



Lead Poisoning Prevention Toolkit for Health Care Providers

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HealthVermont.gov
802-863-7220

 **VERMONT**
DEPARTMENT OF HEALTH

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Health Department Contact Information

Healthy Homes Lead Poisoning Prevention Program

Phone: 802-863-7220

800-439-8550 (toll-free in Vermont)

Email: ahs.vdhHealthyHomes@vermont.gov

If you have questions or need help accessing or understanding this information, please contact us.

Background Information

Lead poisoning is a serious but **preventable** health problem. Lead is a highly toxic metal that has been commonly used in many household, industrial and automobile products – such as paint, solder, batteries, brass, car radiators, bullets, pottery, etc. Elevated levels of lead in the blood – or lead poisoning – can cause serious and permanent health problems.

Children and people who are pregnant are at higher risk.

Vermont's definition of an elevated blood lead level is any reported level. Research highlights that there is no safe level of lead and even low levels impair development in children and cause other health effects in adults. Therefore, **any level of lead in the blood is considered elevated.**

The Healthy Homes Lead Poisoning Prevention Program works with you to ensure that all 1- and 2-year-olds living in Vermont are tested for lead, as required by law. We also provide guidance for people who are pregnant or breastfeeding and adults who are exposed to lead.

Sources of lead poisoning

Ingestion and inhalation are the two routes of lead exposure.

The major source of lead poisoning in Vermont children is lead dust from chipping or peeling lead-based paint, but there are many other [possible lead exposures](#), including:

- Homes and other buildings built before 1978
- Drinking water
- Soil
- Jobs, hobbies and crafts
- Consumer products and imported goods
- Vintage, antique and salvaged items

Health effects of lead poisoning

Children

Babies and young children commonly come in contact with lead by ingestion through hand-to-mouth behavior. Lead dust or soil clings to hands, toys and objects that children put in their mouths. They may eat, chew or suck on lead-painted objects – such as windowsills, toys or furniture. Babies and young children are at highest risk because their developing bodies absorb lead more easily.

In children, exposure to lead can seriously harm their health by causing:

- Damage to the brain and nervous system
- Slowed growth and development
- Learning and behavior problems
- Hearing and speech problems

These adverse health effects can lead to:

- Lower IQ
- Decreased ability to pay attention
- Underperformance at school

Pregnant people

Lead can be stored in the bones of people who are exposed to lead over a long time or have had high levels of lead in their blood. The lead can then be released into the blood during pregnancy. This means that the level of lead in their blood can start to increase during pregnancy. Additionally, if a person is exposed to lead during their pregnancy, the developing baby can also be exposed.

Exposure to lead before or during pregnancy can:

- Increase the risk of miscarriage
- Cause babies to be born too early or too small
- Hurt the baby's brain, kidneys and nervous systems
- Cause the child to have learning or behavior problems

Adults

When lead is absorbed by the body, it replaces other needed metals (for example, calcium, iron and zinc) and interferes with the body's essential functions. Adults may not have symptoms of lead poisoning until their blood lead levels are quite high. Because these symptoms may occur slowly or may be caused by other things, lead poisoning can be easily overlooked.

The symptoms of lead poisoning in adults may include:

- Stomach discomfort
- Constipation
- Loss of appetite
- Headache
- Muscle and joint pain
- Tiredness
- Irritability or anxiety
- High blood pressure

Overview of State Law Requirements

[Vermont law](#) requires you to:

- Test all children for lead at 12 months and 24 months.
- Give a copy of [What Your Child's Lead Test Means](#) to parents or caregivers when their child is tested for lead.
- Report all blood lead results for Vermont residents to the Department of Health, if you have a LeadCare II analyzer.

Testing Requirements and Guidelines

When to test if a child doesn't have symptoms

These criteria are for testing asymptomatic children at well child visits and do not apply to children who previously or currently have elevated lead levels:

- Test all children at 12 months and 24 months.
- Test all children ages 36 to 72 months who have not been previously tested.
- **For refugees:** test all children ages 6 months to 16 years old upon entry to the U.S.
 - Perform a follow-up blood lead test on all refugee children ages 6 months to 6 years old within three to six months, regardless of their initial test result.
- **For other at-risk populations:** test children who are international adoptees, immigrants, children of migrant workers, in foster care, and are diagnosed with pica or special health needs that increase hand-to-mouth behavior.

[Find out how to collect and analyze capillary samples](#)

When to test if a child of any age has symptoms

Blood lead testing should be considered part of a diagnostic work-up of any child, regardless of age, if they:

- Ingested an object that may contain lead
- Have signs or symptoms consistent with lead poisoning
- Live in an older home undergoing renovation
- Live with someone who has a blood lead level of 5 µg/dL or greater
- Are an at-risk population (children who are international adoptees, immigrants, children of migrant workers, in foster care, and are diagnosed with pica or special health needs that increase hand-to-mouth behavior)

[Find out how to collect and analyze capillary samples](#)

When to confirm with a venous test

- Confirm capillary levels **at or above 3.5 µg/dL** with a venous test.
- Monitor capillary levels **between the detection limit and 3.4 µg/dL** over the next 6 months.

The higher the capillary test result, the more urgent the need for a confirmatory venous test. Please confirm as early as possible. See the guidelines in the table on the next page.

The Health Department provides education and initiates case management for all venous confirmed lead levels.

- For detected lead levels less than 3.5 µg/dL, we send a letter with educational materials.
- For venous lead levels 3.5 – 4.9 µg/dL, we provide education over the phone.
- For lead levels 5 µg/dL and higher, we offer an environmental inspection of the child's home.

If capillary blood lead level is:	Confirm with a venous test:	The Health Department will:
Not detected	Confirmation not needed	
Any detected level* – 3.4 µg/dL	Within 6 months (capillary sample or venous)	Send a letter to the family recommending another blood lead test within 6 months
3.5 – 9 µg/dL	Within 3 months	Send a letter to the family recommending a venous blood test within 3 months
10 – 19 µg/dL	Within 1 month	Send a letter to the family recommending a venous blood test within 2 weeks to 1 month
20 – 44 µg/dL	Within 2 weeks	Send a letter to the family recommending a venous blood test within 2 weeks
45 – 59 µg/dL	Within 48 hours	Call the family recommending a venous test as soon as possible
60+ µg/dL	Immediately as an emergency test	Call the family recommending an immediate venous test

*Detection limit varies across laboratories from <1 µg/dL to 3.3 µg/dL.

When to follow up with a venous retest

If venous blood level is:	Do a follow-up venous test within:	Late follow-up within (when blood lead level is declining):
Not detected	Venous retest is not required	
Any detected level* – 3.4 µg/dL	6 – 9 months	
3.5 – 9 µg/dL	3 months	6 – 9 months
10 – 19 µg/dL	1 – 3 months	3 – 6 months
20 – 44 µg/dL	2 weeks – 1 month	1 – 3 months
45+ µg/dL	Initiate chelation and retest in 7 – 21 days	As clinically indicated

*Detection limit varies across laboratories from <1 µg/dL to 3.3 µg/dL.

See the [Clinical Treatment Guidelines for Venous Confirmed Blood Lead Levels](#) for children ages 6 to 72 months.

When to test pregnant or breastfeeding people and adults

Because evidence of lead exposure is often not apparent, it's important to assess lead risks for pregnant and breastfeeding patients regardless of clinical signs. Use the [Blood Lead Risk Assessment for Pregnant and Breastfeeding People](#) to determine when to have them tested.

If adults are exhibiting symptoms of lead poisoning and have **jobs or hobbies** that increase their lead exposure risk), then consider having them tested.

- Examples of jobs include manufacturing, construction, automotive repair, or mining
- Examples of hobbies include making stained glass, target shooting, casting bullets, making ceramics, furniture refinishing, or home renovations

How to collect and analyze capillary samples

A high percentage of patients referred to a hospital lab do not follow through with a lead test. We recommend collecting and analyzing blood samples through one of these options:

- The Health Department Lab can mail **free** test kits to your practice with a 3- to 4-day turnaround for results. [Order free blood lead testing supplies.](#)
 - Remember to fill out the [blood lead test requisition](#) form when returning samples to the Lab.

- Be sure to follow instructions for proper [capillary sample collection](#). Watch a [video on how to collect capillary samples properly](#).
- If you're at a larger practice, consider a Lead Care II analyzer for point-of-care testing. These machines offer results within minutes.
- Have another clinic laboratory analyze capillary samples you collect in office.

Reporting Requirements and Guidelines

Most analytical laboratories report directly to us. However, if you have a LeadCare II analyzer, you are required to report all blood lead results for Vermont residents. Please [contact us](#) for more information and procedures for reporting results.

Tips to improve testing rates at your practice

Each year, we send a report to you so that you can see how your practice's testing rate compares to the state average. [Contact us](#) for your latest report.

We know that well child visits can be busy. Here are some tips for improving test rates at your practice:

1. Designate a lead screening champion

- Assign a staff member to run lead screening at your practice.
- Monitor and **track the monthly percentage of patients overdue for lead testing** to see trends and areas for improvement.

2. Use your Electronic Health Record (EHR)

- Set **automatic reminders** for lead testing at **12- and 24-month well child visits**.
- Include **alerts to follow up** with patients who miss their 12- or 24-month well child visits.

3. Access and use the Patient Profile Lead Tab

- Have **two designated staff members** sign up for access.
- Use the Lead Tab to **pull population-level reports** on children who have not been tested.
- Continue to **track and share monthly data**.
- Run **regular reports** to find:
 - Patients who are coming in due for testing.
 - Patients who are overdue.

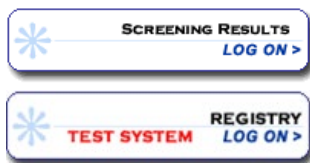
- Use reports to:
 - Offer lead testing **during acute visits**.
 - **Reach out** to patients ages **36 to 72 months** who have never been tested.

4. Improve access to screening

- **In-office screening:** Use point-of-care (POC) testing to improve compliance.
 - Many patients referred to outside labs **do not follow through** with testing.
- **Health Department Lab:** Take advantage of [free testing kits and mailing services](#).
 - Recommended for practices without POC testing capabilities.
- **LeadCare II Analyzer:** Consider **purchasing a POC analyzer** if you have a large practice.
 - Keep the **Health Department Lab as a backup** in case of recalls or downtime.
 - Make sure reporting happens **regularly** (weekly or bi-weekly).

How to access blood lead results through Patient Profile

Patient Profile, commonly called the Immunization Registry, is a confidential, web-based system that collects and shares data related to immunizations, as well as results from childhood hearing, newborn metabolic, blood lead and developmental screening.



Access to the **Blood Lead Program** will allow you to view patient records or run reports:

- **Individual Patient Record** – provides a complete history of reported blood lead results for a patient
- **Screening Tests Needed Report** – lists patients in your practice who are due or overdue for their 12-month or 24-month lead tests, and patients between ages 36 and 72 months who have never had a lead test
- **Venous Follow-Up Tests Needed** – lists patients in your practice who need venous confirmation tests and those who are in case management

New users

If you are a new user, please sign the [Provider Confidentiality Agreement](#) and fax it to 802-863-7483 or email it to AHS.HealthyHomes@vermont.gov.

Resetting your password

Your password will expire every 6 months.

- You will be asked to enter the email address that is associated with your account.
- A link will be emailed to you where you can reset your password.

[Reset your password.](#)

Resources for You

- [Pediatric Blood Lead Testing Guidelines](#)
- [Order Form for Blood Lead Testing Supplies](#) from the Vermont Department of Health Lab
- [Blood Lead Test Requisition Form](#) for samples to be analyzed at the Vermont Department of Health Lab
- [Capillary Blood Lead Specimen Collection Instructions](#) and [how-to video](#)
- [Provider Confidentiality Agreement](#) to access patients' results via the Patient Profile
- [Blood Lead Exposure Risk Assessment for Pregnant People](#)
- [“Lead Dust Can be Anywhere” Poster](#) to display in your office

Childhood lead poisoning data

The Vermont Data Tracking Program maintains an [interactive dashboard](#) that includes:


- Percentage of children ages 1 and 2 who were tested for lead annually by state and county.
- Estimated number and percentage of children ages 1 and 2 who were tested and had an elevated lead level.
- Percentage of homes built before 1950 at the county and town levels.
- Percentage of children younger than 5 who are living in poverty at the county level.

Childhood lead poisoning prevention legislative reports

Each year the Healthy Homes Program is required to submit a report to the legislature.

[Find the last five years of reports.](#)

Resources for Your Patients

- [What Your Child's Lead Test Means](#)
- [Tips for Keeping Children Safe from Lead](#)
- [Pregnancy and Lead Poisoning](#)
- [Adult Lead Poisoning](#)
- [Language access materials](#)  – we have written materials and videos offered in languages other than English

Appendix

Common questions about lead poisoning

My patient does not live in an older home, and the family is hesitant to test their child. Is it okay not to test for lead?

While dust from lead-based paint in homes built before 1978 is the major source of lead poisoning among children, there are other sources of lead. Even in newer homes, children can be exposed to lead from salvaged building materials or older household items (such as antique furniture). Other items that can contain lead are:

- Jewelry
- Brass
- Spices
- Cookware and dishes
- Cosmetics

Additionally, adults who work with lead could bring lead home on their clothes, shoes, skin, hair and hands.

My patient was tested at age 1, and lead wasn't detected. Is it okay not to test again at age 2?

Children are more mobile between ages 1 and 2. They also commonly put everything in their mouths. Lead dust can be anywhere, which is why it is important to test children at age 1 and then again at age 2.

Is it okay to use the word “normal” when describing lead levels?

No amount of lead in the blood is considered normal. Even small amounts of lead in the blood can affect a child's development, so we don't describe any lead level as “normal.” It's better to talk about what the level is and whether any action is needed.

Are old cast iron tubs a lead hazard?

In cast iron tubs, lead can chalk up from the glazing when it is not in use. To minimize lead exposure, here is guidance you can give to families:

- Rinse the tub down as you are running the water to get it warm.
- Discourage drinking the tub water as much as possible. Do not use any bath toys that can hold water and encourage “play” drinking, like cups.
- Don't store the bath toys in the tub.

Should families test their drinking water for lead?

Lead can get into drinking water when it passes through pipes, fittings, or fixtures made of lead, galvanized iron, brass or chrome. Because you cannot see, smell or taste lead, testing is the only way to know if lead is in drinking water.

Testing for lead involves collecting two water samples: first draw and flush.

- For families on private well or springs, the Health Department recommends testing their water with the Homeowner Testing Package every five years, which includes both first draw and flush lead test kits. Families can also purchase the two test kits separately.
- For families on public water (town or city water), the Health Department also recommends testing for lead. It is especially important to test their water if young children or babies drink the water. Families should purchase both the first draw and flush lead test kits.

First draw results are more likely to be higher than flush results. This is because the longer water sits in plumbing or fixtures that have low levels of lead, the higher the lead levels in water will be. Also, water sitting in the pipes inside the home becomes warmer. Over time, warmer water will take in more lead if there is lead in the plumbing or fixtures.

Lead is most common in copper piping. If there is lead in fixtures, it will still be detected even if the majority of plumbing uses plastic pipes, like CPVC or PEX. Faucets other than kitchen sinks also are much more likely to contain lead.

As a general precaution, the Health Department recommends families run water until it's cold for cooking, drinking and making baby formula.

[Find more information about lead in drinking water.](#)