

Guidelines for Health Care Providers for the Prevention, Identification, and Management of Lead Exposure in Children

NYS Public Health Law and Regulations Require Health Care Providers to:

- Test all children at age 1 year and again at age 2 with a blood lead test.
- Assess all children ages 6 months to 6 years at every well child visit for risk of lead exposure and obtain a blood lead test if there is a positive response to ANY of the questions below in *Clinical Lead Risk Assessment Questions for All Children Less than 6 Years*.
- Report point-of-care blood lead test results to the New York State Department of Health in accordance with guidance: www.health.ny.gov/environmental/lead/laboratories.htm.
- Provide parent or guardian of the child the result of the blood lead test. *What Your Child's Blood Lead Test Means*: www.health.ny.gov/publications/2526.pdf provides helpful information to provide with the test results.
- Provide anticipatory guidance to all parents or guardians of children as part of routine care, which may include the *Lead Poisoning is a Danger for Every Baby and Child*: www.health.ny.gov/publications/2594.pdf.

Additional Testing Recommendations:

- For capillary blood samples, ensure the child's hands are washed thoroughly with soap and water. Dry with a clean, low-lint/dust-proof towel or air dry. Once washed, the clean finger must not be allowed to touch any surface, including the child's other fingers. Any amount of lead present on the finger will contaminate the sample. An alcohol swab is not sufficient for removing contamination from the finger.
- Test all children born outside of the U.S. up to age 16 years old, particularly refugee and internationally adopted children, upon arrival in the U.S. and again 3-6 months after they obtain permanent residences.
- Test children of any age if lead exposure is suspected. All children found to have elevated blood lead levels regardless of age require follow-up services (see *Management of Children According to Blood Lead Level* p 2).
- Ask the parent or guardian whether they plan to enroll, or if the child is already enrolled, in Medicaid, WIC, preschool/day care, an Early Intervention Program, Head Start, or kindergarten. These programs require blood lead testing documentation, which should be provided.

Clinical Lead Risk Assessment Questions for All Children Less than 6 Years:

These questions correspond with *Does Your Child Need A Lead Test?*, which should be used with parents/guardians at child visits between six months and six years of age. See www.health.ny.gov/publications/6670.pdf.

1. Does your child live in or regularly visit a building with potential lead exposure, such as peeling or chipping paint; recent or ongoing renovation or remodeling; or high levels of lead in the drinking water? Older dwellings (built before 1978) may have lead-based paint. Consider day care, preschool, school, and homes of babysitters or relatives. Children with Medicaid, those entering foster care, and recently arrived refugees are at higher risk for lead poisoning. The risk to a child from past exposure to elevated lead in drinking water depends on many factors including a child's age, weight, amount of water consumed, and the amount of lead in the water.

2. Has your child spent any significant time outside the U.S. in the past year? All children born outside the U.S. and children visiting other countries for extended periods of time should be tested upon arrival or return to the U.S. due to higher lead risk in many countries.

3. Does your child currently have a sibling, housemate, or playmate with an elevated blood lead level and your child has not been tested?

4. Does your child have developmental disabilities and/or exhibit behaviors that puts him/her at higher risk for lead exposure?

Young children and children with developmental disabilities (autism spectrum disorder and Down syndrome) may have behaviors that place them at higher risk for lead exposure. These may include: pica; putting nonfood items (e.g., fingers, toys, jewelry, keys, or soil) in their mouth; mouthing painted surfaces; any behaviors that disturb painted surfaces.

5. Does your child have frequent contact with an adult whose job or hobby involves exposure to lead? An adult may bring home lead from a job or hobby, such as house painting; plumbing; construction; auto repair; welding; battery recycling; lead smelting; jewelry, stained glass or pottery making; fishing (lead in sinkers); making or shooting firearms; and collecting lead or pewter figurines.

6. Does your family use traditional medicine, health remedies, cosmetics, powders, spices, or food from other countries? Lead can be in items such as Ayurvedic medicines, alcohol, azarcon (Alarcon, luiga, rueda, coral), greta, litargirio, ghasard, pay-loo-ah, bala goli, Daw Tway, and Daw Kyin; cosmetics including kohl, surma, and sindoor; and some candies and products from other countries, particularly Mexico. See www.health.ny.gov/publications/6517.pdf.

7. Does your family cook, store, or serve food in crystal, pewter, or pottery from other countries? Lead exposure risk from pottery is higher with old, cracked/chipped, and painted china and in pottery from other countries particularly from Latin America or Asia. Also, imported samovars, urns, and kettles could be soldered with lead. See www.health.ny.gov/publications/6517.pdf.

Management of Children According to Blood Lead Level (BLL)

Note: On May 17th, 2017 the U.S. Food and Drug Administration advised that Magellan Diagnostics' LeadCare® analyzers should no longer be used with venous blood samples. <https://emergency.cdc.gov/han/han00403.asp>

- All confirmatory and follow-up venous samples must be analyzed by a New York State approved lab for toxicology-blood lead-comprehensive testing.¹
- The higher the blood lead level, the more urgent the need for confirmatory venous testing and timely follow-up testing.
- If repeated attempts to obtain a venous confirmatory sample are unsuccessful, a second capillary sample may be used to guide follow up actions to avoid significant delays in management. However, as capillary samples can yield frequent false positives, a venous confirmatory sample should still be pursued.

BLL (µg/dL)	Confirmation of Capillary Sample with a Venous Sample	Follow-Up Venous Testing Schedule AFTER Confirmed Venous BLL (≥5 µg/dL)	Management ² <p>Bolded text indicates NYS Public Health Law and regulation requirement. Unbolded text is based on Centers for Disease Control and Prevention (CDC) and other guidance.</p>
<5	No confirmation needed. Average BLL for U.S. children ages 1-5 years is 1.4 µg/dL ³	Not applicable. Refer to Management column.	<ul style="list-style-type: none"> • Test all children at age 1 year and again at age 2 years, regardless of initial result. • If child <6 years, perform a Lead Exposure Risk Assessment (see p. 1) at every well child visit, and test again if lead risk is found. • Provide anticipatory guidance⁴ to parent or guardian regarding major sources of lead exposure and ways to prevent exposure.
5 to <15	Venous test as soon as possible but no later than 3 months.	Every 1-3 months until BLLs are confirmed to be <5 µg/dL based on two tests at least 3 months apart, then proceed as above for <5 µg/dL.	<p>AFTER CONFIRMED VENOUS TEST, all activities above AND:</p> <ul style="list-style-type: none"> • Perform a Clinical Lead Exposure Assessment (see p. 3).⁵ • Provide lead exposure risk reduction education.⁴ • Consider the child at risk for developmental delays and behavior concerns and provide ongoing developmental surveillance with prompt referrals for developmental services if needed. • Test all children who spend time in the home and refer pregnant women in the home for testing. • Coordinate care with local or state health department including environmental education and management. • Notify family of the need for follow-up venous testing on a periodic basis. • Frequency of follow-up testing for children with previous blood lead level elevations are best guided through consultation with a Regional Lead Resource Center.^{6,7}
15 to <25	Venous test as soon as possible but no later than 1 week.	Every month until BLL is <15 µg/dL, then proceed as above for BLLs 5 to <15 µg/dL.	<p>All activities above AND:</p> <ul style="list-style-type: none"> • Consider consulting with a Regional Lead Resource Center.⁶
25 to <45	Venous test as soon as possible but no later than 48 hours.	Consult with a Regional Lead Resource Center ⁶ for guidance on a follow-up venous testing schedule until BLL is <25 µg/dL, then proceed as above for BLLs 15 to <25 µg/dL.	<p>All activities above AND:</p> <ul style="list-style-type: none"> • Consult with a Regional Lead Resource Center.⁶
45 to <70	Venous test as soon as possible but no later than 24 hours.	Consult with a Regional Lead Resource Center (RLRC). ⁶ RLRC may recommend a second venous test before initiating chelation. However, if results of the second test are not readily available, treatment should not be delayed. Follow venous testing schedule as per RLRC instructions until advised to adhere to the testing schedule above.	<p>All activities above AND:</p> <ul style="list-style-type: none"> • Notify local or state health department within 24 hours for environmental investigation and follow-up services. • Consult with Regional Lead Resource Center⁶ within 24 hours to discuss hospitalization and chelation.⁷ • Hospital discharge only to housing determined to be lead-safe in consultation with the local or state health department.
≥70	This is a medical emergency. Confirm immediately with a venous test.		<p>All activities above AND:</p> <ul style="list-style-type: none"> • Consult with a Regional Lead Resource Center.⁶ • Admit immediately to a hospital for chelation.⁷

1. NYS clinical laboratories approved for Toxicology – Blood Lead – Comprehensive Testing: Search Wadsworth Center Clinical Laboratory Evaluation Program www.wadsworth.org/regulatory/clep/approved-labs.

2. Basis for NYS Requirements and Recommendations: Public Health Law Title 10 of Article 13; NYCRR Title 10 Part 67; *CDC Recommended Actions Based on Blood Lead Level*: www.cdc.gov/nceh/lead/advisory/acclpp/actions-blls.htm; *CDC, Advisory Committee Renewed Call for Primary Prevention (2012)*: www.cdc.gov/nceh/lead/ACCLPP/Final_Document_030712.pdf; *CDC Guidelines for Lead Exposure in Pregnant and Lactating Women* www.cdc.gov/nceh/lead/publications/leadandpregnancy2010.pdf; *Pediatric Environmental Health Specialty Units, Recommendations on Medical Management of Childhood Lead Exposure and Poisoning* www.pehsu.net/_Library/facts/medical-mgmt-childhood-lead-exposure-June-2013.pdf; *NYS DOH Clinical Laboratory Adopted Revision to Blood Lead Standards* www.wadsworth.org/sites/default/files/WebDoc/BLL_E_2016_adopted_082016.pdf.

3. Based on data from the National Health and Nutrition Examination Survey (NHANES) blood lead in children from 2007-2010: www.cdc.gov/nceh/lead/data/definitions.htm.

4. Helpful information for parents and guardians: *What Your Child’s Blood Lead Test Means*: www.health.ny.gov/publications/2526.pdf and *Lead Poisoning is a Danger for Every Baby and Child*: www.health.ny.gov/publications/2594.pdf.

5. Clinical Lead Exposure Assessment for Children with BLLs ≥5 µg/dL:

History	<i>Current Status:</i> Symptoms of lead exposure; previous blood lead test results; family history of lead poisoning; dietary history; development; country of birth; extended travel outside the U.S.; recent immigrant, refugee or adoptee.
	<i>Child Behaviors:</i> Pica; degree of hand-to-mouth activity; mouthing/chewing on window sills, furniture, keys, and toys; frequent playing in soil; inadequate hand washing before eating.
	<i>Potential Paint Sources:</i> Age and condition of home and other places child spends time (day care, relatives); evidence of chewed or peeling paint on woodwork, furniture, or toys; recent renovations; condition of windows; methods used to control dust and dirt (wet mopping vs. sweeping, use of door mats).
	<i>Potential Non-Paint Sources:</i> Use of imported cosmetics, health remedies, spices, or children’s jewelry; food served, stored, or prepared in pottery from other countries particularly from Latin America or Asia, painted china, pewter, or leaded crystal; bare soil in outdoor play areas.
	<i>Caregiver Exposures and Behaviors:</i> Occupations and hobbies of household members; painted or unusual materials burned in fireplaces or near home.
Physical Exam: Include complete neurologic exam.	
Nutritional Assessment: Evaluate growth and adequacy of diet, including iron, vitamin C, and calcium intake with follow-up anticipatory nutritional counseling.	
Developmental Assessment: Evaluate achievement of, or regression from, milestones, particularly in psychosocial and language domains. This should include use of a standardized developmental screening tool ⁸ and follow-up anticipatory developmental counseling.	
Laboratory Tests: Evaluate iron status and hemoglobin or hematocrit. Arrange follow-up blood lead testing per the <i>Management of Children According to Blood Lead Level</i> p.2.	
Referrals: For suspected developmental delays, refer to Early Intervention Program for children less than three years old or the child’s school district for children three years or older, and, if appropriate, a pediatric developmental specialist. For nutritional assistance, refer to/for WIC and SNAP Benefits.	

6. NYSDOH Website www.health.ny.gov/environmental/lead for educational materials, management guidelines, CPSC lead hazard recalls, NYSDOH regulations, statistics, and contact information:

- Local Health Departments (LHD): follow-up services depending on the BLL and may include parent education, environmental investigation, nutritional and developmental assessment, BLL monitoring, and service coordination.
- Regional Lead Resource Center (RLRC): consultation, referral, and technical assistance for care of lead-poisoned children and pregnant women: https://www.health.ny.gov/environmental/lead/exposure/childhood/regional_lead_resource_centers.htm.
- **Children’s Environmental Health Centers:** consultation for pregnant women and children with suspected or known exposures to environmental toxins including lead.

7. Health care providers should consult with the Regional Lead Resource Center on continued monitoring of blood lead levels in children in the months after chelation.

8. Bright Futures Developmental, Behavioral, Psychosocial, Screening, and Assessment Forms: <https://brightfutures.aap.org/materials-and-tools/tool-and-resource-kit/Pages/Developmental-Behavioral-Psychosocial-Screening-and-Assessment-Forms.aspx>.

