## Clinical Case Management and NCLEAD

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Children's Environmental Health











# THE BASICS EVERYONE SHOULD KNOW...











A blood lead test at ages 12 and 24 months is recommended for all NC children.

Required for children receiving Medicaid.



Test if ages 25-72 months and has never been tested.









## **Blood lead specimens**

Capillary ("fingerstick")

 Wash child's hands with soap and water

 Allow to air dry without touching any surface











**Blood Lead Reference Value (BLRV)** 

Clinical follow-up begins at

3.5 micrograms per deciliter (μg/dL).

Perform diagnostic test as soon as possible









## FOLLOW-UP SCHEDULE

## Blood Lead Levels for Children Under the Age of Six

All diagnostic (i.e., confirmation) tests should be performed as soon as possible (ASAP), but at a minimum within specified time periods.

- Diagnostic tests should be venous; however, capillary tests are accepted if a venous cannot be obtained.
- Diagnostic specimens must be sent to an outside reference laboratory for analysis.
- Point of care (POC) blood lead analyzers (i.e., LeadCare) should NOT be used for diagnostic tests.
- Follow-up (post-diagnostic) testing can be capillary.
- CDC protocol for collecting capillary specimens should be followed (see first link below).

See <a href="https://nchealthyhomes.com/clinical-lead-resources/">https://nchealthyhomes.com/clinical-lead-resources/</a> for a list of clinical resources.

Users should contact <u>Children's Environmental Health</u> for further assistance.



Division of Public Health • https://publichealth.nc.gov NCDHHS is an equal opportunity employer and provider. • 3/2022 For each initial blood lead level range, follow the steps under the corresponding category. If diagnostic test result falls within a lower category, follow the steps within that category, If diagnostic or follow up test result falls within a higher category, conduct another diagnostic test.

### INITIAL BLOOD LEAD LEVEL AND RESPONSE

\*Children's Developmental Service Agency \*\*Care Management for At-Risk Children

## < 3.50 µg/dL

- · Report blood lead test results to parents and document notification
- · Educate family about lead sources and prevention of lead exposure
  - Retest at age 2, earlier if risk of exposure increases.

## 3.50 - 4.99 µg/dL

## Perform diagnostic test ASAP (but at the latest within 3 months)

If diagnostic test result is 3.50 - 4.99 µg/dL, take same action as previous category AND

- Provide clinical management
- · Conduct nutritional assessment and refer child to the WIC Program
- · Test other children under the age of six in same household
- Conduct follow-up testing every 3 months until 2 consecutive tests are < 3.50 µg/dL</li>

## 5.00 - 9.99 µg/dL

## Perform diagnostic test ASAP (but at the latest within 3 months)

If diagnostic test result is 5.00 - 9.99 µg/dL, take same action as previous category AND

- Complete Form 3651: Exposure History of Child with Elevated Blood Lead Level to identify possible lead sources and fax a copy to (919) 841-4015
- Refer case to local health department to offer an environmental investigation
- Conduct follow-up testing every 3 months until 2 consecutive tests are < 3.50 µg/dL</li>

## 10.00 - 44.99 µg/dL

Perform diagnostic test ASAP (but at the latest within 1 month at 10.00 – 19.99 μg/dL and within 1 week at 20.00 – 44.99 μg/dL)

If diagnostic test result is 10.00 - 44.99 µg/dL, take same action as previous category AND

- Refer to local health department for required environmental investigation
- · Refer child to CDSA\* Early Intervention or CMARC\*\* as appropriate
- Refer to Social Services as needed for housing or additional assistance
- $\cdot \ \text{For 10.00 24.99 } \ \mu\text{g/dL: Conduct follow-up testing every 1-3 months until 2 consecutive tests are < 3.50 \ \mu\text{g/dL}}$
- For 25.00 44.99 μg/dL: Conduct follow-up testing every 2 weeks to 1 month until 2 consecutive tests are < 3.50 μg/dL</li>

## 45.00 - 69.99 µg/dL

Perform diagnostic test ASAP (but at the latest within 48 hours at 45.00 - 59.99 μg/dL and within 24 hours at 60.00 - 69.99 μg/dL)

If diagnostic test result is 45.00 - 69.99 µg/dL, take same action as previous category AND

- Consult with North Carolina Poison Control (800) 222-1222 for advice on chelation and/or hospitalization
- · Consider an abdominal X-ray check for ingested object
- Alert NC CLPPP by calling (919) 707-5854
- Conduct follow-up testing every 2 weeks to 1 month until 2 consecutive tests are < 3.50 µg/dL</li>

## ≥ 70.00 µg/dL

## Perform emergency diagnostic test immediately

If diagnostic test result is ≥ 70.00 µg/dL, take same action as previous category AND

- · Hospitalize child and begin medical treatment immediately
- Conduct follow-up testing every 2 weeks to 1 month until 2 consecutive tests are < 3.50 µg/dL









## FOLLOW-UP SCHEDULE

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   Retest at age 2, earlier if risk of exposure increases.

## 3.50 - 4.99 µg/dL

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If diagnostic test result is 3.50 - 4.99 µg/dL, take same action as previous category AND

- Provide clinical management
- Conduct <u>nutritional assessment</u> and refer child to the WIC Program
- Test other children under the age of six in same household
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## ≥ 70.00 µg/dL

## Perform emergency diagnostic test immediately

If diagnostic test result is  $\geq 70.00 \ \mu g/dL$ , take same action as previous category AND

- Hospitalize child and begin medical treatment immediately
- Conduct follow-up testing every 2 weeks to 1 month until 2 consecutive tests are < 3.50 μg/dL</li>









## All diagnostic (i.e., confirmation) tests should be performed as soon as possible (ASAP)

The **whole point** of using the point of care (POC) (i.e., LeadCare) analyzer is the **advantage of an immediate test result** while the patient **is still at the clinic** - so that the diagnostic specimen can be collected **during the same visit**!











## Diagnostic tests should be venous; however, capillary tests are accepted if a venous cannot be obtained

## What to do if...

- PARENT REFUSES a VENOUS TEST.
- It is difficult to collect a venous specimen
- Patients are usually sent to another facility to have a venous specimen drawn - but, for whatever reason, they don't make it or there is concern they won't go

**Immediately** collect a capillary specimen and sent it to an outside reference laboratory for analysis.









Diagnostic specimens must be sent to an outside reference laboratory for analysis.

Point of care (POC) blood lead analyzers (i.e., LeadCare) should NOT be used for diagnostic tests.

If patients are usually sent to another facility to have a venous specimen drawn - but, for whatever reason, they don't go — bring the patient back in and collect a capillary specimen - but make sure the specimen is sent to an outside reference laboratory for analysis.

Do **NOT** analyze another specimen using the LeadCare analyzer before sending a diagnostic specimen to an outside reference lab.









**DO NOT, DO NOT,** do a repeat analysis using the LeadCare analyzer before sending the diagnostic specimen out.

## By delaying a diagnostic test

- it may be difficult or impossible to get the child back in
- it delays follow-up services
- the child's lead level may continue to rise without intervention











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- . Conduct nutritional assessment and refer child to the WIC Program
- · Test other children under the age of six in same household
- Conduct follow-up testing every 3 months until 2 consecutive tests are < 3.50 µg/dL</li>

## $5.00 - 9.99 \mu g/dL$ Perform diagnostic test ASAP (but at the latest within 3 months)

If diagnostic test result is  $5.00 - 9.99 \,\mu\text{g}/\text{dL}$ , take same action as previous category AND

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- · Refer case to local health department to offer an environmental investigation
- Conduct follow-up testing every 3 months until 2 consecutive tests are < 3.50 μg/dL</li>

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If diagnostic test result is 10.00 - 44.99 µg/dL, take same action as previous category AND

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- Refer child to CDSA\* Early Intervention or CMARC\*\* as appropriate
- Refer to Social Services as needed for housing or additional assistance
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If diagnostic test result is  $45.00 - 69.99 \,\mu\text{g}/\text{dL}$ , take same action as previous category AND

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- · Consider an abdominal X-ray check for ingested object
- Alert NC CLPPP by calling (919) 707-5854
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## ≥ 70.00 µg/dL

## Perform emergency diagnostic test immediately

If diagnostic test result is ≥ 70.00 µg/dL, take same action as previous category AND

- · Hospitalize child and begin medical treatment immediately
- Conduct follow-up testing every 2 weeks to 1 month until 2 consecutive tests are < 3.50 µg/dL

If diagnostic or follow up test result falls within a higher category, conduct another diagnostic test.

It always takes <u>two</u> consecutive tests to confirm a level.









## **Environmental follow-up**

is mandated for children and pregnant women who have a confirmed\* lead level greater than or equal to (≥) 5 µg/dL.



\* based on two consecutive test results ≥ 5 µg/dL within 12 months









North Carolina General Statute § 130A-131.7. Definitions.

"Elevated blood level" means a blood lead concentration of five micrograms per deciliter or greater determined by the lower of two consecutive blood tests within a 12-month period.













North Carolina General Statute § 130A-131.7. Definitions.

"Confirmed lead poisoning" means a blood lead concentration of 10 micrograms per deciliter or greater determined by the lower of <a href="two">two</a> consecutive blood tests within a 12-month period.









		•			Con	firmation ra	nge
Specimen date	Test result	Specimen Type	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10
05/10/2022	9.4	V					







		•			Con	firmation ra	nge	
Specimen date	Test result	Specimen Type	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10	
05/10/2022	9.4	V						

- Diagnostic test is needed ASAP
- Even though the initial test is venous, it always takes <u>two</u> consecutive tests to confirm a lead level.







		Specimen			Con	Confirmation range		
Specimen date	Test result	Туре	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10	
05/10/2022	3.7	С						
05/13/2022	5.3	V						







		Specimen			Con	Confirmation range		
Specimen date	Test result	Туре	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10	
05/10/2022	3.7	С						
05/13/2022	5.3	V		Yes	X			

- Child is confirmed in the 3.50 4.99 range but <u>not</u> the 5.00 9.99 range. It takes *two* consecutive test results ≥ 5.00 to confirm a lead level ≥ 5.00. Follow instructions for If diagnostic test result is 3.50 4.99...
- Perform another diagnostic test ASAP because diagnostic test result is in a higher category.









		Specimen			Cor	Confirmation range		
Specimen date	Test result	Туре	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10	
06/07/2022	5.3	С						
06/14/2022	3.7	С						







		Specimen			Cor	firmation ra	nge
Specimen date	Test result	Туре	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10
06/07/2022	5.3	С					
06/14/2022	3.7	С		Yes	X		

- Child has two consecutive test results ≥ 3.5, child is confirmed in the 3.50 4.99 range.
  - Follow instructions for If diagnostic test result is 3.50 4.99...









		Specimen			Con	<b>Confirmation range</b>		
Specimen date	Test result	Туре	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10	
05/10/2022	3.7	С	POC					
05/13/2022	5.3	С						
05/20/2022	5.9	С	POC					







Is a diagnostic test needed? Yes, ASAP Is child confirmed to have a lead level  $\geq$  3.5 µg/dL? Yes If yes, what is the confirmation range? 3.50 - 4.99

		Specimen			Con	Confirmation range		
Specimen date	Test result	Туре	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10	
05/10/2022	3.7	С	POC					
05/13/2022	5.3	С		Yes	X			
05/20/2022	<mark>5.9</mark>	C	POC					

- Child is confirmed in the 3.50 4.99 range but not the 5.00 9.99 range. It takes two
  consecutive test results ≥ 5 to confirm a lead level ≥ 5.
- The diagnostic specimen <u>MUST</u> be analyzed by an outside reference laboratory. Use of the POC analyzer is not acceptable for analyzing diagnostic specimens.







		Specimen			Con	<b>Confirmation range</b>		
Specimen date	Test result	Туре	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10	
05/10/2022	3.7	С	POC					
05/13/2022	5.3	С						
05/20/2022	9.7	С						







		Specimen			Confirmation range		
Specimen date	Test result	Туре	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10
05/10/2022	3.7	С	POC				
05/13/2022	5.3	С		Yes	X		
05/20/2022	9.7	V		Yes		X	

- Child is confirmed in the 5.00 9.99 range because there are two consecutive test results
  ≥ 5.
  - Follow instructions for If diagnostic test result is 5.00 9.99... which includes referral to EH for environmental follow-up. **This is an EBL case**.







		Specimen			Con	Confirmation range		
Specimen date	Test result	Type	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10	
05/10/2022	10.7	С						
05/13/2022	9.4	V						
08/19/2022	12.1	С						







Is a diagnostic test needed? Yes
Is child confirmed to have a lead level  $\geq 3.5 \,\mu g/dL$ ? Yes
If yes, what is the confirmation range? 5.00 - 9.99

		Specimen			Con	<b>Confirmation range</b>		
Specimen date	Test result	Type	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10	
05/10/2022	10.7	С						
05/13/2022	9.4	V		Yes		X		
08/19/2022	12.1	С		Yes		X		

- Child is confirmed in the 5.00 9.99 range because there are two consecutive test results
   ≥ 5.
  - Follow instructions for If diagnostic test result is 5.00 9.99... which includes referral to EH for environmental follow-up. **This is an EBL case**.
- Follow-up test of 12.1 is in a higher category. Perform another diagnostic test ASAP









		Specimen			Confirmation range		
Specimen date	Test result	Туре	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10
05/10/2022	10.7	С					
05/13/2022	9.4	V					
08/19/2022	12.1	С					
08/23/2022	13.7	V					







Is a diagnostic test needed? No Is child confirmed to have a lead level  $\geq 3.5 \,\mu g/dL$ ? Yes If yes, what is the confirmation range?  $\geq 10$ 

		Specimen			Confirmation range		
Specimen date	Test result	Туре	POC Lab	Confirmed?	3.50 - 4.99	5.00 - 9.99	≥ 10
05/10/2022	10.7	С					
05/13/2022	9.4	V		Yes		X	
08/19/2022	12.1	С		Yes		X	
08/23/2022	13.7	V		Yes			X

- Child is confirmed to have a lead level ≥ 10 because there are two consecutive test results ≥ 10.
  - Follow instructions for **If diagnostic test result is 10.00 44.99**... which includes referral to EH for environmental follow-up. This is a **CLP** case.









## Statewide web-based system Clinical and environmental case management



## North Carolina LEAD Surveillance System

### **NC LEAD News**

NCLEAD Production Environment NC LEAD is operating normally.

NC LEAD may be unavailable between 10AM and 12 Noon on the 1st and 3rd Sundays of each month.



Welcome to the North Carolina Lead Surveillance System (NC LEAD), a secure site for North Carolina healthcare workers. NC LEAD is provided by the **North Carolina Division of Public Health**, a division of the **North Carolina Department of Health and Human Services**.

- + User Privacy NOTICE
- + Use Policy
- + Quick Help











## How does it work?

**State Lab Commercial and** LabCorp **Point of Care Labs** Mayo Quest Reformat **Direct** Recode Feed north carolina **North Carolina LEAD Surveillance System** 









## **Clinical Workflow Overview**

Blood lead test results

Case Processor

Workflows









## **Workflow Queues**

## **Workflow Queues**

Workflow Queue	Total Count (Assigned to me)	Priority	Last Update	
1. General				
Childhood Lead Events with User Generated Concerns	237 (0)	Medium	02/27/2020 02:27 PM	
Shared Cases - All	509 (0)	Medium	02/27/2020 02:17 PM	
Shared Cases - Cases shared by me	0 (0)	Medium	02/27/2020 02:30 PM	
Shared Cases - Cases shared with me or my group(s)	426 (0)	Medium	02/27/2020 02:30 PM	
3. Clinical				
01. Children In Need of Follow-up Testing	934 (0)	Medium	02/27/2020 02:24 PM	
02. Diagnostic testing needed	377 (0)	Medium	02/27/2020 02:24 PM	
03. Refugee Children in Need of First Blood Lead Test (Open Events)	976 (0)	Medium	02/27/2020 02:24 PM	
04. Refugee Children in Need of Second Blood Lead Test (Open Events)	84 (0)	Medium	02/27/2020 02:24 PM	
Task Specific Monitors (Add Task)				
All Open Tasks	297 (0)	Medium	02/27/2020 02:17 PM	
Completed Tasks Created by Me (less than 30 days old)	0 (0)	Medium	02/27/2020 02:30 PM	
My Groups' Open Tasks	19 (0)	Medium	02/27/2020 02:30 PM	
My Open Tasks	0 (0)	Medium	02/27/2020 02:30 PM	
My Overdue Tasks	0 (0)	Medium	02/27/2020 02:30 PM	
Open Tasks Created by Me	0 (0)	Medium	02/27/2020 02:30 PM	
Overdue Tasks Created by Me	0 (0)	Medium	02/27/2020 02:30 PM	









## **Questions?**

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Melanie Napier melanie.napier@dhhs.nc.gov (919) 407-9401

Samantha Sites <a href="mailto:samantha.sites@dhhs.nc.gov">samantha.sites@dhhs.nc.gov</a> (919) 819-0055

Jeff Smedley jeff.smedley@dhhs.nc.gov (919) 794-1165

The NCLEAD Help Desk email is LeadHelpDesk@lists.ncmail.net







