

NEBRASKA

Good Life. Great Mission.

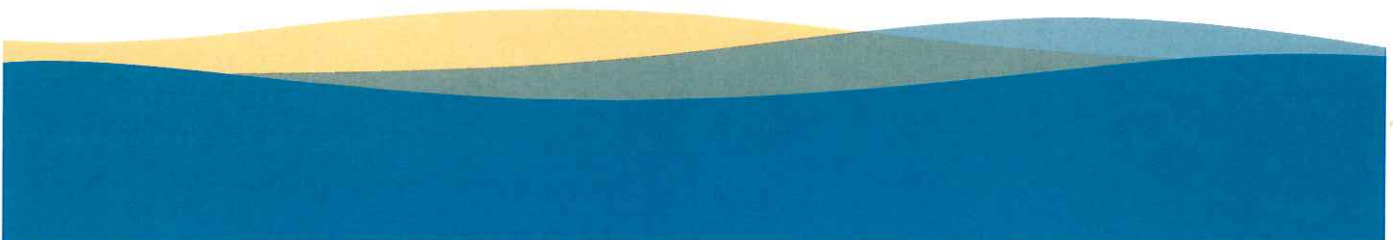
DEPT. OF HEALTH AND HUMAN SERVICES

Division of Public Health

Elevated Blood Lead Levels for Children Age 0 - 6 Report

1/1/2019

§ 71-2518



NEBRASKA

Good Life. Great Mission.

DEPT. OF HEALTH AND HUMAN SERVICES



Pete Ricketts, Governor

December 5, 2018

Patrick O'Donnell, Clerk of the Legislature
State Capitol, Room 2018
P.O. Box 94604
Lincoln, NE 68509

RE: 2018 Elevated Blood Lead Level Annual Report

Dear Mr. O'Donnell:

In accordance with Neb. Rev. Stat. §71-2518, please find attached a copy of the 2018 Annual Report on Elevated Blood Lead Levels for Children Age 0-6 Years Old. This report describes the work accomplished by the Nebraska Childhood Lead Poisoning Prevention Program and lists the number of children tested and the number of children with an elevated level in Nebraska during October 1, 2017 to September 30, 2018.

Sincerely,

Bo Botelho
Interim Chief Executive Officer
Department of Health and Human Services

Nebraska Childhood Lead Poisoning Prevention Program

Annual Report on Elevated Blood Lead Levels for Children Age 0-6 Years Old

October 1, 2017 to September 30, 2018

Background

In April 2012, the Nebraska Legislature passed the Childhood Lead Poisoning Prevention Act, codified in Neb. Rev. Stat. §§ 71-2513 to 71-2518. The statutes require that the DHHS Division of Public Health establish a Lead Poisoning Prevention Program to include the following components:

- Develop a statewide blood lead testing plan and a risk assessment screening questionnaire
- Develop an educational and community outreach plan including development of educational materials
- Initiate contact with the local public health department or the physician when a child has an elevated blood lead level (EBLL) and offer technical assistance
- Report annually to the legislature

This report describes the progress that has been made in carrying out the duties prescribed above, including the number of children age 0 through 6 years old tested for elevated blood lead levels and who were confirmed to have elevated blood lead levels during the period of October 1, 2017 to September 30, 2018. The report compares the results of previous fiscal years and describes any revisions to the testing plan.

Program Overview

The Nebraska Childhood Lead Poisoning Prevention Program is funded by a federal grant from the Centers for Disease Control and Prevention (CDC). The three-year grant began on October 1, 2017 and marks DHHS' first CDC funding in more than 10 years for childhood lead poisoning prevention. The goal of the Nebraska Childhood Lead Poisoning Prevention Program is to prevent lead exposures among children in Nebraska. The grant funding allows DHHS to coordinate public health surveillance and outreach activities, but does not cover direct services (i.e. testing). The Program has four key strategies to reach its goal: strengthen blood lead testing, strengthen surveillance and detection, strengthen population-based interventions, and enhance processes that identify and provide services to lead-exposed children.

Numbers of Children Tested and Confirmed Elevated Blood Lead Levels

Under Neb. Rev. Stat. § 71-2518 (2), all blood lead level tests conducted in Nebraska are required to be reported to the Department. Blood lead tests are also reportable under Title 173 Chapter 1 of the Nebraska Administrative Code, which requires physicians and laboratories to report test results within 7 days. Blood lead test reports are submitted from physicians and laboratories to the Department either by automated electronic laboratory reporting to the Nebraska Electronic Disease Surveillance System (NEDSS), or is sent via mail or facsimile to be manually entered by program staff into NEDSS.

In fiscal year 2018, 37,662 children 0-6 years old were tested for elevated blood lead levels. A total of 466 (1.2%) of children tested had confirmed elevated blood lead levels of 5 micrograms per deciliter ($\mu\text{g}/\text{dL}$) or higher.

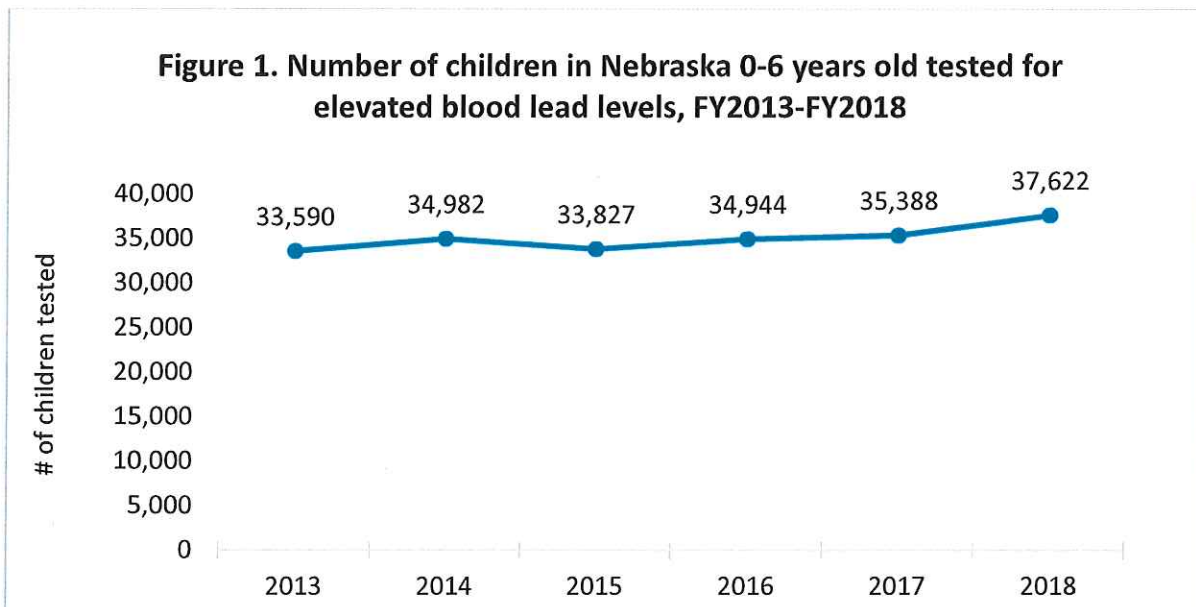
Table 1 provides the number and percent of children 0-6 years old tested and those with elevated blood lead levels for the fiscal years 2013-2018. Figure 1 shows the number of children age 0-6 years old tested for elevated blood lead levels for the fiscal years 2013-2018. Figure 2 shows the number and percent of children age 0-6 years old tested with confirmed elevated blood lead levels $\geq 5 \mu\text{g}/\text{dL}$ for the fiscal years 2013-2018.

Table 1. Total Number of Children 0-6 Years Old Tested for Lead and the Number (#) and Percent (%) of Children with Elevated Blood Lead Levels ($\geq 5\mu\text{g}/\text{dL}$) by Fiscal Year in Nebraska: 2013-2018

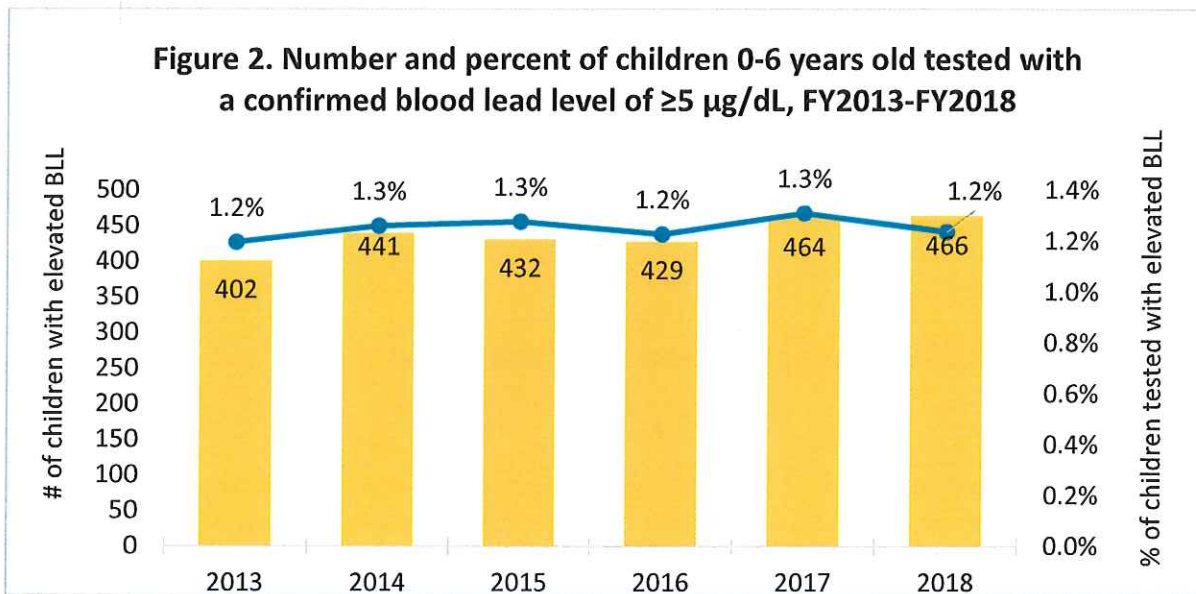
Fiscal Year	# of children tested	# of children with confirmed elevated BLL ($\geq 5\mu\text{g}/\text{dL}$)*	% of children tested with confirmed elevated BLL ($\geq 5\mu\text{g}/\text{dL}$)
2013	33,590	402	1.2%
2014	34,982	441	1.3%
2015	33,827	432	1.3%
2016	34,944	429	1.2%
2017	35,388	464	1.3%
2018	37,622	466	1.2%

Note: data are provisional and may be revised as additional reports are received.

*Confirmed with a venous test



Note: data are provisional and may be revised as additional reports are received.



Note: data are provisional and may be revised as additional reports are received.

Statewide Blood Lead Testing Plan

In 2012, DHHS developed a statewide plan to provide guidance regarding which children should receive a screening test for lead poisoning based on three criteria. To accompany this plan, DHHS provides a standard to be used in identifying elevated blood lead levels. DHHS recognizes the CDC reference level for an elevated blood lead level of 5 micrograms per deciliter.

Testing Criteria 1

The first criterion in the testing plan is geography. To isolate important geographic variables, DHHS studied surveillance and demographic data, the percentage of older housing, and locations of known lead sources. The methodology determined zip codes that historically have had increased risk of lead exposure. These include the Omaha Superfund Site (Baseline Human Health Risk Assessment, Omaha Lead Superfund Site, DHHS, 2004) as well as those zip codes with at least 5 lead poisoning cases between 2014 and 2015 and with more than 27% of the housing stock built before 1950. DHHS plans to re-evaluate the zip codes in 2019 using updated surveillance data.

Testing Criteria 2

The second criterion of the plan states what is currently required by the Medicaid and Women, Infants, and Children (WIC) programs. Per federal and state law, all children insured by Medicaid must be tested at 12 and 24 months. Children between the ages of 36 months and 72 months of age must receive a screening blood lead test if they have not been previously screened for lead poisoning (<https://www.medicaid.gov/medicaid/benefits/epsdt/lead-screening/index.html>). WIC requires that upon enrollment of a child, the parent must be asked if the child has had a blood lead test. If the child has not had a test, they must be referred to programs where they can obtain such a test (Federal Policy MPSF-WC-01-05-P).

Testing Criteria 3

The third criterion of the plan consists of a questionnaire designed to identify lead exposure risks not addressed by the other criteria. The child's parents or guardians should be asked specific exposure questions to determine each child's risk. If the response to any of the questions is "yes" or "don't know," the child should be tested annually through age 5. The questions are as follows:

1. Does the child live in or often visit a house, daycare, preschool, home of a relative, etc., built before 1950?
2. Does the child live in or often visit a house built before 1978 that has been remodeled within the last year?
3. Does the child have a brother, sister or playmate with lead poisoning?
4. Does the child live with an adult whose job or hobby involves lead?
5. Does the child's family use any home remedies or cultural practices that may contain or use lead?
6. Is the child included in a special population group, i.e., foreign adoptee, refugee, migrant, immigrant, foster care child?

In 2012, the Statewide Blood Lead Testing Plan was sent to all members of the Nebraska Medical Association and to all health care providers in the state through the DHHS Health Alert Network. The Testing Plan is routinely distributed to local health department staff and health care providers on an ad-hoc basis. The Plan is available on the DHHS website at: dhhs.ne.gov/lead and is summarized at end of this report.

Education and Community Outreach Activities

DHHS continues to implement education and outreach activities aimed at reducing lead exposures across the state, summarized below.

Activity	Description
Lead Website	The DHHS lead website, available at dhhs.ne.gov/lead , provides easily attainable information to the public and specific audiences such as parents, homeowners, and health care providers.
Educational Materials for Parents	DHHS has developed educational materials for parents of young children. The following brochures are available in English and Spanish and are accessible on the DHHS website. Printed copies were also distributed to 18 local health departments. <ul style="list-style-type: none">• Childhood Lead Poison Prevention• Lead Dust Clean-Up and Control• Preventing Lead Poisoning in Adults• Lead in Toys
Lead Data Infographic	An infographic that presents surveillance data and lead exposure risk information for calendar year 2017 was developed. DHHS plans to distribute to health care providers, local health departments, and other stakeholders.
Health Care Provider Guidelines	DHHS developed updated guidelines for health care providers. The guidelines provide recommendations for managing elevated blood lead levels. A summary of the guidelines is included at the end of this report.

Local
Education and
Outreach
Activities

In January 2018, the DHHS Childhood Lead Poisoning Prevention Program provided subawards to 18 local health departments throughout the state to address key prevention strategies, including community outreach aimed at promoting public awareness of prevention of childhood lead poisoning. From January to September 2018, one hundred and seventy-one local lead poisoning prevention educational and outreach events were conducted across the state which included health fairs, community events, press releases, media clips, educational material mailings, presentations, and health care provider outreach.

Initiate Contact with Local Public Health Departments and Physicians

In 2012, a kickoff video conference was held with local health departments through the Nebraska Statewide Telehealth Network to discuss the development of the Statewide Blood Lead Testing Plan. In 2018, two training webinars were held with local health departments on childhood lead poisoning prevention protocols and guidelines for responding to individuals with elevated blood lead levels. The DHHS Childhood Lead Poisoning Prevention Program continues to communicate with physicians, local health departments, and parents when requests for additional assistance are received.

To ensure children with elevated blood lead levels are identified through surveillance and linked to services, DHHS initiated subawards to 18 local health departments in January 2018 to conduct local blood lead level surveillance, to provide investigation and public health response, and to assist DHHS in coordinating inspections, referrals, and linkages for services. The activities reported by local health departments yielded the following results for January to September 2018,

- 386 elevated blood lead level (≥ 5 $\mu\text{g}/\text{dL}$) cases were identified and investigations were created.
- 208 parents and caregivers were contacted following an unconfirmed elevated capillary lead level test and provided with confirmatory testing recommendations.
- 168 parents and caregivers were contacted by mail following a confirmatory elevated venous lead level test and provided with follow up testing recommendations and exposure prevention information.
- 38 health care providers were provided with medical management recommendations for children with confirmatory elevated venous lead levels ≥ 10 $\mu\text{g}/\text{dL}$.
- Local health departments made a total of 31 referrals to DHHS for environmental inspections for confirmed elevated blood lead levels ≥ 10 $\mu\text{g}/\text{dL}$. On-site environmental inspections were coordinated by local health departments and DHHS. Additional referrals to other services like lead testing in drinking water were provided to families on an as needed basis.

Nebraska DHHS Division of Public Health/Childhood Lead Poisoning Prevention Program
Statewide Blood Lead Risk Assessment/Blood Lead Testing Plan

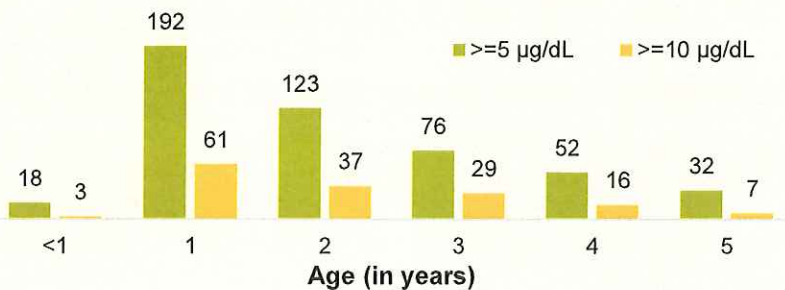
<p>Three Criteria for Testing a Child for Lead Poisoning</p>	<p>CRITERION 1</p> <p>GEOGRAPHY</p> <p>All Children Living in One of Nebraska's Targeted Communities for Lead Assessment/Testing</p>	<p>Specifics for Each Criterion</p> <p> Alliance – 69301 Beatrice – 68310 Central City – 68826 Columbus - 68601 Fairbury - 68352 Fremont – 68025 </p> <p> Grand Island – 68801, 68803 Hastings – 68901 Lincoln – 68502, 68503, 68504, 68507, 68508, 68510, 68521 Nebraska City – 68410 Norfolk - 68701 </p> <p> Omaha – 68102, 68104, 68105, 68106, 68107, 68108, 68110, 68111, 68112, 68131, 68132 Schuyler - 68661 Scottsbluff – 69361 York - 68467 </p> <p>DHHS strongly recommends that all children living in these communities be tested for lead poisoning at 12 and 24 months of age. Children between 25 and 72 months of age need to be tested as soon as possible, if not previously tested.</p> <p><i>Please note that targeted communities may change as more blood lead data is obtained. Zip codes will be re-evaluated annually and posted at www.dhhs.ne.gov/lead.</i></p>
<p>CRITERION 2</p> <p>MEDICAID AND WIC</p> <p><i>Medicaid:</i> ALL CHILDREN INSURED BY MEDICAID MUST BE TESTED—NO EXCEPTIONS OR WAIVERS EXIST.</p> <p><i>WIC:</i> Federal Policy (MPSF: WC-01-05-P) requires that upon enrollment of a child, the parent must be asked if the child has had a blood lead test. If the child has not had a test, they must be referred to programs where they can obtain such a test</p>	<p><i>Medicaid:</i> CMS (Centers for Medicare and Medicaid Services) requires that all children receive a screening blood lead test at 12 months and 24 months of age. Children between the ages of 36 months and 72 months of age must receive a screening blood lead test if they have not been previously screened for lead poisoning. A blood lead test must be used when screening Medicaid-eligible children. (http://www.cms.gov/MedicaidEarlyPeriodicScrn/) (http://www.sos.ne.gov/rules-and-regs/regsearch/Rules/Health_and_Human_Services_System/Title-471/Chapter-33.pdf)</p> <p><i>WIC:</i> For every child age 12 months and older, during the Nutrition Risk Assessment, WIC staff will ask the question “Has your child had a blood lead test done in the past 12 months?” Document the Yes or No response. If a child has not had a blood lead test done, staff make and document a referral for a blood lead test back to their healthcare provider or to a lead screening program.</p>	
<p>CRITERION 3</p> <p>QUESTIONNAIRE For Children NOT Enrolled in Medicaid or WIC And Children NOT Residing within a Target Community</p> <p>The child's parents/guardians should be asked specific exposure questions (see questions at right) to determine each child's risk. If the response to any of the exposure questions is “yes” or “don't know,” the child should be tested.</p>	<p>QUESTIONNAIRE</p> <ol style="list-style-type: none"> 1) Does the child live in or often visit a house, daycare, preschool, home of a relative, etc., built before 1950? 2) Does the child live in or often visit a house built before 1978 that has been remodeled within the last year? 3) Does the child have a brother, sister or playmate with lead poisoning? 4) Does the child live with an adult whose job or hobby involves lead? 5) Does the child's family use any home remedies or cultural practices that may contain or use lead? 6) Is the child included in a special population group, i.e., foreign adoptee, refugee, migrant, immigrant, foster care child? <p><i>For additional information, i.e. jobs, hobbies, home remedies, cultural practices that include lead, visit dhhs.ne.gov/lead</i></p>	

Childhood Lead Exposures in Nebraska, 2017

LEAD is a toxic metal that is harmful to the body. Lead exposure can cause lifelong learning and behavior problems in children. No safe blood lead level has been identified. Children in Nebraska are at risk for lead exposure in both **urban** and **rural communities**.

There is no safe level of lead

Number of children in Nebraska with a confirmed elevated blood lead level, 2017



493

Children in Nebraska aged 0-5 years old had a confirmed elevated blood lead level of **5µg/dL** or higher in 2017.

36,267

Children in Nebraska aged 0-5 years old were tested for lead poisoning in 2017.



1.4%

Percent of children in Nebraska aged 0-5 years old tested for lead poisoning with an elevated blood lead level in 2017



68%

Percent of children with an elevated blood lead level in 2017 aged 2 years old or younger



39%

Percent of children with an elevated blood lead level in 2017 lived in rural counties. 61% lived in urban counties.



308,728

Estimated number of Nebraska housing units with lead-based paint



64%

Percent of Nebraska housing units built before 1978, where lead paint is most likely found

The DHHS Childhood Lead Poisoning Prevention Program works to reduce lead exposure and poisoning among children in Nebraska.

For More Information:
Nebraska Childhood Lead Poisoning Prevention Program
 1-888-282-1100

Childhood Lead Exposures and Poisoning

Medical Management Recommendations

- There is no safe level of lead in the blood. The CDC reference for an elevated blood lead level (BLL) is 5 µg/dL.
- Exposure to lead can have a wide range of effects on a child's development and behavior.
- A BLL of 5 µg/dL or higher requires intervention to prevent further lead exposure and elevation in blood lead levels.
- Any capillary blood lead level ≥ 5 µg/dL should be confirmed with a venous blood test.

Recommended Schedule for Obtaining Confirmatory Venous Test After Capillary Test

Capillary BLL	Confirm Capillary Test with Venous Blood Test:
0 – <5 µg/dL	No confirmation needed. Repeat test according to DHHS Blood Lead Screening Plan.
5 – 9.9 µg/dL	Within 3 months*
10 – 44.9 µg/dL	Within 1 month*
45 – 69.9 µg/dL	Within 24 - 48 hours*
≥ 70 µg/dL	Immediately as an emergency test*

*The higher the BLL on a screening test, the more urgent the need for confirmatory testing.

Medical Management Recommendations for Confirmed Blood Lead Levels

Confirmed BLL	Follow-up Venous Test Schedule	Recommended Actions Based on Confirmed Venous BLL
< 5 µg/dL	No follow-up needed. Continue to test according to DHHS Blood Lead Screening Plan	<ul style="list-style-type: none"> • Review lab results with family. For reference, the geometric mean blood lead level for children 1-5 years old is less than 2 µg/dL. • Repeat blood lead level in 6-12 months if the child is at high risk or risk changes during the timeframe. • Provide anticipatory guidance and discuss common lead exposure sources. Paint in homes built prior to 1978 is most common source of lead exposure.
5 – 9.9 µg/dL	Within 1-3 months* Long-term follow-up: 6-9 months**	<ul style="list-style-type: none"> • Provide education: environmental lead sources, potential health effects, importance of follow-up testing, and preliminary advice on reducing exposures. • Monitor blood lead level until BLL is <5 µg/dL and lead exposures are controlled. • Screen for iron deficiency with appropriate laboratory testing (CBC, ferritin). • Provide nutritional counseling related to iron, calcium, and Vitamin C. Encourage consumption of fruit and iron-enriched foods. Consider multivitamin with iron. • Perform structured developmental screening evaluations at child health maintenance visits, as lead's effect on development may manifest over years. • Consider abdominal x-ray based on the environmental investigation and history (e.g. history of pica or excessive mouthing behaviors). • Consider testing other children in the home who may be exposed. • Refer confirmed BLLs ≥ 10 µg/dL to state or local health department for environmental investigation. • Refer family to services as needed and if eligible: WIC; home visitation; early development/early intervention if developmental delays diagnosed or suspected.
10 – 14.9 µg/dL	Within 1-3 months* Long-term follow-up: 3-6 months**	
15 – 19.9 µg/dL	Within 1-3 months* Long-term follow-up: 1-3 months**	
20 – 44.9 µg/dL	Within 1 month* Long-term follow-up: 1-3 months**	
45 – 69.9 µg/dL	Within 1 week or as medically indicated*	<p>URGENT: Follow guidance above, plus:</p> <ul style="list-style-type: none"> • Oral chelation therapy as indicated. If chelating, consider hospitalization if a lead-safe environment cannot be assured. • Chelation should be done in consultation with an expert. Contact Pediatric Environmental Health Specialty Unit (1-800-421-9916) or Poison Control Center (1-800-222-2222).
≥ 70 µg/dL	As soon as possible*	<p>MEDICAL EMERGENCY: Hospitalize and provide chelation therapy once confirmed with venous blood lead test. Contact Pediatric Environmental Health Specialty Unit (1-800-421-9916) or Poison Control Center (1-800-222-2222).</p>

*The higher the venous blood lead level, the more frequent testing is needed.

**Long-term follow-up should only begin after blood lead level begin to decline and child is in a lead-safe environment.

Lead Exposures and Health Risks in Children

- **Low blood levels at or below 10 µg/dL** are associated with a wide range of subclinical effects on a child's development and behavior, such as inattention, hyperactivity, and decreased cognitive function. Even levels at or below 5 µg/dL can result in decrements in cognitive functions, as measured by IQ scores and academic performance.
- At blood lead levels >40 µg/dL, clinically evident effects such as anemia, abdominal pain, nephropathy, and encephalopathy can be seen. Lower blood lead levels may cause adverse effects on the central nervous system, kidney, and hematopoietic system.
- Lead exposure can be viewed as a lifelong exposure, even after blood lead levels decline. Bone acts as a reservoir for lead over an individual's lifetime.
- Childhood lead exposure has potential consequences for adult health and is linked to hypertension, renal insufficiency, and increased cardiovascular-related mortality.

Managing Elevated Blood Lead Levels in Children

Management for lead exposure should be provided for all children with a confirmed BLL of 5 µg/dL or higher to prevent further lead exposure and increases in lead levels. Most children with elevated BLLs live in or regularly visit a home with deteriorating lead paint. Successful management and/or treatment depends on eliminating the child's exposure. Primary management of lead exposure includes:

1. Finding and eliminating the source of the lead;
2. Instruction in personal and household hygiene measures;
3. Optimizing the child's diet and nutritional status;
4. Close follow-up, including repeat testing to monitor blood lead level.

Lead Poisoning Prevention Tips for Families

- **Keep it Clean:** Wash children's hands often, especially before meals and sleeping. Routinely wet wipe/wet dust floors, tables, and windowsills to remove lead dust. Wash toys often.
- **Make your home lead safe:** Find lead sources in home. Keep children away from peeling or chipping paint and contaminated soil. Renovate safely, as common renovation activities in older homes can create hazardous lead dust. Do not dry scrape, sand, power wash, or sand blast lead paint. Before remodeling a home built before 1978, have your home tested for lead.
- **Healthy Diets:** Provide regular meals and foods rich in iron, calcium, and Vitamin C.
- **Medical Check-ups:** Have child see PCP. If a BLL over 5 µg/dL, make sure child is tested to ensure levels decline.

Common Sources of Lead

Paint and Dust	Occupations and Hobbies	Soil and Water	Cultural/Other Sources
<ul style="list-style-type: none">• Chipping or peeling lead paint and its dust is the most common source of lead exposure• Homes built before 1978 may contain lead-based paint• Even tiny amounts of dust from lead paint can cause a child's blood lead levels to rise• Renovation creates large amounts of hazardous lead dust• Exposures can occur at home, daycare, or a relative's home	<ul style="list-style-type: none">• Lead dust brought home from household member's job or hobby:• Indoor firing ranges, reloading shotgun shells, bullet casting• Making items that contain lead: bullets, batteries, stained glass• Foundries and scrap metal• Construction, painting, remodeling, or demolition	<ul style="list-style-type: none">• Bare soil, especially in areas near old homes, industrial sites, or busy roads• Lead paint can contaminate soil around perimeter of house• Lead can enter drinking water as it passes through household plumbing. Houses built before 1986 may have lead in their plumbing	<ul style="list-style-type: none">• Traditional or folk medicines• Imported cosmetics, especially kohl/surma, sindoor, or kumkum• Imported spices• Ceramic cookware and food storage containers.• Imported candy• Exposure that occurred in another country

For More Information

- Nebraska Childhood Lead Poisoning Prevention Program: 1-888-242-1100 (option 3)
- Douglas County Health Department: 402-444-7825
- Local public health department: Find LHD contact information at: www.dhhs.ne.gov/lhd

References

AAP, 2016. Prevention of Childhood Lead Toxicity. Pediatrics. 2016;138(1):e20161493. <https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/lead-exposure/>
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