

Blood Lead Testing and Public Health Response in Washington State

- **There is no safe blood lead level (BLL).**
- Assess lead exposure risk for all patients at 12 and 24 months of age through an environmental exposure history.
- Perform blood lead tests on all Medicaid patients at 12 and 24 months.
- **See appendix for lead exposure risk algorithm for identifying other patients who need a blood lead test.**
- For guidance on medical management, refer to the [PEHSU Lead Management factsheet](#).

Methods of Blood Lead Testing

- Blood lead testing is the only acceptable method for confirming lead exposure.
- Venipuncture is the preferred method of blood collection.
- Finger stick (capillary) collection is acceptable if the finger is properly cleaned.

Testing with Point of Care Devices:

- Contamination is an issue if using point of care devices. To reduce contamination:
 - Avoid using paper towels to dry hands, as they may contain trace metals. Have patients shake their hands dry.
 - Take the lead sample first, before other blood samples. This is true for both venipuncture and capillary collection.
 - Take the second, rather than the first, drop of blood as a sample.
- **Caution:** Do not use POC devices to analyze venous samples.

All blood lead level results, even if not $\geq 5 \mu\text{g}/\text{dL}$, are required to be reported to the Washington DOH by the lab, or by the clinic if point of care testing was performed²

Washington DOH Reporting Blood Lead Level Requirements

- The laboratory must notify DOH within two business days for a blood level $\geq 5 \mu\text{g}/\text{dL}$.
- The laboratory must report all blood lead level results of $< 5 \mu\text{g}/\text{dL}$, including results that were less than the level of detection, within 1 month.
- Providers who use point of care devices ***must*** report the results to the WA DOH in the same timeframes.
- Blood level results can be reported [here](#).³

Washington DOH Response

All children in Washington aged ≤ 14 years with a confirmed blood lead level $\geq 5 \mu\text{g}/\text{dL}$ should receive standard public health services. The United States Centers for Disease Control and Prevention (CDC) defines a case as (1) two capillary blood draws with a blood lead level (BLL)

result of $\geq 5 \mu\text{g/dL}$ within 12 weeks each other; OR (2) one venous blood draw with a BLL result of $\geq 5 \mu\text{g/dL}$. Washington state also uses this case definition.

WA DOH has a case management program, based on [updated guidelines](#)⁴, for confirmed cases of lead exposure $\geq 5 \mu\text{g/dL}$. The program provides resources for up to two home visits per child with a confirmed BLL in one year. The program is funded through June 2019 and potentially beyond. Resources may vary by county.

Case Initiation with PCP

- When the county is notified of an elevated blood lead level of $\geq 5 \mu\text{g/dL}$, a case manager will contact the provider to gather complete case information. See below for timeframe. If the sample was obtained through capillary collection, the case manager will recommend a second capillary or venous blood lead test to confirm the case.*
- If the second lead level remains $\geq 5 \mu\text{g/dL}$, providers can expect the county case manager to follow up with them based on the below approximate timeline:

EBL Level	Time Frame After Receiving EBL Lab
5-9 $\mu\text{g/dL}$	Within 10 Business Days
10-19 $\mu\text{g/dL}$	Within 5 Business Days
20-44 $\mu\text{g/dL}$	Within 3 Business Days
45+ $\mu\text{g/dL}$	Immediately

- WA DOH has two additional staff members available to perform case management if individual county health departments do not have the resources to support this effort.

First home visit by county health department case manager

- Case manager schedules home visit. Family interviewed to assess environmental risks.
- Case manager fills out the [Child Blood Lead Investigation Form](#).⁵
- WA DOH will provide initial environmental lead exposure testing supply kits, to include swabs and dust wipes to check surfaces for lead and approved containers to sample paint chips, drinking water, and soil. Accredited laboratories will analyze the samples.
- Case manager will provide lead exposure education to caregiver, develop a plan of care that lists recommendations on how to remove and remediate lead exposure, and complete a written report summarizing the environmental assessment lab test results.
- The plan of care document should be provided by the case manager to DOH, families, and to providers after each home visit.

*The United States CDC confirmed case is defined as (1) a second capillary blood draw with a blood lead result of $\geq 5 \mu\text{g/dL}$ within 12 weeks of the first blood lead capillary draw $\geq 5 \mu\text{g/dL}$; OR (2) one venous blood draw with a blood lead result of $\geq 5 \mu\text{g/dL}$

Second Home Visit

- Child screened for developmental delays. Family referred to WithinReach, an organization that provides free online developmental screenings statewide. If needed, the family will be referred to an agency that can do a formal developmental assessment.
- Nutritional assessment is recommended. Patients will be referred by the case manager to the Women, Infants, and Children (WIC) program if eligible, or to a registered dietician.
- Provider should consider testing patients for iron deficiency, as this often coexists with lead poisoning and can enhance absorption of lead from the environment.
- BLL testing of other children less than 72 months of age and pregnant/nursing mothers in the home is recommended.
- Case manager will coordinate communication among multi-disciplinary team members: WIC nutritionist, early childhood program staff, social services, and PCPs.

Case Manager Communication with Provider

- A plan of care document should be sent to the provider after each visit.
- Case managers encourage providers to educate patients about the importance of home visits, as some patient populations are uncomfortable with the concept of home visits (eg., refugee populations).
- Interpreters are available for home visits, and case managers do not collect information on visa status.

Case Closure

- It often takes an extended period of time to achieve all elements of case management for lead exposed children. The child's case record will not be closed until it is determined that the child lives in a lead-safe environment.
- There may be more than two home visits required for complicated cases.
- The following is the minimum criteria to close an elevated blood lead level case:
 - The child's blood lead level has remained $<5 \mu\text{g}/\text{dL}$ for at least three months
 - Lead hazards have been controlled or eliminated within the child's environment
 - There are no new lead exposures
 - The case manager can also administratively close the child's case record when:
 - The family moves and the child's case has been transferred
 - The parent/caregiver refuses further public health intervention
 - The family moves and cannot be located

Health care providers unclear about the public health actions being taken for their patients are encouraged to consult with case managers at their local public health department about specifics. For more information, call the WA DOH lead information line at 1-800-909-9898 or 360-236-4280, or send an email to lead@doh.wa.gov.

About Northwest Pediatric Environmental Health Specialty Unit (PEHSU)

For additional questions or guidance, contact the pediatric environmental experts at the Northwest PEHSU, based at the University of Washington. The NW PEHSU serves medical and public health professionals in AK, WA, ID, and OR. For more information contact us at 1-877-KID-CHEM or kidchem@uw.edu or visit our website <http://www.deohs.washington.edu/pehsu>.

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References

1. U.S. Food and Drug Administration. (2018). *Safety issue on Magellan Diagnostics LeadCare testing systems*. Retrieved from <https://www.fda.gov/medicaldevices/productsandmedicalprocedures/invitrodiagnostics/labtest/ucm566188.htm>
2. Washington State Legislature. WAC 246-101-201. Retrieved from <https://apps.leg.wa.gov/wac/default.aspx?cite=246-101-201>
3. Washington State Department of Health. (2018). *Blood lead test reporting*. Retrieved from <https://www.doh.wa.gov/ForPublicHealthandHealthcareProviders/HealthcareProfessionsandFacilities/ProfessionalResources/BloodLeadTestingandReporting/BloodLeadTestReporting>
4. Washington State Department of Health. (2016). *A targeted approach to blood lead screening in Washington state: 2015 expert panel recommendations*. Retrieved from <https://www.doh.wa.gov/Portals/1/Documents/Pubs/334-383.pdf>
5. Washington State Department of Health. (2018). *Child blood lead*. Retrieved from <https://www.doh.wa.gov/Portals/1/Documents/4000/Child%20Blood%20Lead%20Investigation%20Form.pdf>

Resources

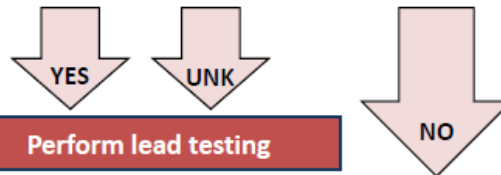
- [PEHSU Clinical Management of Lead Exposure in Pregnant and Breastfeeding Women Factsheet](#)
- [PEHSU Medical Management of Childhood Lead Exposure \(Recommendations on Medical Management of Childhood Lead Exposure and Poisoning\)](#)
- [Guide for Public Health Case Management of Children with Elevated Blood Lead Levels](#)
- Washington State Department of Health [Lead Exposure Risk map](#)

Does the child have any of the following risk factors:

- Lives in or regularly visits any house built before 1950.*
- Lives in or regularly visits any house built before 1978 that has recent or ongoing renovations or remodeling.
- From a low income family (defined as incomes <130% of the poverty level.)**
- Known to have a sibling or frequent playmate with elevated blood lead level.
- Is a recent immigrant, refugee, foreign adoptee, or child in foster care.
- Has a parent or principal caregiver who works professionally or recreationally with lead. (See sidebar for examples.)
- Uses traditional, folk, or ethnic remedies or cosmetics (such as Greta, Azarcon, Ghasard, Ba-baw-san, Sindoor or Kohl.)

* Screening may not be indicated if the home has previously undergone lead abatement or tested negative for lead after remodeling.

** Federal law mandates testing for all children covered by Medicaid.



Healthcare providers should consider testing additional children per clinical judgment, such as:

- Child whose parents have concern or request testing (including older children that have risk of exposure.)
- Child living within a kilometer of an airport or lead emitting industry or on former orchard land.
- Child with pica behavior.
- Child with neurodevelopmental disabilities or conditions such as autism, ADHD, and learning delays.

**LEAD RISK EXPOSURE
EXAMPLES:**

Occupations and
Hobbies:

- Remodeling and demolition
- Painting
- Work or visit gun range
- Mining, smelting, battery recycling
- Making lead fishing weights or ammunition
- Stained glass
- Soldering and welding

Consumer Products:

- Pottery or porcelain with lead glaze
- Informally imported foods, candies and spices
- Antique furniture and inexpensive jewelry