

#### What is lead?

- Lead is a naturally occurring heavy metal that can be found in all parts of our environment – air, soil, water, food, and some consumer products.
- Children younger than 6
   years old are vulnerable to
   the effects of lead exposure
   because lead can have
   harmful effects on the
   developing brain and body.
- Even small exposures to lead have been associated with learning and attention problems, problems with hearing and speech, delayed growth and development, and behavioral challenges.
- You cannot usually tell if lead is contaminating your environment.

#### How lead enters a child's body

- Lead can get into the body when children breathe in or swallow lead-contaminated dust, dirt, or other items.
- Lead in a pregnant woman's body can cross the placenta and reach the growing fetus.

#### **Health effects of lead exposure**

- Most children with elevated blood lead levels do not have any obvious signs or symptoms and the best way to determine if a child has been exposed to lead is a blood lead level test.
- Some children can experience symptoms such as constipation, abdominal pain, or fatigue.
- Low-level exposure has been associated with developmental and cognitive problems such as decreased IQ, lower academic achievement, and attention-related behaviors as well as other effects like hearing problems and delayed puberty.
- High-level exposure (which is rare in the United States) can cause brain and kidney damage and anemia.

#### If a child has any lead in their blood

- Develop a plan of action with steps to lower blood lead levels.
- Find the source of the lead exposure and eliminate it from the child's environment. Talk with your local public health district or the Idaho Department of Health and Welfare for assistance.
- Ensure the child is eating healthy foods. Food with calcium, iron, and vitamin C can help keep lead from being stored in the body.

## Seven Sources of Lead & How to Minimize Exposure



### **Paint**

## Drinking water

#### Why is this a source?

Homes built before 1978 are more likely to have lead-based paint. Before 1978, lead-based paint was commonly used on the interior and exterior of homes. Overtime, paint can degrade, chip, and peal, creating contaminated paint chips and dust that can build up on floors inside and in soil outside, areas where children commonly crawl, explore, and play. Areas where friction occurs (such as window and door frames) can create more chipping and dust. Some old, antique, or imported toys may have been painted with lead-based paint.

#### How might a child be exposed?

- Chewing on surfaces coated with lead-based paint.
- Ingesting paint chips or dust that has collected on the ground.
- Inhaling lead dust particles while crawling or playing near the ground.
- Chewing or mouthing dirty hands or objects from the floor that have lead dust or dirt on them.

#### What can be done to reduce exposure?

- Keep children away from peeling paint and home repairs that disturb lead-based paint.
- Hire EPA certified professionals when leadbased paint may be disturbed around your home including repairing peeling or chipping lead-based paint or when remodeling.
- Report peeling paint to the landlord. If the landlord does not make repairs, contact the local tenant rights organization.
- Frequently wash hands, toys, pacifiers, bottles, and other items children put in their mouth.
- Clean floors, windowsills, and dusty places often with wet mops and wet cloths.
- Prevent small children from playing with antiques and other toys suspected of containing lead-based paint.

#### Why is this a source?

Homes and buildings built before 1986 are more likely to have lead pipes, fixtures, and solder. Corrosion of old pipes, faucets, and plumbing fixtures can leach lead into drinking water. You cannot see, taste, or smell lead in drinking water.

Public water systems regularly test for lead in drinking water, but private well owners are responsible for testing their water for lead and other contaminants annually.

#### How might a child be exposed?

- Drinking lead-contaminated water.
- Drinking formula mixed with leadcontaminated water.

#### What can be done to reduce exposure?

- Run the tap for at least 2 minutes after water has been sitting in the pipes for more than 6 hours. This will help flush out any lead that might have accumulated in your pipes.
- Test drinking water or flush pipes by running your tap until the water is noticeably cooler if there are concerns about the presence of lead.
- Use only cold water for drinking, cooking, and making baby formula. Hot water can contain higher levels of lead. Boiling water will increase the amount of lead in the water.
- Clean the screens and aerators in faucets frequently to remove captured lead particles.
- Use only "lead free" piping and materials for plumbing when repairing, building, or remodeling.
- If possible, install a water filter. Check whether it reduces lead — not all filters do.
   Be sure to maintain and replace filter devices in accordance with the manufacturer's instructions. Contact NSF for a list of point-ofuse filtration devices that effectively remove lead.

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#### Why is this a source?

Lead can sometimes be found in certain foods and food additives (e.g., candy, spices), cosmetics (e.g., Kohl eyeliner, Sindoor powder), and traditional medicines (e.g., Azarcon, Ba-baw-san) imported from other countries. It is impossible to know if products contain lead by looking at, smelling, or tasting them.

#### How might a child be exposed?

Ingesting lead-contaminated foods, medicines, or remedies.

#### What can be done to reduce exposure?

- Avoid eating imported foods and food additives found to contain lead.
- Avoid using imported cosmetics and traditional medicines found to contain lead.
- Talk with a healthcare provider about health concerns and about medications safe for children.
- Contact Idaho Department of Health and Welfare for more helpful resources.

#### Why is this a source?

Lead from various sources (leaded gasoline, leadbased paint on housing exteriors, and industrial sources) can settle in the soil and remain for many years. This is more common in urban areas and near homes built before 1978.

#### How might a child be exposed?

- Mouthing, swallowing, or breathing in soil while playing in contaminated areas.
- Eating contaminated soil (pica).
- Tracking lead-contaminated soil into the home on shoes, clothing, or pets.

#### What can be done to reduce exposure?

- Prevent children from playing in bare soil.
- Plant grass on areas of bare soil or cover with mulch or wood chips.
- Don't grow fruits or vegetables in leadcontaminated soil.
- Take off shoes when entering the house to prevent tracking lead-contaminated soil inside.

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## **Consumer products**

#### Why is this a source?

Lead can be found in some old or antique and imported consumer products, such as toys and jewelry.

#### How might a child be exposed?

Mouthing or swallowing lead-contaminated products.

#### What can be done to reduce exposure?

- Check the Consumer Products Safety
   Commission website (CPSC) or call 1-800 638-2772 to stay up to date on product
   recalls or check if certain products your child
   is exposed to have been recalled.
- Prevent small children from playing with imported products suspected of containing lead-based paint.

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## **Occupations and hobbies**

#### Why is this a source?

Adults can be exposed to lead through their jobs or hobbies and track lead home on their clothes and shoes, leaving lead dust and dirt on household surfaces where children crawl, touch, and explore.

#### How might a child be exposed?

Chewing or mouthing dirty hands or objects from the floor that have lead dust or dirt on them.

#### What can be done to reduce exposure?

- Remove shoes before entering the home.
- Change clothes and wash hands before interacting with children.
- Wash work clothes in separate loads.
- Maintain a dedicated area, away from children, for hobbies that may involve exposure to lead.

## **Mouthing or Pica**

Why is this a source?	How might a child be exposed?	What can be done to reduce exposure?
Pica is a disorder where a person craves, mouths, chews, or ingests non-food items. If these items contain lead, blood lead levels can be elevated.	Mouthing, chewing, or ingesting non-food items contaminated with lead.	Talk to your child's healthcare provider if you have concerns about pica disorder.

### **Blood lead level testing in Children**

- Since most children with elevated blood lead levels do not have symptoms, a blood test is the easiest way to tell if your child has lead poisoning.
- Blood lead tests are often collected with a simple finger or heel poke.
- All children covered by Medicaid insurance are required to have a blood lead test at 12 and 24 months of age or between 24 months and 21 years of age if they have not been previously tested. Parents are encouraged to ask for a blood lead test during well child visits.
- Children covered by private health insurance should have a blood lead test at 12 and 24 months of age or if they have risk factors for exposure.
- If you have identified possible lead exposures or hazards in your child's environment by completing the Idaho Lead Risk Assessment Questionnaire or if you have concerns about lead exposure, speak to your child's healthcare provider about blood lead testing today! Scan the QR code below for more information.

Contact the Idaho Department of Health and Welfare for additional information on sources of lead and how to test them.



#### For additional information contact:

Idaho Department of Health and Welfare Environmental Health Program Childhood Lead Poisoning Prevention Program

email: eh@dhw.idaho.gov phone: 800-455-8647









Children exposed to lead are vulnerable to long-term health and developmental effects, including intellectual and behavioral deficits. Conducting lead risk assessments and blood lead testing is vital to identify lead-exposed children and connect them to medical, environmental, and social services to improve health outcomes in Idaho.

#### **Call to action**

- Perform required blood lead tests for children covered by Medicaid insurance at 12 and 24 months or between 24 months and 21 years of age if they have not been previously tested.
- Perform a blood lead test at 12 and 24 months for children not eligible for Medicaid insurance.
- Conduct a lead risk assessment using the questionnaire below during all well child visits from 6 months through 6 years of age. A positive assessment can identify the risk of lead exposures within a child's environment so that blood lead testing, environmental exposures assessment, and source identification and removal can occur.
- Lead poisoning is a reportable condition for medical providers under the Idaho Reportable Disease (Idaho Administrative Procedures Act (IDAPA) 16.02.10).

#### **Key points**

- Lead exposure continues to be a significant public health concern impacting U.S. children.
- There is no safe level of lead in the body.
- Children and pregnant people are more vulnerable to lead exposure.
- The goal is to remove lead sources before exposure occurs (primary prevention).
- Lead exposure should be viewed as a lifelong exposure, even after the blood lead level (BLL) declines.

## Risk assessment vs. Blood lead testing

#### Risk assessment

The use of specific questions to assess risk factors for lead exposure and to identify children who should have a blood lead test. The Risk Assessment can also be used as a tool to determine lead hazards in environments where a child may spend time and provide an opportunity for medical providers to share education on removing the source prior to the exposure. The Risk Assessment should take place during all well child visits from 6 months through 6 years of age.

#### **Blood lead testing**

A blood lead test is the best way to determine if a child has been exposed to lead.
A blood lead test can be a capillary test or venous blood draw.

## **Confirmatory testing table**

Initial Blood Lead Test Result (µg/dL)	Obtain a Confirmatory Venous Test Within
< 3.5	If child was < 12 months old when tested, recheck in 3-6 months as BLL may increase with mobility.
≥ 3.5 - < 10	3 months
10 - < 20	1 month
20 - < 45	2 weeks
≥ 45	48 hours

If the initial test used a venous sample, the patient does not need another venous draw to confirm.

#### **Reporting requirements**

Each case of lead poisoning must be reported to the Department of Health and Welfare or the public health district within three (3) working days of the identification of the case when determined by symptoms or a blood level of five (5) micrograms of more per deciliter (5  $\mu$ g/dL) of blood in children under eighteen (18) years of age.

## Follow-up testing table

Confirmatory Venous Blood Lead Test Result (µg/dL)	Early follow up testing (2-4 tests after identification)	Later follow up testing after BLL declining
≥ 3.5 - < 10	3 months	6 - 9 months
10 - < 20	1 - 3 months	3 - 6 months
< 45	2 weeks - 4 weeks	1 - 3 months
≥ 45	ASAP	ASAP

Whenever possible, follow-up blood lead test samples should be venous.

# Clinical treatment guidelines based on confirmed venous elevated blood lead level (EBLL)

MEDICAL MANAGEMENT		
< 3.5 μg/dL	<ul> <li>Perform routine health maintenance.</li> <li>Conduct future lead screening and testing at recommended intervals.</li> <li>Share resources with families on how to prevent lead exposure.</li> </ul>	
≥ 3.5-19 µg/dL Follow recommendations for BLL < 3.5 µg/dL AND:	<ul> <li>Perform follow-up venous blood lead testing at recommended intervals.</li> <li>Work with local public health districts to complete an environmental exposure history to identify source(s) of exposure, and to arrange for an environmental investigation of the home to identify potential sources of lead (if resources are available).</li> <li>Ensure iron sufficiency with lab testing (CBC, ferritin, reticulocyte count). Consider starting a multivitamin with iron or iron supplementation as indicated.</li> <li>Provide nutritional counseling with a focus on iron, calcium, and vitamin C intake. Refer to appropriate support services (e.g., WIC).</li> <li>Perform structured developmental screenings at well child visits. If indicated, refer to therapeutic and special education programs (e.g., early intervention).</li> <li>Include lead exposure or elevated lead level in problem list in the child's medical record.</li> </ul>	

#### **MEDICAL MANAGEMENT** Contact the Northwest Pediatric Environmental Health Specialty Unit (NW) PEHSU) (206-221-8671, pehsu@uw.edu) or Poison Control Center (1-800-222-1222) for guidance. Any treatment for BLL in this range should be conducted in consultation with $< 45 \mu g/dL$ an expert. **Follow** recommendations Perform a complete history and physical exam. Determine if child is for BLL ≥ 3.5-19 symptomatic. Symptoms may be subtle and can include anorexia and µg/dL AND: abdominal discomfort. Consider obtaining abdominal x-ray based on environmental history and investigation. Gastrointestinal decontamination may be considered if radiopaque foreign bodies consistent with ingested lead are visualized on x-ray. Contact the Poison Control Center (1-800-222-1222) for immediate assistance. Any treatment for BLL in this range should be conducted in consultation with Perform a complete history and physical exam, including a detailed neurological exam. ≥ 45 µg/dL Hospitalize symptomatic children. If significant CNS pathology, consider PICU **EMERGENCY** admission. Consider hospitalization of asymptomatic children, particularly if child's home is not lead-safe or if the source of exposure hasn't been identified and further exposure is possible. If BLL is ≥ 65 µg/dL hospitalize even if asymptomatic. Obtain venous blood lead test, CBC, electrolytes, BUN, Cr, LFTs, and urinalysis in anticipation of chelation therapy. Obtain abdominal x-ray to look for



Northwest

#### For additional information contact:

Idaho Department of Health and Welfare **Environmental Health Program** Childhood Lead Poisoning Prevention Program

email: eh@dhw.idaho.gov phone: 800-455-8647

radiopaque foreign bodies.

Website: healthandwelfare.idaho.gov/lead-poisoning







POISONING



# and Refugees

**Recommendations for Refugee and Other Newcomer** Children, Pregnant and Lactating Women Resettled in the United States

TESTING TABLE		
When	Who	
Obtain initial blood lead test result within 90 days of arrival	<ul> <li>All infants and children ≤ 16 years of age</li> <li>Adolescents &gt; 16 years of age if high index of suspicion or clinical signs or symptoms of lead exposure are present</li> <li>All pregnant and lactating women*</li> </ul>	
Obtain follow-up blood lead test result within 3-6 months after initial test	<ul> <li>All infants and children ≤ 6 years of age regardless of initial BLL result</li> <li>Children and adolescents &gt; 7 years of age with initial BLL result ≥ 3.5 µg/dL**</li> <li>Children and adolescents &gt; 7 years of age with a risk factor (i.e., sibling with EBLL, environmental exposure risk factors) regardless of initial BLL result</li> <li>Pregnant and lactating women with initial BLL ≥ 3.5 µg/dL**</li> </ul>	

All newly arrived pregnant and lactating women should be prescribed a prenatal or multivitamin with adequate iron and calcium. Referral to a healthcare provider with expertise in high-risk lead exposure treatment and management might be indicated for elevated BLLs.

Obtain confirmatory and follow-up venous testing sooner than 3-6 months if BLLs are significantly elevated. See confirmatory and follow-up testing schedule for details.

#### **Key Points**

- Immigrant and refugee children from developing countries are at higher risk of being exposed to lead because of less strict rules protecting children from lead, in their country of origin.
- Consider exposures that might have previously occurred in the child's country of origin and exposures that could be ongoing.
- Consider malnutrition and nutritional deficiencies (iron, calcium, vitamins C & D) that can cause increased lead absorption.
- For refugees, the initial blood lead test should be performed as part of the comprehensive U.S. Domestic Medical Examination within 90 days of arrival. If the blood lead level (BLL) is elevated. providers should follow the confirmatory and follow-up testing schedule.

## Recommendations for Refugee and Other Newcomer Children, **Pregnant and Lactating Women Resettled in the United States**

- To learn more about potential sources of lead exposure in refugee and other newcomer children, pregnant and lactating women, check out these resources:
- Lead Immigrant, Refugee, and Migrant Health (CDC): https://www.cdc.gov/immigrantrefugee-health/hcp/domestic-guidance/lead.html?CDC AAref Val=https://www.cdc.gov/ immigrantrefugeehealth/guidelines/lead-guidelines.html
- Refugees Childhood Lead Poisoning Prevention (CDC): Risk Factors and Refugees and Immigrants | Childhood Lead Poisoning Prevention | CDC
- Traditional Sources of Lead Exposures in Immigrant Populations for Clinicians (NW PEHSU): https://deohs.washington.edu/pehsu/sites/deohs.washington.edu.pehsu/files/May%202019/ immigrant%20lead%20exposures%20CLINICIANS.pdf
- Traditional Sources of Lead Exposures in Immigrant Populations for Community Members (NW PEHSU): https://pehsu.deohs.washington.edu/sites/pehsu/files/May%202019/immigrant%20 lead%20exposures%20C0MMUNITY%20MEMBERS.pdf



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#### Using LeadCare® II Analyzers

#### **Supplies Needed for Testing**

\*Ensure all products are lead free

- LeadCare® II Test Kit
- Sterile lancet
- Gauze pads
- · Bio-hazard container
- Disposable gloves
- Band-aids
- Absorbent cover for supplies to be placed on
- Soap and water (to clean collection site)

#### **Calibrating**

Calibrate your analyzer to the lot number in use per manufacturer instructions.

#### Calibrate with key and button

- The first time you use the analyzer
- Each time you use a new test kit
- When the analyzer displays a recalibration message

#### **Collecting Capillary Specimens for Lead**

#### Personal, Patient, and Area Prep

- Designate a clean work area dedicated to blood lead testing.
- 2. Handwashing is required for both the patient and person administering the test. Alcohol swabs do not remove lead.
- 3. If a sink is not available, a soap and water solution dispensed from a goose-neck squirt bottle may be used to thoroughly rinse designated finger.
- 4. Once hands are washed, put on disposable gloves before collecting a sample.
- 5. If collecting samples for multiple tests, always collect the lead test sample first.

#### **Testing**

- 1. Scrub area to be punctured with soap and water. If water is not available, thoroughly rinse designated finger with soap and water solution dispensed from a goose-neck squirt bottle. (Note: Alcohol swabs do not remove lead.)
- 2. Clean area to be punctured with the alcohol pad.
- 3. Using a lancet, puncture the finger pad to the side of the center.
- 4. Allow the first drop of blood to fall onto the gauze pad. Avoid wiping the blood away to avoid contamination.

Continue on next page.

#### **Testing Continued**

- 5. Hold the heparinized capillary tube almost horizontally, with the green band on top, and fill to the 50  $\mu$ L black line. Filling stops when the blood reaches the black line. Be sure to avoid touching the skin with the tube when collecting the sample.
- 6. Remove the excess blood from the outside of the tube with a clean gauze pad. Use a downward motion to wipe excess blood from the capillary tube.
- 7. Dispense blood sample into treatment reagent vial. Invert the treatment reagent/blood mixture 8-10 times to mix the blood.
- 8. Insert a sensor into the LeadCare® II Analyzer until it beeps. Use transfer dropper to deposit sample onto the "X". The test will automatically begin. After 3 minutes, the analyzer will beep again to indicate the test is done. Record the result on the display window.
- 9. "Low" in the display window indicates a result less than 3.3 µg/dL.
- 10. Each case of lead poisoning must be reported to the Idaho Department of Health and Welfare or the local public health district within 3 days of identification of the case when determined by symptoms or a blood lead of five micrograms or more per deciliter (5.0 µg/dL) of blood in children under eighteen (18) years of age.

#### **Disposal**

Refer to your local regulations and facilities guidelines for proper waste disposal.

#### **Confirm with Venous Test**

Refer to the <u>Idaho Lead Risk Assessment and Blood Lead Testing Recommendations</u> for confirmatory and follow-up blood lead testing tables for children identified with lead in their blood.



#### **Troubleshooting for LeadCare® II Analyzers**

#### Common issues, retesting, and information on venous confirmations

Child less than 1 year old	Do a heel puncture. If difficulty arises with obtaining a specimen from the heel, use the large toe.
Unexpected results	<ul> <li>Please refer to the Troubleshooting section of your LeadCare® II User's Guide.</li> <li>Ensure quality controls have been run and the analyzer has been calibrated to the lead test kit lot number in use.</li> <li>Elevated results may result from sample contaminated with lead from skin's surface. Proper handwashing with soap and water is critical first step during the collection procedure.</li> <li>Result of 45 mcg/dL or greater (including HIGH result on analyzer).</li> <li>Wash hands again with soap and water.</li> <li>Re-test with a new, second specimen.</li> <li>Specimen may have had clotted blood.</li> <li>The analyzer has been transported and has not warmed up to room temperature.</li> <li>Mix blood with treatment reagent immediately, and run test within 48 hours, or refrigerate for up to 7 days.</li> </ul>
Any result equal to or exceeding 3.5 mcg/dL or uncertainty in validity of the test	<ul> <li>Notify the ordering provider of the results.</li> <li>Refer patient for confirmatory venous testing. All elevated capillary blood lead levels must be confirmed with a venous blood lead level.</li> </ul>
If receiving a continuous error message	Contact LeadCare® II Analyzer Product Support at 1-800-275-0102.
Things to Remember	<ul> <li>Run controls according to manufacturer instructions.</li> <li>The accuracy of the test depends on handwashing prior to sample collection and filling the capillary tube properly.</li> </ul>



#### For additional information contact:

Idaho Department of Health and Welfare **Environmental Health Program** Childhood Lead Poisoning Prevention Program











## **Screening**

#### **Key points**

- There is no safe blood lead level (BLL).
- Lead crosses the placenta and can be transferred via breast milk.
- Prenatal lead exposure can have negative maternal and child health impacts.
- Risk assessment of lead exposure should take place at earliest contact with pregnant and lactating women. If any risk factors are identified, a blood lead test should be performed.
- Patients with risk factors for lead exposure who have not been tested during pregnancy should be tested postpartum if planning to breastfeed.

## Adverse health effects of lead exposure during pregnancy

- Adverse neurodevelopmental outcomes for fetus.
- Increased risk of growth restriction for fetus.

- Increased risk for hypertensive disorders of pregnancy, including preeclampsia.
- Possible association between elevated BLL and spontaneous abortion or preterm delivery.

## Risk factors for lead exposure in pregnant and lactating women

- Newly arrived in the United States (e.g., refugee, immigrant, migrant).
- Living in an older home (pre-1978) where renovations or remodeling haven occurred within in the past 12 months.
- Consuming drinking water contaminated with lead.
- History of previous lead exposure.
- Living with someone with an elevated BLL.
- Living near a potential lead source (e.g., lead mine, smelter).
- Working with lead or living with someone who does (e.g., construction, renovation, mining).

## Risk factors for lead exposure in pregnant and lactating women, continued

- Engaging in certain high-risk hobbies or recreational activities (e.g., using leaded bullets or leaded fishing weights).
- Displaying pica behavior (eating or mouthing nonfood substances).
- Using alternative or complementary substances, herbs, or therapies that might contain lead.
- Using consumer products that might contain lead.

# Consider performing a blood lead test if person answers "yes" or "don't know" to any of the following questions:

- Do you have a history of lead exposure or currently live with someone who has an elevated blood lead level?
- Have you recently immigrated from or spent a significant amount of time in an area or country where lead contamination is high (e.g., country where lead emissions are not well controlled or where leaded gasoline was more recently phased out)?
- Do you currently live near a point source of lead (i.e., lead mine, smelter, battery recycling plant)?

- Do you live in a residence that was built before 1978? If so, in the last 12 months, has there been any renovation or repair work in your home or apartment building?
- Has your home drinking water been tested for lead, and if so, were you told that the level was high?
- During the past 12 months, did you use any imported health remedies (such as traditional folk remedies), spices, foods, ceramics, or cosmetics?
- During your pregnancy did you ever eat, chew on, or mouth nonfood items such as clay, soil, plaster, or paint chips – even accidentally?
- Have you ever had a job or hobby that involved possible lead exposure, such as home renovation or working with glass, ceramics, or jewelry?
- Do you or others in your household have an occupation or hobby that involves lead exposure (e.g., working in a mine, renovation or repair, or use leaded bullets)?



# Medical Management of Lead Exposure During Pregnancy

BLL	Recommended Actions
< 5 μg/dL	<ul> <li>Provide anticipatory guidance on how to prevent lead exposure during pregnancy.</li> <li>No follow-up testing is indicated.</li> </ul>
≥ <b>5-14</b> µg/dL	<ul> <li>ALL OF THE ABOVE, PLUS:</li> <li>Repeat venous BLL test within 1 month.</li> <li>Obtain a maternal BLL and/or cord BLL at delivery.</li> <li>Report results within 3 working days if BLL is &gt; 10 μg/dL (if &lt; 18 years of age, report if BLL is &gt; 5 μg/dL).</li> <li>Identify and eliminate exposure and consider consulting an Environmental or Occupational Health Specialist.</li> <li>Optimize nutrition, balanced diet, prenatal vitamins.</li> <li>The American College of Obstetricians and Gynecologists (ACOG) recommends adequate dietary intake calcium, iron, zinc, and Vitamins C, D, and E.</li> <li>If BLL ≥ 5 μg/dL, prescribe dietary intake of Ca+ 2000 mg/day.</li> <li>Evaluate iron status and treat anemia accordingly.</li> <li>Refer to nutrition assistance programs (i.e., SNAP) for those in need.</li> <li>Inform neonate's physician of mother's lead exposure and BLL.</li> </ul>
< 45 μg/dL	<ul> <li>ALL OF THE ABOVE, PLUS:</li> <li>Repeat venous BLL test within 1-4 weeks and then every 2 - 3 months if BLL is &lt; 25 μg/dL, or every 1 month if BLL is 25 - 44 μg/dL.</li> <li>Obtain a maternal BLL and cord BLL at delivery.</li> <li>Encourage an environmental risk assessment by the local public health district to determine potential lead exposures.</li> <li>Encourage case management by the medical provider.</li> </ul>
≥ 45 µg/dL	<ul> <li>ALL OF THE ABOVE, PLUS:</li> <li>Repeat BLL test within 24 hours and at frequent intervals depending on clinical interventions and trend in BLLs.</li> <li>Consult a clinician experienced in lead poisoning and chelation (chelation also warranted in cases of life-threatening lead encephalopathy).</li> <li>Refer to a maternal-fetal medicine specialist.</li> </ul>

## Medical Management of Lead Exposure & Breastfeeding

BLL at time of birth (mother's serum or cord blood) or last BLL measured during pregnancy	Maternal Blood Lead Follow-up Testing During Lactation to Assess Risk for Infant Lead Exposure
<b>5.0</b> /#	Repeat BLL test every 3 months, per guidelines for adult blood lead testing, unless infant BLL is rising or failing to decline.
5 - 9 μg/dL	Initiate breastfeeding and perform sequential testing of infant BLL testing to monitor trends.
20 - 39 μg/dL	Repeat BLL test 2 weeks postpartum and at 1- to 3-month intervals depending upon direction and magnitude of trend in infant BLL.
	Initiate breastfeeding and perform sequential testing of infant BLL testing to monitor trends.
	<ul> <li>If infant BLL is ≥ 5 µg/dL and breastmilk is the suspected source (infant BLL fails to decline and no other sources of potential lead exposure are identified), consider interrupting breastfeeding until maternal BLL is &lt; 20 µg/dL.</li> </ul>
	Repeat BLL test within 24 hours postpartum and at frequent intervals, depending on clinical interventions and trend in BLL.
≥ 40 µg/dL	Consultation with a clinician experienced in management of lead poisoning is advised.
	<ul> <li>Discontinue breastfeeding and pump and discard breast milk until BLL is &lt; 40 µg/dL.</li> </ul>

Consulting an expert prior to recommending the postponement or interruption of breastfeeding based on BLL is strongly encouraged.

## **Anticipatory Guidance**

- Never eat or mouth nonfood items (pica), such as clay, soil, pottery, or paint chips, because they can be contaminated with lead.
- Avoid jobs or hobbies involving lead exposure and take precautions to avoid take-home lead dust
  if a household member works with lead. Such work includes construction or home renovation and
  repair in pre-1978 homes, and lead battery manufacturing or recycling.
- Avoid using imported lead-glazed ceramic pottery produced in cottage industries and pewter or brass containers or utensils to cook, serve, or store food.
- Avoid using leaded crystal to serve or store beverages.

## **Anticipatory Guidance, continued**

- Do not use chipped or cracked dishes.
- Stay away from repair, repainting, renovation, and remodeling work in homes built before 1978 to avoid possible exposure to lead-contaminated dust from lead-based paint. Avoid exposure to deteriorated lead-based paint in older homes.
- Avoid alternative cosmetics, food additives, and medicines imported internationally that can contain lead, such as azarcon, kohl, kajal, surma, and many others.
- Use caution when consuming candies, spices, and other foods brought into the country by travelers from abroad, especially if they appear to be noncommercial products of unknown safety.
- Eat a balanced diet with adequate intake of iron and calcium and avoid the use of tobacco products and alcohol.



#### For additional information contact:

Idaho Department of Health and Welfare Environmental Health Program Childhood Lead Poisoning Prevention Program email: eh@dhw.idaho.gov

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