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.

### Blood Lead Levels (BLL) and Management

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<th>BLL</th>
<th>Pediatric Evaluation</th>
<th>Management</th>
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| < 5 mcg/dL | General | ▪ Comply with California regulations mandating a standard of care under which the health care provider, at each periodic health care visit from age 6 months to 72 months must give oral or written Anticipatory Guidance to a parent or guardian, including 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.3  
 ▪ 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.  |
| 5–9 mcg/dL | General – Evaluate as above and | Manage as above and  
 ▪ Consider more frequent or more extensive neurodevelopmental evaluations.  
 ▪ If retest is in this range, consider monitoring with BLLs every 6 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.  |
| 10–14 mcg/dL | General – Evaluate as above and | Manage as above and  
 ▪ Blood Lead Levels (all retests should be venous)  
 ▪ Initially retest WITHIN 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.  |
| 15–19 mcg/dL | General – Evaluate as above and | Manage as above and  
 ▪ If persistent in this range evaluate as for 20-44 mcg/dL  
 ▪ Blood Lead Levels (all retests should be venous)  
 ▪ Confirm WITHIN 3 months  
 ▪ To determine eligibility for public health case management, retest after an interval of 30 days or more (must show persistence in this range).  
 ▪ If confirmed in this range, monitor with BLLs every 1-3 months until trend is downward or stable and then less often as trend indicates.  
 ▪ If confirmed in another range, follow-up as for that range.  |

1. 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.
2. Capillary specimens for lead are easily contaminated. Capillary specimens are acceptable for screening but all retests on BLLs ≥ 10 mcg/dL should be on venous blood. When a reference is made to a ‘venous’ specimen, arterial or umbilical line specimens may be substituted. Use of a heelstick instead of a fingerstick to obtain a capillary specimen is recommended in children under one year of age.
3. California Code of Regulations, Title 17, Sections 37000–37100.
4. Consider retesting in six months, particularly if the BLL is approaching 10 mcg/dL and the child is less than two years of age, is at high risk for lead exposure, or was tested at the start of warm weather (when BLLs tend to increase).

For additional information about lead poisoning contact:
California Department of Public Health Childhood Lead Poisoning Prevention Branch
Tel. (510) 620-5600 www.cdph.ca.gov/programs/CLPPB
### BLOOD LEAD LEVELS

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<th>Management</th>
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| **20–44 mcg/dL** | **General** - History and physical examination with attention to neurodevelopment.  
- Evaluate lead exposure.  
- Evaluate nutrition.  
- Evaluate iron deficiency: Hgb/Hct, ferritin, and Fe/TIBC are all good measures.  
- Consider abdominal x-ray if particulate lead ingestion is suspected.  
**Blood Lead Levels** - (all retests should be venous)  
- Confirm **WITHIN 1 WEEK TO 1 MONTH** (the higher the BLL, the sooner the retest).  
- If confirmed in this range, monitor with BLLs every 2 weeks to 1 month until trend is downward or stable and then less often as trend indicates.  
- If confirmed in another range, follow-up as for that range. | **Manage as above and** - Initiate referral to local CLPPP or local health department for public health nurse case management, environmental investigation, and recommendations for remediation of lead sources.  
- Treat any iron deficiency.  
- Order **bowel decontamination** if indicated.  
- Refer to California Children Services (CCS).  
- Chelation is not typically initiated in this BLL range. |
| **45–59 mcg/dL** | **General** – Evaluate as above and  
- Very high BLLs have been associated with renal tubular dysfunction. If potentially nephrotoxic chelating agents are to be used in treatment (e.g., CaNa2EDTA), test renal function before and during treatment.  
**Blood Lead Levels** (all retests should be venous)  
- **URGENT: CONFIRM WITHIN 48 HOURS**  
- 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 confirmed in another range, follow-up as for that range. | **URGENT MEDICAL SITUATION**  
Manage as above and  
- Consider chelation.  
- Evaluate whether hospitalization is needed to reduce lead exposure or to achieve compliance with treatment protocols.  
- Immediately notify local CLPPP.  
**Chelation Therapy**  
- Consult with a provider experienced in managing chelation therapy.  
- Order bowel decontamination **before** chelation, if indicated by abdominal x-ray.  
- Consider one of two chelating agents:  
  a. Succimer per outpatient prescribed protocol; **give on inpatient basis if compliance or exposure reduction cannot be assured**.  
  b. CaNa2EDTA per prescribed protocol in hospital.  
  - Be certain to use only **CALCIUM** Na:EDTA  
  - Repeat treatment cycles may be needed based on blood lead rebound. |
| **60–69 mcg/dL** | **General** – Evaluate as above.  
**Blood Lead Levels** (all retests should be venous)  
- **URGENT: CONFIRM WITHIN 24 HOURS**  
- 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 confirmed in another range, follow-up as for that range. | **URGENT MEDICAL SITUATION**  
Manage as above. |
| **> 70 mcg/dL** | **General** – Evaluate as above.  
**Blood Lead Levels** (all retests should be venous)  
- **CONFIRM ANY BLL IN THIS RANGE IMMEDIATELY**  
- 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. | **MEDICAL EMERGENCY**  
Manage as above and  
- Immediately hospitalize to stabilize, reduce lead exposure, chelate, and monitor progress.  
- Immediately notify local CLPPP.  
**Chelation Therapy**  
- Consult with a provider experienced in managing chelation therapy.  
- Order bowel decontamination before chelation, if indicated by abdominal x-ray.  
- Typically combined therapy with BAL (dimercaprol) and CaNa2EDTA per prescribed protocol.  
  - Be certain to use only **CALCIUM** Na:EDTA  
  - Assess for **peanut allergy** if using BAL (BAL is suspended in peanut oil)  
  - Repeat treatment cycles may be needed based on blood lead rebound. |

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.


Download patient brochures and other childhood lead poisoning resources at: http://www.cdph.ca.gov/programs/CLPPB/Pages/provideroutreach-clppb.aspx