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SOUTH HEARTLAND DISTRICT CHILDHOOD LEAD TESTING AND EXPOSURE, 2016–2024

Childhood Lead Testing and Exposure in South Heartland District, 2016–2024
A Public Health Surveillance and Prevention Report

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Executive Summary

Lead is a toxic metal that can be found in and around homes, in soil, water, and some consumer products. There is no safe amount of lead for children. Lead exposure can affect a child's developing brain and nervous system and may contribute to learning, behavior, growth, hearing, and speech problems.

The South Heartland District Health Department (SHDHD) investigates all reported elevated blood lead tests in Adams, Clay, Nuckolls and Webster counties and works to prevent exposures. The jurisdiction has a considerable stock of older homes, which are one source of exposure, and the Department continues to receive reports of elevated blood lead tests. Therefore, childhood lead exposure remains an important public health concern in South Heartland District. The good news is that lead poisoning is preventable and the state of Nebraska has a comprehensive blood lead testing plan to support these efforts.

This report summarizes childhood blood lead testing and elevated blood lead level patterns among children under age 5 in Adams, Clay, Nuckolls, and Webster Counties from 2016 through 2024. The report also describes age-at-testing patterns and housing-age context to support prevention planning, provider outreach, and community education.

Lead testing improved before the COVID-19 pandemic, increasing from 7.2% of children under age 5 tested in 2016 to a district high of 37.8% in 2019. Testing declined after 2020 and remained near 20% in recent years. In 2024, about 21.0% of children under age 5 were tested. During the same period, the district population of children under age 5 changed only modestly, from 2,981 in 2016 to 2,777 in 2024. This suggests that the post-2019 decline in testing was not mainly due to a large decrease in the number of young children, but more likely reflected changes in healthcare access, provider testing practices, pandemic-related disruption, public awareness, or other program and policy factors.

Elevated blood lead levels continue to be identified among children who are tested. Among tested children, the percentage with elevated blood lead levels declined from 14.9% in 2016 to 7.2% in 2024. Among all children under age 5, elevated blood lead levels peaked at 2.9% in 2018 and were 1.5% in 2024. These declines should be interpreted carefully because lower testing can make it less likely to identify all children with lead exposure. A lower observed percentage does not necessarily mean that community lead exposure has been eliminated.

County-level findings show that testing declined from earlier peak years across the district. In 2024, testing remained below pre-pandemic highs in all four counties. These patterns can help

guide provider reminders, family education, and focused outreach in areas with lower recent testing coverage or higher environmental risk.

Age-at-testing patterns show that most children who were tested received testing at ages 1 or 2 years. Among children ages 1–6 with a documented test during 2016–2024, 86.2% had their first documented test by age 2. However, about 13.8% had their first documented test at age 3 or later, and only 31.1% had testing documented at both age 1 and age 2. This supports continued attention to timely testing at recommended ages and risk-based testing for children who may have missed earlier testing or who develop later exposure risks.

Older housing remains an important lead-risk context in South Heartland District. Homes built before 1950 and homes built during 1950–1979 may contain lead-based paint or other aging materials that can contribute to exposure risk, especially when paint is deteriorating or renovation is not done using lead-safe practices. Housing age alone does not confirm exposure, but it is an important prevention signal for families, healthcare providers, home-visiting programs, childcare partners, and local officials.

Race- and ethnicity-specific analyses were reviewed during development of this report but are not included because some county-level subgroups had small numbers. Small numbers can create unstable percentages and year-to-year changes that may not represent meaningful differences. These analyses may still be useful for internal planning and equity-focused partner discussions, but this report focuses on broader actionable findings: testing recovery, county-level testing patterns, timely testing, and housing-risk context.

The main prevention message is clear: South Heartland District should strengthen timely and risk-based childhood lead testing, especially for children with exposure risks related to older housing, renovation, chipping or peeling paint, contaminated soil, high-risk environments, Medicaid-related testing requirements, high-risk zip codes, or other risk factors identified through provider screening.

Key Messages

1. Lead exposure continues to be a preventable risk for children in South Heartland District.
2. Testing improved before COVID-19 but remains below prior peak levels.
3. Elevated blood lead levels are still being identified among children who are tested.
4. Lower testing may lead to missed opportunities to identify children with lead exposure.
5. Most testing occurs at ages 1 and 2, but some children are first tested at 3 or older or may miss recommended repeat testing.
6. Older housing keeps exposure risk relevant across the district.

7. Children need timely testing at recommended ages and additional risk-based testing when exposure risks are present.
8. Providers, families, and local partners can intervene with screening promotion, focused education and awareness, enhanced reporting, and lead-safe housing risk prevention.

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Surveillance Data Figures & Summary

The figures below summarize childhood lead testing and elevated blood lead level trends in South Heartland District from 2016 through 2024. This report focuses on findings that are most useful for prevention, provider outreach, and community action.

The report addresses four key questions:

1. Are enough children being tested for lead?
2. Has testing recovered after the COVID-19 pandemic?
3. What is the older housing lead exposure risk?
4. Are elevated blood lead levels still being identified?
5. Is testing occurring early enough to support prevention?

These figures should be interpreted as public health surveillance findings, not as individual clinical guidance. Elevated blood lead levels are preventable, and surveillance data should be used to strengthen testing, education, outreach, and housing-risk awareness.

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Figure 1. Lead testing and elevated blood lead levels among children under age 5 in South Heartland District, 2016–2024

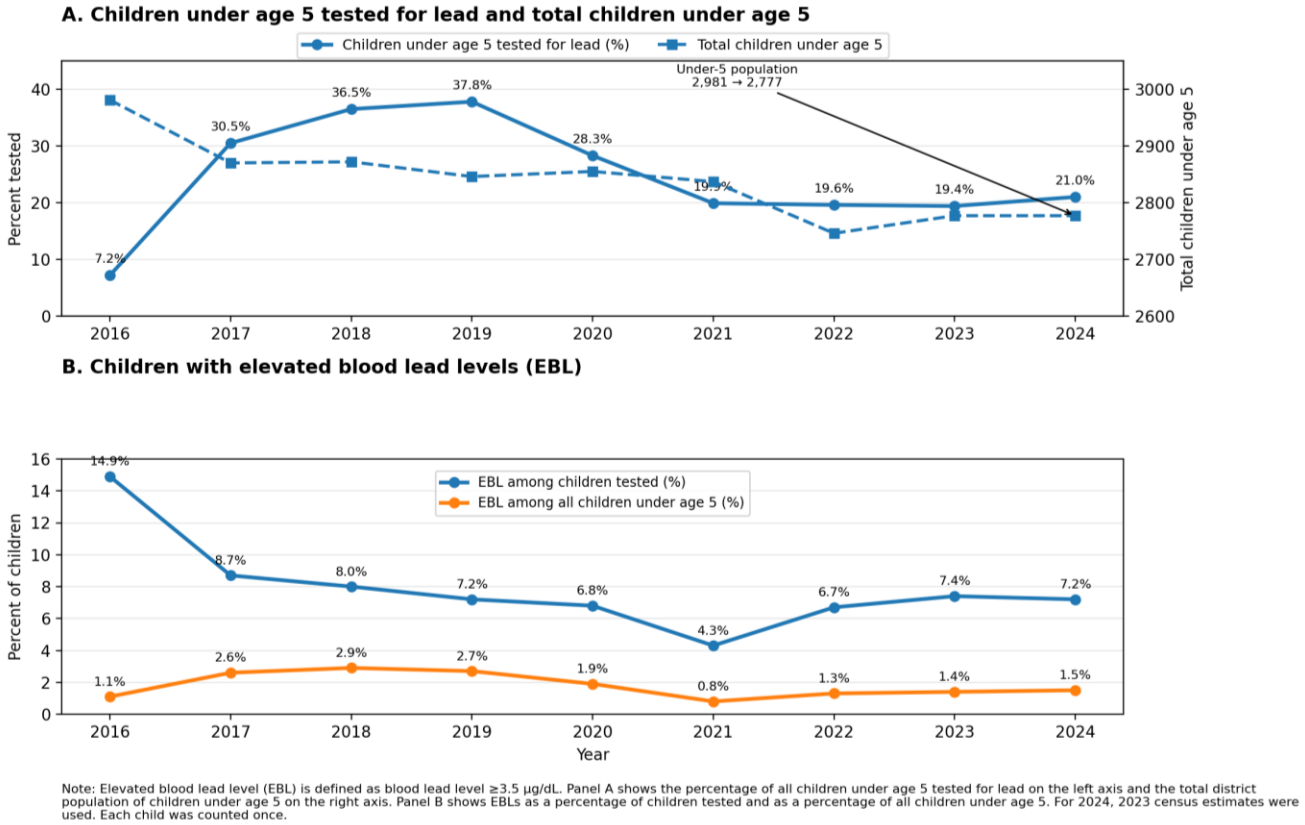

Figure 1 Note: Elevated blood lead level is defined in this report as blood lead level ≥3.5 µg/dL. CDC updated the blood lead reference value from 5.0 µg/dL to 3.5 µg/dL on October 28, 2021. To make the 2016–2024 trend comparable across years, this report applies the current ≥3.5 µg/dL definition consistently to all years in the analysis, rather than changing the definition by year. Panel A shows the percentage of all children under age 5 tested for lead on the left axis and the total district population of children under age 5 on the right axis. Panel B shows elevated blood lead levels as a percentage of children tested and as a percentage of all children under age 5. For 2024, 2023 census estimates were used because 2024 population estimates were not yet available. Each child was counted once in a given year.

Lead testing among children under age 5 in South Heartland District increased from **7.2% in 2016** to a high of **37.8% in 2019**, then declined after 2020 and remained near 20% from 2021 through 2024. In **2024, 21.0%** of children under age 5 were tested.

The district population of children under age 5 changed modestly during the same period, from **2,981 in 2016** to **2,777 in 2024**. This population context suggests that the decline in testing after 2019 was not mainly explained by large changes in the number of children under age 5.

Among children tested, the percentage with elevated blood lead levels declined from **14.9% in 2016** to **7.2% in 2024**. Among all children under age 5, elevated blood lead levels peaked at **2.9%**

in 2018 and were **1.5% in 2024**. Because testing declined after 2020, trends in elevated blood lead levels should be interpreted carefully. Lower testing can make it harder to identify all children affected by lead exposure.

Key takeaway: Lead testing improved through 2019 but dropped after 2020 and has not fully returned to earlier peak levels. The under-5 population changed only modestly during this period, while elevated blood lead levels continued to be identified. This supports the need for timely and risk-based childhood lead testing.

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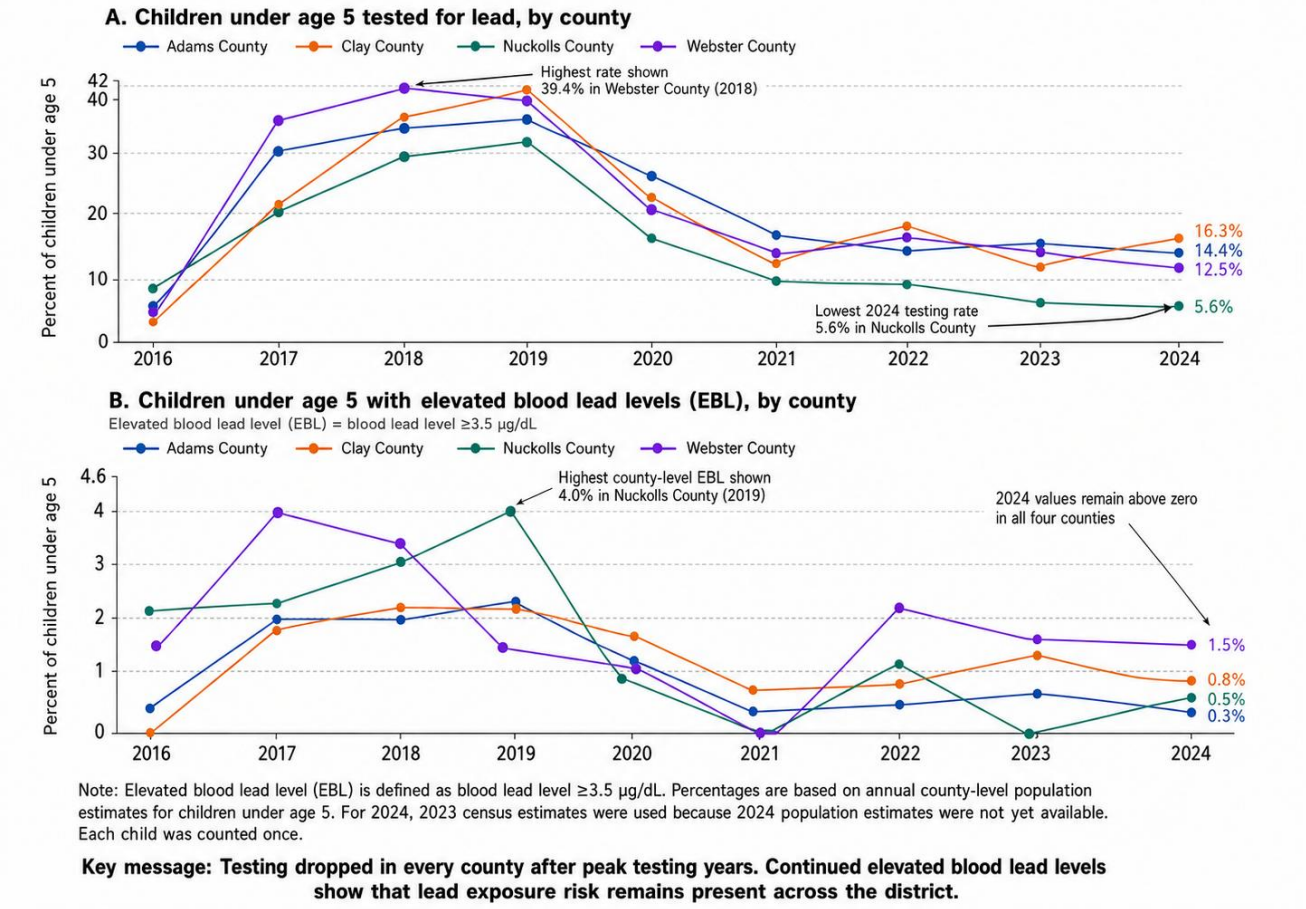
Figure 2. Lead testing and elevated blood lead levels among children under age 5 by county, South Heartland District, 2016–2024



Note: Elevated blood lead level (EBL) is defined as blood lead level ≥3.5 µg/dL. Percentages are based on annual county-level population estimates for children under age 5. For 2024, 2023 census estimates were used because 2024 population estimates were not yet available. Each child was counted once.

Key message: Testing dropped in every county after peak testing years. Continued elevated blood lead levels show that lead exposure risk remains present across the district.

Figure 2 Note: Elevated blood lead level is defined as blood lead level ≥3.5 µg/dL. Percentages are based on annual county-level population estimates for children under age 5. For 2024, 2023 census estimates were used because 2024 population estimates were not yet available. Each child was counted once. County-level percentages may fluctuate from year to year, especially in counties with smaller under-5 populations.

Lead testing increased in all four counties before declining after earlier peak years. By 2024, testing remained below peak levels across the district. In 2024, testing rates were **16.3% in Clay County**, **14.4% in Adams County**, **12.5% in Webster County**, and **5.6% in Nuckolls County**.

Elevated blood lead levels were generally lower in recent years compared with earlier years, but elevated results continued to be identified. This means lead exposure remains present even when testing levels are lower. County-level patterns can help guide prevention activities, including provider reminders, community outreach, and education in areas with older housing or lower recent testing coverage.

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These county-level findings should be used for public health planning and prevention, not to overinterpret small year-to-year changes.

Key takeaway: Testing declined from earlier peak years across all four counties, and elevated blood lead levels continue to be identified. County-level trends can help guide outreach, provider engagement, and prevention efforts.

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Figure 3. Age distribution of children tested for lead by county, South Heartland District, 2016–2024

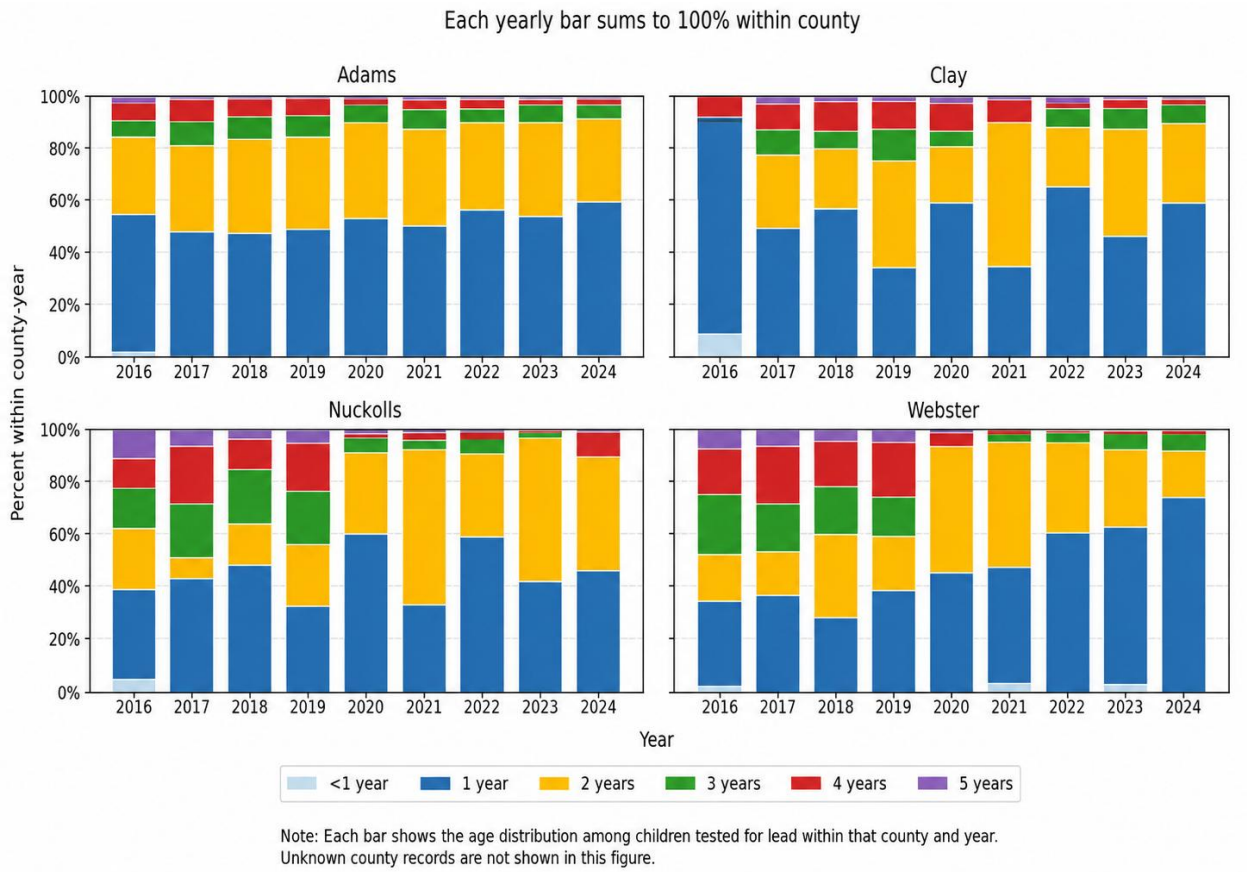

Figure 3 Note: Each bar shows the age distribution among children tested for lead within that county and year, and each yearly bar sums to 100%. This figure does not show the percentage of all children in each age group who were tested. Unknown county records are not shown in this figure. Children were counted once per year.

The age distribution of children tested for lead varied across counties and over time, but most testing was concentrated among **1-year-old** and **2-year-old** children. In Adams County, testing was consistently focused in these early childhood ages throughout the reporting period. Clay County also showed most testing among children ages 1 and 2, although the age pattern varied more from year to year.

Nuckolls County and Webster County showed greater variation across years, especially in earlier years, with some years showing a larger share of testing among children ages 3 through 5. In more recent years, however, testing in these counties also became more concentrated among children ages 1 and 2. Across counties, children younger than 1 year and children age 5 generally represented a small share of testing.

These age patterns suggest that much of the district's lead testing is occurring during early childhood, which supports prevention goals. At the same time, the figure also shows that the timing of testing can vary by county and year. Provider reminders and risk-based screening remain important, especially when older children have possible exposure risks such as living in or visiting older homes, exposure to chipping paint or renovation dust, or contact with contaminated soil.

Key takeaway: Most lead testing occurred among children ages 1 and 2, although county-level age patterns varied over time. This aligns with Nebraska guidance emphasizing blood lead testing at 12 months and again at 24 months for children with identified risk factors and children in higher-risk settings, including high-risk zip codes and Medicaid-related testing requirements. Children ages 36–72 months should be tested if they have not been previously tested. Continued provider attention is needed to support timely early-childhood testing and risk-based screening for older children when exposure risks are present.

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Figure 4A. Housing Units Built Before 1950 in South Heartland District (2020)

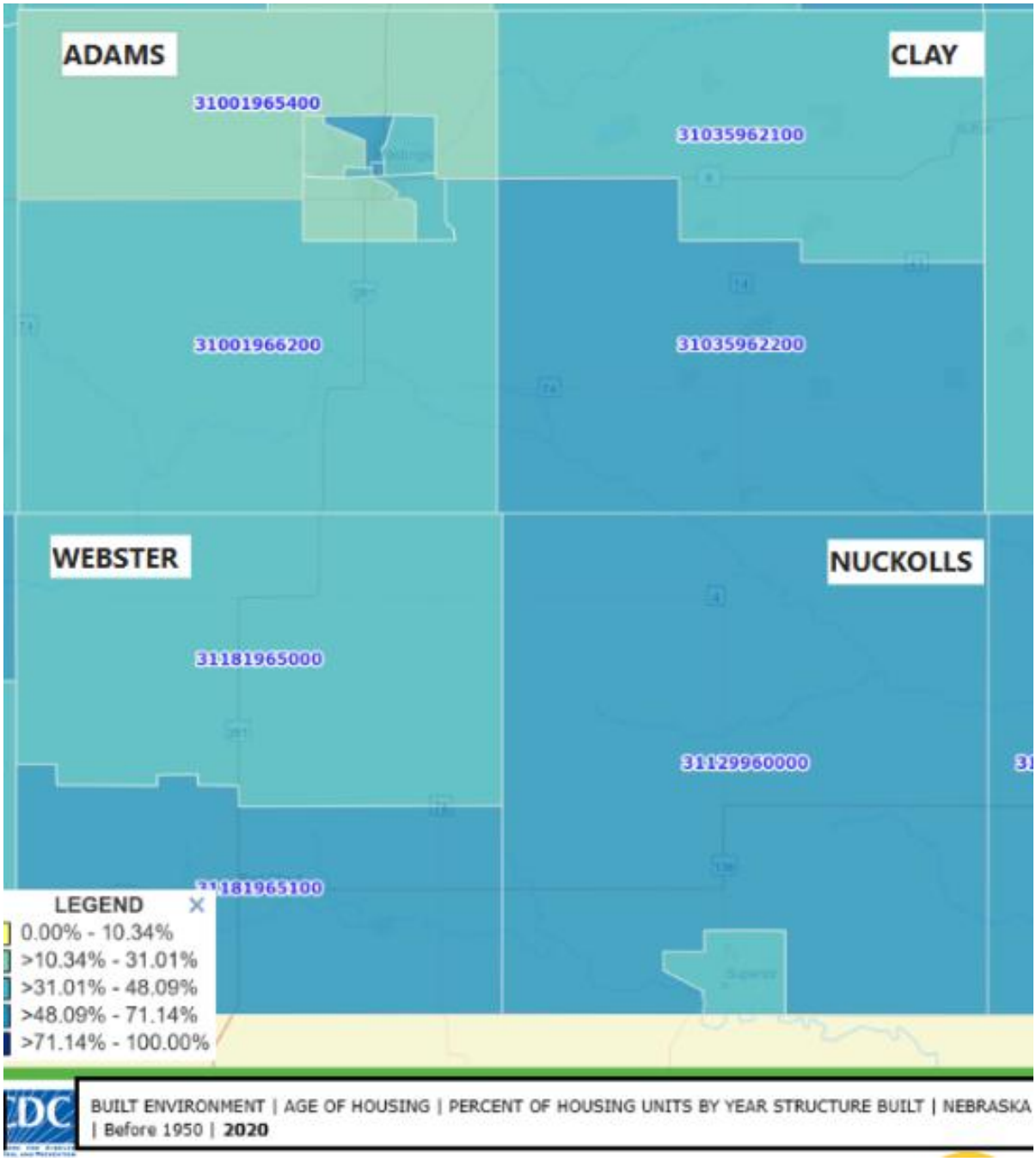

Figure 4A Note: Older housing does not automatically mean a child has been exposed to lead. However, older homes can increase risk when lead-based paint, dust, soil, plumbing, or renovation-related exposures are present. Families with concerns should talk with their child's healthcare provider about whether lead testing is recommended.

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Figure 4B: Housing Units Built (1950-1979) in South Heartland District (2020)

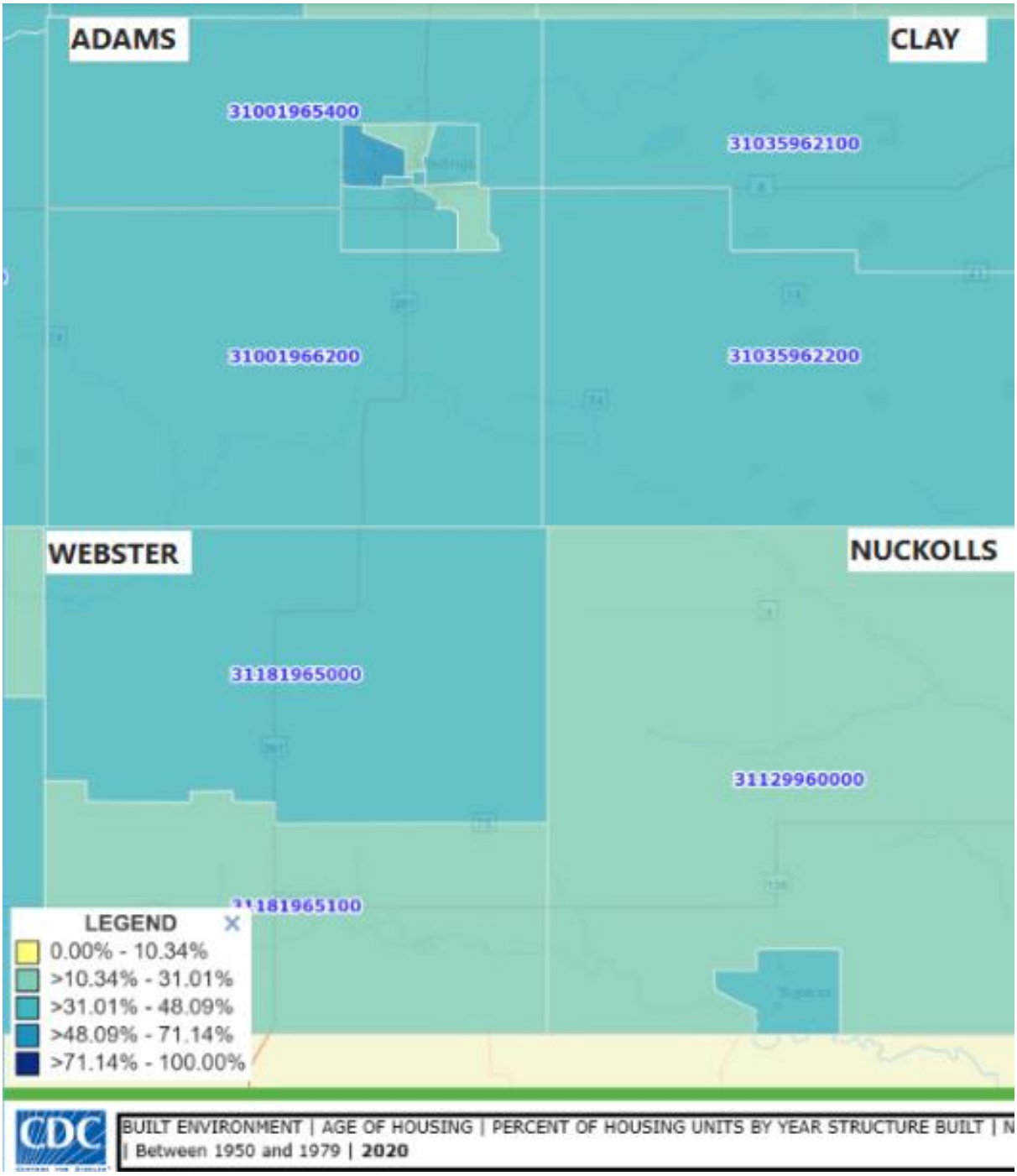

Figure 4B Note: Housing age is one indicator of possible lead exposure risk. Not all older homes have lead hazards, and not all lead exposure comes from housing. Risk depends on factors such as paint condition, renovation activity, plumbing, soil, household behaviors, and other environmental exposures.

Housing age is an important environmental risk factor for childhood lead exposure. The maps show that South Heartland District has a meaningful share of housing built before 1950 and between 1950–1979.

Homes built before 1950 may have a higher likelihood of lead-based paint or other aging housing-related exposure risks. Although lead-free paint was introduced after 1950, lead paint was not banned until 1978. Homes built during 1950–1979 may still contain lead-based paint or aging materials that can contribute to exposure risk, especially when paint deteriorates or homes are renovated without lead-safe practices.

Figure 4 Key takeaways:

Older housing remains an important lead-risk context in the district. A meaningful share of housing in South Heartland District was built during years when lead paint was common. This housing age pattern reinforces that housing age should remain part of lead risk screening and prevention conversations. Families, providers, and public health partners should consider older housing as part of lead exposure prevention and testing decisions.

- Families living in or regularly visiting older homes should be aware of possible lead exposure sources, especially chipping or peeling paint, renovation dust, contaminated soil near older structures, and other household exposures.
- Healthcare providers can use housing age and exposure questions to guide risk-based lead testing decisions.

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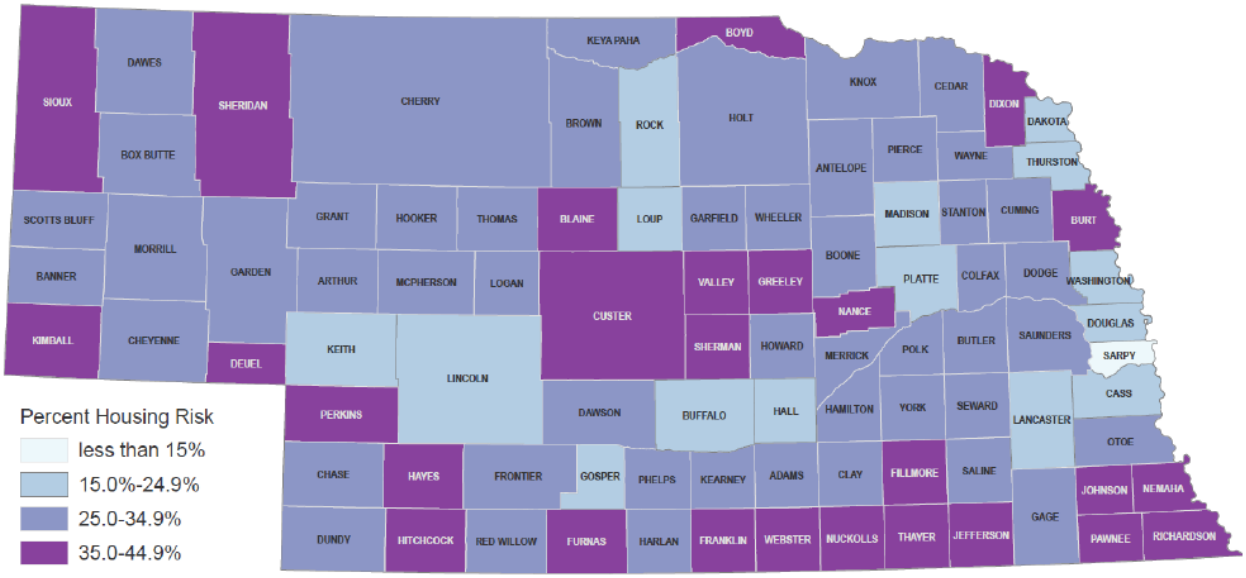
Figure 5. Housing with Lead Risk: Percentage of Homes with Elevated Lead Risk due to Age of Housing (2017-2021)



Data source: 2017-2021 American Community Survey, 5 Year Estimates (Table B25034); Jacobs et. al. The prevalence of lead-based paint hazards in U.S. housing. Environ Health Perspect. 2002 Oct;110(10):A599-606.

Figure 5 Key Takeaways for Adams, Clay, Nuckolls, & Webster Counties

- **Housing Risk Range:** All four counties have housing built in older eras when use of lead-based paint was common.
- **Adams County:** Is in the 25.0 – 34.9% % range, with the city of Hastings likely driving the higher proportion of at-risk homes.
- **Clay County:** Is within the 25.0 – 34.9% range, indicating a significant share of older housing needing lead-safe measures.
- **Nuckolls & Webster Counties:** Are within the 35.0 – 44.9% range, demonstrating ongoing lead exposure risks in rural communities.
- **Prevention Priority:** With at least one-quarter of homes at elevated risk, each county could benefit from proactive lead testing, housing remediation, and community education.

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What This Means for Prevention

The findings in this report point to one central prevention message: childhood lead exposure is still being identified in South Heartland District and continued testing, education, and housing-risk prevention are needed.

Testing increased before the COVID-19 pandemic but declined after 2020 and has not returned to the 2019 peak. This matters because children with lead exposure can appear healthy and may not have obvious symptoms. Without blood lead testing, exposure can be missed until developmental, learning, or behavioral concerns appear later. Lower testing levels may therefore reduce the ability of healthcare providers and public health partners to identify children who need follow-up, family education, environmental assessment, or other interventions.

Elevated blood lead levels were lower in recent years compared with earlier years, but they continue to be identified among children who are tested. This should be interpreted as a prevention opportunity, not as evidence that lead risk has disappeared. When testing coverage is lower, surveillance data may underestimate the true number of children affected by lead exposure.

The age-at-testing findings are encouraging in some ways, but also show room for improvement. Most tested children had their first documented test by age 1 or 2. Nebraska guidance emphasizes blood lead testing at 12 months (1 year old) and again at 24 months (2 years old) for children with identified risk factors and children in higher-risk settings, including Medicaid-related testing requirements and high-risk zip codes. However, only about 3 in 10 tested children had testing documented at both age 1 and age 2. About 1 in 7 children had their first documented test at age 3 or later. Nebraska lead testing guidance recommends children ages 36–72 months should be tested if they have not previously been tested. Risk-based testing also remains important when older children have possible exposure risks. This means prevention efforts should support both timely early-childhood testing and catch-up testing for children who may have missed earlier testing.

Older housing remains one of the most important local prevention contexts. Homes built before 1950 and homes built before 1978 may contain lead-based paint or lead-contaminated dust. Risk can increase when paint is peeling, chipping, disturbed during renovation, or present in areas where children spend time. Lead risk may also come from contaminated soil, aging plumbing, imported products, certain hobbies or occupations, and other household sources. Because older housing is present across the district, prevention should not focus only on children with known elevated results; it should also focus on identifying risk before exposure continues.

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For prevention, the goal is not only to respond after a child has an elevated result. The goal is to improve early testing, recognize exposure risks sooner, educate families, support lead-safe practices, and connect children and households to appropriate follow-up.

Recommended Public Health Actions

For Healthcare Providers

Continue following Nebraska blood lead testing guidance. Use the Lead Exposure Risk Questionnaire consistently and test children at recommended ages or when risk factors are present, including older housing, renovation dust, peeling paint, contaminated soil, Medicaid-related requirements, or high-risk zip codes. Use EHR prompts, standing orders, and reminder systems to improve timely testing and follow-up.

For Families and Caregivers

Ask your child's healthcare provider whether lead testing is recommended, especially if your child lives in or regularly visits an older home, is exposed to peeling paint, renovation dust, or bare soil near older buildings. Children with lead exposure may not look sick, so testing is the only way to know.

For Public Health and Community Partners

Support recovery of childhood lead testing to pre-pandemic levels through provider outreach, family education, and community partnerships. Focus outreach in areas with lower recent testing coverage, older housing, or known exposure risks. Work with clinics, WIC, home-visiting programs, childcare providers, schools, housing partners, and local officials.

For Housing and Environmental Prevention

Promote lead-safe renovation, repair, and painting practices in older homes. Encourage families, landlords, contractors, and housing partners to prevent lead dust exposure and safely address chipping or peeling paint.

For Surveillance and Planning

Continue monitoring testing coverage, elevated blood lead levels, age at testing, county-level trends, and housing-risk context. Use small-number subgroup findings cautiously and focus public reporting on actionable prevention strategies.

Conclusion

Childhood lead exposure remains a preventable but ongoing public health concern in South Heartland District. From 2016 through 2024, lead testing among children under age 5 improved before the COVID-19 pandemic but declined after 2020 and has not fully returned to the 2019 peak. Although the percentage of tested children with elevated blood lead levels has decreased over time, elevated results continue to be identified. Because testing levels remain lower than earlier peak years, these findings should be interpreted carefully; lower testing may reduce the ability to identify all children with lead exposure.

The findings highlight the continued importance of timely and risk-based blood lead testing. Most children who were tested received their first documented test by age 1 or 2, which supports early detection goals. However, some children were first tested later, and not all children had testing documented at both recommended early-childhood ages. This reinforces the need for provider reminders, catch-up testing, and consistent use of risk-based screening.

Older housing remains an important prevention context across Adams, Clay, Nuckolls, and Webster Counties. Homes built before 1950 and before 1978 may contribute to lead exposure risk, especially when paint is deteriorating, renovation dust is present, or soil and household environments are contaminated. Housing age does not confirm exposure, but it should remain part of routine lead risk conversations with families.

Overall, this report supports a clear public health direction: strengthen childhood lead testing, improve family and provider awareness, promote lead-safe housing practices, and focus outreach in communities with lower testing coverage or higher environmental risk. With sustained testing, education, surveillance, and prevention partnerships, childhood lead exposure can be identified earlier and prevented more effectively across South Heartland District.

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Pediatric Testing Recommendations, Algorithm, Testing Guidelines

Nebraska Blood Lead Testing Plan, 2023

Nebraska's 2023 Blood Lead Testing Plan provides the detailed pediatric testing algorithm and high-risk zip code list. In summary, providers should use the Nebraska Lead Exposure Risk Questionnaire and test children with any identified risk factor. Testing is recommended at 12 months and again at 24 months for children with identified risk factors and children in higher-risk settings, including high-risk zip codes and Medicaid-related testing requirements. Children ages 36–72 months should receive a blood lead test if they have not been previously tested.

The 2023 Nebraska Blood Lead Testing Plan updates guidance last revised in 2015. The most important change is alignment with CDC's lowered blood lead reference value of **3.5 µg/dL**, replacing the older practical threshold of **5 µg/dL** for identifying children with higher-than-expected blood lead levels. This means children with blood lead levels between **3.5 and 4.9 µg/dL** are now recognized earlier for follow-up education, exposure assessment, and repeat testing.

The plan continues Nebraska's targeted testing framework: children enrolled in Medicaid require blood lead testing at 12 and 24 months, and children 24–72 months without a prior test should be tested. For non-Medicaid children, testing is recommended when the child lives in a high-risk ZIP code or has risk factors identified through the lead risk questionnaire. The 2023 plan also updates high-risk ZIP-code methodology and reinforces that elevated capillary results should be confirmed with venous testing.

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Sources

1. Nebraska Department of Health and Human Services, Division of Public Health, Nebraska Childhood Lead Poisoning Prevention Program. 2023 Nebraska Blood Lead Testing Plan. Lincoln, NE: Nebraska Department of Health and Human Services; November 2023. Available at: https://dhhs.ne.gov/Lead and https://dhhs.ne.gov/LeadDocs/Nebraska-Blood-Lead-Testing-Plan.pdf

2. Nebraska Department of Health and Human Services, Division of Public Health. Nebraska Electronic Disease Surveillance System (NEDSS) Lead Lab Surveillance Data, 2016–2024. Data obtained March 05, 2025.

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4. Nebraska Department of Health and Human Services, Childhood Lead Poisoning Prevention Program. Lead Poisoning in Children. Revised October 2023. Available at: https://dhhs.ne.gov/LeadDocs/Lead-Poisoning-FAQ.pdf

5. Centers for Disease Control and Prevention. CDC Updates Blood Lead Reference Value. Updated April 2, 2024. Available at: https://www.cdc.gov/lead-prevention/php/news-features/updates-blood-lead-reference-value.html

6. Centers for Disease Control and Prevention. Lab Advisory: CDC Updates Blood Lead Reference Value. October 28, 2021. Available at: https://www.cdc.gov/locs/2021/10-28-2021-lab-advisory-CDC-Updates-Blood-Lead-Reference-Value.html

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Methods and Counting Rules

The findings in this report are based on blood lead testing data reported to the Nebraska Department of Health and Human Services Childhood Lead Poisoning Prevention Program Blood Lead Surveillance System and reviewed for South Heartland District. The report includes children in Adams, Clay, Nuckolls, and Webster Counties during 2016–2024.

Population denominators were obtained from U.S. Census Bureau annual population estimates. For 2024, 2023 population estimates were used because 2024 population estimates were not yet available at the time of analysis.

This report uses both test-level and child-level measures. These measures answer different public health questions and were counted differently to avoid duplicate counting.

Blood Lead Tests / Lab Reports

Testing volume was counted using unique lab report IDs. Each unique lab report represents one reported blood lead test. This measure describes laboratory testing activity and may include more than one test for the same child.

The blood lead testing dataset includes both capillary and venous blood lead tests reported to Nebraska DHHS. Capillary tests are commonly used for screening, while venous tests may be used for confirmation or follow-up, especially after an elevated screening result. If a screening test was positive for lead, but the confirmatory venous test was negative, the screening test result was not counted in the EBLL results.

Children Tested

The number and percentage of children tested were counted using unique patient IDs. For annual summaries, each child was counted once per year, even if the child had more than one blood lead test during that year. This measure describes how many children received documented testing, not how many total tests were performed.

Testing percentages were calculated by dividing the number of unique children tested by the estimated population of children in the relevant age group, county, and year.

Elevated Blood Lead Levels

Elevated blood lead level was defined in this report as any reported blood lead test result ≥3.5 µg/dL, including results from either capillary or venous specimens.

If a child had multiple blood lead tests in the same year, the child was classified as having an elevated blood lead level if any documented result during that year was ≥3.5 µg/dL. For annual

summaries, the child was counted once in the elevated blood lead level numerator for that year, not once for every elevated test.

Elevated blood lead level percentages among tested children were calculated by dividing the number of unique children with at least one elevated result by the number of unique children tested. Elevated blood lead level percentages among all children were calculated by dividing the number of unique children with at least one elevated result by the estimated child population denominator.

Because capillary screening tests can be affected by external contamination, elevated capillary results generally require appropriate follow-up and confirmatory testing according to clinical and public health guidance. Therefore, elevated blood lead level findings in this surveillance report should be interpreted as reported elevated blood lead results, not necessarily confirmed venous lead poisoning cases.

Multiple Tests for the Same Child

Some children had more than one documented blood lead test. Repeat testing may occur for routine age-based testing, follow-up after an elevated result, confirmatory testing, provider practice patterns, or other clinical or public health reasons.

Repeat tests were retained in the test-level dataset. However, child-level indicators were deduplicated using patient ID so that children were not counted multiple times in testing percentages or elevated blood lead level percentages.

In simple terms, total lab testing volume was counted using lab report IDs, while children tested and children with elevated blood lead levels were counted using patient IDs.

Measure	Unit counted	ID used	Duplicate handling	What it means
Number of lead tests/lab reports	Test/lab report	Lab report ID	Each unique lab report counted once	Total reported testing activity
Number of children tested	Child	Patient ID	Child counted once per year, even if tested multiple times	Testing coverage among children
Number of children with elevated blood lead level	Child	Patient ID	Child counted once per year if any result is ≥3.5 µg/dL (unless confirmatory testing was negative)	Child-level reported elevated blood lead burden
Repeat testing	Child testing history	Patient ID, lab dates, age at test	Multiple tests reviewed across time	Whether children had more than one documented test

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Blood Lead Reference Value

The Centers for Disease Control and Prevention updated the blood lead reference value from 5.0 µg/dL to 3.5 µg/dL in 2021. For consistency across the full 2016–2024 reporting period, this report applies the current elevated blood lead level definition of ≥3.5 µg/dL to all years.

Because this definition is more sensitive than the previous 5.0 µg/dL threshold, trends should be interpreted carefully when comparing earlier and later years. Applying the current threshold across all years helps make the report internally consistent, but it may identify more children as having elevated results than older reports that used the previous threshold.

Housing Age Data

CDC's Tracking Program separates housing indicators into homes built before 1950 and homes built from 1950–1979, while noting that census housing-age data do not tell whether homes were renovated or remediated**.** Homes built before 1950 are highest risk. These homes are more likely to contain lead-based paint, often with more layers and higher lead concentration. Aging paint, old windows, doors, trim, dust, and soil contamination can increase exposure risk. Homes built 1950–1979, still have elevated risk, especially homes built before 1978, but generally lower than pre-1950 homes. Lead paint use declined over time before the federal ban, so the probability and concentration are usually lower than in older homes. Homes built 1978 or later have lower paint-related lead risk due to the federal ban on lead in paint, though lead can still come from water, soil, imported products, hobbies, occupations, etc. EPA gives a useful example of this gradient: 87% of homes built before 1940 have some lead-based paint, compared with 24% of homes built from 1960–1978.

Age Group and Testing Recommendation Interpretation

Most report figures focus on children under age 5 because census denominator data are available for this age group and because young children are at higher risk for lead exposure and lead-related developmental harm. Additional age-at-testing and repeat-testing analyses may include children ages 1–6 when evaluating whether testing occurred at recommended ages and whether repeat testing was documented over time.

Age-at-testing analyses describe the age when a child first had a documented blood lead test in the available South Heartland surveillance lab data. These analyses should not be interpreted as complete lifetime testing histories because some children may have moved, been tested outside the district, had missing county information, or had tests before or after the analysis period.

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SOUTH HEARTLAND DISTRICT CHILDHOOD LEAD TESTING AND EXPOSURE, 2016–2024

Stratification and Small Numbers

County and age subgroup analyses should be interpreted carefully. Some groups include only a small number of children, so percentages may change a lot from year to year and should not be used to draw strong conclusions.

Records with unknown or missing demographic information were retained where appropriate and categorized as “Unknown” when shown. Missing or unknown values may affect interpretation of subgroup patterns.

Interpretation Notes

Testing and elevated blood lead level percentages should be interpreted as public health surveillance indicators. Changes over time may reflect healthcare access, provider testing practices, public health outreach, pandemic-related disruption, reporting completeness, population changes, or true changes in exposure.

A decrease in the percentage of children with elevated blood lead levels does not necessarily mean that community lead exposure has decreased, especially when fewer children are tested. Lower testing levels may make it harder to identify all children who have been exposed to lead.

This report is intended for public health surveillance, prevention planning, partner engagement, and community education. It should not be used as a substitute for individual clinical assessment or medical decision-making.

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SOUTH HEARTLAND DISTRICT CHILDHOOD LEAD TESTING AND EXPOSURE, 2016–2024

Supplementary Tables

Table 1. Summary of Age-at-first-test Analysis, Children Ages 1–5, South Heartland District, 2016–2024

Metric	Count	Percent of unique children
First documented test at age 1	2601	67.7%
First documented test at age 2	710	18.5%
First documented test by age 2 (age 1 or 2)	3311	86.2%
First documented test at age 3 or older	532	13.8%
Tested at both age 1 and age 2	1195	31.1%
First tested at age 1 but no age 2 test found	1406	36.6%

Simple Interpretation: Among children who were tested, most had their first documented lead test by age 1 or 2. However, about 1 in 7 children had their first documented test at age 3 or later, and only about 3 in 10 had testing documented at both age 1 and age 2.

Table 2. Summary of Age-at-First Test by Age, Children Ages 1–5, South Heartland District, 2016–2024

Age at first documented test	Number of children	Percent of tested children	Cumulative number	Cumulative percent
1	2601	67.7%	2601	67.7%
2	710	18.5%	3311	86.2%
3	257	6.7%	3568	92.8%
4	236	6.1%	3804	99.0%
5	31	0.8%	3835	99.8%
6	8	0.2%	3843	100.0%

Table 3. Summary of Age-at-First Test by County, Children Ages 1–5, South Heartland District, 2016–2024

County	Unique children	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	First test by age 2	% by age 2	First test age 3+	% age 3+
Adams	2821	1950	548	162	143	12	6	2498	88.6	323	11.4
Clay	550	370	95	37	39	7	2	465	84.5	85	15.5
Nuckolls	208	126	28	27	22	5	0	154	74.0	54	26.0
Webster	264	155	39	31	32	7	0	194	73.5	70	26.5

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SOUTH HEARTLAND DISTRICT CHILDHOOD LEAD TESTING AND EXPOSURE, 2016–2024

Table 4. Summary of Age-at-First Test by Testing Year, Children Ages 1–5, South Heartland District, 2016–2024

First documented test year	Unique children	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	First test by age 2	% by age 2	First test age 3+	% age 3+
2016	160	95	44	9	7	4	1	139	86.9	21	13.1
2017	778	369	168	110	119	11	1	537	69.0	241	31.0
2018	689	454	107	71	52	4	1	561	81.4	128	18.6
2019	586	426	69	37	46	5	3	495	84.5	91	15.5
2020	415	368	41	1	2	3	0	409	98.6	6	1.4
2021	266	214	44	4	2	1	1	258	97.0	8	3.0
2022	327	235	76	10	3	3	0	311	95.1	16	4.9
2023	331	215	106	7	3	0	0	321	97.0	10	3.0
2024	291	225	55	8	2	0	1	280	96.2	11	3.8

Table 5. Repeat Lead Testing Patterns Among Children Ages 1–6, South Heartland District, 2016–2024

Age at first documented test	Unique children	Had 2+ documented tests	% with 2+ tests	Tested across 2+ ages	% across 2+ ages	Tested at both age 1 and 2	% tested at both age 1 and 2
1	2601	1305	50.2%	1270	48.8%	1195	45.9%
2	710	92	13.0%	85	12.0%	0	0.0%
3	257	105	40.9%	98	38.1%	0	0.0%
4	236	21	8.9%	11	4.7%	0	0.0%
5	31	2	6.5%	0	0.0%	0	0.0%
6	8	0	0.0%	0	0.0%	0	0.0%