



Missouri Childhood Lead Poisoning Prevention Program (CLPPP)

Annual Report for Fiscal Year 2022

July 1, 2021 to June 30, 2022

Missouri Department of Health and Senior Services

Division of Community and Public Health

Bureau of Environmental Epidemiology

<http://health.mo.gov/living/environment/lead/index.php>

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MISSOURI DEPARTMENT OF
**HEALTH &
SENIOR SERVICES**

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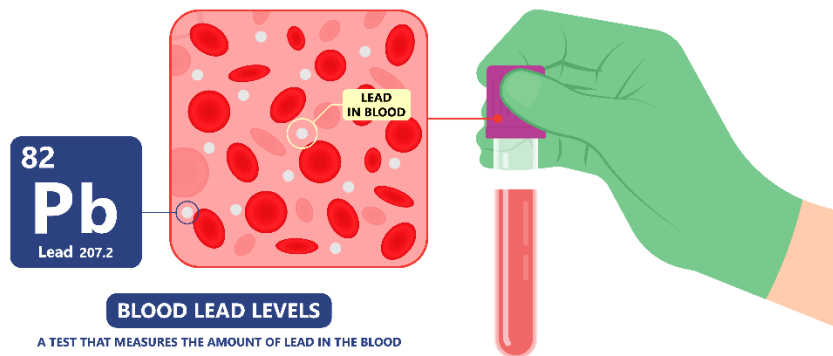
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This report meets the statutory mandate for an annual report per §701.343, RSMo.

Childhood Lead Poisoning Prevention Program

Mission Statement

The Missouri Department of Health and Senior Services (DHSS) Childhood Lead Poisoning Prevention Program's (CLPPP) mission is to assure the children of Missouri a safe and healthy environment through primary prevention and the identification of lead exposures that may cause illness or death.

Operations

Established in 1993, the DHSS staffs the CLPPP with the positions listed under "Staffing" on the following page.

The program uses the Missouri Health Strategic Architectures and Information Cooperative (MOHSAIC) database to collect lead-specific data from medical providers and lead program activities. This database provides documentation of medical testing, case management, and environmental risk assessments statewide. The data is used to provide comprehensive lead case management services and for statistical information. MOHSAIC tracks all child and adult lead test information.

Lead

Lead is a soft, silver-colored metal found naturally in the earth's crust. Historically, lead was used in a variety of ways, including in paints, gasoline, batteries, bullets, keys, and some vinyl products such as mini-blinds. Fine particles of processed or recycled lead and/or lead dust becomes a health hazard when they are taken into the body through inhalation and/or ingestion.

Staffing

Bureau of Environmental Epidemiology Chief: Jeff Wenzel

Bureau of Environmental Epidemiology Assistant Chief: Steve May

Registered Nurse Supervisor/Program Manager: Teresa Wortmann

Registered Nurse: Maggie Burns

Epidemiologist: Sonya Henson

Environmental Program Analyst: Nicholas Rustemeyer

Environmental Program Analyst: Rick Campbell

Environmental Program Analyst: Shawn Bond

Environmental Program Analyst: James Christian

Environmental Program Analyst: Brandi Hamilton

Environmental Program Analyst: Harry Ballard

Research/Data Analyst: Alex Fletcher

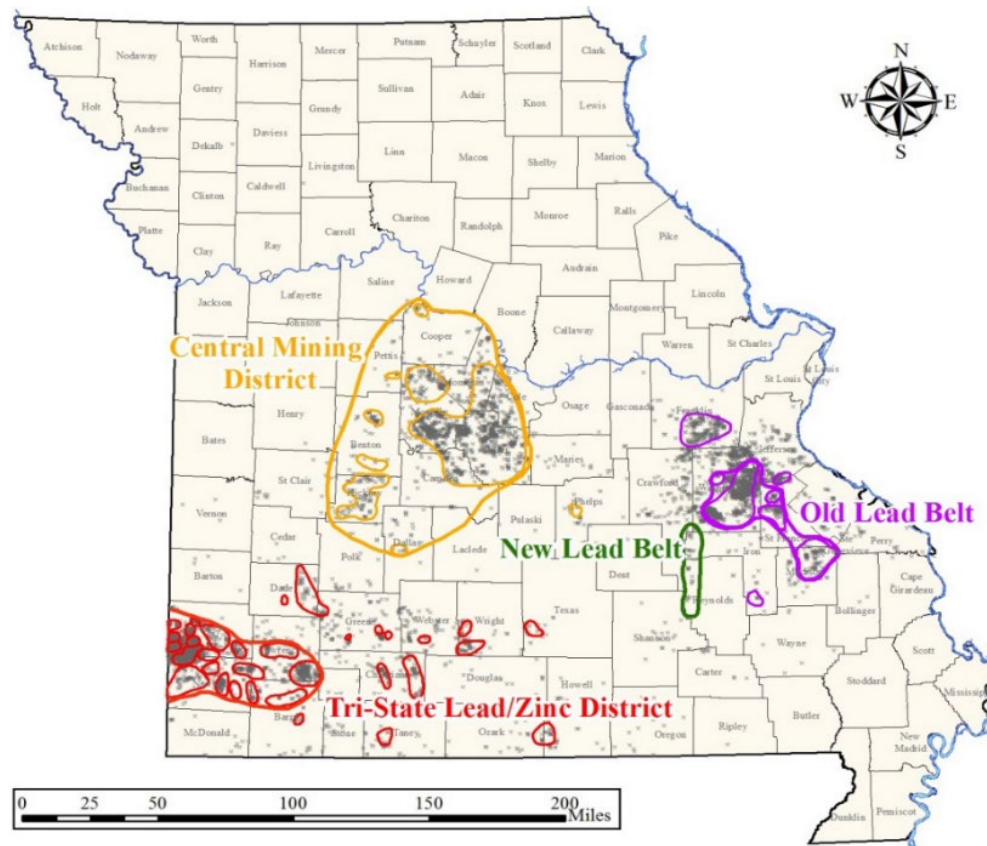
Administrative Support Assistant: Tina Parker

History of Lead in Missouri

Lead mining and smelting are an important part of Missouri's history. While searching for gold and silver, French explorers discovered lead along the Meramec River in the 1700s. Missouri became the dominant lead-producing state in the United States in 1907, and has remained so ever since.

Most early lead production came from the Old Lead Belt district in southeast Missouri in the Park Hills-Bonne Terre area, and in the Tri-State Zinc-Lead district in southwest Missouri around Joplin. Today, all of the state's lead production comes from the New Lead Belt, also known as the Viburnum Trend district. This district is a very narrow, 35-mile-long ore area extending southward from the town of Viburnum, Iron County, in southeast Missouri.

Citizens in these areas historically used mining waste products in driveways, yards, and even children's play areas for generations. Dust, air, and soil around mining activity have consistently shown elevated levels of lead contamination. If children are living and playing within these areas, this can increase their blood lead levels and put them at an increased risk for lead poisoning.



Map courtesy of Missouri Department of Natural Resources, 2012

Lead Poisoning in Missouri

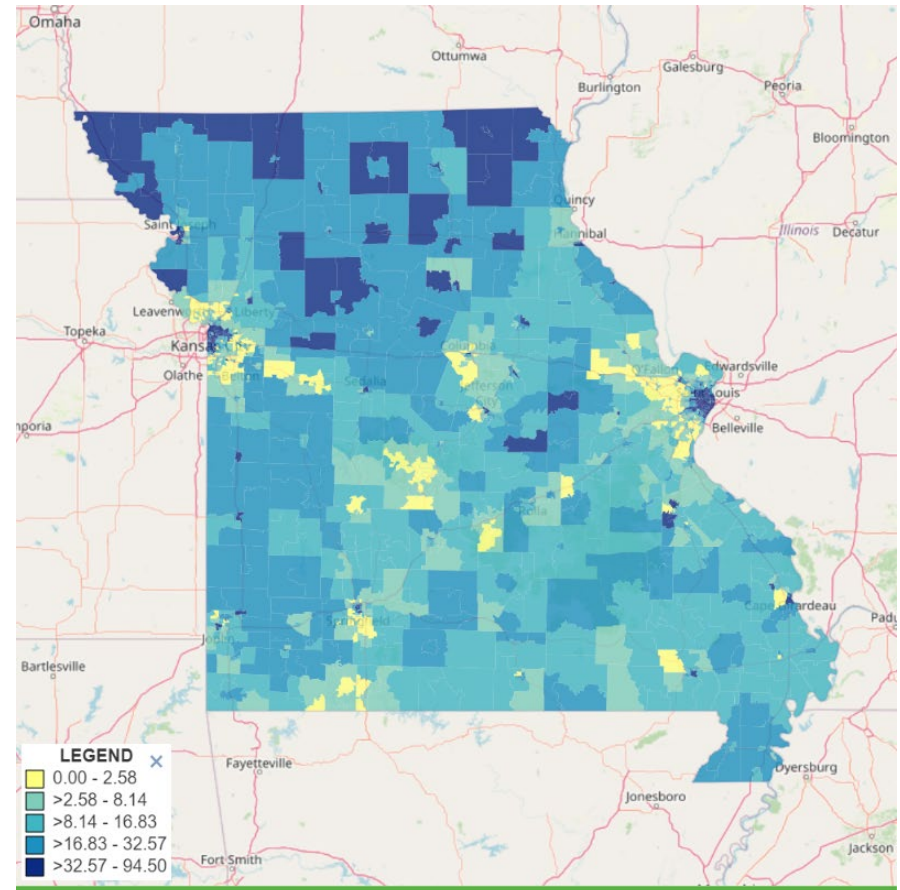
Lead poisoning is one of the most common and preventable environmental health problems in today's world. The effects of lead are the same whether it is inhaled or ingested and can damage the brain, central nervous system, kidneys, and immune system. Lead in the human body is most harmful to young children under six years of age and especially detrimental to children less than three years of age because their systems are developing rapidly. Children absorb up to four to five times more lead in the body than adults do. Young children are more likely to take lead into their bodies due to hand-to-mouth behaviors and their close proximity to the ground. Damage from lead is irreversible and may not become apparent until later in life.

Lead can affect all body systems in children and fetuses, but primarily affects the brain and nervous system. Even low blood lead levels can lead to lowered IQs, decreased cognition, difficulty with fine motor coordination, attention deficit disorders, reading disabilities and vocabulary deficits.

Lead poisoning often goes undetected. If symptoms occur, they are as follows: Mild toxicity symptoms can be fatigue, irritability, muscle pain, lethargy, or hyperactivity. Moderate toxicity can appear as headache, abdominal pain, joint pain, difficulty concentrating, behavioral deficits, constipation, or weight loss. Severe toxicity can cause paralysis, encephalopathy, seizures, coma, or death. Since symptoms of lead poisoning are similar to that of other diseases, clinicians may not suspect lead poisoning at first.

Lead dust from deteriorated lead-based paint is the primary lead hazard associated with childhood lead poisoning. The United States banned the manufacture of lead-based paint for residential use in 1978, homes built prior to 1978 may contain lead-based paint. The highest risk of exposure to lead dust is in homes built before 1950, when most paint contained a high percentage of lead.

Nationally, the average percentage of housing built pre-1950 decreased from 22% in 2000 to 17.2% in 2020. Missouri is above the national average with 18.5% of housing units built before 1950. The map below lists the percentage of pre-1950 housing by zip code according to the 2020 census data.



CHILDHOOD LEAD POISONING | AGE OF HOUSING | PERCENT OF HOUSING UNITS BY YEAR STRUCTURE BUILT | MISSOURI | Before 1950 | 2020



Explore more data at ephtracking.cdc.gov/DataExplorer

Other Sources of Lead in Missouri

Water and soil are additional sources of lead in Missouri. Lead found in water can be from source contamination or from plumbing components leaching lead product in to the water. Lead found in soil can be from contamination due to mining or automobile emissions. Lead is a heavy metal and does not wash away easily, so children may contact lead contaminated soil while playing.



Occupations

Occupations that handle lead can bring home lead on clothing and in vehicles, which can be harmful to children in the home. These occupations can include:

- Lead smelting or recycling
- Bridge reconstruction
- Auto repair
- Plumbers and pipefitters
- Steel welders and cutters
- Manufacturing of batteries, rubber products, printers, glass, plastics

Folk remedies

As people from other countries move to Missouri they often bring their regions' folk remedies with them. Some of these remedies, can contain high amounts of lead. For example, imported *azarcon* and *greta* used to treat "empacho", a colic illness, in Mexican Folk remedies. These lead-containing remedies have multiple names such as *liga*, *Maria Louisa*, *Alarcon*, *coral*, and *rueda*. In another example, remedies and cosmetics from Asia and the middle east, such as *chuihong tokuwan*, *pay-loo-ah*, *ghasard*, *bali goli*, and *kandu* may contain lead. Additionally, imported products such as *alkohl*, *kohl*, *surma*, *saoott*, and *cebagin* may contain lead.

Other

Additional sources identified during follow up home assessments included:

- Glazed pottery
- Stained glass
- Lead bullets
- Furniture refinishing
- Fishing sinkers
- Lead soldering or crystals
- Target shoot at firing ranges
- Mini-blinds
- Leaded candle wicks

Statewide Screening & Testing Plan

A blood test is the only way to determine the blood lead level in the body. Blood drawn from a vein (venous draw) or a finger stick (capillary sample) can measure the amount of lead in your blood. Blood lead levels, measured and reported as micrograms of lead per deciliter of whole blood ($\mu\text{g}/\text{dL}$), are a reportable condition in Missouri. In October 2021, the Centers for Disease Control (CDC) announced the new blood lead reference value at $3.5 \mu\text{g}/\text{dL}$, decreased from a previous level of $5 \mu\text{g}/\text{dL}$. For more information regarding the CDC's change in blood lead reference value, visit: <https://www.cdc.gov/nceh/lead/data/blood-lead-reference-value.htm>.

In 2001, Missouri legislation required DHSS to create rules and regulations to establish a statewide screening plan. The rules and regulations define criteria for establishing geographic areas in the state considered to be high risk for lead poisoning, outline blood lead testing requirements and protocols, and define follow up for lead testing.

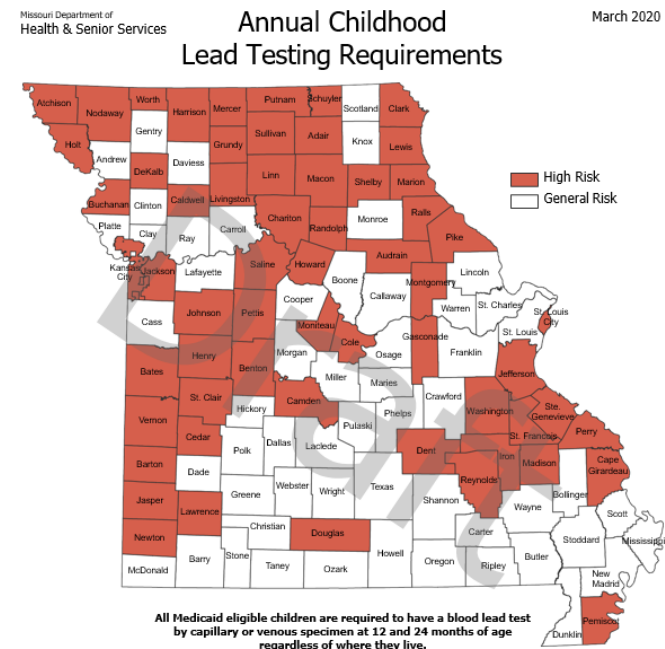
In developing these regulations, CLPPP applied Missouri surveillance and census data to establish criteria for High-Risk Testing and General-Risk Testing areas in Missouri. Based upon these criteria, and as required by the state statute, the following activities shall occur in these two areas.

High-Risk Testing Areas:

- All children less than six years of age who reside or spend more than ten hours a week in an area identified as high risk by the department shall be tested annually for lead poisoning.
- Childcare facilities located in High-Risk Testing Areas must record a "proof of lead testing" signed by the health care provider within 30 days of child's enrollment. The statement must verify that a blood lead test was completed in the previous 12 months. If the parent or guardian does not provide proof or a written statement explaining why they do not want the child to be tested, the childcare facility is to offer the parent assistance in scheduling a blood lead test.

General-Risk Testing Areas:

- From six months of age to six years of age, every child will be screened annually using the Healthy Children and Youth (HCY) Lead Risk Assessment Guide to determine whether the child is at risk for lead poisoning. Responses given during the screening with the Guide may indicate the need for blood lead testing. This guide can be viewed at: <http://health.mo.gov/living/environment/lead/pdf/HCYLeadRiskAssessmentGuide.pdf>.
- Every child less than the age of six found to be at high risk will be blood tested for lead poisoning.
- All MO HealthNet eligible children shall be assessed by the HCY Lead Risk Assessment Guide and/or be blood lead tested at the ages stipulated by the Federal Program Guidelines; 12 and 24 months of age, or up to 72 months of age when no record of previous testing available.
- Health insurance plans and companies are also required to cover lead testing of all pregnant woman and children under six years of age, as required by Missouri law.



Reporting of Blood Lead Testing

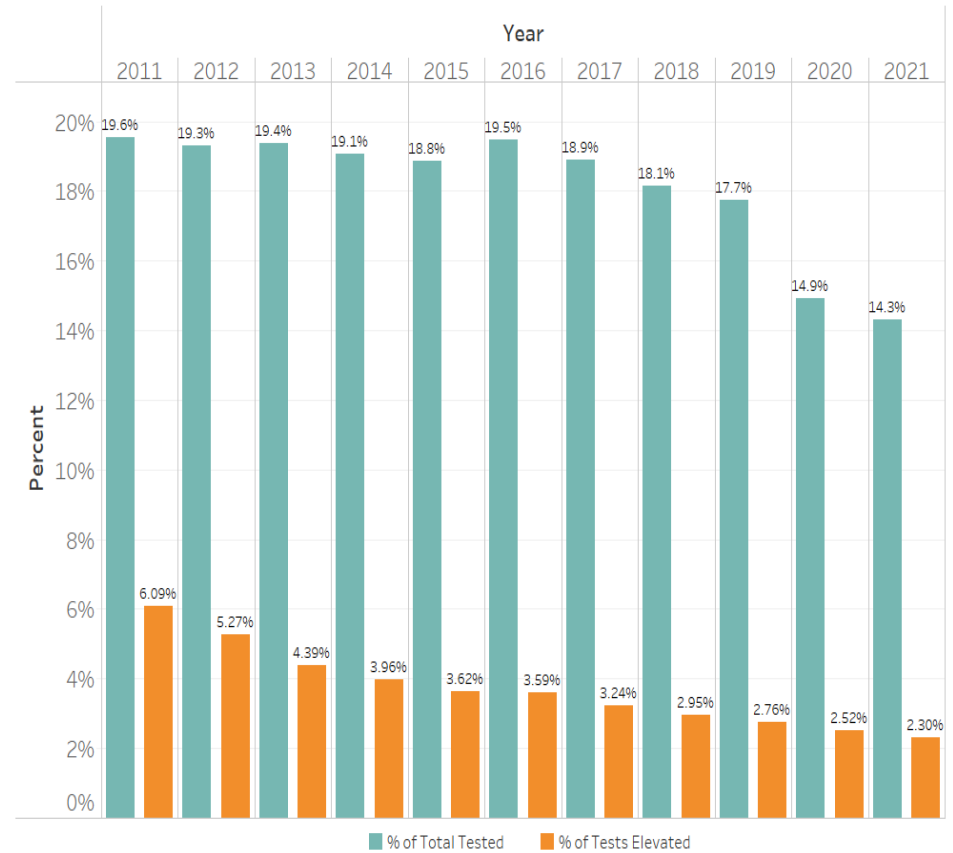
Missouri’s disease and conditions reporting rule, [19 CSR 20-20.020](#), defines the demographic patient information required to be submitted with the report; and requires the reporting of all blood lead tests both elevated and non-elevated regardless of the age of the individual. The data contributes to Missouri’s local, regional, and statewide statistics on blood lead poisoning.

The following information is required:

- Date test was conducted
- Type of specimen (capillary or venous)
- Result of the test
- Name and address of the attending physician
- Name of the disease or condition diagnosed or suspected
- Date the test results were obtained
- Patient’s complete name and home address with zip code
- Patient’s date of birth
- Patient’s sex and race

Table 1:

Blood Lead Testing Rate vs Elevated Rate for Kids Aged <72 Months



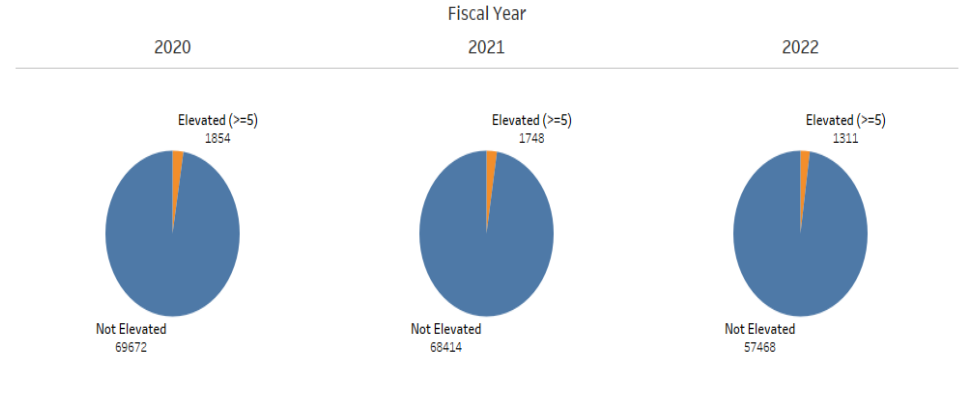
Testing Prevalence

In 2021, Missouri tested 58,779 children under the age of six years old for lead poisoning. From May 2021 until February 2022, the only point of care testing device, LeadCare Analyzer II by Magellan, recalled all testing kits, impacting the numbers of tests conducted. Testing numbers and rates for FY 2020, 2021, and 2022 are available below in Table 2.

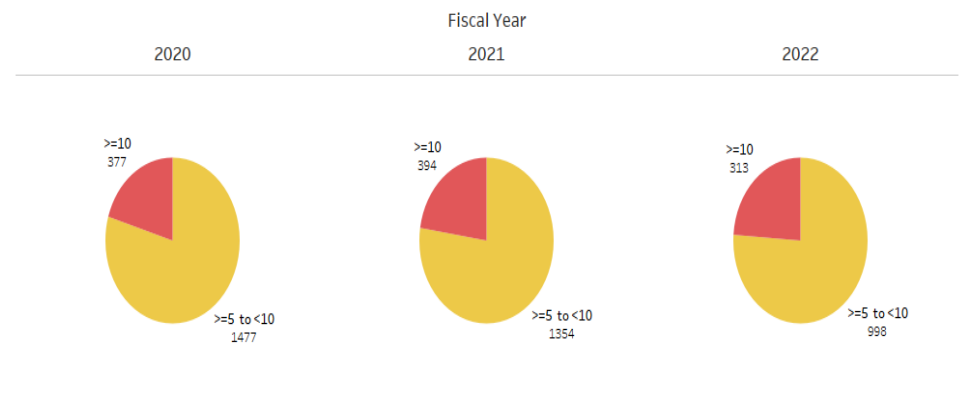


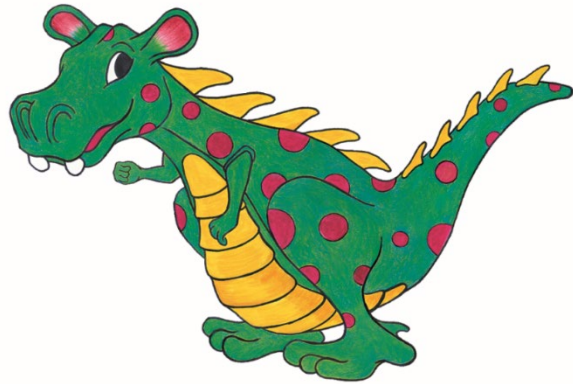
Table 2:

Blood Lead Level Breakdown of Tests for Kids Aged <72 Months



Blood Lead Level Breakdown of **Elevated** Tests for Kids Aged <72 Months





Lead Poisoning Prevention Services

Outreach

Lead poisoning is entirely preventable. Outreach and education is key to limiting and preventing exposure. Along with information made available on the DHSS website, CLPPP gathered resources and developed education materials that help identify sources of lead and how to address and mitigate those exposures. Many of these materials are themed to capture the attention of specific segments of the population. DHSS distributes these materials through attendance of conferences, health fairs, home shows, blood lead testing events, and other public events when possible. Collaborating partners can order free materials from our website as well.

Lead poisoning prevention week outreach activities included several health fairs and head start testing events throughout the State of Missouri. During lead poisoning prevention week, video ads ran on social media to showcase information to Missouri residents. Radio and print ads with Zimmer Radio Group played during Kansas City Chiefs football games. Leady the Lead-o-Saurus made appearances in Johnson County and at the Governor's Mansion for the Parson Family Fall Festival.

CLPPP outreaches families specifically impacted by high levels of lead through home risk assessments and encourages participation in case management activities provided by managed care plans and local county health departments. CLPPP staff provides case

management training throughout the state at regular intervals and upon request to meet the needs of case managers. CLPPP nurses provide consultation upon request for clinicians, nurses, case managers, and the public.

Lead Advisory Committee

The CLPPP convened a lead advisory committee in 2022. A diverse group of stakeholders meet monthly to discuss the impacts of lead across the state. The committee has identified three focus areas: policy, outreach, and education. The committee is developing goals for 2023, which include *Figure 1 Leady, CLPPP Mascot* recommendations for policy change and an outreach plan.

Case Management Services

Case management of children with EBL levels involves coordinating, providing, and overseeing the services required to help reduce the child's blood lead level. Case managers strive to reduce EBL levels to less than 3.5 µg/dL. Case management efforts include a multi-disciplinary team and are child, physician, and family centered. The child's primary care physician, LPHA, or a MO HealthNet Managed Care health plan may provide lead case management services. Additional partners, such as behavior health professionals, school nurses, First Steps, etc. will join the team to meet the needs of the family. DHSS CLPP staff monitor case management activities, provided by LPHA or Managed Care plans, for children identified with a blood lead level greater than or equal to 3.5 µg/dL.

The Missouri Health Strategic Architecture and Information Cooperative (MOHSAIC) system provides a centralized documented record of communications, results, case management interventions, and updated demographic information. This promotes the sharing of the findings and promoting unified support of suggested interventions made by the risk assessors following environmental investigation results.

Environmental Evaluation

The CLPPP provides lead risk assessment services to all areas of Missouri except for six jurisdictions that provide this service directly: Jasper County, Jefferson County, Greene County, St. Louis County, St. Louis City, and Kansas City. Lead risk assessments detect lead hazards in children's homes. Risk assessments conducted by the State of Missouri staff are offered for children age six and younger who have a confirmed venous blood lead level beginning as low as a venous level of 3.5 µg/dL, if requested by the owner/occupant of the dwelling. Most risk assessments are conducted for children with a blood lead level of 10 µg/dL or greater.

A professional, trained and licensed risk assessor conducts a risk assessment. The risk assessor consults with the child's family to determine areas of the home where the child may come into contact with lead. X-ray Fluorescence Analyzers (XRFs) analyze painted surfaces and household objects for the presence of lead. Dust, soil, and water samples collected determine if lead hazards exist and where they are located. Upon completing the assessment and receiving the lab analysis, the risk assessor provides the property owner and/or occupant (if other than the owner) with recommendations for reducing lead hazards.

The risk assessor revisits the home at an agreed-upon time to assure lead hazard reduction work is completed. The risk assessor collaborates with the child's parent or legal guardian, property owner, LPHA or MO HealthNet lead case manager, CLPPP staff, and the child's physician as indicated, as part of their role in case management of the elevated child. Risk assessment reports are also accessible to team members if a risk assessment was conducted on a child with a blood lead level of 3.5 µg/dL or greater.

Childcare Licensing Inspections

The Bureau of Environmental Health Services performs sanitation inspections for childcare facilities seeking licensure. As part of these inspections, staff screen for potential lead hazards and provide remediation guidance as needed.

School and Childcare Facility Voluntary Water Testing

In the fall of 2020, the Bureau of Environmental Epidemiology secured grants from the EPA to assist schools and childcare facilities in testing drinking water faucets for lead. This project provides funding to reimburse schools and childcare facilities for their participation in collecting samples that are tested through the State Public Health Laboratory. For FY22, one school and twelve child care facilities were tested, totaling 71 faucets, with 6 found to have elevated levels of lead above the EPA standard of 15 part per billion (ppb). Those six faucets were replaced and verified to be below the EPA standard for lead in water.

Get the Lead Out of Schools

On August 28, 2022, the Get the Lead Out of School Drinking Water Act; 160.077 RSMo, went into effect, establishing a drinking water standard for lead at less than five (5) parts per billion for all schools and early childhood education programs that receive state funding. \$27 million in ARPA funds were designated to provide financial assistance to schools. The legislation did not provide personnel resources to operate the program, but the department has secured temporary resources to get the program started and has submitted a New Decision Item for the legislators to consider for supporting this program in the 2023 session. The Bureau of Environmental Epidemiology has been working to establish processes and guidance to assist schools in complying with the new law. Several presentations have been held for various school related associations to help administrators understand their responsibilities. More outreach is in the planning stages for the coming year.

Collaborative Partnerships

The CLPPP collaborates with multiple stakeholders to provide safe and healthy environments for Missouri children to learn and grow.

Stakeholders include, but are not limited to:

- Agency for Toxic Substance and Disease Registry (ATSDR)
 - Brownfield Project
 - Exposure investigation
- Environmental Protection Agency (EPA)
- Missouri Department of Natural Resources (DNR)
- DHSS Lead Licensing Program
- Missouri Department of Social Services, MO HealthNet Division (MHD)
- Missouri Managed Care Plans
- Women, Infant, and Children (WIC) Program
- Missouri Department of Economic Development (DED)
 - Community Development Block Grant
- Missouri Housing Commission
- Missouri Local Public Health Agencies (LPHAs)
- Missouri Department of Elementary and Secondary Education (DESE)

