

Appendix H: Lead and Pregnancy Resources

Lead and Pregnancy Risk Questionnaire

Answer each question by checking the small "YES," "NO," or "UNSURE" box.

If there is at least one "yes" or "unsure" box checked off in questions 1-4 or 6-8 OR if both 5a and 5b are marked "yes or "unsure," the patient should have a blood lead test and, upon results, be subsequently managed according to CDC guidelines based on test results.

1. Last Name	First Name	MI
2. Patient Number		
3. Date of Birth (MM/DD/YYYY)	Month	Day
		Year
4. Race <input type="checkbox"/> American Indian or Alaska Native <input type="checkbox"/> Asian <input type="checkbox"/> Black/African American <input type="checkbox"/> Native Hawaiian/Other Pacific Islander <input type="checkbox"/> Unknown <input type="checkbox"/> White		
5. Ethnic Origin <input type="checkbox"/> Hispanic Cuban <input type="checkbox"/> Hispanic Mexican American <input type="checkbox"/> Hispanic Other <input type="checkbox"/> Hispanic Puerto Rican <input type="checkbox"/> Not Hispanic/Latino <input type="checkbox"/> Unreported		
6. Gender <input type="checkbox"/> Female <input type="checkbox"/> Male		
7. County of Residence		

1. Have you ever had a high blood lead level?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	UNSURE <input type="checkbox"/>
2. Have you spent any time outside of the United States in the past 12 months? If yes: Where?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	UNSURE <input type="checkbox"/>
3. Do you use pottery, remedies, spices, foods, candies or make-up that are not sold in a regular drug store or are homemade, but are sent to you from another country?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	UNSURE <input type="checkbox"/>
4. Sometimes pregnant women have the urge to eat nonfood items such as clay, soil, plaster, paint chips, or crushed pottery. Do you ever eat any of these things—even accidentally?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	UNSURE <input type="checkbox"/>
5. If answer is "yes" or "unsure" to 5a; please answer 5b. If answer is "no" to 5a; please skip to Question 6. a) Was your home built before 1978? b) This past year, have there been any renovations in your home that involved sanding or scraping?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	UNSURE <input type="checkbox"/>
6. Do you or others in your household have a job or a hobby that involves possible lead exposure, such as home renovation or working with stained glass, ceramics, jewelry, auto repair, battery manufacturing, or firearms (bullets, projectiles, firing ranges)?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	UNSURE <input type="checkbox"/>
7. Based on the results of a laboratory test, have you been told there's lead in your home's water?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	UNSURE <input type="checkbox"/>
8. Have any of your children had an elevated blood lead level (>5 µg/dL)?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	UNSURE <input type="checkbox"/>

Lead and Pregnancy Risk Questionnaire Instructions

Purpose: To assess and document past and present risk factors for lead exposure that may impact pregnancy.

Instructions: This form can be self-administered by the patient or verbally-administered by staff. Instruct the patient or staff to check off the responses of either “yes,” “no,” or “unsure” for each question. Regardless of who completes the form, it must be reviewed by staff to determine if clarifications are needed. If there is at least one “yes” or “unsure” box checked off in questions 1-4 or 6-8 OR if both 5a and 5b are marked “yes or “unsure,” the patient should have a blood lead test and, upon results, be subsequently managed according to CDC Guidelines.

The best time to conduct this questionnaire is during the initial new obstetric intake. If a blood draw is needed, it should be conducted during the time of initial obstetric labs. However, this questionnaire can be administered any time during the pregnancy.

The CDC Guidelines can be accessed at
www.cdc.gov/nceh/lead/publications/LeadandPregnancy2010.pdf.

Disposition: This form is to be retained in accordance with the records disposition schedule of medical records as issued by the Division of Archives and History, and the form should become part of the patient’s medical record.

Location: Go to the following link to access this form and print as needed:
<http://whb.ncpublichealth.com/provPart/forms.htm>.

Bilingual Lead and Pregnancy Risk Questionnaire

Answer each question by checking the small "YES," "NO," or "UNSURE" box.

Marque su respuesta a cada pregunta en la casilla indicada (Sí, No, o No sabe).

If there is at least one "yes" or "unsure" box checked off in questions 1-4 or 6-8 OR if both 5a and 5b are marked "yes" or "unsure," the patient should have a blood lead test and, upon results, be subsequently managed according to CDC guidelines based on test results.

1. Last Name	First Name	MI
2. Patient Number		
3. Date of Birth (MM/DD/YYYY)	Month	Day Year
4. Race <input type="checkbox"/> American Indian or Alaska Native <input type="checkbox"/> Asian <input type="checkbox"/> Black/African American <input type="checkbox"/> Native Hawaiian/Other Pacific Islander <input type="checkbox"/> Unknown <input type="checkbox"/> White		
5. Ethnic Origin <input type="checkbox"/> Hispanic Cuban <input type="checkbox"/> Hispanic Mexican American <input type="checkbox"/> Hispanic Other <input type="checkbox"/> Hispanic Puerto Rican <input type="checkbox"/> Not Hispanic/Latino <input type="checkbox"/> Unreported		
6. Gender <input type="checkbox"/> Female <input type="checkbox"/> Male		
7. County of Residence		

1. Have you ever had a high blood lead level? ¿Ha tenido usted alguna vez niveles de plomo altos en la sangre?	YES <input type="checkbox"/> Sí <input type="checkbox"/>	NO <input type="checkbox"/> No <input type="checkbox"/>	UNSURE <input type="checkbox"/> No sabe <input type="checkbox"/>
2. Have you spent any time outside of the United States in the past 12 months? If yes: Where? ¿Ha estado usted fuera de los Estados Unidos en los pasados 12 meses? Sí es Sí ¿Dónde?	YES <input type="checkbox"/> Sí <input type="checkbox"/>	NO <input type="checkbox"/> No <input type="checkbox"/>	UNSURE <input type="checkbox"/> No sabe <input type="checkbox"/>
3. Do you use pottery, remedies, spices, foods, candies or make-up that are not sold in a regular drug store or are homemade, but are sent to you from another country? ¿Usa usted cerámica, remedios caseros, especias, comida, dulces o maquillaje que son hechos en casa, o que no son vendidos en una farmacia regular, o son enviados de otro país?	YES <input type="checkbox"/> Sí <input type="checkbox"/>	NO <input type="checkbox"/> No <input type="checkbox"/>	UNSURE <input type="checkbox"/> No sabe <input type="checkbox"/>
4. Sometimes pregnant women have the urge to eat nonfood items such as clay, soil, plaster, paint chips, or crushed pottery. Do you ever eat any of these things—even accidentally? Algunas veces las mujeres embarazadas tienen el impulso de comer arcilla (barro), tierra, yeso, pedazos de pintura o de cerámica. ¿Ha comido usted alguna vez uno de estos, aunque sea por accidente?	YES <input type="checkbox"/> Sí <input type="checkbox"/>	NO <input type="checkbox"/> No <input type="checkbox"/>	UNSURE <input type="checkbox"/> No sabe <input type="checkbox"/>
5. If answer is "yes" or "unsure" to 5a; please answer 5b. If answer is "no" to 5a; please skip to Question 6. Si usted contestó "sí" o "no sabe" a la pregunta #5a, siga y conteste a la pregunta #5b. Si usted contestó "no" a la pregunta #5a, pase a la pregunta #6. a) Was your home built before 1978? b) This past year, have there been any renovations in your home that involved sanding or scraping? a) ¿Fue su casa construida antes de 1978? b) ¿Ha habido una remodelación en su casa donde se raspó o lijó algo?	YES a) <input type="checkbox"/> b) <input type="checkbox"/> Sí a) <input type="checkbox"/> b) <input type="checkbox"/>	NO a) <input type="checkbox"/> b) <input type="checkbox"/> No a) <input type="checkbox"/> b) <input type="checkbox"/>	UNSURE a) <input type="checkbox"/> b) <input type="checkbox"/> No sabe a) <input type="checkbox"/> b) <input type="checkbox"/>
6. Do you or others in your household have a job or a hobby that involves possible lead exposure, such as home renovation or working with stained glass, ceramics, jewelry, auto repair, battery manufacturing or firearms (projectiles, bullets or firing ranges)? ¿Usted o miembros de su familia tienen un trabajo o pasatiempo que implique la posible exposición a plomo, como son la renovación de casas o trabajos con vidrios de color, cerámica, joyería, reparación de vehículos o fabricación de baterías/pilas o armas de fuego (proyectiles, balas o campos de tiro)?	YES <input type="checkbox"/> Sí <input type="checkbox"/> Sí <input type="checkbox"/>	NO <input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/>	UNSURE <input type="checkbox"/> No sabe <input type="checkbox"/> No sabe <input type="checkbox"/>

<p>7. Based on the results of a laboratory test, have you been told there's lead in your home's water? ¿Con base en los resultados de una prueba de laboratorio, le han dicho que hay plomo en el agua de su casa?</p>	<p>YES <input type="checkbox"/> Sí <input type="checkbox"/></p>	<p>NO <input type="checkbox"/> No <input type="checkbox"/></p>	<p>UNSURE <input type="checkbox"/> No sabe <input type="checkbox"/></p>
<p>8. Have any of your children had an elevated blood lead level (>5 µg/dL)? ¿Alguno de sus hijos ha tenido un nivel alto de plomo en la sangre (>5 ug/dL)?</p>	<p>YES <input type="checkbox"/> Sí <input type="checkbox"/></p>	<p>NO <input type="checkbox"/> No <input type="checkbox"/></p>	<p>UNSURE <input type="checkbox"/> No sabe <input type="checkbox"/></p>

Fecha

Bilingual Lead and Pregnancy Risk Questionnaire Instructions

- Purpose:** To assess and document past and present risk factors for lead exposure that may impact pregnancy.
- Instructions:** This form can be self-administered by the patient or verbally-administered by staff. Instruct the patient or staff to check off the responses of either “yes,” “no,” or “unsure” for each question. Regardless of who completes the form, it must be reviewed by staff to determine if clarifications are needed. If there is at least one “yes” or “unsure” box checked off in questions 1-4 or 6-8 OR if both 5a and 5b are marked “yes” or “unsure,” the patient should have a blood lead test and, upon results, be subsequently managed according to CDC Guidelines.
- The best time to conduct this questionnaire is during the initial new obstetric intake. If a blood draw is needed, it should be conducted during the time of initial obstetric labs. However, this questionnaire can be administered any time during the pregnancy.
- The CDC Guidelines can be accessed at www.cdc.gov/nceh/lead.
- Disposition:** This form is to be retained in accordance with the records disposition schedule of medical records as issued by the Division of Archives and History, and the form should become part of the patient's medical record.
- Location:** Go to the following link to access this form and print as needed:
<http://whb.ncpublichealth.com/provPart/forms.htm>.

Instrucciones para el cuestionario de riesgo de plomo durante el embarazo

- Objetivo:** Evaluar y documentar factores de riesgo pasados y presentes de la exposición al plomo que pueda afectar el embarazo.
- Instrucciones:** Este formulario puede ser auto-administrados por el paciente o verbalmente administrado por el personal. Instruir al paciente o al personal de marcar las respuestas de “sí”, “no” o “no sabe” por cada pregunta. Independientemente de que complete el formulario, éste debe ser revisado por el personal para determinar si se necesitan aclaraciones. Si usted contestó “sí” o “no sabe” a las preguntas #1 hasta e incluso la #4 o a las preguntas #6, #7, o #8 y contestó “sí” o “no sabe” en ambas preguntas #5a y #5b, el paciente necesitará un análisis de plomo en la sangre. Después de recibir los resultados, el paciente necesita consultar y darle seguimiento a los resultados con su proveedor de salud.
- El mejor momento para realizar este cuestionario es durante la cita obstétrica inicial. Si se necesita una extracción de sangre, debe llevarse a cabo al mismo tiempo que se hacen los exámenes de laboratorio obstétricos iniciales. Sin embargo, este cuestionario se puede administrar en cualquier momento durante el embarazo.
- Se pueden consultar las Directrices de los CDC en: www.cdc.gov/nceh/lead.
- Disposición:** Este formulario debe ser conservado en conformidad con el calendario de eliminación de documentos del historial clínico como se indica por la División de Archivos e Historia, y la forma debe ser parte del historial médico del paciente.
- Localización:** Vaya al siguiente enlace para acceder a este formulario e imprimir según sea necesario:
<http://whb.ncpublichealth.com/provPart/forms.htm>.

Sample Template Policy/Procedure/Protocol for Local Health Departments

Lead and Pregnancy Risk

Purpose: This policy is intended to assure that all pregnant women who reside in _____ County and seek healthcare from the _____ County Health Department, will be offered screening for lead exposure, and if appropriate, blood lead screening and be provided education on lead exposure and its potential dangers based on the 2010 Centers for Disease Control (CDC) Lead and Pregnancy Guidelines. Screening should be facilitated at the earliest contact with the patient using the *Lead and Pregnancy Risk Questionnaire (DHHS 4116E/4116S)*. The results from the questionnaire may suggest further intervention that includes venipuncture specimen collection.

Policy: The health department (HD) will ensure that this policy is adhered to with current evidenced-based recommendations by CDC on blood lead testing and follow-up care for pregnant/lactating patients with confirmed elevated blood lead levels. Lead crosses the placenta during pregnancy so maternal exposure can adversely affect both maternal/fetal well-being.

Responsible Person(s): It is the responsibility of the HD and its designated personnel to assure that all prenatal patients are screened for risk of lead exposure during the pregnancy, offered blood lead screening if appropriate, and to initiate follow-up for all confirmed “positive” blood lead test results. The designated personnel executing the initial obstetric (OB) history will assure that the patient completes or is assisted in completing the *Lead and Pregnancy Risk Questionnaire*. If the patient responds “yes” or “unsure” to any of the questions on the form, the patient will receive education on lead exposure and its impact on pregnancy.

Instructions for Testing: For any “yes” or “unsure” response to questions 1-4 or 6-8, a blood lead screening test is indicated. For Question 5, if the patient answers “yes” or “unsure” to 5(a); then the patient should answer 5(b). If the patient answers “no” to 5(a), then the patient should skip to Question 6. For Question 5, both parts 5(a) and 5(b) require “yes” or “unsure” responses to necessitate a blood lead screening test.

Procedures:

1. At the initial OB history appointment, the patient will be educated on lead poisoning prevention, with emphasis on relevant risk factors, and given an *Are You Pregnant? Protect Your Baby from Lead Poisoning* brochure. These are available in English/Spanish at <http://nchealthyhomes.com/lead-poisoning/> or call the Environmental Health Section, 919-707-5854 for orders.
2. Request the patient to complete the Lead and Pregnancy Risk Questionnaire in English (4116E) or Spanish (4116S). This form may be completed by the patient or verbally administered by staff.
3. If there is at least one “yes” or “unsure” box checked off in questions 1 - 4 or 6 - 8 **OR** if both 5(a) and 5(b) are marked “yes or “unsure,” the patient should have a blood lead test and, upon results, be subsequently managed according

4. If the patient agrees to testing, staff will facilitate the following steps for collecting a venous blood lead specimen for analysis at the NC State Laboratory of Public Health (NCSLPH).
 - a. Capillary sample results and results from samples analyzed on a point-of-care blood lead analyzer will not be accepted for prenatal referrals.
 - b. Venipuncture blood specimens are to be collected in a lavender-top tube.
 - c. Ensure that order requisition is **only for lead** and that (*Form DHHS #3707*) accompanies specimen.
 - d. Complete steps in collection that are consistent with internal laboratory processes. Assure that the specimen tube is labeled in accordance with [NCSLPH Label Format Specifications](#).
 - e. Assure that the prenatal box is checked appropriately on (*Form DHHS #3707*) and that the provider's name and NPI is on the form.
 - f. This is a cost-free service for only those patients who seek prenatal care through the health department. The specimen will be drawn at HD and analyzed at the NCSLPH.
 - g. Send all blood lead specimens to the NCSLPH for testing, regardless of the patient's payor source. NCSLPH bills Medicaid directly for the blood lead test with the patient's Medicaid # included on the requisition form. Local health departments should not generate a bill for this test. NCSLPH does not maintain the capability to bill private insurance; therefore, NCSLPH does not request private, third-party insurance data from health departments. The cost of testing specimens on non-Medicaid patients is assumed by the NCSLPH. Currently, the cost of uninsured patient testing is covered by the revenues generated. The NCSLPH will continue to assess cost recovery on an annual basis.
5. Blood lead test results will be available electronically to the provider on record, regardless of the level, via NCSLPH Clinical and Environmental Lab Results (CELR) at <https://celr.ncpublichealth.com/index>. The NCSLPH will call the provider on record if the blood lead level (BLL) result is ≥ 5.00 $\mu\text{g}/\text{dL}$.
6. Results are to be reviewed by the HD provider in a timely manner.
7. Follow-up interventions begin with BLLs ≥ 5.00 **micrograms per deciliter ($\mu\text{g}/\text{dL}$)**.
8. If the results are ≥ 5.00 $\mu\text{g}/\text{dL}$, a confirmatory venous sample must be drawn and sent to the NCSLPH for analysis. The provider may initiate a referral for a home investigation, if the patient has two consecutive venous blood lead levels ≥ 5.00 $\mu\text{g}/\text{dL}$ within a 12-month period.
9. Initiation of Referral for Home Investigation
 - a. HD provider will write an order for recommended follow-up as indicated per CDC guidance.
 - b. **If patient has 2 consecutive venous blood lead test results ≥ 5.00 $\mu\text{g}/\text{dL}$ within a 12-month period, the HD provider may initiate a referral for a home investigation.**
 - c. Fax a completed [Environmental Referral Form](#) to the North Carolina Childhood Lead Poisoning Prevention Program (NCCLPPP) using 919-841-4015.

d. For more information contact NCCLPPP at 919-707-5950.

10. Blood lead results should be shared with the patient in a timely manner with recommended follow-up care initiated per agency policy as outlined below.

BBL Results	Frequency of Follow-Up Testing	Recommended interventions according to BLL in Pregnancy
< 5 µg/dL	No confirmatory or follow-up testing necessary	<ul style="list-style-type: none"> • Educate on lead exposure sources and risk reduction
5-9 µg/dL	Conduct confirmatory testing within 1 month and follow-up testing every 3 months for the duration of the pregnancy until 2 consecutive BLLs are < 5.00 µg/dL Recommend that the baby's pediatrician be alerted to the maternal elevated blood lead level.	Above actions in addition to: <ul style="list-style-type: none"> • Provide case management • Attempt to determine source of lead exposure (home, work, pica) • Counsel on strategies to reduce exposure • Assess for adequacy of patient's diet • Provide prenatal vitamins and nutritional guidance emphasizing adequate Calcium and Iron intake with Vitamin C to enhance absorption • For occupationally exposed patients (yes to question #6 on questionnaire); review safe work practices: hand washing, showering before going home, proper laundering of work clothes • Provide patient with the following: "Lead Facts" (2 sided) and "Lead and Your Occupation" • If required by employment, encourage wearing a clean/well-fitted respirator • Consider contacting the employer about assistance with safe work practices
10-24 µg/dL	Conduct confirmatory testing within 1 month and follow-up testing monthly for the duration of the pregnancy until 2 consecutive BLLs are < 5.00 µg/dL	Above actions in addition to: <ul style="list-style-type: none"> • Recommend removal from workplace lead exposure

25-44 µg/dL	Confirmatory test within 1-4 weeks and follow-up testing monthly for the duration of the pregnancy until 2 consecutive BLLs are < 5.00 µg/dL	Above actions in addition to: <ul style="list-style-type: none"> • Advise not to breastfeed and discard breastmilk if BLL ≥ 40 µg/dL • Testing milk is not recommended
≥ 45 µg/dL	<p>Confirmatory test within 24 hours and then at frequent intervals for the duration of the pregnancy depending on clinical interventions and trend in BLLs</p> <p>Should be considered and treated as high-risk pregnancy</p> <p>Patient may require having care transferred to a high-risk obstetrical practice</p>	Above actions in addition to: <ul style="list-style-type: none"> • Consult or transfer to a provider specializing in lead poisoning therapy before considering chelation for the patient

Contacts:

Any additional questions regarding specimen collection, and/or reporting please contact Kate Koehler, Hemachemistry Unit Manager at (919) 807-8878.

For more information on lead in the home contact Health Hazards Unit, NC Division of Public Health at 919-707-5950.

For occupational health advice contact: Occupational and Environmental Epidemiology Branch, NC Division of Public Health, Raleigh, NC, 919-707-5900.

Testing of Breastfeeding Patients:

Encourage breastfeeding until BLL \geq 40 μ g/dL. Testing milk is not recommended.

Initial Venous BLL	Perform follow-up venipuncture blood specimen testing during lactation:
5-19 μ g/dL	Every 3 months, unless infant blood lead levels are rising or fail to decline
20-39 μ g/dL	Maternal BLL 2 weeks postpartum and then at 1 to 3-month intervals depending on trend in infant BLLs
\geq 40 μ g/dL	<ul style="list-style-type: none"> • Within 24 hours postpartum and then at frequent intervals depending on clinical interventions and trend in BLLs • Consultation with a clinician experienced in the management of lead poisoning is advised • Advise not to breastfeed. Breastmilk should be discarded

Quality Assurance: Compliance with this blood lead screening and follow-up policy will be assessed/assured via the agency's established quality assurance program review process for maternal health.

References:

- American Academy of Pediatrics & American College of Obstetricians and Gynecologists, *Guidelines for Perinatal Care* 8thed.
- Centers for Disease Control and Prevention, *Guidelines for the Identification and Management of Lead Exposure in Pregnant and Lactating Women*
<https://www.cdc.gov/nceh/lead/publications/leadandpregnancy2010.pdf>
- Centers for Disease Control and Prevention, *Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials*, Appendix C.2 Capillary Blood Sampling Protocol
<https://www.cdc.gov/nceh/lead/publications/1997/pdf/c2.pdf>
- North Carolina Department of Public Health, *Maternal Health Agreement Addendum*

Educational Materials and Resources:

- Lead Facts
 - http://epi.publichealth.nc.gov/oeo/oii/docs/Lead_BloodTestingandPrevention2017.pdf
- Lead and Your Occupation
 - <http://ehs.ncpublichealth.com/hhccehb/cehu/lead/docs/LeadandYourOccupation-English-Oct13-2017.pdf>
- North Carolina Referral Resources
 - <http://nchealthyhomes.com/countyresources/>
 - https://nchealthyhomes.com/files/2017/12/PrenatalLeadInvestigationReferralForm_FINAL_Dec2017.pdf

**ENVIRONMENTAL REFERRAL TO:
The NC Childhood Lead Poisoning Prevention Program**

FAX COMPLETED FORM TO (919) 841-4015

Prenatal care providers should use this form to request a lead home investigation for a pregnant patient with two venous blood lead levels ($\geq 5 \mu\text{g/dL}$) within a 12-month period.

Referral Date: _____ Referred by: _____

PATIENT INFORMATION		
Last name:	First name:	DOB:
Street address: Apt.#:	City/Zip:	Language (check all that apply): English Other _____
Phone #: Alternate phone #:	Is patient pregnant? <input type="checkbox"/> Yes <input type="checkbox"/> No (Only pregnant women and children are eligible for free home lead investigations.)	Medicaid # (if any):
BLOOD LEAD TEST INFORMATION: INITIAL TEST #1		
Date collected:	Blood Lead Level ($\mu\text{g/dL}$):	Venous (only)
Analyzing laboratory name:	Laboratory address:	Phone #:
BLOOD LEAD TEST INFORMATION: DIAGNOSTIC/ CONFIRMATORY TEST #2		
Date collected:	Blood Lead Level ($\mu\text{g/dL}$):	Venous (only)
Analyzing laboratory name:	Laboratory address:	Phone #:

Blood lead samples must be sent out for analysis to a reference laboratory that uses a high complexity method of analysis.

PRENATAL CARE PROVIDER INFORMATION		
Last name:	First name:	Clinic:
Address:		City/Zip code:
Phone #:	FAX #:	Email: