



2021 Childhood Lead Surveillance Report



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EXECUTIVE SUMMARY

INTRODUCTION

The Lead and Healthy Homes Division (LHHD) at the Indiana Department of Health (IDOH) is pleased to present the 2021 Childhood Lead Surveillance Report highlighting lead poisoning prevention activities across Indiana. Information contained in this report was compiled by the LHHD in compliance with IC 16-41-39.4-5. 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.

While 2021 was a challenging year for public health professionals across the nation, the unprecedented demand for staff and resources in response to the COVID-19 pandemic overwhelmed many other public health efforts. The pandemic's impact on lead specifically can be seen both in the continued drop in children tested year-over-year and in the number of health professionals across the state being trained on lead case management, as they worked to backfill positions vacated or reassigned to the COVID-19 response.

Despite these challenges, Indiana saw success. The rate of children tested with an EBLL continued to drop after an increase in 2020. IDOH launched an effort to contact more than 3,700 child healthcare providers statewide in an effort to close gaps in testing and reporting. Perhaps most importantly, the state legislature is actively supporting lead elimination through two decisive legislative efforts. House Enrolled Act 1007 became law in April of 2021, providing key funding to support lowering the EBLL in Indiana. House Bill 1313 was slated to be introduced in January 2022 and will require healthcare providers across the state to test all children for lead before age two, regardless of insurance type. Both pieces of legislation, along with the critical case management work being done by local health department (LHD) personnel every day, acknowledge and address the charge we have as a state to make Indiana lead-safe for our children and families.

BACKGROUND

RECENT HISTORY OF THE DIVISION

Since 2017, Indiana's childhood lead program has been housed in the Indiana Department of Health's LHH Division. From 2012 to 2016, the program was housed under IDOH's Environmental Public Health Division. The LHH's primary goals are to track the prevalence of lead exposure in children throughout Indiana and to support LHDs 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 LHH 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. New CDC and EPA multi-year grants were successfully awarded to IDOH in 2021.

IDOH also utilized funding provided through the Indiana Family and Social Services Administration's Office of Medicaid Policy and Planning for a health services initiative under the Hoosier Healthwise Children's Health Insurance Program (CHIP), which provided lead abatement in the homes of children receiving Medicaid.

WHY LEAD IS A HEALTH CONCERN

Lead is a naturally occurring metal that has been part of the world economy since the time of the Romans. It has been used throughout history for a variety of industrial and residential processes and products including paint, plumbing, jewelry, and cosmetics. Lead also may be found within the environment in the air, soil, and water.

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 is disturbed during, for example, repair or remodeling projects, it can generate paint fragments, chips, and dust. These particles can be ingested or inhaled, causing potentially significant health consequences.

According to the CDC, exposure to lead most often results in the lead being stored in the body's blood, bones, and tissues, causing prolonged, consistent exposure. This exposure, especially at high levels, can result in symptoms such as abdominal pain, tiredness, headache, irritability, memory, and appetite loss. Prolonged exposure can result in additional symptoms such as depression, forgetfulness, irritability, and nausea. While lead is toxic to everyone, unborn babies and children younger than seven years of age may be more susceptible to the negative health effects lead can have on development and growth, as they are likely to experience toxicity at lower levels than adults. Children under the age of two are particularly vulnerable due to the lack of a fully formed blood brain barrier. There is also evidence that early lead exposure has direct ties to significant health concerns later in life, such as: high blood pressure, heart disease, kidney disease, and fertility issues.

Protecting children from exposure to lead is important to lifelong good health. No level of lead in the blood has been found to be safe. The most important step that parents, healthcare providers, and others can take to keep children safe is to prevent lead exposure before it occurs.

INDIANA STATUTE AND RECCOMENDATIONS

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
 - o works in an industry that uses lead
 - o 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 LHDs 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, 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. As part of this reporting, Indiana requires that accurate and complete data accompany any blood lead sample submitted for analysis. That data must include:

- With respect to the individual whose blood is examined:
 - o Full name
 - o Date of birth
 - o Gender
 - o Full address, including street address, city, and ZIP code
 - o County of residence
 - o Race and ethnicity
 - o Parent or guardian's name and phone number, where applicable
 - o Any other information that is required to be included to qualify to receive federal funding

- With respect to the examination:
 - o Date
 - o Type of blood test performed (venous or capillary)

- Normal limits for the test (interpreted as elevated or non-elevated)
- Test results
- Interpretation of test results by the person who examined the specimen for the presence of lead

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, which require children receiving benefits through Medicaid to receive a blood lead test at 12 and 24 months of age, or as soon as possible before the age of 6 if not tested at 12 and 24 months. 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 that their child may have been exposed to lead or if they have risk factors.

Per 410 IAC 29, 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 $\mu\text{g}/\text{dL}$. The level of 10 $\mu\text{g}/\text{dL}$ was the recognized recommended threshold for “blood lead level of concern” at the time the rule was written. In 2022, IDOH intends to lower the EBLL threshold from 10 $\mu\text{g}/\text{dL}$ to 3.5 $\mu\text{g}/\text{dL}$ (matching the CDC’s current blood lead reference value) and has been actively working to secure resources to make that move. IDOH is also currently planning, in 2023, to expand testing to all children as outlined in House Bill 1313.

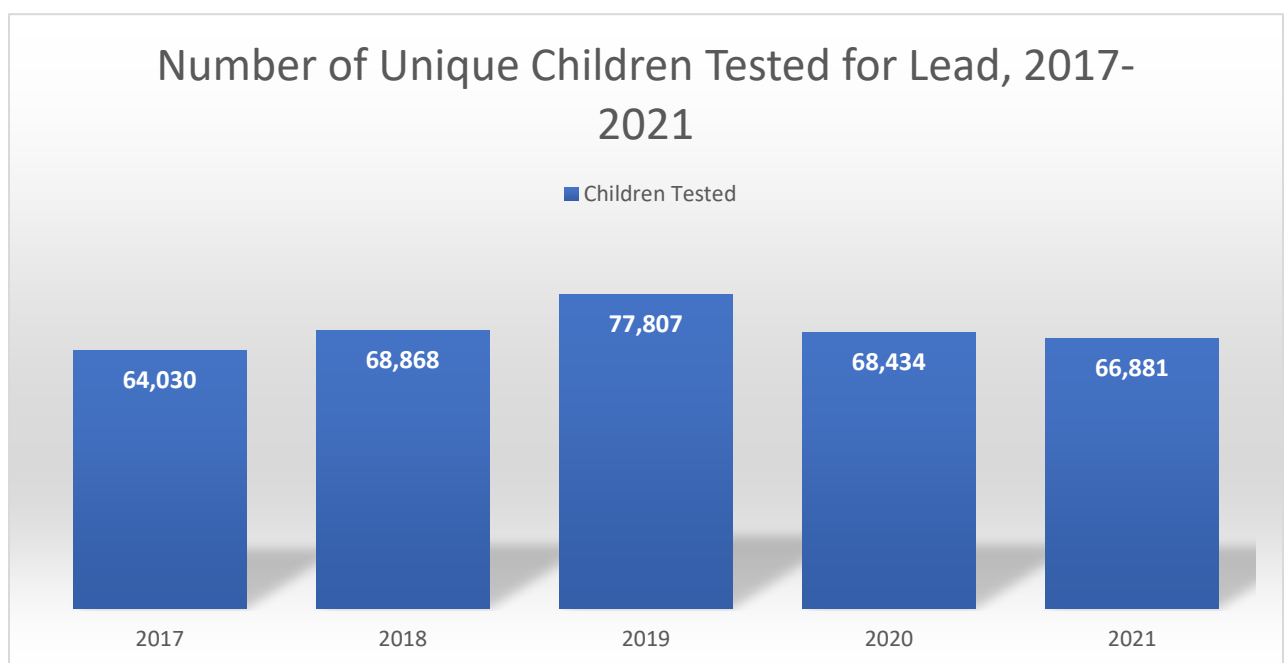
Because Indiana operates within the frame of county-level home rule, LHDs across Indiana are charged with providing case management services to children with identified blood lead levels. This support can range from education and provider notification at low levels to comprehensive case management, medical guidance, and home risk assessment at higher levels. Resources related to prevention, lead policy, abatement, and the health impacts of lead can be found on the Lead Information for Parents/Care Givers section of the IDOH website at <https://www.in.gov/health/lead-and-healthy-homes-division/information-for-parentscare-givers/>.

For additional information on lead case management, please see [Title 410, section 29 of the Indiana Administrative Code](#). For additional info on requirements around blood lead reporting please see the guide linked below: [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).

2021 HIGHLIGHTS

TESTING

In 2021, the IDOH received 71,451 lead test results for children younger than 7 years of age from medical providers, laboratories, and other public health partners. Of these results, 698 (0.98%) were considered elevated. These results included tests from 66,881 unique children, younger than 7 years of age, who were living in Indiana. Of those children, 471 (0.70%) had at least one elevated result, and 196 (0.29%) had a confirmed elevated result¹.

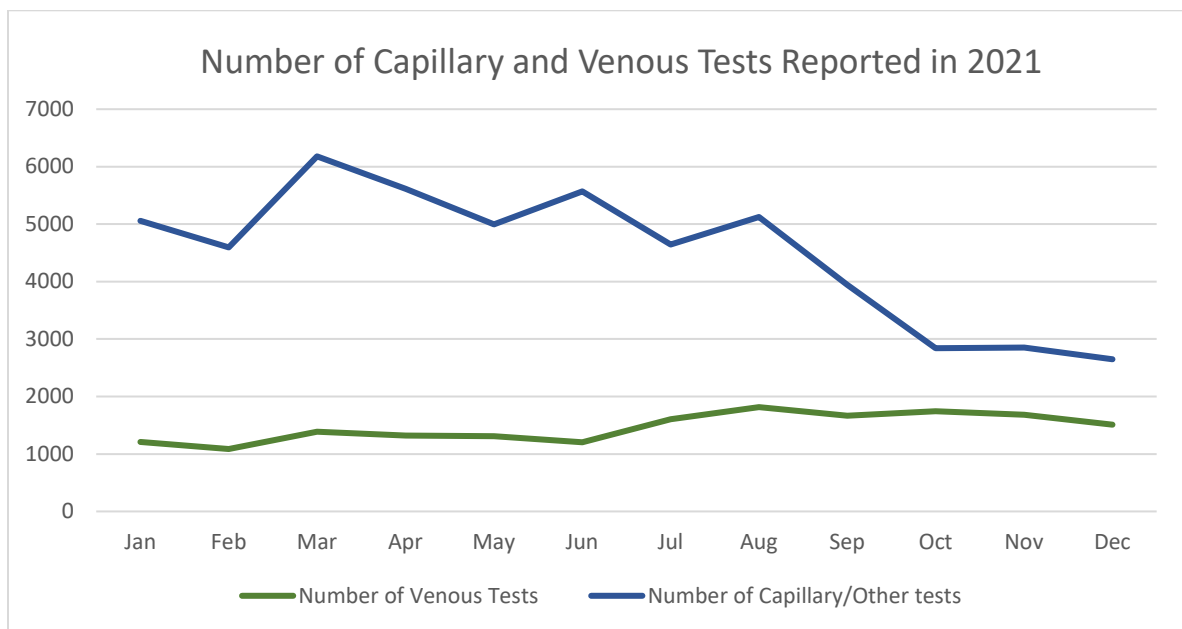


While the COVID-19 pandemic has continued to affect health services around the state, a June 2021 recall on the Meridian Bioscience LeadCare II point-of-use lead testing device impacted Indiana healthcare providers' ability to perform blood lead tests. Meridian's LeadCare II device is widely used to receive quick, on-site results for capillary blood lead tests. The recall of nearly all available supply kits due to the risk of falsely low results

¹ 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.

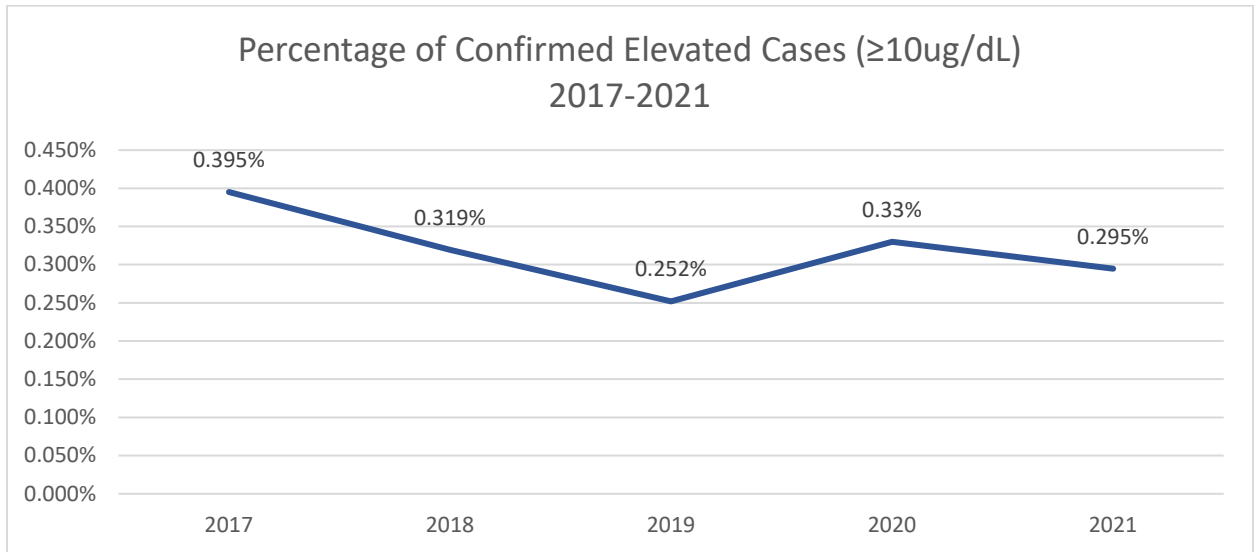
removed the only point-of-care option for providers who sought to provide testing in-office with immediate results. Healthcare providers were notified to discontinue the use of all LeadCare II testing supply kits shortly after the recall was expanded in August and were offered capillary testing supplies, including filter paper collection and shipping supplies, by IDOH at no cost as an alternative.

This recall, along with continued hesitancy to allow testing, and a drop in overall early well-child visits, yielded a noticeable drop in testing reported from 2020 to 2021. A review of providers who reported at least 100 fewer blood lead test results showed that historically, 99.1% of their tests were capillary. Further reinforcing the impact the recall had on overall testing in 2021, Indiana saw a significant decline in capillary testing statewide, with only 67.4% of tests from August through December being capillary, compared to 80.1% from January through July.



Despite the challenges in getting children tested, 2021 did show some signs of improvement relative to 2020. The most encouraging of these is the resumed decline in the percentage of children with confirmed elevated blood lead levels relative to all children tested. As more information became available about COVID-19's transmission and infection period, in-home quarantine periods tapered, and children were able to spend more time

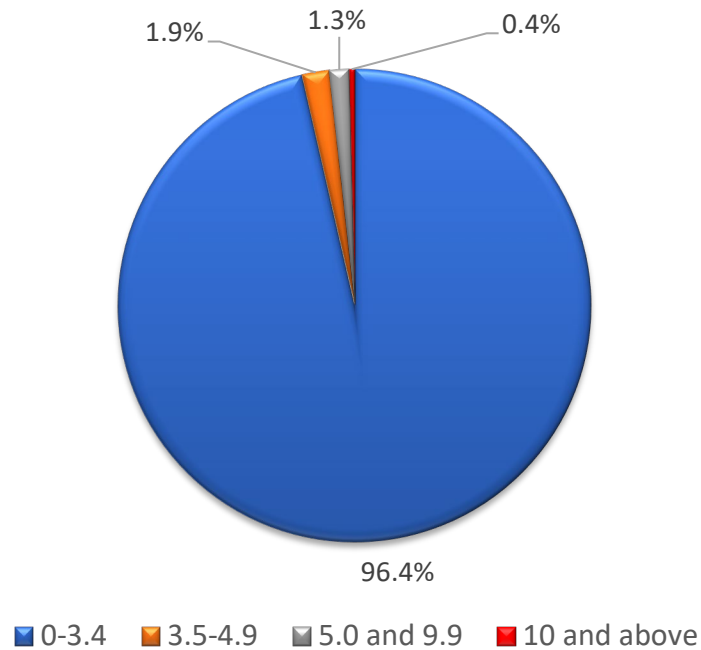
away from lead hazards in their homes. Only 0.295% of the test results received ended up confirming as elevated, the second-lowest level in the past five years.



With the CDC lowering the blood lead reference value (BLRV) to 3.5 micrograms per deciliter in October of 2021, Indiana is planning to lower its elevated blood lead level threshold in 2022. In order to be most protective and work within available resources, Indiana will do this by setting the level of elevation at a confirmed blood lead level of 3.5, and the level for case management at 5. Defining the EBLL and case management thresholds at differing values is in line with many other states across the nation and provides the greatest degree of support without overburdening the state and local support systems.

The figure below represents the breakdown of blood lead levels based on the total number of children tested in 2021. This distribution includes one test for each child tested within the calendar year. In 2021, 96.4% of children had a blood lead level (BLL) of $\leq 3.4 \mu\text{g}/\text{dL}$, 1.9% had a BLL between 3.5-4.9 $\mu\text{g}/\text{dL}$, 1.3% had a BLL between 5.0-9.9 $\mu\text{g}/\text{dL}$, and 0.4% had a BLL of $\geq 10 \mu\text{g}/\text{dL}$.

Blood Lead Result Distribution Among Children Tested in 2021



The IDOH also collects demographic information on gender, race, and ethnicity with blood lead test results. Samples that contain “unknown” or blank fields are also collected by the IDOH. Gender is the most complete, with race and ethnicity having 30.5% and 39.3% marked as unknown or blank.

Among the 66,881 unique children who received blood lead tests in 2021, 51.8% were male and 48.1% were female (Table 1). Among those tested with a reported race, the most frequently reported races were White (33.4%), Black (24.9%), and American Indian (5.74%) (Table 2). A total of 10.6% of children tested identified as Hispanic and 50.1% identified as non-Hispanic. The percentage of confirmed EBLL cases remained static when compared to 2020 and was not significantly different between demographic groups. However, the large number of children with unknown race and ethnicity adds uncertainty to the race and ethnicity statistics. Closing the gap on that unreported race and ethnicity data will be a focus of IDOH’s efforts moving into 2022.

Summary of Reported Demographics for Children Aged <7 Years Blood Lead Tested and EBLL Cases Confirmed in 2021

Gender	Tested (%)	EBLL Cases	Percent EBLL
Male	34,652 (51.8%)	111	0.32%
Female	32,153 (48.1%)	85	0.26%
Unknown	76 (0.11%)	0	0.00%
Total	66,881 (100%)	196	0.29%

Table 1: Gender

Race	Tested (%)	EBLL Cases	Percent EBLL
American Indian	3,838 (5.74%)	12	0.31%
Asian/Pacific	539 (0.81%)	0	0.00%
Black	16,629 (24.9%)	55	0.33%
White	22,312 (33.4%)	59	0.26%
Alaska Native	0 (0.0%)	0	0.00%
Multiracial	594 (0.89%)	0	0.00%
Other	2,547 (3.81%)	20	0.79%
Unknown	20,422 (30.5%)	50	0.24%
Total	66,881 (100%)	196	0.29%

Table 2: Race

Ethnicity	Tested (%)	EBLL Cases	Percent EBLL
Hispanic	7,112 (10.6%)	29	0.41%
Non-Hispanic	33,501 (50.1%)	90	0.27%
Unknown	26,268 (39.3%)	77	0.29%
Total	66,881 (100%)	196	0.29%

Table 3: Ethnicity

Although Indiana's reported lead test results did not indicate significant differences in the rates of children with EBLLs between race and ethnic groups, racial and ethnic minority groups have been identified by the CDC as at-risk populations. From 2020 to 2021, Indiana did not see any significant change in either the rates of children tested or rates of those with EBLLs when looking at race and ethnicity. The large number of blood lead tests reported to the state with an unknown race and/or ethnicity highlights a challenge IDOH is working to address related to the accuracy of reported blood lead tests. Outreach efforts aimed at increasing Indiana healthcare providers' knowledge about the importance of reporting accurate blood lead tests began in 2021 and will continue throughout 2022. In addition to conducting outreach, the division has been working to update the Lead Census Risk Map to further identify possible disparities in Indiana.

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

Education and outreach efforts toward the goal of eliminating childhood lead toxicity continued to be a priority of the health education staff in 2021. The COVID-19 pandemic and related restrictions impacted IDOH's ability to provide in-person training and education opportunities for the LHD staff across the state who provided case management services to children with EBLLs. To accommodate this, the lead case management online training, administered through Indiana TRAIN (INTrain), was utilized throughout the year as the primary source of education and training statewide. INTrain video training modules had previously launched as a pilot program to provide the required training for the new staff who had joined LHDs in the case manager role. The training materials underwent an extensive revision in 2020/2021 and were used successfully throughout the year in conjunction with IDOH/LHD training support delivered via Microsoft Teams.

Unfortunately, 2021 also saw a substantial increase in the turnover of staff who provided lead case management services at the LHDs, with 30% of Indiana counties seeing a transition in the staff assigned to manage elevated blood lead level cases. This staff shuffle increased the number of new staff at the LHD level and drove an increased demand for IDOH-required case management training. Comprehensive lead case management trainings

were delivered to 35 nursing personnel and case managers at 28 different LHDs. These new staff have had to quickly learn how to effectively use and navigate Indiana's National Electronics Disease Surveillance System (NEDSS) Base System (NBS) Lead Case Management Module, including a focus on providing complete data and information in case investigation documentation.

In June 2021, the IDOH Lead Health Education staff and a member of the IDOH Risk Assessment staff had the opportunity to co-present at the 2021 Indiana School Health Network Virtual Conference. In addition to sharing general information about lead toxicity and exposure sources, the presentation, "Contaminated Childhood: Inequities, Disparities & Lead Exposure-Breaking the Link," shared information with school personnel and school health professionals on higher-risk populations and identifying examples of the types of disparities faced by children with elevated blood lead levels. The effects of lead toxicity on children and learning in the classroom were also discussed during the presentation.

IDOH also continued to reach out digitally to the public, and to partners and public health professionals through the release of electronic division newsletters, special update bulletins and through a social media presence on the IDOH platforms: Facebook, Twitter, and Instagram. Information on a variety of topics, such as product recalls, lead source identification, parent tips, and resource and grant availability, were shared. A new outreach opportunity for lead abatement and risk assessment partners was launched in the form of "Update and Fact Sheets" containing messages to help each audience identify their program area successes and areas for improvement, as well as statewide lead program-related facts.

CASE SURVEILLANCE

As the state health department, IDOH maintains the responsibility for overseeing lead case surveillance statewide. This includes maintaining and monitoring the statewide case tracking system to ensure that all children with elevated blood lead level cases receive the required case management services. Throughout 2021, the demand on LHDs to staff COVID-19 vaccine clinics limited the personnel and resources available to work on lead. For many LHDs, the Public Health Nurses tasked with lead case management had less than 10% of their previous time to devote to managing the lead cases in their counties. In response, IDOH's case surveillance support staff stepped in to help with direct case management for many cases. This included opening and closing cases in the NBS system, attaching home visit reports, securing physician reports, and adding case notes into individual case investigations. Staff at IDOH also worked with new staff at the LHDs to make sure they

understood their roles and responsibilities for lead case management in their counties. This outreach often included an audit of the existing open lead cases in their county to ensure they were aware of the cases and the next steps needed for each one.

Throughout 2021, IDOH focused on ensuring all cases were connected to an available risk assessor and that nutritional and developmental assessments/referrals were occurring. Staff also worked with the NBS team to further refine the lead module functionality and build out a series of five new reports which now provide both state and local staff with information on open cases, case aging, case status, and current/historical lead levels.

LHHD staff also wrapped up a four-year record digitization project in 2021, including case management and licensing files dating back more than 20 years.

PARTNERSHIPS

Understanding that IDOH alone cannot accomplish the goals of improving rates of blood lead testing, managing those with EBLLs, 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 2021 and continue working to make change possible.

IDOH Refugee Health Program: Realizing that refugee health is often disproportionately affected by lead exposure, the LHHD partnered with the IDOH Refugee Health program to determine whether recent refugee children ages 0-16 had received blood lead testing. Data from January 2017 to September 2019 revealed that while 91.5% of children did receive a lead test, 8.5% did not. These findings, along with data showing that only 61% of children 0-6 years received CDC-recommended follow-up testing, have led both the Refugee Health and LHHD programs to look at ways to more effectively share data about testing and messaging to refugee support agencies and associated physicians.

Indiana Professional Licensing Agency (IPLA): A longtime partner of the LHHD, the IPLA has issued, tracked, and maintained lead licenses granted by IDOH. IPLA undertook a significant upgrade to its online service offering and application process, resulting in the online ability to fully complete all license application documents, pay license fees via credit card, and auto-generate email notices for acceptance, renewal, and expiration.

Lead Course Training Providers: With COVID concerns over social distancing and in-person education, IDOH worked with trainers throughout the state to offer popular courses like the two-hour Indiana Rules Awareness course and license refresher courses online. Trainers and

IDOH have also started exploring how to offer lead worker and supervisor courses and exams in Spanish.

Managed Care Entities: Work continued in 2021 to develop closer partnerships with Medicaid MCEs and the members they serve. Two of the areas of particular focus were comparing rates of lead testing with rates of Measles, Mumps, Rubella, and Varicella (MMRV) vaccination and reviewing how reported lead testing to IDOH compared with lead testing rates reported to the MCEs as a part of healthcare providers' Healthcare Effectiveness Data and Information Set (HEDIS) tracking.

Notre Dame/IUPUI/IU School of Medicine/Indiana State: Notre Dame, with support from the other universities identified, applied for, and was successful in receiving, an award from the U.S. Department of Housing and Urban Development to support development and expansion of their Lead Screening Kit initiative. Their work expanded on simply development of the toolkit by both broadening the geographic reach of the program and by comparing the kit efficacy to a full-blown lead risk assessment. IDOH supported the application both formally through the support of the state health commissioner and informally through technical resources and training.

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. In 2021, Indiana worked to provide resources on lead risk, identification and mitigation to both parents and providers through the Lead Protection Program, Lead Risk Map, and reports on testing for children insured through Medicaid.

The Lead Protection Program, supported by CHIP, entered its fourth year of operation in 2021. Over the course of the year, 80 families applied for the program, and a total of 22 homes were fully abated statewide. The program continues to grow into 2022, with a goal of abating 60 homes in 2022 and as many as 100 homes per year in 2023 and beyond.

IDOH also began work in 2021 to update the Lead Risk Map, currently available on the IDOH Lead and Healthy Homes website, under the "Program Reports, Statistics, and Data" tab. The goal of this map is to give healthcare providers, partner agencies, and residents an at-a-glance understanding of the lead risk level associated with their community. Individuals can view the risk level for their census tract and review how various census data around home age, homes with children, and minority population correlate to identified

historical blood lead levels throughout the state. A full update to the map is expected in the second quarter of 2022.

Families of children insured by Medicaid are one of the groups considered most at-risk for lead exposure in Indiana. Children in the state who are insured through Medicaid are required to have their blood lead level tested at 12 and 24 months, or as soon as possible before the age of 6 if earlier testing was not done. A review of data provided in December 2021 showed that 32% of children insured by Medicaid, with dates of birth in 2019, 2020, and 2021, had a blood lead test billed to Medicaid. When looking at children who were ages zero to 72 months of age during the same period, the rate of those who received a blood lead test increased to 51%. While this indicates there is still a lot of work to do in educating parents and providers about existing lead hazards and the need for testing, IDOH has started reaching out to more than 3,700 healthcare providers statewide to close the gap.

ENVIRONMENTAL INVESTIGATIONS

In 2021, IDOH staff, city and county health departments, and private risk assessors completed 568 lead risk assessments in Indiana, including 100 risk assessments in homes with a child who had a confirmed elevated blood lead level. Table 4 represents the number of houses, out of the 568 assessed, with each type of hazard identified: dust, exterior lead-based paint, interior lead-based paint, soil, or other. The total number of hazards identified is larger than the number of risk assessments conducted due to homes having multiple hazards.

Types of Lead Hazards	Number of Houses with Lead Hazards Identified
Dust	224
Exterior Paint	230
Interior Paint	198
Soil	65
Other	28

Table 4: Lead Hazards Identified versus Number of Houses

At the end of 2021, Indiana saw a 13% decrease in the number of individuals licensed when compared to 2020. While this is not ideal, it wasn't unexpected given the 18% increase we saw in licensees from 2019 to 2020. For the year, IDOH had 501 individual professional

licenses, 73 of which were new licenses in the following disciplines: lead inspector, lead risk assessor, lead project supervisor, and lead worker licenses. The nationwide workforce transition affected many of the engineering and construction firms that handle lead work, resulting in workforce shortages that subsequently resulted in fewer new staff being licensed and departing staff not renewing their licenses. In 2022, if the lead-related workforce stabilizes, IDOH expects an increased number of licensees and training courses.

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 state standards for workmanship, safety, and cleanliness. At the end of 2021, Indiana licensed six new contractors, maintaining the 2020 total statewide count of 49 active lead abatement contractors.

2022 GOALS

As IDOH looks toward the future, 2022 brings a new and increased focus on lead. This includes the potential to move forward on two key initiatives that will dramatically increase Indiana's identification of and service to children with elevated blood lead levels: lowering the EBLL threshold and requiring testing for all children, regardless of insurance type. Lowering the EBLL threshold will significantly increase the number of children eligible for holistic, local case management support and will provide families access to nursing and home inspection expertise at half the BLL required today. Standardizing blood lead testing for all children at an early age will provide parents and physicians a more complete picture of a child's health and ensure that we, as a state, aren't missing or misdiagnosing a child affected by lead exposure. Both of these initiatives will require IDOH, LHDs, and healthcare providers to increase capacity and stretch in new, challenging, positive ways.

In addition to the major changes above, IDOH will also be working to:

- Update all lead investigations opened in NBS since its launch in 2020 working with LHD staff to re-engage with families following COVID-response
- Launch a new LHHD website that focuses on providing information specific to stakeholders, including parents, providers, and LHDs
- Complete outreach to 3,700 physician offices across the state to talk about lead reporting and testing challenges
- Offer on-site lead testing services to daycares throughout the state
- Offer the lead worker course and exam in Spanish
- Utilize the Children and Hoosier Immunization Registry Program as another avenue for lead result reporting
- Launch a statewide lead education and outreach campaign targeted at parents and providers
- Update the Lead Risk Map with new census and elevated blood lead level information

2021 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 $\mu\text{g}/\text{dL}$.
- 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 EBLL.
- 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 EBLL, 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 mitigate 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 (*).

Section 6: 2021 County Data



County	Number of tests	Number of children tested	Number of tests with results between 5 and 9.9	Number of tests with results greater or equal to 10	Number of children with at least one tests with a result between 5 and 9.9	Number of children with at least one elevated tests with a results greater or equal to 10	Number of confirmed children	Total risk assessments completed in 2021
ADAMS	149	149	*	*	*	*	*	13
ALLEN	3795	3658	111	27	93	20	14	59
BARTHOLOMEW	1343	1216	15	15	13	5	*	5
BENTON	105	102	*	*	*	*	*	*
BLACKFORD	102	98	*	*	*	*	*	*
BOONE	538	458	9	*	8	*	*	*
BROWN	95	89	5	*	*	*	*	*
CARROLL	261	254	*	*	*	*	*	*
CASS	486	456	25	11	20	7	5	*
CLARK	1791	1626	25	*	18	*	*	*
CLAY	258	246	9	*	7	*	*	*
CLINTON	485	396	22	*	18	*	*	5
CRAWFORD	92	86	*	*	*	*	*	*
DAVISS	158	145	8	*	6	*	*	11
DEARBORN	320	307	*	5	*	*	*	*
DECATUR	278	262	5	*	*	*	*	*
DEKALB	399	388	6	*	6	*	*	*
DELAWARE	561	533	17	15	13	9	7	7
DUBOIS	131	127	*	*	*	*	*	*
ELKHART	3835	3578	102	43	87	34	8	13
FAYETTE	350	329	10	*	8	*	*	*
FLOYD	1164	967	16	5	11	5	*	*
Fountain	134	127	*	*	*	*	*	*

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FRANKLIN	250	240	8	5	8	*	*	*
FULTON	174	146	*	12	*	*	*	*
GIBSON	388	367	9	*	8	*	*	*
GRANT	294	278	17	6	12	5	5	*
GREENE	449	435	8	*	6	*	*	*
HAMILTON	2197	2146	19	7	19	6	*	*
HANCOCK	382	356	*	*	*	*	*	*
HARRISON	506	447	5	*	5	*	*	*
HENDRICKS	726	690	10	7	9	5	*	*
HENRY	204	184	12	*	10	*	*	*
HOWARD	1017	984	6	*	5	*	*	5
HUNTINGTON	387	364	13	*	11	*	*	*
JACKSON	645	586	34	19	33	15	*	*
JASPER	248	230	8	*	*	*	*	*
JAY	152	148	6	*	5	*	*	*
JEFFERSON	288	278	*	*	*	*	*	*
JENNINGS	182	165	11	*	10	*	*	*
JOHNSON	1250	1181	12	7	12	7	*	*
KNOX	253	238	10	5	8	*	*	17
KOSCIUSKO	804	706	14	9	13	5	*	*
LAGRANGE	129	126	*	*	*	*	*	*
LAKE	3683	3526	77	29	68	25	15	43
LAPORTE	621	608	11	*	11	*	*	24
LAWRENCE	735	708	25	*	17	*	*	*
MADISON	1688	1536	49	23	42	16	*	*
MARION	13526	12512	252	137	211	104	29	144
MARSHALL	395	367	10	7	8	*	*	*
MARTIN	79	71	*	*	*	*	*	*
MIAMI	288	278	6	*	6	*	*	*

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MONROE	2216	2163	21	8	16	*	*	*
MONTGOMERY	424	363	21	11	15	6	*	*
MORGAN	673	647	7	*	5	*	*	*
NEWTON	93	85	*	6	*	*	*	*
NOBLE	273	257	17	5	11	5	*	*
OHIO	31	31	*	*	*	*	*	*
ORANGE	207	201	*	*	*	*	*	*
OWEN	355	331	9	10	6	*	*	*
PARKE	141	132	*	*	*	*	*	*
PERRY	241	238	*	*	*	*	*	*
PIKE	57	56	*	*	*	*	*	*
PORTER	968	937	11	5	9	*	*	6
POSEY	190	182	6	*	5	*	*	*
PULASKI	78	72	*	*	*	*	*	*
PUTNAM	226	220	*	*	*	*	*	*
RANDOLPH	226	212	*	*	*	*	*	*
RIPLEY	283	276	11	*	10	*	*	*
RUSH	166	145	12	12	10	7	5	13
SCOTT	277	260	*	*	*	*	*	*
SHELBY	523	473	19	5	14	5	*	*
SPENCER	197	187	*	*	*	*	*	*
STARKE	145	141	*	*	*	*	*	79
STEUBEN	210	206	*	*	*	*	*	*
STJOSEPH	3565	3276	214	85	158	54	27	*
SULLIVAN	161	156	*	*	*	*	*	*
SWITZERLAND	43	43	*	*	*	*	*	*
TIPPECANOE	1817	1747	27	13	23	10	*	8
TIPTON	139	134	7	*	*	*	*	*
UNION	116	112	*	*	*	*	*	*

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VANDERBURGH	2492	2340	69	27	57	12	6	10
VERMILLION	204	192	6	*	6	*	*	*
VIGO	1465	1373	75	21	58	12	8	5
WABASH	226	216	11	*	8	*	*	*
WARREN	61	59	*	*	*	*	*	*
WARRICK	594	572	8	*	7	*	*	*
WASHINGTON	382	351	*	*	*	*	*	20
WAYNE	1124	996	34	25	27	13	7	7
WELLS	200	189	*	*	*	*	*	*
WHITE	298	283	8	*	6	*	*	*
WHITLEY	333	317	7	*	5	*	*	*
Blank	1261	1212	4	0	4	0	0	6
State Total	71451	66881	1688	698	1376	471	196	568

CONTACT INFORMATION

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