

Oklahoma Management Guidelines on Childhood Lead Poisoning for Health Care Providers



No level of lead in the body is known to be safe. Primary treatment for all blood lead levels (BLLs) is prevention of lead exposure and the timely and effective reduction of any exposure that may have occurred. In addition to the long-known major sources of lead exposure (lead-contaminated paint, dust, and soil), other potential sources are being recognized. Ongoing coordination between the medical provider and the local public health team is essential for effective follow-up of lead exposed children.

BLL	Pediatric Evaluation	Management
< 5 mcg/dL¹	<p>General</p> <ul style="list-style-type: none"> Standard history and physical examination and developmental assessment. Evaluate nutrition and consider iron deficiency as in all children. Evaluate lead exposure. <p>Blood Lead Levels (may be capillary or venous)²</p> <ul style="list-style-type: none"> Retest as for routine screening, i.e., obtain BLL at 1 and 2 years, test anytime up to 6 years (if not tested at 1 and 2 years), or whenever indicated by changed circumstances or identification of new risks. 	<ul style="list-style-type: none"> Comply with Oklahoma regulations for Universal Screening which means a blood lead test for ALL children at ages 12 months and again at 24 months of age. Health care providers should give oral or written Anticipatory Guidance to a parent or guardian at each periodic health care visit for children from age 6 months to 72 months. Guidance should include at a minimum that children can be harmed by lead and are particularly at risk for lead poisoning from the time they crawl until 72 months and can be harmed by deteriorating or disturbed paint and lead-contaminated dust. Discuss hand to mouth activity, hand washing, and sources of lead exposure (e.g., lead-contaminated paint; dust and soil, particularly near streets and roadways; lead from a household member's job, ceramic ware, cultural remedies, imported food, costume jewelry, vinyl products, and lead in plumbing and water). Counsel on any risk factors identified. Discuss test results with family. Encourage good nutrition (iron, calcium, and vitamin C); consider referral to Supplemental Nutrition Program for Women, Infants, and Children (WIC). Encourage participation in early enrichment programs for children from families with low economic and social resources and for whom exposure to lead is likely. Chelation is not recommended in this BLL range.
5–14 mcg/dL	<p>If Capillary Specimen – Confirm WITHIN 3 MONTHS WITH VENOUS³</p> <p>General – Evaluate as above and</p> <ul style="list-style-type: none"> Consider more frequent or more extensive neurodevelopmental evaluations. <p>Blood Lead Levels (all retests should be venous)</p> <ul style="list-style-type: none"> Retest IN 3 months. If retest is in this range, monitor with BLLs every 3 months until trend is downward or stable and then less often as trend indicates. If retest is in another range, follow-up as for that range. 	<p>Manage as above and</p> <ul style="list-style-type: none"> Evaluate risk to, and consider testing for, other children in the home. Evaluate risk to, and consider medical referral for, other household members (especially pregnant women). Add notation on blood lead level to child's medical record for future neurodevelopmental monitoring. Advise activities such as those provided by early intervention/stimulation programs (e.g., Early Start and Head Start). Consider parent referral to the Oklahoma Childhood Lead Poisoning Prevention Program (OCLPPP) for additional education and guidance at (800) 766-2223. Chelation is not recommended in this BLL range.
15–19 mcg/dL	<p>If Capillary Specimen – Confirm WITHIN 1 MONTH WITH VENOUS</p> <p>General – Evaluate as above and</p> <ul style="list-style-type: none"> Consider Hgb/Hct. <p>Blood Lead Levels (all retests should be venous)</p> <ul style="list-style-type: none"> Retest IN 1 – 3 months. If retest is in this range, monitor with BLLs every 1 – 3 months until trend is downward or stable and then less often as trend indicates. If retest is in another range, follow-up as for that range. 	<p>Manage as above and</p> <ul style="list-style-type: none"> If BLL is persistent in this range (15 mcg/dL or greater on tests done at least 30 days apart) or if BLL increases above this range, initiate referral to the OCLPPP for case management, environmental investigation, and recommendations for remediation of lead sources. Chelation is not recommended in this BLL range.

Over – continued on back of page

- Blood lead test results should be rounded to the nearest whole number, with numbers with decimals equal to and above 0.5 rounded up and numbers with decimals below 0.5 rounded down; e.g. treat 4.5 mcg/dL as 5 mcg/dL, 9.5 mcg/dL as 10 mcg/dL, 4.3 mcg/dL as 4 mcg/dL.
- Capillary specimens for lead are easily contaminated. Capillary specimens are acceptable for screening but all retests on BLLs \geq 5 mcg/dL should be on venous blood. Use of a heelstick instead of a fingerstick to obtain a capillary specimen is recommended in children under one year of age.
- A second capillary test may only be used to confirm an initial capillary result between 5-9 μ g/dL if it is collected within 12 weeks of the first capillary test. Once the result has been confirmed as elevated, all subsequent follow-up testing **MUST** be through venous sampling.

BLL	Pediatric Evaluation	Management
20–44 mcg/dL	<p>If Capillary Specimen – Confirm WITHIN 1 WEEK WITH VENOUS</p> <p>General</p> <ul style="list-style-type: none"> History and physical examination with attention to neurodevelopment. Evaluate lead exposure. Evaluate nutrition. Evaluate iron deficiency: Hgb/Hct, ferritin, and Fe/TIBC Consider abdominal x-ray if particulate lead ingestion is suspected. <p>Blood Lead Levels – (all retests should be venous)</p> <ul style="list-style-type: none"> If retest is in this range, monitor with BLLs every 4 weeks to 2 months until trend is downward or stable and then less often as trend indicates. If retest is in another range, follow-up as for that range. 	<p>Manage as above and</p> <ul style="list-style-type: none"> Initiate referral to the OCLPPP for case management, environmental investigation, and recommendations for remediation of lead sources. Treat any iron deficiency. Order bowel decontamination if indicated. Chelation is not typically initiated in this BLL range.
45–69 mcg/dL	<p>If Capillary Specimen – Confirm WITH VENOUS IMMEDIATELY</p> <p>General – Evaluate as above and</p> <ul style="list-style-type: none"> Very high BLLs have been associated with renal tubular dysfunction. If potentially nephrotoxic chelating agents are to be used in treatment, test renal function before and during treatment. <p>Blood Lead Levels (all retests should be venous)</p> <ul style="list-style-type: none"> If confirmed in this range, monitor with serial BLLs during any chelation. Follow-up with BLLs every 2 weeks to 1 month (or more frequently if status requires) until trend is downward or stable and then less often as trend indicates. It may be appropriate to modify protocol if BLLs remain chronically elevated, e.g. from a retained bullet. If retest is in another range, follow-up as for that range. 	<p>URGENT MEDICAL SITUATION</p> <p>Manage as above and</p> <ul style="list-style-type: none"> Consider chelation. Evaluate whether hospitalization is needed to reduce lead exposure or to achieve compliance with treatment protocols. Immediately notify the OCLPPP. <p>Chelation Therapy</p> <ul style="list-style-type: none"> Consult with a provider experienced in managing chelation therapy. The Oklahoma Center for Poison and Drug Information is available for consultation at (800) 222-1222. Repeat treatment cycles may be needed based on blood lead rebound.
≥ 70 mcg/dL	<p>If Capillary Specimen – Confirm WITH VENOUS IMMEDIATELY</p> <p>General – Evaluate as above.</p> <p>Blood Lead Levels (all retests should be venous)</p> <ul style="list-style-type: none"> If confirmed in this range, monitor with serial BLLs during chelation. Follow-up with BLLs every 2 weeks to 1 month (or more frequently if status requires) until trend is downward or stable and then less often as trend indicates. It may be appropriate to modify protocol if BLLs remain chronically elevated, e.g. from a retained bullet. If confirmed in another range, follow-up as for that range. 	<p>MEDICAL EMERGENCY</p> <p>Manage as above and</p> <ul style="list-style-type: none"> Immediately hospitalize to stabilize, reduce lead exposure, chelate, and monitor progress. Immediately notify the OCLPPP. <p>Chelation Therapy</p> <ul style="list-style-type: none"> Consult with a provider experienced in managing chelation therapy. Repeat treatment cycles may be needed based on blood lead rebound.
<p>Note: Searching for gingival lead lines; testing of neurophysiologic function specifically for lead (postural sway, auditory evoked potentials, or nerve conduction); testing of hair, teeth, fingernails, or urine for lead; radiographic imaging of long bones; and X-ray fluorescence of long bones are not usually recommended. CDC: <i>Managing Elevated Blood Lead Levels Among Young Children: Recommendations from the Advisory Committee on Childhood Lead Poisoning Prevention</i></p>		

**For additional information about lead poisoning contact:
 Oklahoma Childhood Lead Poisoning Prevention Program
 Tel. (800) 766-2223 <http://lpp.health.ok.gov>**

