

## Lead Screening Protocols for Children

The goal of lead screening is to identify children who have been exposed to lead, provide appropriate interventions and reduce the risk of exposure. If an elevated blood lead level (EBLL) is detected, the nature of care and the frequency of follow-up testing vary with the patient's age and the blood lead level (BLL). Whatever the age, people with EBLLs (or their parents) should be educated about what lead poisoning is and what they can do about it. The single most important factor in managing childhood lead poisoning is identifying and reducing the child's exposure to lead. For more guidance on caring for children with elevated levels see the document, "Medical Evaluation and Recommendations for Children With EBLLs."

### Anticipatory Guidance

Anticipatory guidance regarding lead hazard identification and risk reduction measures should be a routine part of an ongoing educational approach for pregnant women, children and their families. Health Care Providers should provide source identification and risk reduction educational materials.

Lead exposure during pregnancy is especially problematic as lead can cross the placenta and interfere with normal development of the fetal brain. Pregnant women can be exposed to lead through a variety of sources. Anticipatory guidance should focus on decreasing the risk of exposure to lead by advising against activities such as remodeling or repainting the baby's room or restoring old furniture.

### Testing Methods

Blood lead testing is the only acceptable laboratory test for screening and confirming lead poisoning. Venipuncture is preferred for specimen collection, but capillary testing is acceptable if care is taken to properly clean and prepare the finger. Capillary samples are easier to contaminate because of the possibility of lead containing dust and dirt on the hand or under the fingernails. All capillary BLLs of 10 µg/dL or higher must be followed with a confirmatory venous test. The higher the capillary screening BLL, the more urgent the need for a venous confirmatory test. The schedule for confirmatory testing of a child with an EBLL is in table 3.

Several tests have been found to be insensitive and/or imprecise as **screening** tests for lead, and are not recommended. These include: erythrocyte protoporphyrin (EP), zinc protoporphyrin (ZPP) basophilic stippling, urine testing, and assays of hair or fingernail lead levels.

### Screening Protocols

All children should be assessed for risk of lead poisoning by administration of the Oregon Lead Risk Assessment Questionnaire (see below). This questionnaire should be administered at 1 and 2 years of age and between 3 and 5 years of age if not previously screened. If the answer to any of the following question is "Yes" or "Don't know" a blood lead test should be performed. Follow-up questions may be needed to clarify responses. This questionnaire is available in different formats and languages.

1. Does your child live in or regularly visit a home, child care or other building built before 1950?

2. During the past 6 months has your child lived in or regularly visited a home, child care or other building built before 1980 with recent or ongoing painting, repair, remodeling or damage?
3. Does your child have a brother, sister, other relative, housemate or playmate with lead poisoning?
4. Does your child spend time with an adult that has a job or hobby where they may work with lead (such as painting, remodeling, auto radiators, batteries, auto repair, soldering, making sinkers, bullets, stained glass, pottery, going to shooting ranges, hunting or fishing)?
5. Do you have pottery or ceramics made in other countries or lead crystal or pewter that are used for cooking, storing or serving food or drink?
6. Has your child ever used any traditional, imported or home remedies or cosmetics such as Azarcon, Alarcon, Greta, Rueda, Pay-loo-ah, or Kohl?
7. Has your child been adopted from, lived in or visited a foreign country in the last 6 months?
8. Do you have concerns about your child's development?

## Diagnostic Blood Lead Testing

Blood lead testing should also be considered as part of a diagnostic work-up of any child regardless of age with the following symptoms:

- **Behavioral problems:** aggression, hyperactivity, attention deficit, school problems, learning disabilities, excessive mouthing or pica behavior and other behavior disorders.
- **Developmental problems:** growth, speech and language delays and/or hearing loss.
- **Symptoms or signs consistent with lead poisoning:** irritability, headaches, vomiting, seizures or other neurological symptoms, anemia, loss of appetite, abdominal pain and cramping or constipation.
- **Ingestion of foreign body.**

## Confirmatory Testing Schedule

Any capillary screening BLL above 10 µg /dL must be confirmed with a venous sample. The higher the BLL on the capillary test, the more urgent the need for confirmatory testing.

If result of capillary test (µg/dL) is:	Perform confirmatory test on venous blood within:
5-9	Children under 12 months: Confirmation within 3 months recommended. Children over 12 months: Confirmatory testing optional, parents should discuss with provider. If recent known exposure: confirm as soon as possible.
10-14	3 months
15-19	1 month
20-44	1 week-1 month
45-59	48 hours
60-69	24 hours
≥ 70	Immediately as an emergency lab test

**Exception to confirmatory testing schedule:** If a child with an elevated capillary screening test result is less than **12 months old**, or if there is reason to believe that a child's BLL may be increasing rapidly (e.g. foreign body ingestion of leaded object) consider performing the confirmatory test sooner than indicated in the accompanying schedule.