



Childhood Lead Poisoning Prevention



Testing for Lead Poisoning in Children

KEY POINTS

- A blood lead test is the best way to find out if a child has lead poisoning.
- A child with lead poisoning may not have visible signs or symptoms.
- Parents can talk to their child's healthcare provider about getting a blood lead test if their child may have been exposed.

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Why get tested

Most children with any lead in their blood have no obvious immediate symptoms. If a child may have been exposed to lead, parents should talk to their child's health care provider. They should discuss getting a blood lead test.

Healthcare providers and most local health departments can test for lead in the blood. Many private insurance policies cover the cost of testing for lead in the blood. The cost of blood lead testing for children enrolled in Medicaid is covered by the Centers for Medicare & Medicaid services.

Who should be screened

All children who are at risk for lead exposure should be tested for lead poisoning. Some children are more likely to be exposed to lead than others. These include children who:

- Live or spend time in a house or building built before 1978.
- Are from low-income households.
- Are immigrants, refugees, or recently adopted from less developed countries.
- Live or spend time with someone who works with lead
- Live or spend time with someone has hobbies that expose them to lead.

Parents should talk to their child's healthcare provider about whether their child needs to be tested for lead. The child's healthcare provider may ask questions to see if the child is at risk for lead poisoning. The best way to know if a child has been exposed to lead is to have their blood tested.

Children enrolled in Medicaid are required to get tested for lead at ages 12 and 24 months. They are also required to get tested if they are ages 24–72 months and have no record of ever being tested. For children not enrolled in Medicaid, CDC recommends focusing testing efforts on high-risk neighborhoods and children.

Types of tests

During a blood lead test, a small amount of blood is taken from the finger, heel, or arm to be tested. Two types of blood tests may be used.

A finger-prick or heel-prick (capillary) test

A capillary test is usually the first step to determine if a child has lead in their blood. Finger-prick tests can provide fast results. However, they also can produce higher results if lead on the skin is captured in the sample. If the results are above CDC's [blood lead reference value](#) it may be followed by a second test to confirm.

A venous blood draw

takes blood from the child's vein. This type of test can take a few days to receive results. It is often used to confirm blood lead levels seen in the first capillary test.

Both capillary and venous samples can be analyzed using higher complexity methods. These methods include inductively coupled plasma mass spectrometry (ICP-MS) or graphite furnace atomic absorption spectroscopy (GFAAS). However, venous samples are more reliable at identifying lower blood lead levels than capillary samples when analyzed using higher complexity methods.

Recommended schedule for obtaining a confirmatory venous sample

Capillary blood lead level ($\mu\text{g}/\text{dL}$)	Time to confirmation testing
$\geq 3.5\text{--}9 \mu\text{g}/\text{dL}$	<ul style="list-style-type: none"> • Within 3 months
$10\text{--}19 \mu\text{g}/\text{dL}$	<ul style="list-style-type: none"> • Within 1 month
$20\text{--}44 \mu\text{g}/\text{dL}$	<ul style="list-style-type: none"> • Within 2 weeks
$\geq 45 \mu\text{g}/\text{dL}$	<ul style="list-style-type: none"> • Within 48 hours

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Testing results

A blood lead test shows how much lead is in a child's blood. The amount of lead in blood is referred to as the blood lead level. Blood lead level is measured in micrograms of lead per deciliter of blood ($\mu\text{g}/\text{dL}$).

Any amount of lead in the blood means the child has been exposed to lead. They may be still exposed to lead in their environment. The healthcare provider recommends [follow-up actions and care](#) based on the child's blood lead level.

CDC uses a blood lead reference value (BLRV) of $3.5 \mu\text{g}/\text{dL}$. This value helps identify children with blood lead levels that are higher than most children's levels in the United States. This level is based on the on the 97.5th percentile of the blood lead values among U.S. of children ages 1-5. This sample came from the 2015-2016 and 2017-2018 National Health and Nutrition Examination Survey (NHANES) cycles. Children with blood lead levels at or above the BLRV are among the top 2.5% of U.S. children with the highest blood lead levels.

However, no safe level of lead in children has been identified. Even low levels of lead in the blood can negatively impact a child's health and should be viewed as a concern.

Next steps

If a child has lead in their blood above the CDC blood lead reference value, their doctor may recommend follow-up services. These include finding and removing lead from the child's environment and feeding the child a diet high in iron and calcium. Their doctor may also recommend connecting the child to early educational services and scheduling follow-up blood testing. Early identification of lead in the blood is key to reducing the long-term effects of lead exposure.

If a child has very high levels of lead in their blood, other types of testing and treatment may be recommended. This may include getting an x-ray to determine if they have high levels of lead in their blood. If a child does have high levels of lead in their blood, they may receive chelation therapy. Chelation therapy is a medical treatment used to remove lead from the body.

Keep Reading: [Recommended Actions Based on Blood Lead Level](#)

Prevention

Though lead can be found in many places in a child's environment, lead exposure is preventable. The key is stopping children from coming into contact with lead. Parents can take [simple steps](#) to make their homes more lead-safe.

Keep Reading: [What you need to know to protect children from lead exposure.](#)

Resources

Webpages

- [Blood lead reference value](#) – CDC recommendations on children's blood lead levels
- [Recommended actions based on blood lead level](#) – summary of recommendations for follow-up and case management of children based on confirmed blood lead levels

Fact sheets

- [5 things you can do](#) – information on how to help lower elevated blood lead levels [\(en Español\)](#).
- [All children can be exposed to lead](#) – real-world examples of situations where children have been exposed to lead
- [Blood lead levels in children](#) – fact sheet with information on blood lead levels in children
- [CDC's recommended terminology when discussing children's blood lead levels](#)

Videos

[Mission unlead: How to test children for lead with maximum accuracy](#) – reducing the risk of contamination during blood collection for lead testing

Scientific publications

- Ruckart PZ, Jones RL, Courtney JG, LeBlanc TL, Jackson W, Karwowski MP, Cheng P, Allwood P, Svendsen ER, Breyse PN. [Update of the blood lead reference value — United States, 2021](#). *MMWR*. 2021; 70(43):1509–1512.
- Courtney JG, Chuke SO, Dyke K, Credle K, Lecours C, Egan KB, Leonard M. [Decreases in young children who received blood lead level testing during COVID-19 — 34 jurisdictions, January–May 2020](#). *MMWR*. 2021; 70(5):155–161.

Guidelines and recommendations

- [HRSA-CDC letter on childhood lead poisoning prevention and blood lead testing](#) – In a joint letter, HRSA and CDC provide information for healthcare providers regarding childhood lead poisoning prevention and blood lead testing.
- CDC. [Recommendations for blood lead screening of Medicaid-eligible children aged 1–5 years: an updated approach to targeting a group at high risk](#). *MMWR*. August 7, 2009; 58(RR09):1–11.
- CDC. [Interpreting and managing blood lead levels <10 µg/dL in children and reducing childhood exposures to lead: Recommendations of CDC's Advisory Committee on Childhood Lead Poisoning Prevention](#). *MMWR*. November 2, 2007; 56(RR08):1–14;16.
- [Screening young children for lead poisoning: Guidance for state and local public health officials, Centers for Disease Control and Prevention \(1997\)](#)– The policy outlined in the document has two main purposes: to increase screening and follow-up care of children who most need these services, and to help communities pursue the most appropriate approach to the prevention of childhood lead poisoning.

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