. Wear rubber gloves and mix cleaning solution in one bucket and fill the other bucket with clean water
2. Wet a sheet of disposable rag in the bucket of cleaning solution. Wipe down surfaces such as window sills, window wells, door frames, walls, and floors
3. Throw away the dirty rag after every use to avoid contaminating the bucket of cleaning solution

Source: [https://www.health.state.mn.us/communities/environment/lead/gremlin.html](https://www.health.state.mn.us/communities/environment/lead/gremlin.html)

**Step 2: Rinse**

1. Wet a new sheet of disposable rag in the bucket of clean rinse water and wipe down the surface you washed
2. Throw away the dirty disposable rag after each use to avoid contaminating the bucket of clean rinse water
3. When you are done, pour the buckets of rinse water and cleaning solution down the toilet. Do not pour dirty water into the sink or bathtub because it may increase the risk of being in contact with lead.

Source: [https://www.health.state.mn.us/communities/environment/lead/gremlin.html](https://www.health.state.mn.us/communities/environment/lead/gremlin.html)
Cleaning with a HEPA vacuum

- Always clean with a special vacuum cleaner called a High Efficiency Particulate Air Filter (HEPA) vacuum
- Never use a regular household vacuum because it cannot pick up and hold smaller pieces of lead dust
- HEPA vacuums can be rented or purchased online and in stores
- Vacuuming at least once a week is recommended

Prevention Methods: How Do I Prevent Exposing Others to Lead?

- **DO** thoroughly wash your hands and face after working with lead and before eating or drinking
- **DO** shower and change clothes and shoes after working around lead-containing products
- **DO** wash work clothes separate from all other clothes
- **DO** work in well-ventilated areas
Prevention Methods: How Do I Prevent Exposing Others to Lead?

• DO wear proper personal protective equipment (PPE) to prevent coming in contact with lead and to protect your personal clothing
• DO consult your doctor if you are planning to conceive, pregnant, or are a working mother who is breastfeeding
• DO ask your employer if routine blood lead level tests are completed
• DO keep your house clean from dust to prevent the spread of lead particles

Prevention Methods: How Do I Prevent Exposing Others to Lead?

• DO NOT eat or drink around areas where lead is being handled or processed
• DO NOT buy or use appliances or household items that are made outside of the United States or have not been tested for traces of lead
• DO NOT let your child put toys and jewelry in their mouth
For more information, please visit these websites

• Georgia Healthy Homes and Lead Poisoning Prevention Program
  • dph.georgia.gov/healthy-homes-and-lead-poisoning-prevention
• Georgia Tech Consultation Program
  • oshainfo.gatech.edu/about
• United States Department of Labor, Occupational Safety and Health Administration (OSHA)
  • osha.gov/SLTC/lead
• Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (NIOSH)
  • cdc.gov/niosh/topics/lead
• United States Environmental Protection Agency (EPA)
  • epa.gov/lead