

# South Dakota Department of Health

Centers of Disease Control & Prevention

Childhood Lead Poisoning Prevention Program (CLPPP)

## South Dakota Childhood Lead Poisoning Prevention Program Year 2 Evaluation Report



Funding for this evaluation report is provided by the Centers for Disease Control and Prevention, CDC-RFA- EH21-2102.

# Table of Contents

<b>Acknowledgements</b> .....	<b>2</b>
<b>Abbreviations</b> .....	<b>3</b>
<b>Overview</b> .....	<b>4</b>
<b>Strategy 1: Ensure Blood Lead Testing and Reporting</b> .....	<b>5</b>
Lead Advisory Group Activities and Goals	
South Dakota Screening Plan	
Lead Poisoning Resources	
<b>Strategy 2: Enhance Blood Lead Surveillance</b> .....	<b>10</b>
South Dakota High-Risk Zip Codes	
<b>Strategy 3: Improve Linkages of Lead-Exposed Children to Recommended Services</b> .....	<b>13</b>
SD CLPPP Year 2 Success Story	

# Acknowledgements

This report was prepared for the South Dakota Department of Health (SD DOH) and Centers for Disease Control and Prevention by the South Dakota Childhood Lead Poisoning Prevention Program (SD CLPPP) evaluation team at the University of South Dakota in partnership with the SD DOH.

The team would like to acknowledge the contributions and members of the evaluation team during Year 2:

**Joshua Clayton, PhD, MPH**

**Rose Belony, MPH**

**Susan Puumala, PhD**

**Viviana Deleon, MPH**

South Dakota Department of Health

South Dakota Department of Health

University of South Dakota

University of South Dakota



For any questions concerning the South Dakota Childhood Lead Poisoning Prevention (SD CLPPP)

Y2 Evaluation Report, please contact:

Viviana Deleon, MPH

[Viviana.Deleon@state.sd.us](mailto:Viviana.Deleon@state.sd.us)

# List of Abbreviations

<b>AAP</b>	American Academy of Pediatrics
<b>BLL</b>	Blood Lead Level
<b>BLRV</b>	Blood Lead Reference Value
<b>CDC</b>	Centers for Disease Control and Prevention
<b>CLPPP</b>	Childhood Lead Poisoning Prevention Program
<b>DANR</b>	Department of Agriculture and Natural Resources
<b>DSS</b>	Department of Social Services
<b>ELR</b>	Electronic Laboratory Report
<b>ICAP</b>	Inter-Lakes Community Action Partnership
<b>LAG</b>	Lead Advisory Group
<b>LSS</b>	Lutheran Social Services
<b>MOU</b>	Memorandum of Understanding
<b>SD DOH</b>	South Dakota Department of Health
<b>SNAP</b>	Supplemental Nutrition Assistance Program
<b>WIC</b>	Women Infants and Children Program

## South Dakota Childhood Lead Poisoning Prevention Program (SD CLPPP)

The South Dakota Childhood Lead Poisoning Prevention Program (SD CLPPP) cooperative agreement with the CDC contributes toward eliminating childhood lead exposure as a public health problem. The Program provides lead exposure prevention education and support to the families of children exposed to lead.

The Program also maintains surveillance data of blood lead results on children younger than six. Using this data, SD CLPPP can develop and evaluate current efforts to prevent lead poisoning across the state. Data findings will be used to inform medical and health professionals on testing, reporting, and case management. Data collected can help to update outreach activities and educational materials for parents, educators, and health professionals.

### Program Goals:

The primary goal to enhance testing, surveillance, and follow-up of blood lead testing in SD in children under the age of six will be achieved by August 31<sup>st</sup>, 2026. The SD DOH will accomplish this through the following key strategies:

- **Strategy 1:** Ensure Blood Lead Testing and Reporting
- **Strategy 2:** Enhance Blood Lead Surveillance
- **Strategy 3:** Improve Linkages of Lead-Exposed Children to Recommended Services

*This document outlines the activities that occurred during Year 2 (9/30/2022 – 9/29/2023) of the 5-year cooperative agreement **CDC-RFA- EH21-2102**. However, some evaluation indicators are based on the calendar year (01/01/2022 – 12/31/2022) to streamline data collection.*

# Strategy I: Ensure Blood Lead Testing and Reporting

## Objectives

**Objective 1: Increased collaboration and coordination between appropriate stakeholders.**

Major Activity: Develop and sustain a statewide Lead Advisory Group.

**Objective 2: Increased awareness of pediatric healthcare providers and clinical laboratories of state blood lead testing recommendations and reporting requirements.**

Major Activity: Develop and implement an appropriate statewide screening plan based on SD data.

Description	Indicators			
	Baseline	Value Year 2	Value Year 3	Value Year 4
# LAG members represented by geography	7	7		
% of members in attendance	70%	81%		
# of tests for children under 6 years old below the BLRV received	-	4,409		
% of SD children under 6 years old with a blood lead test reported	-	36.6%		
# of media spots created	-	14		

The overall goal of this strategy is to ensure blood lead testing and reporting. A Lead Advisory Group (LAG) was developed with various members representing organizations throughout the state. The LAG will meet at least twice a year to review materials developed through the program and provide feedback on the overall success of the program. The LAG will also recommend additional partnerships needed both to assess areas of high risk and to adequately provide services to children. Current and future evaluations on LAG meetings and attendance metrics are assessed during the SD CLPPP grant year. The review of materials for development to aid outreach is currently ongoing.



## Lead Advisory Group Activities and Goals

### Activities:

1. Assist in creating statewide recommendations for blood lead testing based on local data.
2. Advise on development of an appropriate statewide screening and testing plan based on local data.
3. Advise on development of an appropriate statewide plan to link children with elevated blood lead levels to recommended services.
4. Help develop any educational material needed for care providers on screening, testing, and referrals.
5. Review data and make changes to screening/testing or referral plan as needed.

### Goals:

1. Improve screening and testing programs for blood lead in children.
2. Improve referral process of services for children with elevated blood lead levels.

### Advisory Group Members:

Ashley Lauing, Policy Strategy Manager – Department of Social Services (DSS)

Kelly Thomas, Laboratorian – Indian Health Service (IHS)

Mark Mayer, Engineering Manager – Department of Agriculture and Natural Resources (DANR)

Matt Cerny, Program Analyst – US Department of Housing and Urban Development

Rea Riggle, Environmental Coordinator – South Dakota Department of Health (SD DOH)

Rochelle Boote, MD – American Academy of Pediatrics (SD Chapter)

Tim Jurgens, Director – Lutheran Social Services (LSS) Center for New Americans

### Advisory Committee Meetings:

- December 2, 2022
- April 18, 2023
- September 22, 2023

LAG meeting agenda and materials can be found on SD DOH website.

[SD CLPPP Advisory Committee | South Dakota Department of Health](#)

---



Elevated blood lead levels (BLL) were subject to mandatory reporting in South Dakota during this reporting period. However, the values of the actual testing were reported, but not required. As a sub-activity for this strategy, SD CLPPP aims to update the South Dakota reportable disease list to include all blood lead test results, regardless of the result. The rule change was approved on July 18, 2023, and will go into effect on January 1, 2024.

Since 2021, the CDC has defined the blood lead reference value (BLRV) as 3.5 µg/dL. Before this update, blood lead levels below 5 µg/dL may, or may not, have been reported to SD DOH and parents or guardians of children. The new lower BLRV aims to identify more children with lead exposure and reduce ongoing lead exposure.

To successfully ensure blood lead testing and reporting, an appropriate statewide screening plan was developed and implemented based on South Dakota data. The LAG will help to review data and develop guidelines for screening, treatment, and referrals. This work will be guided by the data compiled in this project including working with partners to share existing data, collecting new data, and using CDC recommendations and guidance from other similar states. This plan will be reviewed at least annually by the LAG.

The program has worked with the LAG and other statewide partners to implement a screening plan, including notice to Medicaid providers that serve as a child's medical home. SD CLPPP worked to send an updated reportable disease list to all clinics and providers, including those that serve as a child's medical home. Implementation of the screening plan will be done through cooperation with health systems, Medicaid providers serving as a child's medical home as well as statewide organizations such as the SD chapter of the American Academy of Pediatrics (AAP). SD DOH staff and the LAG will work with these organizations to develop educational material for pediatric healthcare providers on screening recommendations and reporting requirements as well as with clinical laboratories for reporting requirements by electronic laboratory report (ELR) or manual report.

---





## South Dakota Screening Plan

The SD CLPPP developed screening and testing guidelines for pediatric care providers throughout the state as well as for those doing point-of-care testing at other facilities. These guidelines are provided on the SD DOH website and work will continue to efficiently distribute these for use in clinics throughout the state. The SD CLPPP conducted a survey with a sample of pediatric providers throughout the state to understand the best way to promote awareness of lead hazards, screening recommendations, testing guidelines, and follow-up resources to parents and caregivers at their clinics. A total of 21 clinics were able to be contacted, most (85.7%) were interested in receiving educational materials for their clinic and 2 clinics already had lead information available. Respondents preferred to receive posters that were 8 inches by 10 inches.

The SD CLPPP will receive additional information on screening and testing guidelines in year 3 as additional training programs are implemented to increase awareness with providers. Training programs for screening and testing guidelines as well as medical management and referrals will be developed by a nurse educator in year 3. This individual will help coordinate and provide webinars, in-person training, and training modules for pediatric providers who administer lead testing as well as nursing and medical students.

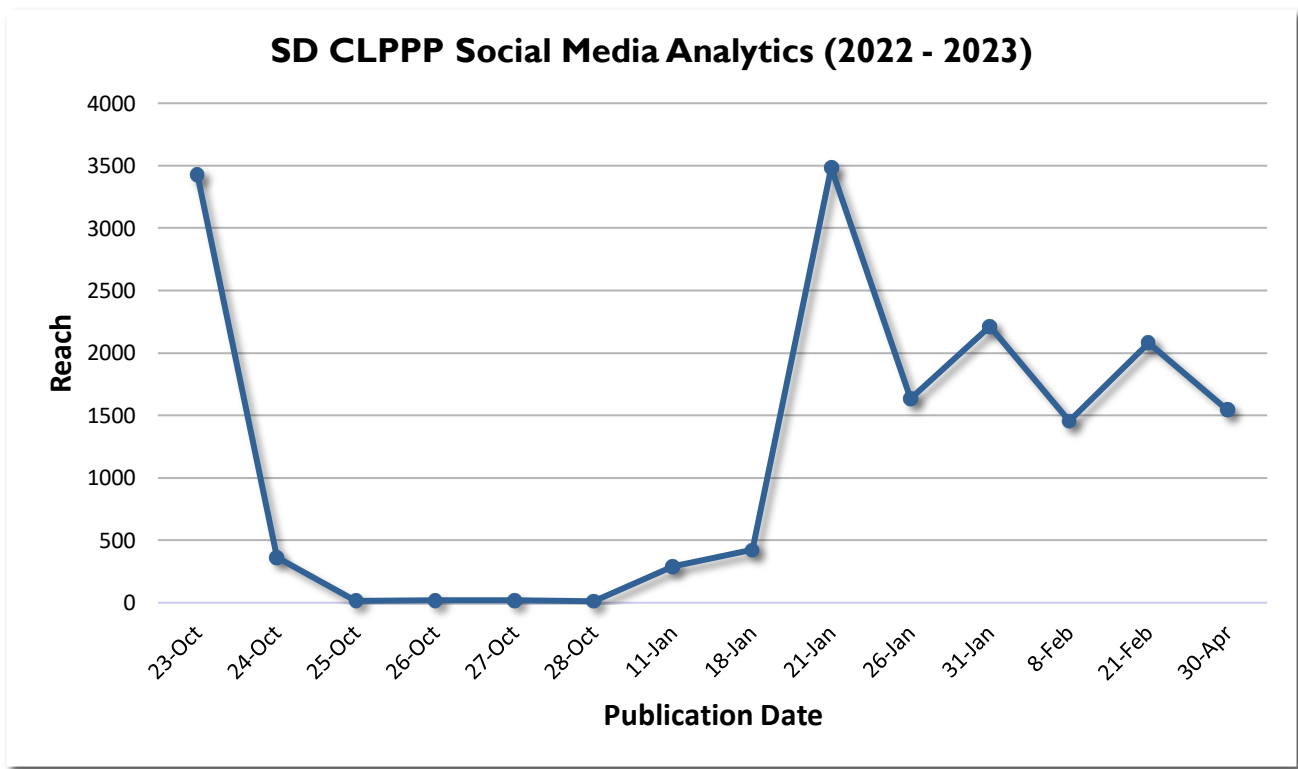
A new partnership was developed with South Dakota's Women, Infant, and Children (WIC) Program to aid these offices in lead testing and education of families. Through a one-time, state fund appropriation, SD CLPPP sought and received approval to purchase 30 Magellan Lead Care analyzers and test kits. These will be distributed to WIC offices throughout the state which are in program-identified high-risk zip codes. WIC staff will be trained to provide blood lead testing and education to families who visit their offices.

A partnership with the Department of Agriculture and Natural Resources (DANR) has also been established. The program has also worked with DANR on educational materials for their service line assessment and K-12 school/daycare water testing program. Other potential partners have been identified, and organizations providing services will be included as a resource.

A full report on South Dakota screening, testing, and follow-up guidelines can be found on the SD DOH website: [screeningguidelinesandfollowup.pdf \(sd.gov\)](#)

---

Currently, educational materials are being drafted and will be disseminated through our statewide media campaign. SD CLPPP has finalized a contract with a media vendor, Insight Marketing Design, Inc. The contract started in July 2023 and will continue through May 2024. Through this partnership, a CLPPP communication plan will be developed and will include development of materials for radio advertisements, billboards, digital and social media advertisements, and print advertisements. The campaign is scheduled to start in December 2024. Prior to engagement of the media vendor, SD DOH communications team had created and published a 1-page advertisement report on the SD CLPPP as well as several social media posts. During the SD CLPPP grant year, there were 14 social media posts created, averaging at least 1 engagement per post, and reaching an average of 1,212 people. Figure 1 shows the overall analytics for social media posts created.



**Figure 1: SD CLPPP Year 2 Social Media Analytics**

Current South Dakota materials and resources developed can be found on the SD DOH website.

[Lead Poisoning Resources | South Dakota Department of Health \(sd.gov\)](https://www.sd.gov/health/lead-poisoning-resources)

# Strategy 2: Enhance Blood Lead Surveillance

## Objectives

### Objective 1: Improved use of surveillance system data to capture missing data on child demographic and follow-up information.

Major Activity: Update and maintain the Maven electronic disease surveillance system for use as a blood lead surveillance system that collects and tracks all blood lead test results and follow-up data on children with elevated blood lead levels including environmental source investigations and referrals to recommended services

### Objective 2: Increased linkages between complementary data systems (e.g., Medicaid, immunization, adult blood lead, vital statistics).

Major Activity: Develop and implement plans for surveillance data collection, data quality, and data dissemination with a focus on data interoperability.

### Objective 3: Increased identification of geographic areas and populations at-risk for lead exposure using enhanced data linkages.

Major Activity: Conduct analyses of surveillance data to identify lead-exposed children, high-risk populations, and geographic areas.

Description	Indicators			
	Baseline	Value Year 2	Value Year 3	Value Year 4
# of blood lead tests reported to SD DOH for children under 6 years old	-	4,662		
# of all tests for children under 6 years old with a BLL at or greater than the BLRV	-	253		
% of all tests with a BLL at or greater than the BLRV	-	5.4%		
# of children at or greater than the BLRV appropriately flagged in Maven for investigation	-	150		
# of families with contact initiated with children with BLL at or greater than the BLRV	-	59		
# of families with complete interviews with children with BLL at or greater than the BLRV	-	17		
# of cases with missing child address and zip codes		387		
# of cases with missing child demographic information (race, ethnicity, and gender)	-	379		


Description	Baseline	Value Year 2	Value Year 3	Value Year 4
# of high-risk zip codes identified	-	41		
# of surveillance reports	1	1		
# of on-time CDC submissions for surveillance data	4	4		
# of interactions with labs submitting BLL to educate on submission of results	-	30		

The goal of this strategy is to increase, enhance, and improve the blood lead surveillance system in South Dakota. This overarching goal includes ensuring that the data is complete and accurate, developing partnerships with other organizations with data that can enhance the surveillance data, and using the data to determine at-risk populations and geographic areas. All of this starts with ensuring that the reported data is accurate and is being received from labs correctly.

Data quality work has continued throughout the project. There had been data quality issues with lab reports for blood lead in South Dakota in 2021 and 2022. The SD CLPPP team has worked through this using a quality assurance procedure to verify the lab values for blood lead measurements within the SD DOH Maven system. In 2022, discussions between SD DOH and the larger labs submitting data were held to report data quality issues and work to correct them. Substantially fewer issues are now being identified by the team through this process.

Missing data can also be an issue in surveillance systems. The SD CLPPP team has developed a data quality monitoring process to clean data and help fill in missing values for demographics including race/ethnicity and address for accurate reporting and identification of groups that might be at higher risk. SD CLPPP has identified 379 cases with missing child demographic information and 387 cases with missing child address and zip codes in 2022 with this data quality monitoring process. A significant amount of effort has been made to filter out irrelevant information, variables, and columns. The ELR informatics epidemiologist has been closely monitoring the data quality through internal dashboards and has been in touch with reporting facilities to correct any errors in the coding of blood lead results that we receive.

Use of the data and developing partnerships for additional analyses is an important goal. The SD CLPPP team has also worked to connect with other data systems such as the SD Medicaid office. This collaboration included sharing case data to match information collected in both systems and to identify information that was missing in one of the systems. This helps the Medicaid office identify children who might have been missing in their reporting system and the SD DOH surveillance system to do likewise. This is especially valuable to SD DOH to understand the denominator of children being tested through the Medicaid program.



Data is also being used to identify populations and geographies at higher risk. Using initial information on housing age and childhood poverty, 41 high-risk zip codes were identified. This information will improve over time as the surveillance program is enhanced and more data can be used for this analysis. Current values for all indicators in this strategy are based on calendar year metrics (01/01/2022 – 12/31/2022) in order to streamline data collection.

### High-Risk Zip Codes Identified:

57001, 57006, 57024, 57043, 57048, 57066, 57069, 57078, 57103, 57104, 57105, 57107, 57201, 57212, 57221, 57248, 57262, 57266, 57273, 57274, 57301, 57315, 57335, 57350, 57356, 57369, 57380, 57401, 57501, 57533, 57538, 57551, 57555, 57579, 57601, 57638, 57660, 57701, 57702, 57717, 57754

---

The current report on high-risk zip codes for Pediatric Blood Lead Poisoning can be found on the SD DOH website: [high-risk-area-lead-poisoning.png \(3300x2550\) \(sd.gov\)](#)

A map of the percent of older housing in South Dakota can be found on the SD DOH website: [Percent of Older Housing in South Dakota \(sd.gov\)](#)

A surveillance report was developed for 2022 data. This information was presented to the LAG in September 2023. This data included the number of tests reported to the SD DOH, the number of children tested by age group, information on different types of testing (i.e., capillary vs. venous), birth cohort analysis, case confirmation, and demographics of children tested. Work on the report is ongoing with the report expected to be finalized in year 3 of the project.

---

# Strategy 3: Improve Linkages of Lead-Exposed Children to Recommended Services

## Objectives

**Objective 1: Increased identification, tracking, and recommended services for children with elevated blood lead levels.**

Major Activity: Identify children with elevated blood lead levels requiring follow-up.


**Objective 2: Increased ability for public health agencies, health care professionals, and other stakeholders to provide linkages to services and reduce loss to follow-up.**

Major Activity: Partner with programs and organizations that provide services to mitigate the effects of elevated blood lead levels.

Major Activity: Connect children with elevated blood lead levels to recommended medical, environmental, and social services.

## Indicators

Description	Baseline	Value Year 2	Value Year 3	Value Year 4
# of families with children under 6 years old with a BLL at 10 µg/dL or greater than the BLRV that receiving education on follow-up testing and timing	-	17		
# of children under 6 years old with BLL at 10 µg/dL or greater with a follow-up visit to their medical professional within 2 weeks of initial notification from SD DOH	-	10		
# of referral sources identified and additional partnerships	-	3		
# of resources sources identified		6		
# of families referred	-	2		
# of MOUs	-	1		
# of reports with shared data	-	1		
Submission of Awardee Lead Profile Assessment	-	1		
Submission of a Success Story	1	1		



The goal of this strategy is to improve linkages of lead-exposed children to recommended services. With the surveillance system enhanced through strategy 2, we have been able to allow the identification of children with BLL at or greater than the BLRV that require follow-up. The workflow function in the Maven surveillance system can identify children with elevated levels of lead in their blood and function that allows appropriate follow-up and case management.

The SD CLPPP and Maven surveillance system prioritizes case assignments by the following:


- Priority 1: CRITICAL - Blood Lead Level of  $\geq 45$   $\mu\text{g}/\text{dL}$ 
  - Needs to be worked within 2 business days of hitting workflow.
- Priority 2: Blood Lead Level of 20 - 44.9  $\mu\text{g}/\text{dL}$ 
  - Needs to be worked within 1 week of hitting workflow.
- Priority 3: Blood Lead Level of 10 - 19.9  $\mu\text{g}/\text{dL}$ 
  - Needs to be worked within 2 weeks of hitting workflow.
- Priority 4: Blood Lead Level of 3.5 - 9.9  $\mu\text{g}/\text{dL}$ 
  - Blood Lead Epidemiologist to follow.

To streamline data collection, values for the [1] number of families with a blood lead level at or greater than the blood lead reference value receiving education on follow-up testing and timing and [2] number of children with blood lead level of 20  $\mu\text{g}/\text{dL}$  or greater with a follow-up visit to their medical professional within 2 weeks of initial notification from SD DOH, are based on calendar year metrics (01/01/2022 – 12/31/2022).

Due to the finalization of the workflow function in the SD Maven surveillance system to identify children with high blood lead levels, case management by the SD CLPPP began in August of 2022. SD CLPPP began case management following the prioritization of cases in the Maven surveillance system. From August 2022 to December 2022, the SD CLPPP was able to conduct interviews for 17 families of children under 6 years old with BLL at or greater than the BLRV and mailed a total of 37 educational materials to families.

Partners will be needed across the state to facilitate referrals needed for services to families of children with BLL at or greater than the BLRV. Several programs and organizations throughout South Dakota provide services that would help mitigate the effects of elevated blood levels and will be included as partners. An MOU between the Department of Social Services (DSS) Medicaid and DOH has been established. While this partnership has focused on matching data and testing, additional work could include ensuring follow-up testing for children with an initial test at or greater than the BLRV. SD CLPPP is responsible for locating and interviewing the parent or guardian to obtain the required information and make the appropriate referrals. Current referrals include WIC services, SNAP, and the Inter-Lakes Community Action (ICAP) Partnership.

Additional partnerships and resources include SD Medicaid, Sioux Falls Housing, South Dakota Parent Connection, Sioux Falls School District, and Early and Periodic Screening, Diagnostic, and Treatment. Information on these programs is provided as a resource to support the education, management, and



prevention of lead hazards for families with children with BLL at or greater than the BLRV. Finalization of referral guidelines to connect children with BLL at or greater than BLRV is currently ongoing.

Internal planning meetings have been held to discuss the development of a training program for screening and testing guidelines as well as medical management and referrals as mentioned in Strategy 1. The nurse educator will be engaged in year 3 to develop webinars, in-person training, and training modules for both pediatric providers and medical and nursing students.

The SD CLPPP partnership with CDC requires recipients to develop “Success Stories” to highlight lead poisoning prevention achievements. These stories demonstrate progress toward meeting SD CLPPP goals. The purpose of these stories is to share the best practices of childhood lead poisoning prevention programs among state and local health agencies. This success story highlights programmatic activities being conducted in the grant year (09/30/2022 – 09/29/2022).

South Dakota Childhood Lead Poisoning Prevention Year 2 Success Story can be found on the CDC website.

[Lead - State Programs - South Dakota | CDC](#)

---

*Funding for this work was made possible in part by [CDC-RFA-EH21-2102] from the Centers for Disease Control and Prevention (CDC). The views expressed in this material do not necessarily reflect the official policies of the U.S. Department of Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.*