

Lead Poisoning

Lead in children, adults, and in houses has been recognized as a public health hazard. On July 1, 1997, Colorado Senate Bill 97-136 was signed into law. This law (25-5-1101 Colorado Revised Statutes) establishes the Lead Hazard Reduction Program at the Colorado Department of Public Health and Environment. As part of a comprehensive plan to reduce elevated blood lead levels in children and control exposure to lead-based paint hazards in residences and child-occupied facilities, this law directed the Air Quality Control Commission to promulgate rules regarding lead-based paint abatement and certification of persons and companies performing inspections and abatements.

To reduce lead in Colorado, Tri-County Health Department provides lead sampling services. We test for lead exposure in childcare facilities, houses, toys, various household items, and the occupational setting. Our specialists educate employees and consumers about safe lead procedures.

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Frequently Asked Questions:

What is lead?

Lead is a malleable metal, which is toxic to humans. Lead is found in such products as paint, plumbing, jewelry, and plastics.

What is lead poisoning?

Lead poisoning occurs when lead is in the blood in amounts that can lead to immediate or long term health and developmental problems. Normally, lead poisoning is the result of the accumulation of small amounts of lead over time. However, ingestion of lead—for example, by consuming food stored in ceramics painted with lead-based paint, or by chewing on toys painted with lead-based paint—can lead to acute lead poisoning. Symptoms of acute lead poisoning may include vomiting, loss of balance, a feeling of weakness, and an upset or cramped stomach.

The accumulation of lead in the blood most often is the result of frequent contact with small, often unnoticed, amounts of lead. Lead exposure therefore causes greater risk for a child than an adult. Exposure to lead at low levels may be difficult to detect because the symptoms are often not apparent; a seemingly healthy child may experience undetected changes in brain function and development.

Other health problems associated with lead poisoning include anemia, hearing loss, and renal issues. In addition, lead poisoning causes neurological disorders. If exposure persists, the child may experience symptoms such as headaches, insomnia, and learning disorders.

What are some common lead exposure sources?

Exposure to lead may occur through many household and occupational sources. The two most common pathways of exposure are ingestion and inhalation. Dust particles as well as paint chips containing lead can easily be transferred from hand to mouth by infants and toddlers. Houses built before 1978 are more likely to have lead paint. The older the house is, the more likely that the paint inside or outside contains lead. For these houses, lead dust resulting from the degradation of lead-based paint may be a primary source of lead exposure for residents. Some other potential sources of exposure include the following:

- Soil contaminated with lead
- Older plumbing



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- Exposure at work (parents may expose their children by bringing lead home on their clothes)
- Ammunition
- Lead fishing sinkers
- Toy jewelry
- Painted furniture
- Imported painted toys
- Brass keys and fixtures
- Alternative medicines from other countries
- Food made or stored in lead-glazed ceramics

What is Blood Lead Level (BLL)?

Blood Lead Level (BLL) measurements indicate the amount of lead mobilized in the blood stream. The BLL does not tell us the total amount of lead stored in the body, nor can it tell us the current or cumulative effects of lead on a person's body. Blood Lead Levels are given in micrograms per deciliter ($\mu\text{g}/\text{dl}$), or micrograms per 100 grams of blood ($\mu\text{g}/100\text{ g}$). These measurements are approximately equal.

How can lead poisoning affect my child?

Children can get lead in their bodies by swallowing or breathing in dust that contains lead. In addition, babies and toddlers learn by mouthing objects. If these objects have lead dust on them or contain lead, the child can ingest the lead. Lead is a poison that affects every organ and system in the body. Very high levels of lead exposure can cause coma, seizures and death. Even a little lead can make children slower learners.

Exposure to lead can cause the following:

- Brain damage and lower intelligence levels
- Behavior and learning problems
- Hyperactivity
- Impaired speech and language
- Slowed growth
- Kidney and liver damage
- Hearing damage

What are symptoms of lead poisoning in children?

Children can be poisoned by lead and may not look or act sick. Sometimes the vague symptoms may be mistaken for other illnesses such as an upset stomach or the flu.



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Because of this, lead poisoning may go unrecognized. A blood lead test is the only way to evaluate if a child has lead poisoning. Some possible signs and symptoms of lead poisoning in children are the following:

- Tiredness or loss of energy
- Hyperactivity
- Irritability or crankiness
- Reduced attention span
- Poor appetite
- Weight loss
- Difficulty sleeping
- Constipation, aches or pains in stomach

How is lead in the human body measured?

Lead can be found in many places in the human body—blood, urine, bones, teeth, and hair can all absorb lead. The most common test involves measuring the lead in the blood, which provides a BLL. When the level of lead is high, red blood cells increase the production of erythrocyte protoporphyrin (EP).

I have heard that some toys are being recalled because they contain lead. Is this true?

This is true. Some toy manufacturers and the U.S. Consumer Product Safety Commission have issued recalls for some brands of children's toys because the surface paint contained levels of lead that were beyond U.S. standards.

Can toys be tested for lead?

A certified laboratory can accurately test a toy for lead. Testing kits are available to the consumer, however, the Colorado Department of Public Health and Environment does not recommend their application to test toys for lead. These kits are intended to detect high levels of lead in paint, so their reliability for testing for lower amounts of lead is questionable. Home test kits certified by the U.S. Environmental Protection Agency are still recommended to test for the presence of lead in paint in homes.

Where can I find more information about toy recalls?

The Consumer Product Safety Commission asks that parents check for possible recalls of their children's toys and if these toys have been recalled, immediately take the toys away.



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Photos and descriptions of recalled toys can be found at the Consumer Product Safety Commission's website, or by calling 1-800-638-2772.

How do toys become contaminated with lead?

Toys produced before 1978 were often painted with lead-based paint. Despite being banned in the United States, lead-based paints are still widely used in other countries.

What is a lead abatement certification for child occupied facilities?

The Colorado Department of Public Health and Environment Air Pollution Control Division is responsible for developing and implementing lead certification and abatement regulations for child occupied facilities and target housing, as mandated by state statute (25-5-1101 C.R.S.). The statute governs the inspection and assessment of lead based paint, lead based paint hazards, lead contaminated soil, lead contaminated dust, and the abatement of lead based paint hazards. The Colorado State Legislature has adopted the concept of "lead-safe" housing instead of "lead-free" housing. Commensurate with this concept, the goal of the state regulations will not be the removal of all lead-based paint, but the creation of housing and facilities where no significant lead-based paint hazard is present.

What can I do to protect my child?

Lead poisoning is very preventable. Below are some steps you can take to reduce your child's lead exposure and absorption rate.

- Lead is stored in the fatty tissues. Eating healthy foods, high in iron, calcium and vitamin C, and low in fat, will keep your child's absorption of lead to a minimum.
- Because lead is more readily absorbed on an empty stomach, it is important to avoid allowing the child to become completely hungry between meals.
- Minimize your child's time around peeling or chipping paint.
- Sweep and vacuum using a High Efficiency Particulate Air Filter (HEPA) vacuum routinely to protect your child from lead dust.
- Children must always wash their hands before eating, after playing, and before bedtime.
- Minimize soil erosion and movement. Bare ground areas around the house can be mulched or planted with native vegetation.
- Wash children's toys often—especially teething toys.



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- If you rent your house, talk to your landlord about chipping and peeling paint.
- Teach your child about how to stay safe from lead.

Can Tri-County Health Department provide sampling for lead?

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Internet Links:

Lead Poisoning Prevention

<http://www.cdphe.state.co.us/dc/lead/index.html>

Information on how to conduct renovation, repair, painting, and abatement activities involving lead based paint safely.

<http://www.epa.gov/lead/pubs/howto.htm>

Lead Services Directory by CDPHDE

<http://www.cdphe.state.co.us/ap/down/leadservices.pdf>



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