

TABLE 2. RECOMMENDED LEAD RISK ASSESSMENT QUESTIONS FOR PARENTS

1. Is your child between 9 and 36 months of age?
2. Have any of your children or their playmates ever had a high blood lead level?
3. Does your child live in, or regularly visit, an older home or other place with peeling or damaged paint?
4. Does your child live in, or regularly visit, an older home or other place that is being or was renovated within the last 12 months?
5. Does your child have any developmental delays, have hand-to-mouth behavior, or put non-food items, such as paint chips or soil, in their mouth?
6. Has your child moved to the US from or traveled to a foreign country where lead poisoning may be common?*
7. Does your family use products from other countries such as health remedies, spices, food, or pottery?
8. Does your child play near a heavily traveled highway, bridge, or elevated train where there is peeling paint?
9. Does your child come into contact with an adult whose job or hobby involves exposure to lead (e.g., bridge painting and repair, building demolition, home renovation and repair, automotive and electronics repair, furniture refinishing, working with firearms, and arts/crafts work involving ceramics, metals, and color pigments)?
10. Is your child enrolled in or planning to enroll in Medicaid or the NYC Early Intervention Program?†

*In descending order of frequency, lead poisoning has been found in NYC children emigrating from Haiti, Mexico, Pakistan, Bangladesh, Dominican Republic, India, Guyana, China, Liberia, Guinea, Ecuador, Jamaica, Albania, Senegal, Guatemala, Nigeria, Ghana, countries comprising former Yugoslavia, United Kingdom, Honduras, Israel, Togo, Sierra Leone, Ivory Coast, Trinidad and Tobago, United Arab Emirates, Georgia, Portugal, Suriname, Morocco, Afghanistan, Mauritania, Thailand, Uzbekistan, Canada, Nepal, El Salvador, and Gambia.

†Medicaid requires a blood lead test for children up to age 6 not previously tested.⁹ Enrollment in preschool/daycare¹⁰ and the Early Intervention Program¹¹ both require BLL documentation.

TABLE 3: RECOMMENDED MANAGEMENT OF CHILDREN BASED ON BLOOD LEAD LEVELS¹²

BLL (µg/dL)	Recommended Action
5–9	<ul style="list-style-type: none">• Recognize that a BLL of 5–9µg/dL may indicate lead exposure.• Provide educational messages (see page 16).• Evaluate for adequate intake of calcium, iron, and vitamin C.*• If initial positive test is a fingerstick specimen, confirm with a venous specimen within time frame specified in Table 4.• Monitor BLLs by retesting as per follow-up schedule in Table 4.
10–14	<p>All actions for BLLs of 5-9µg/dL, plus:</p> <ul style="list-style-type: none">• Report BLL to NYC DOHMH within 24 hours by fax (212) 676-6326.¹³ Laboratory requisition forms must include:<ul style="list-style-type: none">• Patient’s complete name, date of birth, complete address (including apartment number), and phone number.• Health care provider name and phone number.• Type of sample (venous or fingerstick) and date of collection.• DOHMH will send educational information to the family and health care provider.
15–44	<p>All actions for BLLs 5-14µg/dL, plus:</p> <ul style="list-style-type: none">• Provide a complete medical evaluation including a detailed environmental history, thorough developmental and nutritional assessment, and physical exam.• Evaluate for iron deficiency anemia, often associated with lead poisoning.• Consider abdominal x-ray if paint chip or other lead solid ingestion suspected; if radio-opaque particles found or recent ingestion witnessed, use cathartic.• Consider monitoring erythrocyte protoporphyrin levels (EP) for BLL ≥25µg/dL to help assess timing of exposure.†• Monitor development even after BLLs decrease. Consider this child at higher risk for developmental delays and behavior problems.• DOHMH will:<ul style="list-style-type: none">• Inspect the child’s home to identify potential lead sources.• Order the landlord to repair any lead paint hazards identified.• Refer families to temporary, lead-safe housing as necessary.• Refer children < 36 months of age to DOHMH Early Intervention Program.
≥45	<p>All actions for BLLs 5-44µg/dL, plus:</p> <ul style="list-style-type: none">• Arrange hospitalization and chelation therapy at a facility with expertise in treating lead-poisoned children (see “Recommended Chelation Protocol for Children with BLLs ≥45µg/dL” on the DOHMH Web site (Resources)).• Perform complete neurological exam.• Confirm BLL with venous specimen processed as emergency test before providing chelation therapy, unless symptoms of encephalopathy are present.• Obtain abdominal x-ray to look for paint chip or other lead solid ingestion; if radio-opaque particles found or recent ingestion witnessed, use cathartic.• Child must receive chelation therapy in, and be discharged to, a lead-safe environment. Do not discharge until DOHMH inspects the home.• Inform NYC DOHMH of hospital admission by calling (212) 676-6100.• DOHMH can provide the following additional services:<ul style="list-style-type: none">• Same-day BLL processing.• Referrals to facilities and providers with expertise in treating lead-poisoning. For treatment consultations on evenings or weekends, call Poison Control Center at 311.• Referrals to temporary lead-safe housing.

* Adequate stores of calcium and iron may decrease gastrointestinal absorption of lead. Vitamin C may increase renal excretion.

† The BLL reflects more recent exposure to lead, while the EP level reflects more chronic exposure. Once elevated, the EP remains elevated for several months even after exposure has ceased and the BLL has fallen.

TABLE 4: FOLLOW-UP BLOOD LEAD TEST SCHEDULES FOR CHILDREN

For Fingertick BLLs $\geq 5\mu\text{g}/\text{dL}$ ¹²

Capillary Test Result ($\mu\text{g}/\text{dL}$)	Time Frame for Confirmatory Venous Test
5–9	3–6 months*
10–14	3 months [†]
15–44	1 week–1 month [‡]
≥ 45	Immediately

For Venous BLLs $\geq 5\mu\text{g}/\text{dL}$ ¹²

Venous BLL ($\mu\text{g}/\text{dL}$)	Early Follow-up Test (first 2–4 tests after identification)	Late Follow-up Test (after BLL begins to decline)
5–9	3–6 months*	6–12 months
10–14	3 months [†]	6–9 months
15–19	1–3 months [†]	3–6 months
20–24	1–3 months [†]	1–3 months
25–44	2 weeks–1 month	1 month
≥ 45	As soon as possible	Chelation with subsequent follow-up

* Recognize that a BLL of 5–9 may indicate lead exposure. If risk assessment indicates exposure is likely, consider retesting within 3 months to confirm BLL is not rising rapidly.

[†] Health care providers may choose to repeat BLLs within 1 month for patients newly identified with an elevated BLL to confirm that BLL is not rising rapidly.

[‡] The higher the BLL, the sooner confirmatory venous testing should occur.

TABLE 5. RECOMMENDED LEAD RISK ASSESSMENT QUESTIONS FOR PREGNANT WOMEN

1. Have you ever had a high blood lead level?
2. Were you born, or have you spent any time, outside of the United States?*
3. During the past 12 months, did you use any products from other countries, such as health remedies, spices, foods, ceramics, or cosmetics?
4. At any time during your pregnancy, did you eat, chew on, or put in your mouth any non-food items such as clay, crushed pottery, soil, or paint chips?
5. In the last 12 months, has there been any renovation or repair work in your home?
6. Do you now have, or have you ever had, a job or hobby that could expose you to lead, such as construction work, home renovation/repair, furniture refinishing, working with firearms, or arts/crafts work involving ceramics, stained glass, metals, or color pigments?

*In descending order of frequency, lead poisoning has been found in NYC pregnant women emigrating from Mexico, Bangladesh, India, Pakistan, Russia, Ecuador, Georgia, Haiti, Jamaica, Morocco, Dominican Republic, Guatemala, and Guyana.

TABLE 6: RECOMMENDED MANAGEMENT OF PREGNANT WOMEN BASED ON BLOOD LEAD LEVELS

BLL (µg/dL)	Time Frame for Action	Recommended Action	Frequency of Follow-up Venous Blood Testing
5 – 9	Within 30 days	<ul style="list-style-type: none"> Assess for risk factors. Provide educational messages (see pages 19 and 21). Evaluate for adequate intake of calcium, iron, and vitamin C.* Monitor BLL. 	<ul style="list-style-type: none"> Repeat after interval of at least 1 month to assess trend. Repeat each trimester.
10 – 14	Within 30 days	<p>All actions for BLLs 5-9µg/dL, plus:</p> <ul style="list-style-type: none"> Notify DOHMH within 24 hours as required by NYC Health Code.¹³ Fax reports to (212) 676-6188 or call (212) 676-6379. Refer to occupational health clinic if occupational exposure is suspected. DOHMH will mail educational materials to the woman and her health care provider. 	<ul style="list-style-type: none"> Repeat after interval of at least 1 month to assess trend. Repeat each trimester.
15 – 44	Within 2 weeks	<p>All actions for BLLs 5-14µg/dL, plus:</p> <ul style="list-style-type: none"> Evaluate for other symptoms.[†] Consider monitoring erythrocyte protoporphyrin levels (EP) when BLL ≥25 µg/dL to help assess timing of exposure.[‡] DOHMH will: <ul style="list-style-type: none"> Conduct home visits to identify potential exposure sources. Recommend strategies to reduce exposure. 	<ul style="list-style-type: none"> Within 2 weeks and then monthly to assess efficacy of management.
≥45	Within 24 hours	<p>All actions for BLLs 5-44µg/dL, plus:</p> <ul style="list-style-type: none"> Confirm BLL with venous sample. Consult with DOHMH and lead poisoning specialist to consider hospitalization and chelation therapy with CaNa₂EDTA if pregnancy is in late 2nd or 3rd trimester.[§] Monitor erythrocyte protoporphyrin levels (EP) to help assess timing of exposure.[‡] 	<ul style="list-style-type: none"> Within 24 hours and then at frequent intervals depending on clinical management and BLL trend.

*Adequate stores of calcium and iron may decrease gastrointestinal absorption of lead. Adequate stores of calcium may decrease mobilization of lead from maternal bone. Vitamin C may increase renal excretion.

† The majority of people with lead poisoning have no symptoms. Symptoms including headaches, crampy abdominal pain, anorexia, constipation, fatigue, malaise, myalgias and arthralgias typically occur at BLLs ≥60µg/dL, but can occur at BLLs ≥25µg/dL.

‡ The BLL reflects more recent exposure to lead, while the EP level reflects more chronic exposure. Once elevated, the EP remains elevated for several months even after exposure has ceased and the BLL has fallen.

§When BLLs ≥45µg/dL are noted in the first half of pregnancy, chelation therapy is NOT recommended. Management consists of limiting further lead exposure by identifying potential exposure sources, recommending strategies to reduce exposure, and promoting adequate intake of calcium, iron, and vitamin C.

Source: New York City Department of Health; <http://www.nyc.gov/html/doh/downloads/pdf/chi/chi26-3.pdf>