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RECOMMENDED ACTIONS BASED ON BLOOD LEAD LEVELS

Lead poisoning can have serious health consequences if not diagnosed early. Case management focuses on reducing exposure to lead and decreasing the patient's Blood Lead Level (BLL), whether symptoms of lead toxicity are present or not. Table 1 and 2 discuss the recommended actions based on the BLL for children and adults. The tables are not intended for use as a complete protocol, but rather as a tool for treating patients. Table 3 has some additional instructions for industrial exposure instituted by OSHA in 1978. Thresholds and time intervals for retesting, medical evaluation, and response vary by state. Contact your State Department of Health for specific guidance on medical management recommendations.

Elevated levels may be due to skin or collection-related contamination, including use of non-certified lead free tubes. Elevated levels of blood lead should be confirmed with a second specimen collected in a lead-free tube.

Table 1: Recommended Actions for Children[1,2]

Blood Lead Level (µg/dL)	Recommended Actions	Follow-up Blood Lead Monitoring
0.0-4.9	• No action required.	None
5.0-14.9	• Provide Lead education (dietary and environmental).	3 months
15.0-19.9	• Provide Lead education (dietary and environmental). • Proceed according to actions for 20.0-44.9 µg/dL if a follow-up BLL is in this range at least 3 months after initial venous test or BLLs increase.	3 months
20.0-44.9	• Provide Lead education (dietary and environmental). • Complete history and physical exam. • Order additional Lab work: Hemoglobin or hematocrit and iron status. • Environmental investigation. • Lead hazard reduction. • Neurodevelop-mental monitoring. • Abdominal X-ray (if particulate lead ingestion is suspected) with bowel decontamination, if indicated.	1 week to 1 month (Higher BLL requires quicker follow-up.)
45.0-59.9	• Provide Lead education (dietary and environmental). • Complete history and physical exam. • Complete neurological exam. • Order additional Lab work: Hemoglobin or hematocrit, iron status, and ZPP (or FEP).	48 hours
60.0-69.9	• Environmental investigation. • Lead hazard reduction. • Neurodevelop-mental monitoring. • Abdominal X-ray (if particulate lead ingestion is suspected) with bowel decontamination, if indicated • Chelation therapy	24 hours
≥70.0	• Hospitalize and commence chelation therapy. • Proceed according to actions for 45.0-69.9 µg/dL	Immediately

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Table II: Recommended Actions for Adults[3]

Blood Lead Level (µg/dL)	Recommended Actions
0.0-4.9	• No action required.
5.0-9.9	• Discuss health risks. • Reduce exposure for pregnancy.
10.0-19.9	• Discuss health risks. • Decrease exposure. • Monitor BLL. • Remove from exposure for pregnancy, certain medical conditions, and long term risks.
20.0-29.9	• Remove from exposure if repeat BLL in 4 weeks remains ≥20.0 µg/dL.
30.0-79.9	• Remove from exposure. • Prompt medical evaluation advised for BLL >40.0 µg/dL. • OSHA requirements may apply. • Chelation not indicated unless BLL >50.0 µg/dL with significant symptoms.
≥80.0	• Urgent medical evaluation and consultation indicated. • OSHA requirements may apply. • Chelation may be indicated if symptomatic and/or BLL ≥100.0 ug/dL.

Table III: Additional Recommendations for Industrial Exposure[4]

Action required for workers with Elevated Lead Values, OSHA, Occupational Exposure to Lead, 1978		
# of Tests	**Blood Lead Level (µg/dL)**	**Action Required**
1	≥ 40.0	Notification of worker in writing; medical examination of worker and consultation.
3 (average)	≥ 50.0	Removal of worker from job with potential lead exposure.
1	≥ 60.0	Removal of worker from job with potential lead exposure.
2	< 40.0	Reinstatement of worker in job with potential lead exposure is based upon symptoms and medical evaluation.

NOTE: OSHA requirements in effect since 1978 call for the measurement of whole blood lead and zinc protoporphyrins (ZPP) to evaluate the occupational exposure to lead.[5]

References:

1. Centers for Disease Control (CDC). *Managing Elevated Blood Lead Levels Among Young Children: Recommendations from the Advisory Committee on Childhood Lead Poisoning Prevention – Chapter 3 Medical Assessment and Interventions*, Last updated on 6/1/2009. Website reviewed on 1/7/20. http://www.cdc.gov/nceh/lead/CaseManagement/caseManage_chap3.htm
2. Centers for Disease Control (CDC). *CDC Response to Advisory Committee on Childhood Lead Poisoning Prevention – Recommendations in "Low Level Lead Exposure Harms Children: A Renewed Call of Primary Prevention*. Last updated on 6/7/2012. Website reviewed on 1/7/20. http://www.cdc.gov/nceh/lead/acclpp/cdc_response_lead_exposure_recs.pdf
3. Kosnett MJ, et al. Recommendations for Medical Management of Adult Lead Exposure. Environmental Health Perspectives, 2007. 115. 463-471.
4. Occupational Safety and Health Act (OSHA). *Medical Surveillance Guidelines, Standard # 1910.1025 App C*. Website reviewed 1/7/20. http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10033
5. Clinical and Laboratory Standards Institute (CLSI). Erythrocyte Protoporphyrin Testing; Approved Guideline, CLSI document C42-A. Clinical and Laboratory Standards Institute, 940 West Valley Road, Suite 1400, Wayne, Pennsylvania 19087-1898 USA, November 1996.