

# Elevated Blood Lead Levels in Children

## Guidelines for Public Health and Case Management

Blood Lead Level	ACTIONS BASED ON UNCONFIRMED (CAPILLARY) TEST RESULT	ACTIONS BASED ON CONFIRMED (VENOUS) TEST RESULT
<b>BLOOD LEAD LEVELS (BLLs) <math>\geq 5 \mu\text{g}/\text{dL}</math> ARE ELEVATED</b>		
5 – 9 $\mu\text{g}/\text{dL}$	<p><b>Within 1 month</b></p> <p><u>Public Health:</u></p> <ul style="list-style-type: none"> <li>Contact family and provide education; discuss confirmatory testing (if confirmatory test not yet obtained)</li> <li>If feasible, contact the medical care provider regarding confirmatory venous testing</li> </ul> <p><u>Case Management:</u></p> <ul style="list-style-type: none"> <li>Contact the family and/or health care provider if confirmatory test not completed within recommended timeframe</li> </ul> <p>VENOUS CONFIRMATION <u>WITHIN</u> 3 MONTHS</p>	<p><b>Within 1 month</b></p> <p><u>Public Health:</u></p> <ul style="list-style-type: none"> <li>Contact family with BLL results, follow-up testing recommendations, and provide educational materials</li> <li>Conduct exposure history interview to obtain risk factors</li> <li>Contact health care provider to discuss medical management recommendations and follow-up testing</li> </ul> <p><u>Case Management:</u></p> <ul style="list-style-type: none"> <li>Contact family and provide caregiver lead education/counseling; ensure follow-up test scheduled within 3 months</li> <li>Provide information on services and make referrals</li> <li>Contact health care provider and/or family if follow-up test not completed within 3 months</li> </ul>
10 – 44 $\mu\text{g}/\text{dL}$	<p><b>Within 1 week</b></p> <p><u>Public Health:</u></p> <ul style="list-style-type: none"> <li>Contact family and provide education; discuss confirmatory testing (if confirmatory test not yet obtained)</li> <li>Contact the medical care provider regarding confirmatory venous testing</li> </ul> <p><u>Case Management:</u></p> <ul style="list-style-type: none"> <li>Contact the family and/or health care provider if confirmatory test not completed within recommended timeframe</li> </ul> <p>VENOUS CONFIRMATION <u>WITHIN</u> 1-4 WEEKS</p> <p><u>The higher the BLL on the screening test, the more urgent the need for confirmatory testing.</u></p>	<p><b>Within 1 week</b></p> <p><u>Public Health:</u></p> <ul style="list-style-type: none"> <li>Contact family with BLL results, follow-up testing recommendations, and provide educational materials</li> <li>Contact health care provider to discuss medical management recommendations and follow-up testing</li> <li>Conduct exposure history interview to obtain risk factors</li> <li>Arrange on-site environmental investigation</li> </ul> <p><u>Case Management:</u></p> <ul style="list-style-type: none"> <li>Arrange educational home visit and provide caregiver lead education/counseling; ensure follow-up test scheduled within 1-3 months; <u>Higher BLLs (<math>&gt;25 \mu\text{g}/\text{dL}</math>) may require more frequent monitoring</u></li> <li>Complete an in-depth assessment of: medical, environmental, nutritional, and developmental needs</li> <li>Provide information on services and make referrals</li> <li>Communicate with investigators at local public health department and/or DHHS</li> <li>Contact health care provider and/or family if follow-up test not completed within 3 months. <u>Higher BLLs (<math>&gt;25 \mu\text{g}/\text{dL}</math>) may require more frequent monitoring</u></li> </ul>
45 – 69 $\mu\text{g}/\text{dL}$	<p><b>Within 2 business days</b></p> <p>Same actions for 10–44 <math>\mu\text{g}/\text{dL}</math>, plus:</p> <p><u>Public Health and Case Management:</u></p> <p>VENOUS CONFIRMATION <u>WITHIN</u> 24-48 hours</p>	<p><b>Within 2 business days</b></p> <p><b>Same actions as above for 10 – 44 <math>\mu\text{g}/\text{dL}</math>, plus:</b></p> <p><u>Public Health and Case Management</u></p> <ul style="list-style-type: none"> <li>Contact the medical provider to determine BLL, medical status, treatment, and follow-up plans. Ensure follow-up venous test within 1 week</li> <li>Chelation therapy is recommended; Child will need more frequent BLL monitoring</li> <li>A lead-safe environment must be assured before chelation</li> <li>Consider attempt to facilitate alternative lead-safe housing</li> </ul>
$\geq 70 \mu\text{g}/\text{dL}$	<p>Same actions for 10–44 <math>\mu\text{g}/\text{dL}</math>, plus:</p> <p>IMMEDIATE VENOUS CONFIRMATION</p>	<p><b>Same actions for venous 45–69 <math>\mu\text{g}/\text{dL}</math>, plus:</b></p> <p><u>Public Health:</u> Immediately notify DHHS by phone</p>

## Definitions

**Elevated blood lead level:** Any blood lead level (BLL)  $\geq 5 \mu\text{g}/\text{dL}$  in a child age 0-15 years old.

**Confirmatory test:** A capillary blood lead level  $\geq 5 \mu\text{g}/\text{dL}$  should be confirmed with a venous blood test.

**Unconfirmed/Suspect elevated BLL case:** A child with a single capillary blood lead test  $\geq 5 \mu\text{g}/\text{dL}$ . A venous BLL should be done to confirm an elevated capillary BLL.

**Confirmed elevated BLL case:** A child with at least one venous blood specimen  $\geq 5 \mu\text{g}/\text{dL}$  (or when venous test not possible, two capillary blood specimens  $\geq 5 \mu\text{g}/\text{dL}$  drawn within 12 weeks of each other).

**Case management team:** Can include the case manager, child's caregiver, child's doctor, EBL investigator at local public health department, a health educator, an environmental inspector, and a nutritionist.

## Case Management for Elevated Blood Lead Levels

The case manager should develop a plan of care with the family that describes the steps needed to lower the elevated blood lead level, prevent re-exposure, and identify services needed to treat/manage elevated blood lead levels.

Note: The case manager does not need to directly provide all follow-up care but should ensure that needed care is provided, including medical follow-up and follow-up on referrals for other identified problems. Areas of the plan should cover the following:

1. Identification/reduction/elimination of environmental hazards
  - Assessment of all possible exposure sources
  - Temporary/short-term hazard reduction (including temporary relocation to lead-safe housing if needed)
  - Long-term hazard eliminations (including permanent relocation to lead-safe housing if needed)
  - Identification and removal of non-residential exposures (remedies, take-home exposures from parent's occupation)
2. Improvement of nutrition
  - Caregiver nutritional counselling
  - Referral to WIC, SNAP, or other community food resources
3. Caregiver lead education
  - Counselling on decreasing identified exposure risks, cleaning practices, importance of follow-up blood lead tests
4. Medical follow-up care
  - Child with elevated BLL, follow-up testing to ensure BLL declining
  - Testing for siblings or other at-risk children living in home
5. Referrals and follow-up of other identified problems
  - Referral/follow-up for: medical services, developmental assessment, early intervention if developmental delays suspected or diagnosed, home visitation, head start, housing services, social services, transportation, legal services.

## Sources of Lead

Paint and Dust	Occupations and Hobbies	Soil and Water	Cultural/Other Sources
<ul style="list-style-type: none"> <li>• <b>Chipping or peeling lead paint and its dust is the most common source of lead exposure</b></li> <li>• Homes built before 1978 may contain lead-based paint</li> <li>• Even tiny amounts of dust from lead paint can cause a child's blood lead levels to rise</li> <li>• Renovation creates large amounts of hazardous lead dust</li> <li>• Exposures can occur at home, daycare, or a relative's home</li> </ul>	<ul style="list-style-type: none"> <li>• Lead dust can be brought home from household member's job or hobby:</li> <li>• Making items that contain lead: bullets, batteries, stained glass</li> <li>• Foundries and scrap metal</li> <li>• Indoor firing ranges, reloading shotgun shells, bullet casting</li> <li>• Construction, painting, remodeling, or demolition</li> </ul>	<ul style="list-style-type: none"> <li>• Bare soil, especially in areas near old homes, industrial sites, or busy roads</li> <li>• Lead paint can contaminate soil around perimeter of house</li> <li>• Lead can enter drinking water as it passes through household plumbing. Homes built before 1986 may have lead in plumbing.</li> </ul>	<ul style="list-style-type: none"> <li>• Traditional or folk medicines</li> <li>• Imported cosmetics, especially kohl/surma, sindoor, or kumkum</li> <li>• Imported spices</li> <li>• Glazed ceramic cookware and food storage containers</li> <li>• Exposure that occurred in another country</li> </ul>

Statewide Contact	Local Public Health Department Contacts	
Nebraska Childhood Lead Poisoning Prevention Program 1-888-242-1100 (option 3) <a href="http://www.dhhs.ne.gov/lead">www.dhhs.ne.gov/lead</a>	Douglas County: 402-444-7825 <a href="https://www.douglascountyhealth.com/lead-poisoning-prevention">https://www.douglascountyhealth.com/lead-poisoning-prevention</a>	In Greater Nebraska: Find LHD contact information at: <a href="http://www.dhhs.ne.gov/lhd">www.dhhs.ne.gov/lhd</a>