

Common Questions

Below are some of the most common questions about lead and lead poisoning.

1) What is lead and how is it harmful?

Lead is a poisonous (toxic) metal that has been known to be harmful to man as far back as 100 B.C. Lead can enter the body through the mouth and, although rare, through the skin. The most common way for a young child is through the common hand-to-mouth activity; while eating, at bedtime or while mouthing toys/objects. Lead affects just about every system of the body, especially the developing brain and nervous system of unborn babies and children 6 years of age and under. Shortly after the lead enters the body, it travels in the blood to the soft tissues; liver, kidneys, lungs, brain, spleen, muscles and heart. After several weeks, if lead is not eliminated, the body will begin to store the lead in the bones and teeth (the body confuses lead with calcium and will store lead in empty calcium storage sites). About 99% of the lead taken into the body of an adult will leave in the waste (urine, feces, hair/nail growth and sweat), but only about 32 percent will be eliminated from a child's body.

The body mistakes lead for calcium. If efforts are not taken to decrease lead hazard exposure and the amount of lead going into the body, lead may not be quickly eliminated from the body's system and may be absorbed into the empty calcium store sites in the bones. Lead that has been absorbed into the bone may take years to be excreted and eliminated out of the body. During a life event such as a broken bone, pregnancy or osteoporosis, the body demands more calcium and will pull lead out of the calcium stores. This process is known as bone mobilization by which the body dissolves part of the bone in the skeleton in order to maintain or raise the levels of circulating calcium in the blood or for pathological reasons, such as immobilization, age-related osteoporosis, or hyperthyroidism. Follow the link for more information on [Lead and Pregnancy](#).

The damage caused by lead poisoning depends on the amount that enters the body and how long it stays. Lead levels in the body are measured in micrograms per deciliter (ug/dL). The lead levels listed below show the lowers amount of lead that research has found damage to occur.

Children

≥5 ug/dL Learning disabilities; impaired growth; IQ decline and some hearing loss.

20 ug/dL Interference with ability to make red blood cells.

30 ug/dL Less ability to use vitamin D; higher blood pressure and hearing loss.

40 ug/dL Less ability to make red blood cells; nerve problems develop (decreased sensation, less ability to move quickly, kidney damage).

60 ug/dL Stomach aches/cramps.

70 ug/dL Mental retardation.

90 ug/dL Seizures, coma, kidney damage and anemia.

≥130 ug/dL Seizures, coma and death.

Adults

15 ug/dL Increase in blood pressure, harmful effects on fetus, joint and muscle aches.

25 ug/dL Reproductive problems.

40 ug/dL Kidney damage, damage to blood formation.

60 ug/dL Anemia, nerve damage, constipation, stomach pains, irritability and fatigue, memory and concentration problems, clumsiness, sleep problems.

80 ug/dL and more Blue line on gums, uncontrollable shaking of hands, wrist and foot drop, hallucinations, brain damage, coma, death.

2) What is child lead poisoning?

The definition of lead poisoning varies from state to state. Kentucky KRS 211.900 (10) defines a "confirmed elevated blood lead level" to mean a first venous blood lead test or a second capillary blood lead test taken within the time frames specified by the cabinet where the blood lead test result is greater than or equal to fifteen (15) micrograms per deciliter of whole blood. In Kentucky a child is considered lead poisoned with one venous blood test or if two capillary blood tests return a result of 15 µg/dL or higher. This is in following the Centers for Disease Control and Prevention (CDC) recommendations in what blood lead level initiates further public health action to prevent further lead hazard exposure and interventions to decrease the blood lead level (1).

You cannot tell by looking at your child if they have lead poisoning. The only way to be sure is to have your child's blood tested. Ask your child's doctor about having your child's blood tested as soon as possible.

Symptoms are seldom caused by elevated blood levels (EBL) that are below 45 ug/dL. Some symptoms that have been described include:

- abdominal pain
- vomiting
- constipation
- change in appetite
- irritability

Blood lead levels ≥ 5 $\mu\text{g}/\text{dL}$ should initiate case management interventions. These interventions help to equip the family to prevent further blood lead elevation. Interventions include follow-up blood lead testing, providing the family with preventive education on: what lead is, potential sources, how to keep a child out of potential sources, dietary changes to help eliminate lead from the body, hand washing, and house cleaning techniques/strategies to decrease lead hazard exposure.

click to view the EPA fold out poster [Lead Poisoning and Your Children](#) (PDF) Also available in [Spanish](#) (PDF)

3) Where can I have my child tested for lead?

All children ≤ 6 years of age should have a review of potential lead hazard risks using the lead poisoning verbal risk assessment. For any "Yes or Don't Know" answers on the assessment, a blood lead test should be obtained. Your child can receive a blood lead test from your private physician, a local health department or clinic. Blood will be collected in one of two ways, capillary or venous. A capillary test is a finger stick and venous test is through a puncture in the child's vein with a needle. The preferred method is a blood lead measurement of a venous stick as it is less likely to be contaminated. Questions such as 1) Does the child live in or visit a building built before 1978 with peeling or chipping paint or with recent or ongoing remodeling? Play in the soil around pre-1978 structures? 2) Does the child have a brother/sister or playmate that has or has had lead poisoning? 3) Do you or a family member work in an occupation/hobbies with lead hazard exposure such as on a farm; on bridges, tunnels or high construction areas; with batteries, ammunition or visit a firing range? 4) Do you use any folk remedies that may contain lead or use pottery or ceramic ware for cooking, eating or drinking?

The lead poisoning verbal risk assessment is available at:

[Blood Lead Screening and Elevated Blood Lead Guidelines](#)

4) My child has had a blood lead test, what happens next?

The result of a child's blood lead test is the deciding factor on what happens next. If the result of the blood test is less than 5 micrograms per deciliter ($\mu\text{g}/\text{dL}$) then it is considered below the level of concern and no further action is taken.

At-risk children who have a blood lead level less than $5\mu\text{g}/\text{dL}$ should be tested annually or whenever a risk factor changes that would increase lead hazard exposure. At-risk children include Medicaid populations, those living in targeted zip code areas, and those answering "Yes or Don't Know" to any question on the lead poisoning verbal risk assessment.

Blood lead levels ≥ 5 $\mu\text{g}/\text{dL}$ initiate further follow-up interventions. These interventions help to equip the family with strategies to prevent further blood lead elevation. Interventions include follow-up blood lead testing, providing the family with preventive education on: what lead is, potential sources, how to keep a child out of potential sources, dietary changes to help eliminate lead from the body, hand washing, and house cleaning techniques/strategies to decrease lead hazard exposure. A local nurse and/or environmentalist may make a home visit for a visual investigation to identify potential lead hazards.

Blood test results of less than 10 micrograms per deciliter ($\mu\text{g}/\text{dL}$) are outside the level of concern and no further action is needed. However, all children should receive a test at 12 months and 24 months of age regardless of past history. So, have the child tested again at a later date at the ages specified above.

Blood test results between 10 and $19\mu\text{g}/\text{dL}$ indicate reason for concern. A local nurse and/or environmentalist may make a home visit for a visual investigation. You will be given information on nutrition and possible interim controls that you can use to lower your child's blood level.

If the result is confirmed at $15\mu\text{g}/\text{dL}$ and above your primary physician should complete a thorough medical evaluation and start medical nutrition therapy. You can expect a local nurse and/or environmentalist to make a home visit for a visual investigation to help identify potential sources of

child lead hazard exposure. For blood lead levels $\geq 15 \mu\text{g/dL}$, per KRS 211.905, an inspection of the dwelling unit of occupant with a confirmed elevated blood lead level will need to be completed to remove samples to determine the existence of lead-based hazards.

5) What is the treatment for lead poisoning?

There is no cure for lead poisoning. The adverse effects of lead on your child's IQ are permanent. However, there are two treatment options that help decrease the amount of lead that is stored in the body.

The first treatment is through diet and nutrition. The body confuses lead as calcium in the body and stops good minerals such as iron and calcium from working right. A change in the diet to include an increase in foods containing calcium, iron and vitamin C help protect the body from absorbing lead in the body's empty storage sites. It is important to keep the calcium, iron, vitamin C levels adequate so the body does not mistakenly absorb lead into these empty storage sites.

Also, children with empty stomachs absorb more lead than children with full stomachs. So, provide your child with four to six small meals during the day. Stay away from foods high in fat. Fat increases the amount of lead absorbed by the body.

The other treatment option to help remove lead from the body is chelation (key-Lay-shun) therapy. Chelation uses drugs that are capable of binding toxic metals such as lead in the body to help it leave by the way of excretion (urine and feces). If the blood lead result is $30 \mu\text{g/dL}$ and above, your physician may recommend chelation therapy. A thorough medical evaluation should be completed and a venous sample should be obtained prior to starting chelation therapy. Chelation drugs have potential adverse side effects and must be used with caution, so speak with your physician about what you can expect.

click view the EPA brochure [Fight Lead Poisoning with a Healthy Diet](#) (PDF). This brochure discusses proper nutrition, lead poisoning prevention and features fast, nutritious recipes. Also available in [Spanish](#) (PDF)

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6) How do I avoid lead poisoning?

Lead poisoning in children can come from many sources; however, the two largest are lead paint and lead brought home on clothing and other items by members of the household. The most common source of lead poisoning to adults is exposure in the workplace.

High-content lead paint was used in most Kentucky homes built prior to 1978. Exposure to lead paint comes in the form of eating paint chips (also eating soil contaminated with lead) or breathing and/or swallowing lead dust caused by poorly maintained lead paint and improper lead-based paint removal. If you suspect your home may have lead-based paint, have your home tested, especially if your home has paint in poor condition, by calling a certified lead inspector or lead risk assessor. You may call Kentucky's Environmental Lead Program (ELP) at (502) 564-4537 or the Kentucky Child Lead Poisoning Prevention Program (KCLPPP) at 502-564-2154 to get more information. Home test kits for lead are available, but may not always be accurate.

Have your child tested for lead. Lead testing can be performed at your local health department or at your child's private physician's office.

If you suspect your house has lead paint to protect your family:

- If you rent, notify your landlord of peeling or chipping paint.
- Clean up paint chips immediately.
- Clean floors, window frames, window sills and other surfaces with a wet mop or sponge weekly.
- Thoroughly rinse sponges and mop heads after cleaning dirty or dusty areas.
- Wash children's hands often, especially before they eat and before nap time and bed time.
- Keep play areas clean, including pacifiers, toys and stuffed animals.
- Keep children from chewing window sills or other painted surfaces.
- Clean or remove shoes before entering your home to avoid tracking in lead from soil.
- Make sure children eat nutritious, low-fat meals high in iron and calcium, such as spinach and dairy products.
- Do not use belt sanders, propane torches, high-temperature heat guns or dry scrapers and sanders to remove lead-based paint. Improper lead removal can increase the hazard to your family by spreading even more lead dust around the house.
- If you work in any industry that uses lead (i.e. battery plants, lead smelters, lead-glazed pottery, etc.), make sure you get a lead blood test regularly. Follow lead-safe work practices outlined by the Occupational Safety and Health Administration (OSHA).

Limit the amount of lead you take from work to your home by:

- Showering and changing clothes before coming home.
- Laundering work clothes separately from the rest of the family's clothes.
Removing shoes off before entering the home.

7) How can I have my home inspected for lead?

Have your home tested for lead by calling a certified lead inspector or lead risk assessor. Home test kits are available, but they are not always accurate.

For an up to date list of certified companies to complete an inspection, visit the [Public Safety Branch Lead Program's](#) webpage.

If you have any questions, call the Kentucky Environmental Lead Program (ELP) at (502) 564-4537, Kentucky Healthy Homes and Lead Poisoning Prevention Program (KHHLPPP) at (502) 564-2154 or the regional Environmental Protection Agency (EPA) in Atlanta, GA at (404) 564-8998 for more information.

click to view the EPA brochure [Lead in Your Home: A Parent's Reference Guide](#) (PDF) This brochure is a sixty-seven page comprehensive resource for parents on many lead-related topics. An [18"x24" poster](#) (PDF) is also available.

8) What about renovating/abating lead-based paint in a home?

If your home was built prior to 1978 it probably has paint that contains high levels of lead. The only way to know for sure is to have your home tested for lead by calling a certified lead inspector or lead risk assessor.

The lead risk assessor may find that your home needs abatement (or removal of all lead hazards). Abatement should never be done by anyone that is not trained and certified. Removing lead improperly can increase lead hazard exposure to your family (especially those crawling and in the hand to mouth phase) by spreading more lead dust around the house.

You as a homeowner should expect the company to employ the appropriate safety measures. The company should follow the proper abatement steps:

1. Proper training of all workers involved in abatement.
2. Protecting workers whenever they are in the abatement area.
3. Containing dust and paint chips that have lead in them.
4. Proper control or removal of lead-based paint.
5. Proper disposal of trash.
6. Final inspection of the house for dust (called clearance sampling).

For Kentucky's regulations on abatement click below:

[Definitions](#)

[Training and Certification Requirements](#)

[Accreditation of Training Programs](#)

[Permit fees, requirements, and procedures and standards for lead hazard detection and abatement](#)

Home projects or renovation done on lead-painted areas can also create harmful lead dust. You should use a renovator who knows how to protect your family from exposure to lead dust. It is best to hire one who has training and experience in dealing with the hazards of remodeling or renovating homes with lead-based paint. Ask to see up to date lead certification and ask about his/her experience. You can also check a companies updated certification on the [Public Safety Branch Lead Program's](#) webpage. If you wish to perform the work yourself, which we strongly discourage, follow the work practices and safety precautions in the EPA brochures below. Again, it is best to hire a renovator with training and experience to remove lead hazards rather than renovating on your own.

If you have already completed repairs or remodeling that could have released lead-based paint or dust, have your children (especially ages 6 or younger) tested for lead immediately. Be sure to keep your children away from any dust or paint chips. Clean the dust and paint chips by damp dusting, vacuuming, and wet mopping several times with wet mops and rags. Thoroughly rinse sponges and mop heads after cleaning the area.

View all of the available [EPA renovation brochures](#)