

2019 Childhood Lead Surveillance Report

Lead & Healthy Homes Division



Table of Contents

Executive Summary	3
Introduction.....	3
Background.....	4
Recent History of the Division and Funding.....	4
Why Lead is A Health Concern	4
Indiana Statute and Recommendations	5
2019 Highlights	7
Testing.....	7
Education	9
Data Management Improvements	11
Partnerships.....	12
Target Population Identification and Intervention	13
Environmental Investigations	14
2020 Goals.....	16
2019 County Data.....	17
Contact Information	20

EXECUTIVE SUMMARY

INTRODUCTION

The Lead and Healthy Homes Division of the Indiana Department of Health (IDOH) is pleased to present the 2019 Childhood Lead Surveillance Report highlighting lead poisoning prevention activities across Indiana. Information contained in this report was compiled by the Lead and Healthy Homes Division in compliance with IC 16-41-39.4-5.

Throughout the attached report are examples of Indiana's progress in making lead poisoning a priority for Hoosiers throughout the state. Whether it's establishing a pilot program with Indiana's WIC program to test additional at-risk kids, updating Indiana's lead risk map to more accurately reflect current hot spots, or increasing the number of licensed lead risk assessors, Indiana continues to strive to ensure that our families and our homes aren't burdened by lead.

The IDOH and the Lead and Healthy Homes Division (LHHD) encourage all children between 6 months and 6 years of age to be screened for lead risk and tested if they meet any of the screening criteria. If parents or physicians are uncertain whether a child meets one of the criteria for testing, the IDOH encourages testing of the child. The earlier that lead exposure can be identified, the more effective an intervention, both in the child's health and environment, can be.

This report provides data on the number of children currently being tested for lead, the number with an elevated blood lead level (EBLL), and the number of lead risk assessments performed for children with EBLLs. It also highlights a variety of actions taken by IDOH to increase testing rates, provide education on lead sources and impacts, support affected families, and improve Indiana's ability to manage lead exposure within the residential environment.

BACKGROUND

RECENT HISTORY OF THE DIVISION AND FUNDING

Since 2017, the IDOH lead programs have been housed in the Lead and Healthy Homes Division (LHHD). From 2012 to 2016, the programs were housed under IDOH's Environmental Public Health Division. The LHHD's primary goals are to track the prevalence of lead exposure in children throughout Indiana and to support local health departments in taking the necessary steps to minimize that exposure and the resulting health risks. This is done through proactive screening, treatment, case management, and remediation of lead hazards.

The LHHD is primarily funded by federal grants from the Centers for Disease Control and Prevention (CDC) and the Environmental Protection Agency (EPA). CDC funding has been used to support maintenance of a case management system and surveillance system, while EPA funding has supported ongoing lead training, licensing, inspection, and enforcement efforts. Indiana also received a supplemental, one-year, CDC award in the Fall of 2018 that allowed IDOH to develop provider reports highlighting differences between lead testing billed and reported and to provide direct support to local health departments as they seek to increase awareness and testing in their communities.

In 2019, IDOH also utilized funding provided through the Family and Social Services Administration's Office of Medicaid Policy and Planning for a health services initiative that provided funding to conduct lead abatement in the homes of children receiving Medicaid.

WHY LEAD IS A HEALTH CONCERN

Lead is a heavy metal that has been part of the world economy since the time of the Romans. A 2005 U.S. Geological Survey found that the United States' apparent consumption of lead as of 2003 was still 1.44 million¹ metric tons each year. It has been used throughout history for a variety of industrial and residential processes, including paint, plumbing, jewelry, and cosmetics.

The most common lead exposure for children in Indiana occurs through lead-based paint. Lead was an additive to most paints prior to the ban on lead-based paint in 1978. As lead-based paint deteriorates with age, or when it is disturbed, such as during remodeling and repair projects, lead paint can generate paint fragments, chips, and dust. These particles can be ingested or inhaled by small children, with potentially significant health consequences. This is especially concerning in Indiana, where U.S. Census data show that more than 1.7 million homes, or nearly 60% of all Indiana housing, were built before 1980.²

Research has shown that EBLs can negatively impact cognitive function and cause behavioral disorders and slowed physical development in young children. Children under the age of 7 years are more vulnerable to lead hazards due to the rapid growth of their bodies and brains. Young children, ages 2 years and under, are especially at risk due to the lack of a fully formed blood-brain barrier, which

¹ <https://www.usgs.gov/centers/nmic/historical-statistics-mineral-and-material-commodities-united-states#lead>
² <https://data.census.gov/cedsci/table?t=Year%20Structure%20Built&g=0400000US18&tid=ACSDT5Y2018.B25034&hidePreview=false>

prevents lead from causing more substantial cognitive, neurological, and developmental delays. These children are also at a higher risk because they are more likely to put hands or other objects into their mouths. Lead exposure is particularly concerning because it affects each person differently. Some children may show no symptoms of delay even with EBLs. In fact, signs of lead exposure could be mistaken for other conditions, such as ADHD, autism, or the flu.

The effects of exposure to lead can persist throughout a lifetime and include negative lifelong changes in intellect, behavior and health. Because these changes are lifelong, it is especially important for parents, healthcare providers, and public health officials to recognize the significance of providing surveillance, early prevention, and education, as well as intervention and treatment. IDOH's LHD is committed to providing assistance and support to those local health departments and community partners that are providing direct services, conducting surveillance, identifying at-risk children, and monitoring the treatment of those who have confirmed EBLs.

INDIANA STATUTE AND RECOMMENDATIONS

Although people of all ages can be affected by exposure to lead, children under the age of 7 years are especially at risk because they are still growing and their brains are still developing. Children at higher risk for lead exposure tend to live in households in which residents are:

- Lower income
- Racial or ethnic minority groups
- Recent immigrants (especially those from Central America, South America, North Africa, and the Middle East where lead can be prevalent in spices, cosmetics, jewelry, ceramics, and medicine),
- Residing in properties built before 1978,
- Residing in older, poorly maintained properties,
- Have parents or household members who work in industries that deal with lead (i.e. battery manufacturing and recycling, auto repair, or construction)

An at-risk child is defined by 410 IAC 29-1-2 as a child who:

- Lives in or regularly visits a house or other structure built before 1978
- Has a sibling or playmate who has been lead poisoned
- Has frequent contact with an adult who
 - works in an industry that uses lead
 - has a hobby that uses lead
- Is an immigrant or refugee or has recently lived abroad
- Is a member of a minority group
- Is a Medicaid recipient
- Uses medicines or cosmetics containing lead; or
- Lives in a geographic area that increases the child's probability of exposure to lead

In Indiana, blood lead testing is most often conducted by family physicians and pediatricians, either in-office or through a referral to a testing laboratory. Testing is also routinely conducted by local health departments through clinical services offered in-office and remotely. Less frequently, testing is also performed by nurses and medical staff through organizations like the Indiana Women, Infants and Children (WIC) program and Head Start through private funding.

To aid in effective case coordination and surveillance, Indiana statute also requires that accurate and complete data accompany any blood lead sample submitted for analysis. That data must include:

- (1) With respect to the individual whose blood is examined:
 - A. Full name
 - B. Date of birth
 - C. Gender
 - D. Full address, including street address, city, and ZIP code
 - E. County of residence
 - F. Race and ethnicity
 - G. Parent or guardian's name and phone number, where applicable
 - H. Any other information that is required to be included to qualify to receive federal funding
- (2) With respect to the examination:
 - A. Date
 - B. Type of blood test performed (venous or capillary)
 - C. Normal limits for the test (interpreted as elevated or non-elevated)
 - D. Test results
 - E. Interpretation of test results by the person who examined the specimen for the presence of lead

In Indiana, all blood samples analyzed for the presence of lead are required to be reported to the IDOH within one week of analysis. The IDOH provides lead screening requirements and medical management recommendations to providers, encouraging screening of all children and testing of those who match any of the identified risk criteria. All children enrolled in Medicaid are required to receive lead testing at 12 and 24 months of age or as soon as possible between 24 and 72 months of age if they have not previously been tested.

With no safe level of lead in blood, the IDOH encourages all parents to get their children tested early and often if they are concerned their child may have been exposed to lead. Many local health departments across Indiana provide support and case management services to children at levels as low as 5 µg/dL. Resources related to prevention, lead policy, abatement, and the health impacts of lead can be found on the LHHD page of the IDOH website at <https://www.in.gov/isdh/26550.htm>.

410 IAC 29 mandates reporting, monitoring and prevention of lead poisoning in Indiana, including the reference value levels observed to initiate public health action by the state. In this statute, a blood lead test is considered confirmed with either a single venous blood test or two capillary blood tests with a blood lead result ≥ 10 µg/dL, which was the recognized recommended threshold for 'blood lead level of concern' at the time the rule was written.

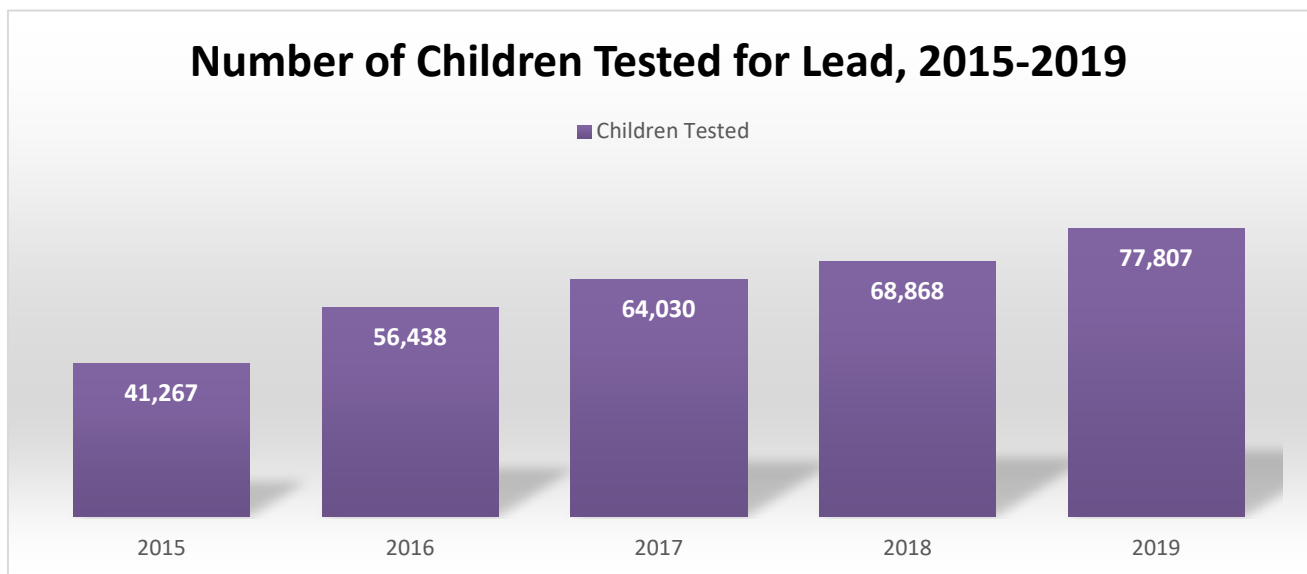
In August of 2019, IDOH and the LHHD, organized a diverse group of stakeholders from across Indiana to form the Indiana Lead Advisory Council. The council was commissioned by State Health Commissioner Kristina Box, M.D., FACOG, to research how Indiana might be able to lower the elevated blood lead level threshold given the cost and impact such a move would have. The findings of the council and suggestions on how to lower the threshold are due out in early to mid-2021.

For additional information on the full lead result reporting code, please visit the [Indiana Administrative Code](#). Please consult the following link for more information about reporting blood lead results: [https://www.in.gov/isdh/files/\(2.4\)CD%20Reportable%20Diseases%20List%208-12-2016.pdf](https://www.in.gov/isdh/files/(2.4)CD%20Reportable%20Diseases%20List%208-12-2016.pdf).

2019 HIGHLIGHTS

TESTING

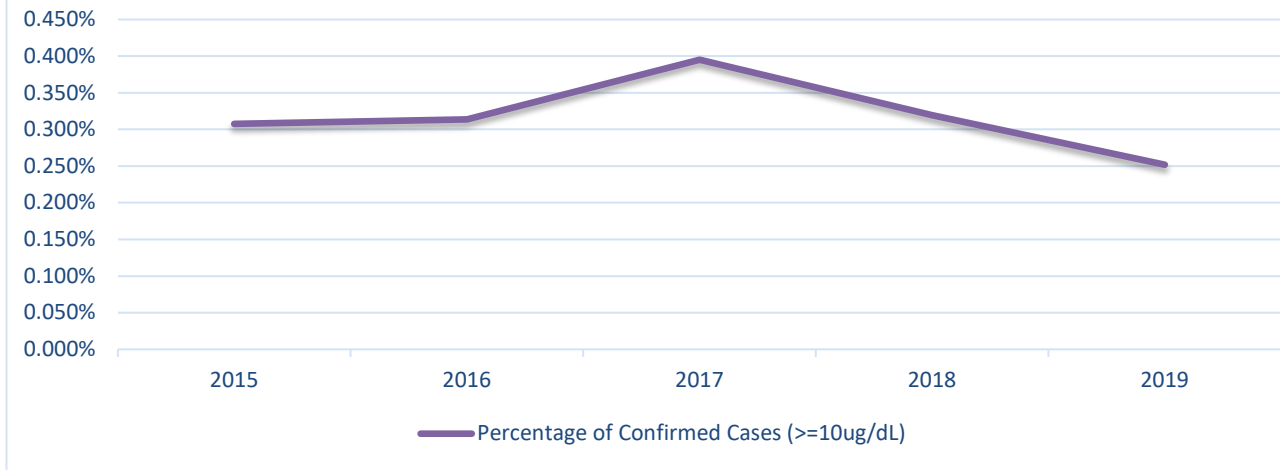
In 2019, the IDOH received 84,769 lead test results for children under age 7 from medical providers, laboratories, and other public health partners. Of these results, 916 of them, or 1.1%, were considered elevated. These results included tests from 77,807 unique children under age 7 years who were tested in Indiana.



Of those children, 607 (0.78%) had at least one elevated result, and 196 (0.25%) had a confirmed elevated result³. On average, children who were confirmed to have an EBLL were confirmed in 19.5 days.

³ The total number of tests received includes both venous and capillary tests, and accounts for initial tests and follow-up tests done on children whose blood lead levels were elevated. According to Indiana statute, a child becomes a confirmed case when he or she receives at least one venous blood test or two capillary blood tests within a three-month period, with a blood lead result at or above 10 µg/dL.

Percentage of Confirmed Elevated Cases ($\geq 10\mu\text{g/dL}$), 2015-2019



The IDOH also collects demographic information on gender, race, and ethnicity with blood lead test results. Samples that contain “unknown” or leave the field blank are accepted by IDOH. Gender is the most complete, with race and ethnicity having 27.7% and 36.2% reported as unknown or blank.

Among the 77,807 unique children who received blood lead tests in 2019, 51.4% were male, 48.4% were female, and 0.2% did not have gender reported. Despite the percentage of confirmed EBLs being slightly higher among males than females, it was not significantly different (Table 1). In terms of a racial breakdown of children tested, 32.9% of the children did not have a race identified. Among those with a reported race, 36.7% of children were white, 23.6% of children tested were black. (Table 2). Ethnically, 10.8% of children tested identified as Hispanic, 52.9% identified as non-Hispanic, and 36.2% had an unknown ethnicity. The percentage of confirmed EBL was not significantly different between Hispanic and non-Hispanic children (Table 3). However, the large number of children with unknown race and ethnicity adds uncertainty to the race and ethnicity statistics.

Summary of Reported Demographics for Children Aged <7 Years Blood Lead Tested and EBL Cases Confirmed in 2019⁴

Gender	Tested (%)	EBL Cases	Percent EBL
Male	39,976 (51.4%)	108	0.27%
Female	37,671 (48.4%)	73	0.19%
Unknown	160 (0.2%)	15	9.38%
Total	77,807 (100%)	196	

Table 1: Gender

⁴ Cells with an asterisk (*) indicate the value for that cell has been suppressed due to the total number of representative individuals being less than five.

Race	Tested (%)	EBLL Cases	Percent EBLL
American Indian	3,761 (4.83%)	11	0.29%
Asian/Pacific	632 (0.81)	*	0.63%
Black	18,348 (23.6%)	56	0.31%
White	28,524 (36.7%)	73	0.26%
Multiracial	978 (1.3%)	*	0.10%
Other	4,042 (5.2%)	9	0.22%
Alaska Native	(0.0%)	-	0.00%
Unknown	21,522 (27.7%)	42	0.20%
Total	77,807 (100%)	196	

Table 2: Race

Ethnicity	Tested (%)	EBLL Cases	Percent EBLL
Hispanic	8,428 (10.8%)	32	0.38%
Non-Hispanic	41,193 (52.9%)	104	0.25%
Unknown	28,186 (36.2%)	60	0.21%
Total	77,807 (100%)	196	

Table 3: Ethnicity

Compared to 2018, Indiana saw an increase in the overall number of tests conducted, but a drop in the number of children identified as having an EBLL. IDOH believes this increase in reported results is the direct result of a push for more electronic reporting and an increased focus on lead testing coming out of data sharing efforts.

Despite this increase in testing and a dropping CEBLL rate, early childhood exposure to lead remains a significant, solvable problem for Indiana residents. Lead testing rates do not reflect that all, or even a majority, of Indiana’s children are tested at recommended intervals. Achieving improvements in testing rates requires working with parents to stress the importance of requesting testing, partnering with physicians to emphasize why testing is important, and working with housing partners to identify ways to minimize or eliminate lead hazards.

EDUCATION

In support of the goal to eliminate childhood lead poisoning as a public health problem, effective education and outreach efforts are essential. In 2019, health education staff continued to focus educational efforts and forming partnerships in support of expanding and building on the existing strategies being used to inform and educate the public, healthcare professionals, and community partners about lead hazards in the environment and lead based paint, principally through a range of primary prevention initiatives.

Throughout 2019, the IDOH redoubled its efforts to ensure that every local health department has staff trained in, and practicing, effective case management as mandated in Indiana Administrative Code (410 IAC 29-1-5). This focus resulted in the delivery of twenty-three (23) comprehensive onsite trainings to nursing personnel and case managers from local health departments. The trainings covered information

on a variety of points, including lead hazard sources, test reference values, medical management recommendations, and home visit and environmental investigation requirements. Staff from twenty-three (23) counties attended the trainings. Additionally, in an effort to expand the accessibility of training, an online platform of the case management education was piloted with two local health departments and launched statewide in 2019. The online training, including an instructional video and assessment/evaluation tools, provides an accessible training option for local health department staff when the LHHH health educator cannot provide training to a new case manager in-person. Use of the training modules by a variety of individuals representing local health departments and public health partners demonstrated a need for the resource. The created training modules can be found on Indiana TRAIN (IN-Train), a free online comprehensive catalog of public health training opportunities, and content will be updated regularly.

Primary prevention to reduce or eliminate the myriad sources of lead in the environment of children before exposure occurs is the most reliable and cost-effective measure to protect children from lead toxicity.⁵ Educating the public about the many lead hazards present in the environment and home; the significant physical, behavioral, and intellectual impacts exposure to those hazards has on the health of young children; and strategies to correct the hazards that have been found are all critical components of the materials and presentations provided by the IDOH LHHH program to a variety of partners and audiences. In 2019, through a partnership with Early Learning Indiana and the Indiana Family and Social Services Administration's Office of Early Childhood & Out of School Learning, the LHHH team was able to develop an asynchronous online lead training module that was designed for use by early learning and childcare providers as a part of their required yearly professional development licensure requirements. The lead training module offered information for those individuals who provide care to children in early learning, day care and childcare settings across Indiana. Information from the training was designed to raise educators' awareness about the problem and impacts of lead toxicity, including the importance of identifying lead hazards and maintaining a lead-free childcare facility. The training also provided strategies and information to help better prepare the childcare providers to educate the parents of the children in their care about the risks of lead toxicity and the importance of testing.

The IDOH also expanded its digital reach to partners and public health providers through the quarterly release of electronic newsletters. Each issue included updates and important, relevant, and current information on a variety of lead and healthy homes topics. The same partners who received the newsletters also received announcement emails throughout the year containing important topics such as new resources available on the LHHH website, case management and risk assessment tips, information about National Lead Poisoning Prevention Week, and grant opportunities. Facebook and Twitter messages concerning lead and toy safety, National Lead Poisoning Prevention Week, and National Healthy Homes Month were also distributed through the IDOH accounts to raise awareness of lead hazards and the safety precautions that should be taken in the home. Efforts also continued throughout 2019 to maintain and improve the information presented on the IDOH Lead and Healthy Homes Division webpage.

Several opportunities in 2019 broadened the scope of audiences reached with lead toxicity prevention education and awareness messages. Some of those opportunities included:

- Exhibit space and opportunities for one-on-one conversations to those in attendance at four conferences, including the Indiana Environmental Health Association Fall Conference, Alliance of

⁵ AAP COUNCIL ON ENVIRONMENTAL HEALTH. Prevention of Childhood Lead Toxicity. Pediatrics. 2016;138(1): e20161493

Indiana Rural Water Fall Conference, East Chicago Annual Community Health Fair, and the Indiana Association of School Nurses Conference.

- A roundtable presentation to a group of high school Family and Consumer Science Early Childhood classroom educators who provide instruction to students pursuing a future in a career in early childhood education. Those in attendance were educated about the hazards of lead in the environment and preventive measures. They were also provided with strategies for ways to integrate this information into their classroom instruction.
- A presentation at the 2019 Annual School Health Conference to school professionals including teachers, administrators, school nurses, and school social workers, as well as other managed care, government, hospital and community partners on the topic of Lead Toxicity and Unhealthy Homes: What's the Impact on Our Students? was provided. Those in attendance were informed of the impact that a student's physical environment has on their physical health and academic success, including the short- and long-term academic, neurological and behavioral expected outcomes of lead toxicity. Strategies to reduce exposure and possible educational and classroom interventions were explored.
- The development and distribution of the *Lead and Pregnancy Keep Baby Safe Infographic* and a *Prenatal Risk Evaluation Questionnaire*. Both resources were targeted toward pregnant mothers and women planning to become pregnant and were made available in English and Spanish on the LHHD website. The infographic provided important information about lead toxicity, the additional risks for the unborn baby if the mother is exposed during pregnancy, and a list of Dos and Don'ts, such as "Do eat a healthy diet rich in calcium, iron and vitamin C" and "Don't use imported items such as pottery or ceramic ware." The questionnaire contains a list of questions designed to help women determine their degree of risk for lead exposure before and during their pregnancy and provides direction for seeking evaluation and testing from their healthcare provider.

DATA MANAGEMENT IMPROVEMENTS

In 2019, IDOH achieved several improvements in data management. Increases in transparency and efficacy of day-to-day operations were the direct result of upgrades to records storage, case tracking and surveillance software, and record deduplication processes.

One of the more substantial changes in 2019 was the development of new case management and surveillance tracking tools. Since 2018, IDOH has been testing and evaluating replacements to the CDC Systematic Tracking of Elevated Blood Lead Levels and Remediation (STELLAR) tool that had been in use in Indiana for more than two decades. After careful review, LHHD leadership opted to move forward with the development of an Indiana-specific lead case module in the CDC National Electronic Disease Surveillance System (NEDDS) Base System (NBS). NBS was selected due to its existing use by other IDOH programs (including HIV and TB), local health department familiarity with the system, and the level of system customization. Development began in early 2019, and the system went live February 2, 2020. This new tool, along with improvements in workload management tools, now allows surveillance staff to quickly filter active cases and review at a glance whether a child is overdue for a retest, home visit, or risk assessment. Improvements have also allowed IDOH to help new local health department staff understand a county's case load, a child's blood lead history, and actions taken relative to each case.

IDOH also looked to improve the tools and data that partners across the state have historically used to make decisions on lead risk in their communities. Revising and updating the [Lead Census Tract Risks Map](#)

on the IDOH website was a huge step in that direction. Updates included incorporation of childhood blood lead level data through 2018, updated poverty rates by census tract, and updated information on the age of existing housing. While high- and low-risk areas didn't change substantially, the map is more fine-tuned to account for current conditions.

IDOH also used 2019 to help move several dozen labs and providers performing more than 50 blood lead tests per year from a fax-based submission to digital record entry. This shift increased the number of reporters into the online Lead Data Flow (LDF) reporting system by more than 30%, resulting in less manual data entry and fewer transcription errors.

PARTNERSHIPS

Understanding that IDOH alone cannot accomplish the goals of improving rates of blood lead testing, managing those with elevated blood lead levels, and addressing lead hazards in all forms, the LHHD partnered with groups from across the state that could help. Below are some examples of the partners who helped support this work in 2019 and continue working to make change possible:

Local health departments - With regular visits to local health departments and presentations to groups such as local health officers and public health nurses, the LHHD has continued to adjust its focus to better match the needs of partners on the ground. Specific requests for 2019 included increasing the ability to see provider-level lead testing frequency and the ability to see more information on all test results received, including low-level and zero-level test results. These requests were fulfilled with the creation of tools like provider-level comparison reports (showing Medicaid lead billing versus reported testing) and quarterly reports to each health department showing each <5 µg/dL result received.

Medicaid Managed Care Organizations - Success in getting clinics, physicians, and families to recognize the importance of required lead testing for children enrolled in Medicaid can often be most effective by working directly with Managed Care Organizations (MCOs). The IDOH has been working with these groups to boost overall lead testing rates among their members. In 2019, the IDOH met with each of the MCOs on a bi-monthly basis to review MCO challenges, encourage promotion of the Lead Protection Program, develop tools for measuring testing rates, and create brochures and program marketing material that MCOs could deliver to families during case management visits.

Indiana Family and Social Services Administration (FSSA) - As the state agency responsible for oversight of Medicaid, FSSA and IDOH have worked closely over the past several years to develop tools and processes that best equip service providers to help families with children affected by lead. In 2019, FSSA took the monumental step of adding lead case management as a reimbursable expense for local health departments. The new billing code allows health departments to bill for up to 6.5 hours per year of case management for children enrolled in Medicaid, with the potential for additional support with pre-authorization. Adding this reimbursement onto the existing approval to pay for environmental risk assessment should result in local health departments having the ability to offset costs otherwise hitting county and city budgets.

Indiana Housing and Community Development Authority (IHCDA) - Serving as Indiana's largest provider of safe, affordable, quality housing, IHCDA shares a common interest with the IDOH in wanting to ensure that Indiana's most vulnerable populations live in housing free from lead hazards. In 2019, both organizations improved information-sharing capabilities regarding Section 8 properties potentially

affected by lead hazards and lead license reviews for contractors conducting a lead risk assessment, and leveraged multiple sources of lead remediation funding in target communities.

Indiana Department of Education (IDOE) – The IDOE is a willing partner in assisting with the distribution of information and resources concerning lead toxicity to school nurses across the state. A close working relationship between the LHHH Health Educator and the IDOE School Nurse Program Director helped to facilitate the posting of a resource document on the Learning Connection, an IDOE-developed online communication platform frequently used by school nurses across the state. The IDOH developed a resource document that contains local and national science-based resources appropriate to be used for school and parent education on lead hazards and their potential impacts.

TARGET POPULATION IDENTIFICATION AND INTERVENTION

One of the key components to delivering effective lead education and intervention is knowing which populations are at the highest risk and providing those families resources to help mitigate those risks. To this end, in 2019 the IDOH continued to provide tools and resources, such as a Lead Exposure Resource Guide, as well as build on other interventions, such as the Lead Protection Program that had been launched in prior years.

As referenced in the 2018 report, one of the groups IDOH considers most important in our current and future work is the families of children receiving Medicaid. Children insured by Medicaid in Indiana are required to receive a blood lead test at 12 and 24 months of age, or as soon as possible before age 6 years if not tested at 12 and 24 months. In 2019, 28% of children who were age 1 or 2 during 2019 had a blood lead test billed to Medicaid. While this is a 7% improvement over 2018, there remains significant opportunity for improvements in reporting, education, billing, and testing. In 2020, the IDOH will continue to focus on these families through work with Indiana's Family and Social Services Administration, MCOs, local health departments, and non-profits working with this population.

With the help of one-time supplemental funding from the CDC in 2018, the LHHH was able to hire a project manager to help launch an effort to compare IDOH blood lead testing and immunization data and Medicaid lead claim data. The goal of this project was to identify gaps in both service provision to children receiving Medicaid benefits (i.e., immunizations were delivered, but lead levels were not tested) and in reporting (i.e., a lead test was billed to Medicaid but no test was reported to the IDOH). In 2019, the IDOH project manager was successful in aggregating data sets from various divisions and Medicaid and producing comparison reports, which were shared directly with physicians, practice groups, local health departments and Medicaid MCOs. This information allowed each of these groups to review internal operations and determine where opportunities for improvement existed.

IDOH also continued efforts in 2019 to ramp up participation in the Children's Health Insurance Program (CHIP) funded lead abatement program under the moniker of Indiana's Lead Protection Program. CHIP is a federally funded program administered by the Indiana Family and Social Services Administration's Office of Medicaid Policy and Planning and provides medical care to eligible children up to age 19. The program rolled out in 2018, with efforts to find and abate lead hazards in homes of families with children receiving Medicaid benefits. The program gained momentum in key communities of South Bend, East Chicago, Gary, Hammond, and Michigan City as community members and local lead affinity groups learned more about what the program can do and the benefits to residents. By the end of the year, the program had received more than 100 applications from targeted communities across northern Indiana and had abated lead in 37 homes across the state. In 2020, the program will be expanding into

Indianapolis, with a focus on developing a more substantial applicant pool and larger lead contractor base.

Understanding that children served by the Women, Infants, and Children (WIC) supplemental nutrition program are more likely to be members of at-risk populations and have blood lead levels in excess of 5µg/dL⁶, IDOH's LHH and WIC Divisions partnered in July of 2019 to launch a one-year pilot aimed at testing children ages 1 and 2 to determine their blood lead level. Through that partnership, in 2019, 2,763 children were tested during their annual WIC appointment. Halfway through the pilot period, the program had seen success, with clinic personnel getting comfortable conducting and reporting capillary testing, parents understanding the importance of the testing, and identification of children with previously unknown EBLLs receiving case management support. Full results from the pilot will be available in 2020.

In August of 2019, IDOH staff also had the opportunity to work directly with families in East Chicago to conduct blood lead testing, in partnership with Healthline Community Health Center at a back to school event hosted by The Cross Church. Staff were able to test 56 children between the two days and were able to talk with parents and grandparents about the importance of lead screening and the risks of lead paint.

ENVIRONMENTAL INVESTIGATIONS

In 2019, 740 lead risk assessments were conducted in Indiana by IDOH staff, city and county health departments, and private risk assessors. 186 of those risk assessments were done in homes of children under age seven, with an EBLL. Table 4 represents the number of houses, out of the 740 assessed, with each type of hazard identified: dust, exterior lead-based paint, interior lead-based paint, soil, or unknown.

Types of Lead Hazards	Number of Houses with Lead Hazards Identified
Dust	73
Exterior Paint	225
Interior Paint	413
Soil	58
Other	0

Table 4: Lead Hazards Identified versus Number of Houses

At the end of 2019, Indiana had issued 487 individual professional licenses in the following disciplines: lead inspector, lead risk assessor, lead designer, lead project supervisor, and lead worker licenses. Licenses can be obtained through completion of training courses offered by Indiana-approved training providers, or through reciprocity. In 2019, the LHH worked to improve the lead licensing process by developing a new processing system that expedited the license approval by several days. This new process also allows LHH staff to provide license expiration reminders three to six months in advance of expiration and to follow up with individuals who may have started, but not completed, the licensure process.

Indiana also requires that any lead abatement work be done by a certified lead contractor. Contractors must employ licensed staff and stand responsible for ensuring that abatement work meets the standards for workmanship, safety, and cleanliness. At the end of 2019, Indiana had 36 active lead abatement

⁶ Aoki, Y. & Brody, D. J. (2018). WIC Participation and Blood Lead Levels among Children 1-5 Years: 2007-2014 *Environmental Health Perspectives* <https://ehp.niehs.nih.gov/doi/10.1289/EHP2384>

contractors who completed 66 lead abatement projects throughout the state. This is a 347% increase in the number of abatement projects completed in Indiana year-over-year. The increase is due to the ramp-up of Indiana's Lead Protection Program in 2019. The IDOH has also improved the tracking of lead abatement activities being conducted throughout the state by assigning a trained lead risk assessor from IDOH to each abatement project. This dedicated, state-level point of contact has resulted in increased numbers of inspections both during and after work and has given contractors a single point of contact for any questions or concerns they may have about best practices or state rules.

2020 GOALS

In 2020, IDOH will continue to work to reduce the impact of lead exposure on Hoosier families. This will be accomplished through:

- Increasing testing through information sharing with the educational and medical communities.
- Identifying emerging lead hazards such as barnwood, lead water pipes, and cosmetics.
- Maintaining, and growing, the resources available to families to help remediate and abate lead in their homes.
- Collecting better, more complete data on key demographic data points like race and ethnicity to help guide decision-making on effective interventions.
- Rolling out a new, comprehensive case management tracking system that gives case managers and state staff access to real-time updates and interventions.

2019 COUNTY DATA

Data listed in the table below is broken down by county, with the following limitations:

- County results only include children whose test results identified a county.
- Children with and without a county listing are included in the State of Indiana totals.
- A test result is elevated in Indiana at or above 10 µg/dL, except in East Chicago in Lake County, where a test result is elevated at or above 5 µg/dL.
- A child becomes a confirmed case when he or she receives either a single venous blood test or two consecutive capillary blood tests with an EBL.
- The number of risk assessments and identified hazards is included by county. However, risk assessments can be conducted for children who do not have an EBL, and the number of hazards identified may be larger than the number of risk assessments done due to homes having multiple lead hazards.
- Clearance exams are only conducted if lead hazards are identified during the risk assessment and if efforts have been made by the property owner to alleviate the issues. If no hazards are reported, Indiana law does not require a clearance exam.
- If fewer than five results for any given county data point were identified, the values were suppressed to maintain confidentiality. Suppressed values are identified with an asterisk (*).

County	Number of Tests	Number of Children Tested	Number of Elevated Tests	Number of Children with at least 1 Elevated Test	Number of Confirmed Children	Children who had a confirmed elevated result followed by at least 1 result below 10 in 2019	Total Risk Assessments Completed in 2019	Risk Assessments for Children Confirmed in 2019
Adams	163	156	-	-	-	-	14	-
Allen	4,473	4,188	79	41	18	8	62	12
Bartholomew	1,812	1,686	15	11	*	*	19	*
Benton	119	100	6	*	*	-	*	*
Blackford	157	151	*	*	-	-	*	-
Boone	478	453	*	*	-	-	-	-
Brown	112	106	*	*	-	-	-	-
Carroll	237	230	*	*	-	-	-	-
Cass	551	470	32	16	8	*	7	7
Clark	1,498	1,450	5	*	*	*	*	*
Clay	247	239	-	-	-	-	*	-
Clinton	591	528	8	7	*	*	*	*
Crawford	114	113	*	*	-	-	-	-
Daviess	191	175	11	*	*	-	13	*
Dearborn	411	388	7	*	*	-	16	*
Decatur	277	258	*	*	-	-	-	-

De Kalb	234	220	*	*	*	*	*	*
Delaware	1,112	1,010	22	20	*	-	5	*
Dubois	87	86	-	-	-	-	13	-
Elkhart	4,734	4,281	64	43	11	*	11	7
Fayette	362	337	9	7	*	-	*	-
Floyd	1,041	993	14	6	*	-	5	*
Fountain	211	198	*	*	*	-	*	*
Franklin	250	234	*	*	-	-	*	-
Fulton	185	173	-	-	-	-	*	-
Gibson	424	399	-	-	-	-	*	-
Grant	931	896	5	*	*	-	*	*
Greene	479	452	7	*	*	-	12	*
Hamilton	2,644	2,492	*	*	*	*	*	*
Hancock	532	486	5	*	-	-	*	-
Harrison	475	455	*	*	-	-	*	-
Hendricks	655	620	*	*	*	-	*	*
Henry	312	287	*	*	*	*	9	*
Howard	1,320	1,264	13	11	*	*	12	*
Huntington	271	252	7	*	*	*	*	*
Jackson	745	672	11	11	-	-	*	-
Jasper	230	218	*	*	-	-	-	-
Jay	188	180	-	-	-	-	-	-
Jefferson	332	317	*	*	-	-	15	-
Jennings	373	352	*	*	*	*	*	*
Johnson	1,397	1,249	19	6	*	-	*	*
Knox	290	266	*	*	*	*	18	*
Kosciusko	1,155	993	7	*	*	-	*	*
La Grange	109	108	-	-	-	-	-	-
Lake	5,034	4,644	67	48	18	*	120	9
La Porte	1,383	1,309	11	8	*	*	38	*
Lawrence	783	751	7	5	*	-	*	*
Madison	2,049	1,854	35	19	5	*	17	*
Marion	16,422	14,633	124	90	27	10	174	24
Marshall	459	432	*	*	*	-	*	*
Martin	123	115	-	-	-	-	*	-
Miami	298	281	*	*	*	*	*	*
Monroe	2,586	2,496	9	6	*	-	5	*
Montgomery	467	424	8	6	*	*	5	*
Morgan	685	641	*	*	-	-	*	-
Newton	103	96	*	*	-	-	-	-
Noble	292	269	5	*	-	-	-	-

Ohio	43	42	*	*	-	-	-	-
Orange	236	220	7	*	-	-	*	-
Owen	417	400	*	*	-	-	-	-
Parke	144	127	*	*	*	-	*	*
Perry	165	151	6	*	*	-	*	*
Pike	68	62	-	-	-	-	*	-
Porter	1,003	970	*	*	*	*	5	*
Posey	240	230	-	-	-	-	-	-
Pulaski	97	91	-	-	-	-	-	-
Putnam	272	256	*	*	*	*	*	*
Randolph	176	171	*	*	*	-	*	*
Ripley	359	333	6	5	*	*	*	-
Rush	168	147	*	*	*	-	-	-
St. Joseph	5,735	4,922	103	66	23	7	109	21
Scott	283	266	*	*	*	-	-	-
Shelby	717	598	10	6	*	-	*	*
Spencer	204	193	*	*	-	-	-	-
Starke	189	184	-	-	-	-	5	-
Steuben	185	182	-	-	-	-	-	-
Sullivan	126	119	-	-	-	-	-	-
Switzerland	60	58	-	-	-	-	6	-
Tippecanoe	1,987	1,858	18	14	*	*	*	*
Tipton	97	94	-	-	-	-	-	-
Union	95	88	*	*	-	-	-	-
Vanderburgh	2,492	2,308	39	23	5	*	10	5
Vermillion	209	196	*	*	-	-	*	-
Vigo	1,337	1,257	7	7	*	*	*	*
Wabash	203	194	*	*	*	-	*	*
Warren	67	63	-	-	-	-	-	-
Warrick	633	613	*	*	-	-	*	-
Washington	429	403	*	*	-	-	-	-
Wayne	1,163	1,032	23	12	5	*	5	*
Wells	232	219	5	*	*	-	*	*
White	323	310	-	-	-	-	*	-
Whitley	424	386	*	*	*	-	*	*
County Total	83,771	76,869	915	606	196	62	808	156
State of Indiana	84,769	77,807	916	607	196	62	808	156

*Lake county totals for elevated tests and confirmed cases include children from East Chicago at or above 5 µg/dL

CONTACT INFORMATION

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