SENTARA HEALTH PLANS CLINICAL PRACTICE GUIDELINE:

CHILDHOOD LEAD POISONING TESTING

Guideline History

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VIRGINIA GUIDELINES

TESTING VIRGINIA CHILDREN FOR LEAD EXPOSURE [1]

ALL MEDICAID ENROLLED CHILDREN ARE REQUIRED TO BE TESTED AT BOTH 12 AND 24 MONTHS OF AGE

To determine risk for other children:

Blood lead levels shall be obtained in children at ages 12 ***and*** *24 months of age if they meet ANY one of the criteria noted in the box below. In addition, chilaren over the age of 24 months up to 72 months of age who have not previously been tested and meet ANY one of the criteria in the box below, or experienced a change since testing that has resulted in an increased risk, shall also be tested.*

1. The child is eligible for or receiving benefits from Medicaid or the Special Supplemental Nutrition Program for Women, Infants and Children (WIC);
2. The child is living in or regularly visiting a house, apartment, dwelling, structure, or child care facility built before 1960;
3. The child is living in or regularly visiting a house, apartment, dwelling, structure, or child care facility built before 1978 that has (i) peeling or chipping paint or (ii) recent (within the last six months) ongoing or planned renovations;
4. The child is living in or regularly visiting a house, apartment, welling, or other structure in which one or more persons have blood lead testing yielding evidence of lead exposure;
5. The child is living with an adult whose job, hobby, or other activity involves exposure to lead;
6. The child is living near an active lead smelter, battery recycling plant, or other industry likely to release lead;
7. The child's parent, guardian, or other person standing in loco parentis requests the child's blood be tested due to any suspected exposure; or
8. The child is a recent refugee or immigrant or is adopted from outside of the United States.

Take careful history regarding possible lead exposure at each well-child visit, and provide lead poisoning prevention materials.

- *Testing may be performed by venipuncture or capillary. Filter paper collection methods are also acceptable and often more convenient for the family if performed in the provider's office.*
- *The use of a CL/A-waived lead testing device approved by CDC and the FDA may be used as a "screening" test, and any level above 3.Sµg/dL needs to be confirmed by submitting a venous sample to a CL/A-approved laboratory.*

[1] **https://www.vdh.virginia.gov/leadsafe/health-care-providers/**

What You Should Know
Childhood Lead Poisoning

Low levels of lead in the blood can affect IQ cause learning disabilities, behavioral problems, and at very high levels, seizures, coma, and even death. The effects of lead exposure are not reversible.

How Are Children Exposed to Lead?

Major sources oflead exposure among U.S. children are lead-based paint and lead-contaminated dust found in deteriorating buildings and housing built before 1978.

Other sources of lead poisoning include:

•Home health remedies (i.e. arzacon, greta, pay-loo-ah),
• Some imported candies (specifically those from Mexico),
• Imported toy jewelry and make up.
• Drinking water (lead pipes, solder, brass fixtures, and valves can all leach lead),
• Work (recycling or making automobile batteries), and
• Hobbies (making stained-glass windows, pottery). Imported items including clay pots
Certain Imported home
remedies

Those at risk include children:

- Under the age of six years
- Living in buildings built before 1978
- Living at or below the poverty line
- Some racial and ethnic groups

Preventing Lead Poisoning

The key to protecting children from lead exposure is to prevent lead exposure before it happens by keeping children from coming into contact with lead and treating children who have been poisoned by lead.

- Identify and safely remove all lead hazards.
- Parental guidance and education on lead poisoning
- Test and treat for lead poisoning as needed

Decrease your exposure to lead by:

- Getting your child (ren) tested if you are concerned about a possible lead exposure.
- Getting your home tested for lead if you live in a house or apartment built before 1978, especially if young children live with you or visit you.
- Damp-mop floors; damp-wipe surfaces; and frequently wash a child's hands, pacifiers, and toys
- A void using home remedies and cosmetics that contain lead (i.e. arzacon, greta, pay-loo-ah, kohl, alkohl)
- Children and pregnant women should not eat candies imported from Mexico.
- Use cold water from the tap for drinking, cooking, and making baby formula.

Source: Adapted from CDC (October 2012) Blood Lead Levels in Children Fact Sheet [PDF-168 KB] Retrieved January 20, 2020 https://www.cdc.gov/nceh/lead/prevention/blood-lead-levels.htm

Blood Lead Reference Value

CDC uses a blood lead reference value (BLRV) of 3.5 micrograms per deciliter (µg/dL) to identify children with blood lead levels that are higher than most children's levels.

CDC's Blood Lead Reference Value

In 2012, the Centers for Disease Control and Prevention (CDC) introduced a blood lead "reference value" to identify children with higher levels of lead in their blood compared to most children. This level is based on the 97.5th percentile of the blood lead values among U.S. children ages 1-5 years from 2015-2016 and 2017-2018 National Health and Nutrition Examination Survey (NHANES) cycles. Children with blood lead levels at or above the BLRV represent those at the top 2.5% with the highest blood lead levels.

NHANES is a population-based survey to assess the health and nutritional status of adults and children in the U.S. and determine the prevalence of major diseasesThe value of 3.5 µg/dL was derived from NHANE5 data from the 2015-2016 and 2017-2018 cycles.

The Federal Advisory Committee, called the Lead Exposure and Prevention Advisory Committee (LEPAC), unanimously voted on May 14, 2021 in favor of recommending that CDC update the reference value to 3.5 µg/dL based on these NHANE5 data. and risk factors for diseases. Every four years, CDC reanalyzes blood lead data from the most recent two NHANES cycles to determine whether the reference value should be updated.

CDC's BLRV is a screening tool to identify children who have higher levels of lead in their blood compared with most children. The reference value is not health-based and is not a regulatory standard. States independently determine action thresholds based on state laws, regulations, and resource availability. CDC encourages healthcare providers and public health professionals to follow the recommended follow-up actions based on confirmed blood lead levels.

Previous Terminology

Until 2012, children were identified as having a blood lead "level of concern" if the test result was 10 or more micrograms per deciliter (µg/dL) of lead in blood. CDC is no longer using this term and is instead using the blood lead reference value to identify children who have more lead in their blood than most children.

In 2012, the blood lead reference value (BLRV) for children corresponding to the 97.5 percentile was established to be 5 micrograms per deciliter (µg/dL) based NHANES data from 2007-2010. Prior to this current update, blood lead levels below 5 µg/dL may, or may not, have been reported to parents. The new lower blood lead reference value of 3.5 µg/dL means that more children could be identified as having lead exposure allowing parents, doctors, public health officials, and communities to act earlier to reduce the child's future exposure to lead.

Recommended Actions Based on Blood Lead Level

Summary of Recommendations for Follow-up and Case Management of Children Based on Initial Screening Capillary and Confirmed* Venous Blood Lead Levels

Initial Screening Capillary Blood Lead Level (BLL) -if the initial screening test is done using a venous sample, proceed to the next section titled, "Confirmed Venous Blood Lead Level."

≥3.5 µg/dL micrograms per deciliter

- Anticipatory guidance about common sources oflead exposure and how to prevent exposure
  - Common sources include paint in homes built prior to 1978, soil near sources of lead such as smelters, and take-home exposures related to adult occupations or hobbies. A full list of sources is available at Sources of Lead Exposure.
  - Exposure can be reduced by frequent washing of hands, especially before meals, and washing toys. For children living in or frequenting homes or structures built before 1978, reduce potential lead-based paint dust by wet-wiping windows and windowsills and wet-mopping floors, avoiding renovations that may create lead-based paint dust, and covering chipping or peeling paint to make it inaccessible.

•Obtain a confirmatory venous sample for blood lead testing based on the schedule shown in Table 1, "Recommended Schedule for Obtaining a Confirmatory Venous Sample."
Confll'med Venous Blood Lead Level (BLL)-an initial screening test using a venous sample or an initial screening capillary test followed by a venous blood sample.

< 3.5 Jlg/dL micrograms per deciliter

- Anticipatory guidance about common sources oflead exposure and how to prevent exposure
- Routine assessment of developmental milestones and nutritional status with a focus on iron and calcium intake
- Follow-up blood lead testing at recommended intervals based on child's age
  - All Medicaid-enrolled children are required to be tested at ages 12 and 24 months, or at age 24-72 months if they have not previously been screened.
  - For children not enrolled in Medicaid, CDC recommends targeted screening efforts to focus on high-risk neighborhoods and children based on age of housing and sociodemographic risk factors. Public health and clinical professionals should collaborate to develop screening plans responsive to local conditions using local data. In the absence of such plans, universal blood lead testing is appropriate.

3.5-19 Jlg/dL micrograms per deciliter

- Follow recommendations for BLL < 3 .5 µgldL as described above.
- Report test result to state or local health department.

- Environmental exposure history to identify potential sources of lead
- Environmental investigation of the home to identify potential sources of lead, as required**
- Ensure iron sufficiency via testing and treatment per AAP guidelines
- Nutritional counseling related to calcium and iron intake and refer to supportive services, as needed (e.g., Special Supplemental Nutrition Program for Women, Infants and Children (WIC), etc.)
- Assess development per AAP guidelines and refer to supportive services, as needed (e.g., developmental subspecialists, Early Intervention Program (EIP), etc.)
- Follow-up blood lead monitoring at recommended intervals according to the schedule shown in Table 2, "Schedule for Follow-Up Blood Lead Testing"

20–44 µg/dL micrograms per deciliter

- Follow recommendations for BLL 3.5-19 µg/dL as described above.
- Complete history and physical exam assessing for signs and symptoms related to lead
- Environmental investigation of the home and lead hazard reduction
- Consider obtaining an abdominal X-ray to evaluate for lead-based paint chips and other radiopaque foreign bodies, especially in children in whom pica or mouthing of lead-contaminated surfaces is a concern; initiate bowel decontamination if indicated.
- Contact a Pediatric Environmental Health Specialty Unit (PEHSU) or poison control center for guidance.

≥45 µg/dL micrograms per deciliter

- Follow recommendations for BLL 20-44 µg/dL as described above.
- Complete history and physical exam including detailed neurological exam
- Obtain abdominal X-ray and initiate bowel decontamination if indicated.
- If the patient exhibits signs or symptoms of lead poisoning, emergently admit them to a hospital.
- If a lead-safe environment cannot be assured or if chelation therapy is being considered in consultation with a PEHSU or poison control center, admit the patient to a hospital.
- Contact a Pediatric Environmental Health Specialty Unit (PEHSU) or poison control center for assistance.

µg/dL: micrograms per deciliter

***Confirmed BLL**: capillary screening results equal to or greater than the BLRV should be confirmed with blood drawn by venipuncture (see Table 1 below, "Recommended Schedule for Obtaining a Confirmatory Venous Sample"). Confirmatory testing is not required when an initial screening test is performed using a venous sample.

****Environmental investigations** at BLLs 3.5–19 µg/dL vary based on jurisdictional requirements and available resources.

Table 1: Recommended Schedule for Obtaining a Confirmatory Venous Sample

Blood Lead Level (µg/dL)	Time to Confirmation Testing**
≥3.5–9	Within 3 months
10–19	Within 1 month
20–44	Within 2 weeks
≥45	Within 48 hours

**The higher the BLL is on the initial screening capillary test, the more urgent it is to get a venous sample for confirmatory testing.

Table 2: Schedule for Follow-Up Blood Lead Testing[a]

Venous blood lead levels (µg/dL)	Early follow up testing (2–4 tests after initial test above specific venous BLLs)	Later follow up testing after BLL declining
≥3.5–9	3 months*	6–9 months
10–19	1–3 months*	3–6 months
20–44	2 weeks–1 month	1–3 months
≥45	As soon as possible	As soon as possible

[a] Changes in BLLs due to seasonal weather changes may be more apparent in colder climate areas. Greater exposure in the summer months may necessitate more frequent follow ups.

*Some case managers or healthcare providers may choose to repeat blood lead tests on all new patients within a month. Repeated testing may confirm that the child's BLL is decreasing.

References:

- CDC. (2024, October 30). Testing for Lead Poisoning in Children. Childhood Lead Poisoning Prevention. https://www.cdc.gov/lead-prevention/testing/ from https://www.cdc.gov/lead-prevention/testing/
- Detection of Lead Poisoning. (n.d.). Www.aap.org. https://www.aap.org/en/patient-care/lead-exposure/detection-of-lead-poisoning/ from
- https://www.aap.org/en/patient-care/lead-exposure/detection-of-lead-poisoning/

The following actions are NOT recommended at any BLL:

- Searching for gingival lead lines
- Testing of neurophysiologic function
- Evaluation of renal function (except during chelation with EDT A)
- Testing of hair, teeth, or fingernails for lead
- Radiographic imaging of long bones
- X-ray fluorescence oflong bones

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Guidelines for Childhood Lead Poisoning Testing
Resources

CDC Childhood Lead Poisoning Prevention Program **www .cdc.gov/nceh/lead/**

Virginia Department of Health **http://www. vdh. virginia.gov/leadsafe/**

These Guidelines are promulgated by Sentara Health Plans as recommendation for the clinical management of specific conditions. Clinical data in a particular case may necessitate or permit deviation from these Guidelines. The Sentara Health Plans Guidelines are institutionally endorsed recommendations and are not intended as a substitute for clinical judgment