RECOMMENDATIONS FOR THE CARE OF WORKERS and OTHER ADULT EXPOSURES

The medical practitioner has a primary responsibility to protect the health of the patient. When dealing with lead-exposed workers, additional responsibilities may include compliance with regulatory requirements and appropriately interacting with employers, and working with public health personnel. Current OSHA regulatory standards are considered less protective than updated medical recommendations for the care of lead-exposed workers. The tables below reflect the current public health guidance referenced by IDPH ABLES for medically based recommendations. Please contact the Iowa Department of Public Health Adult Blood Lead Epidemiology and Surveillance (ABLES) program for additional information and references: 800-972-2026 or http://idph.iowa.gov/lpp/surveillance. Medical consultation is available through the Iowa Statewide Poison Control Center: 800-222-1222.

MEDICAL TREATMENT CONSIDERATIONS

The primary therapy or treatment for lead poisoning is stopping exposure.
Whenever possible, choose to prevent exposure from happening in the work place through exposure control measures, such as:

- substitution of lead-free materials and work processes;
- use of engineering controls such as local exhaust ventilation and safe work practices;
- good hygiene and decontamination practices to limiting ingestion and the risk of take-home lead; and
- use of personal protective equipment (PPE) such as protective clothing and respirators.

With appropriate engineering controls, safe work practices, and personal protective equipment, workers without a previous history of substantial lead exposure should be able to work with lead in a manner that minimizes the potential for hazardous levels of exposure. However, in a worker with a long history of high exposure, redistribution of lead from a large internal skeletal burden may result in a prolonged elevation of blood lead concentration despite marked reductions in external lead dose. For these individuals, BLLs may correlate with length of exposure and not current air lead levels.

Health-based Medical Surveillance Recommendations for Lead-Exposed Workers (Table 8 from Reference)

Health-Based Medical Surveillance Recommendations for Lead-Exposed Workers

Category of Exposure	Recommendations
All lead-exposed workers*	Baseline or preplacement medical history and physical examination, baseline blood lead level (BLL), serum creatinine.
Blood lead level (BLL)	
< 10 µg/dL	→ BLL every month for first 3 months of placement, or upon change in task to higher exposure, then BLL every 6 months. → If BLL increases > 5 µg/dL, evaluate exposure and protective measures. Increase monitoring if indicated. → See Table 3 for pregnancy concerns.
10 – 19 µg/dL	→ As above for BLL < 10 µg/dL, plus: → BLL every 3 months. → Evaluate exposure, engineering controls, and work practices. → Consider removal (see Table 3). → Revert to BLL every 6 months after 3 BLLs < 10 µg/dL.
> 20 µg/dL	→ Remove from exposure if repeat BLL measured in 4 weeks remains ≥ 20 µg/dL, or if first BLL ≥ 30 µg/dL (see Table 3). → Monthly BLL testing. → Consider return to lead work after 2 BLLs < 15 µg/dL a month apart, then monitor as above.

* Lead-exposed means handling or disturbing materials with a significant lead content in a manner that could reasonably be expected to cause potentially harmful exposure through inhalation or ingestion.

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Information included was excerpted from: Medical Guidelines for the Lead-Exposed Worker: California Department of Public Health, 2009
www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/OLPPP/CDPH%20Document%20Library/medgdln.pdf

Health-based Management Recommendations for Lead-Exposed Adults

(Table 3 from Reference)

Health-based Management Recommendations for Lead-exposed Adults

Blood Lead Level (BLL) µg/dL	Short Term Risks Lead exposure < 1 year	Long Term Risks Lead exposure ≥ 1 year	Management
< 5	None documented	None documented	Indicated
5 – 9	Possible spontaneous abortion Possible postnatal developmental delay	Possible spontaneous abortion Possible postnatal developmental delay Possible hypertension and kidney dysfunction	Discuss health risks Reduce lead exposure for women who are or may become pregnant
10 – 19	Possible spontaneous abortion Possible postnatal developmental delay Reduced birth weight	Possible spontaneous abortion Reduced birth weight Possible postnatal developmental delay Hypertension and kidney dysfunction Possible subclinical neurocognitive deficits	As above for BLL 5-9 µg/dL, plus: Decrease lead exposure Increase biological monitoring Consider removal from lead exposure to avoid long-term risks if exposure control over an extended period does not decrease BLL below 10 µg/dL, or if medical condition present that increases risk with continued exposure*
20 – 29	Possible spontaneous abortion Possible postnatal developmental delay Reduced birth weight	Possible spontaneous abortion Possible postnatal developmental delay Reduced birth weight Hypertension and kidney dysfunction Possible subclinical neurocognitive deficits	Remove from lead exposure if repeat BLL measured in 4 weeks remains ≥ 20 µg/dL
30 – 39	Spontaneous abortion Possible postnatal developmental delay Reduced birth weight	Spontaneous abortion Reduced birth weight Possible postnatal developmental delay Hypertension and kidney dysfunction Possible neurocognitive deficits Possible non-specific symptoms**	Remove from lead exposure
40 – 79	Spontaneous abortion Reduced birth weight Possible postnatal developmental delay Non-specific symptoms** Neurocognitive deficits Sperm abnormalities	Spontaneous abortion Reduced birth weight Possible postnatal developmental delay Non-specific symptoms** Hypertension Kidney dysfunction/nephropathy Subclinical peripheral neuropathy Neurocognitive deficits Sperm abnormalities Anemia Colic Possible gout	Remove from lead exposure Refer for prompt medical evaluation Consider chelation therapy for BLL over 50 µg/dL with significant symptoms or signs of lead toxicity
≥ 80	Spontaneous abortion Reduced birth weight Possible postnatal developmental delay Non-specific symptoms** Neurocognitive deficits Encephalopathy Sperm abnormalities Anemia Colic	Spontaneous abortion Reduced birth weight Possible postnatal developmental delay Non-specific symptoms** Hypertension Nephropathy Peripheral neuropathy Neurocognitive deficits Sperm abnormalities Anemia Colic Gout	Remove from lead exposure Refer for immediate/urgent medical evaluation Probable chelation therapy

* Medical conditions that may increase the risk of continued exposure include chronic renal dysfunction (serum creatinine > 1.5 mg/dL for men, > 1.3 mg/dL for women, or proteinuria), hypertension, neurological disorders, and cognitive dysfunction.

** Headache, fatigue, sleep disturbance, anorexia, constipation, arthralgia, myalgia, decreased libido, etc.

Table 3 reproduced with permission from Environmental Health Perspectives.

Information included was excerpted from: Medical Guidelines for the Lead-Exposed Worker: California Department of Public Health, 2009

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