2015 Childhood Lead Surveillance Report

Environmental Public Health Division
Lead & Healthy Homes Program

10 Years of Childhood Blood Lead Level Data in Indiana

Indiana State
Department of Health

Table of Contents

Introduction and Centers for Disease Control and Prevention (CDC) Reference Level 3

2015 Summary

Understanding the Data

Highlights from 2015 6

Efforts Pursued in 2015 7

Case Management Provided to Children

The Development of New Outreach Materials

The Ongoing Investigation of Childhood Lead Poisoning Among the Burmese in Indiana

The County Housing and Childhood Lead Poisoning Project (6 Years of Data)

CDC Reference Level for Lead Poisoning 13

Understanding Childhood Lead Poisoning in Indiana from 2005-2014 14

Number of Children Tested from 2005 to 2014

Lead Testing with Comparable Rates from 2005 to 2014

Confirmed Cases from 2005 to 2014

The Number of Out of State Children Tested in Indiana Clinics

2015 County Data 18

Endnotes 25

References 26

INTRODUCTION

The mission of the Lead and Healthy Homes Program (LHHP) is to eliminate the incidence of childhood lead poisoning in Indiana by screening for lead poisoned children, providing lead poisoned children treatment through follow-up case management, and remediation recommendations based on environmental assessment findings.

Lead poisoning is the number one, preventable disease condition in young children that can permanently damage the child's developing brain and other organ systems. Due to the child's stage of development before the age of seven, serious effects can include lowered intelligence, behavioral disorders and stunted physical development. Once a child is lead poisoned, the chances for academic, social and occupational success are significantly decreased.

Lead poisoning can cause serious financial hardship to families and communities. The financial burdens to a community can include increases in medical costs, schooling costs with respect to special education or grade retention, teen pregnancy, low birth weight infants, child abuse, crime and law enforcement, detriments to life-long earnings potential, welfare utilization and adult health issues (Peter Muenning, 2009).

Additional costs include expenses associated with state and local county government case management, Medicaid, and increased use of juvenile and adult correctional programs (Needlemen, 1990).

Since 2013, Michigan and Minnesota have released reports outlining the potential economic burden of lead due to loss of lifetime earnings that individuals and then society may experience due to childhood lead poisoning incidence. Minnesota Department of Health in their report "Economic burden of the environment on two childhood diseases: Asthma and lead poisoning in Minnesota," states a $1.9 billion loss in lifetime earnings from children among a birth cohort in 2004, whom were tested for lead poisoning." See the full report here: http://www.health.state.mn.us/divs/hpcd/tracking/projects/burden.html.

Using similar methods and resources as Minnesota, the Indiana State Department of Health (ISDH) estimates that children who experienced an elevated blood lead level (EBLL) and were confirmed cases from 2010 to 2014 (n=1,022), there is a potential lifetime cost for these children of $121.7 million. Included are healthcare, lost wages earned, and additional community costs associated with lifetime burden of lead poisoning in the children. This estimate is low because not all data are captured for all lead poisoned children in Indiana.

Indiana law does not require universal testing of all Hoosier children; the only children who are required by Federal law to be tested for lead poisoning are from households who receive Medicaid benefits. In today's healthcare market, some physicians do not routinely test children under seven years of age for lead exposure. Therefore, the majority of the at-risk population remains untested.

The ISDH, Lead and Healthy Homes Program remains committed to identifying children with elevated blood lead levels and monitoring the treatment of lead poisoned children. Program goals include:

- Identify susceptible populations in Indiana to childhood lead poisoning, including identification of the individuals sources of lead exposure, and provide outreach and education to at-risk communities to prevent future incidence;
- Screen for lead poisoning in counties which are at greater risk for lead exposures due to older housing (legislation banning lead-based paint was enacted in 1978);
- Provide case coordination and case management to lead poisoned children and remove hazards associated with a childhood lead poisoning case; and
- Increase screening and reporting for all at risk children under the age of seven through education and outreach.

In order to ensure that ISDH is meeting these goals, the Department issues this report to update legislators and the public about the Lead Program's efforts. A summary of the statistics for 2015 along with current efforts to understand lead poisoning in Indiana historically is detailed in this report.

2015 Summary

The ISDH is working to increase blood lead screenings in Indiana, in order to identify childhood lead poisoning cases. In 2015, there were 41,267 unique Hoosier children (aged 0 to 6)screened, a slight increase from the 40,811 children screened in 2014. Based on the 2014 Census estimate for children under seven, 593,434, 7% of all Hoosier children were screened for lead poisoning in 2015.

Among the Hoosier children tested, there were 355 children with Blood Lead Levels (BLLs) of 10 µg/dL and above. According to Indiana law, a child becomes a 'confirmed case' when they receive either: (one) venous blood test or (two) capillary blood tests with a blood lead result at 10µg/dl or above. 127 of the 355 results (36%) were confirmed cases and entered case management. Indiana's Action level is 10 µg/dL. There are many factors that may influence whether a child becomes a confirmed case, such as a contaminated test result or lost to follow up, which in most cases are due to a child moving out of county or out of state or the parent never brings the child in for a follow up confirmatory test. In order to simulate the CDC's reference level, surveillance and some case management are provided at 5µg/dL and above. The provision of case management is heavily dependent on each county's resources and local health department attention on lead issues.

A blood lead test provides an indication of the concentration of lead content in a child's body. In 2015 Indiana had 1,727 unique Hoosier children with EBLLs of 5 µg/dL and above, at which time the LHHP initiates education and outreach.

The lead poisoning rates at the 5µg/dL level have decreased by 1 child per 1,000 tested, while lead poisonings rates at the 10µg/dL have increased by 2 children per 1,000 tested. We believe

this is due to a variety of factors such as increased targeting and awareness, including consistent outreach to health care providers and local health departments in targeted areas identified with a high proportion of at-risk children. This is the first year we have seen this increase and will continue to watch this for trends.

Understanding the Data

In 2015 and 2016, ISDH examined and standardized childhood lead data for Indiana. Due to staff turnover and certain periods of concentrated resources, cases of lead poisoning have been reported inconsistently over the last 10 years. The screening numbers for each year, due to a lag in the electronic reporting may not capture all of the testing within a year based on the timing of the reporting requirement.

Legislation requires a report of childhood lead poisoning statistics for the previous year be presented in April of the following calendar year. Therefore, ISDH Lead and Healthy Homes recommends the legislative requirement for reporting be changed to a biennial cycle to allow for ongoing electronic reporting discrepancies to be addressed in near real-time. Public revisions and updates to this report may be added to the website based on analyses that reflect the best available dataset.

With new standardization, the current report for 2015 will include childhood lead poisoning data from 2005 to 2014 with specific breakdowns along with an overview of the last ten years in childhood lead poisoning with the best available data for those 10 years using the same data process.

Based on State of Indiana requirements for the annual report, lead data are collected and organized to represent individual Hoosier children with their corresponding highest blood lead level during a single year. Therefore, for children whom were tested multiple times, only the highest blood level for a given year is counted. In addition, test results for children coming to Indiana from out-of state residences are not included in the Hoosier childhood testing data. Blood lead results for out-of-state children are addressed in a separate section of this report. We are collecting this data to understand the reasons children with out-of-state residency are coming to Indiana to be tested.

For Hoosier children, the statute governing the reporting of all blood lead test results (410 IAC 29-3-1) requires the following:

(1) With respect to the individual whose blood is examined, the following:
    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. Parents or guardians' 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, the following:

A. The date.
B. The type of blood test performed.
C. The person's normal limits for the test.
D. The results of the test.
E. The person's interpretation of the results of the test.

Blood lead data is reported to ISDH electronically via the Lead Data Flow database system or through fax. Lead poisoning is a reportable disease condition in the State of Indiana. All tests results must be submitted to the State Department of Health, please consult the attachment or following link for more information; https://secure.in.gov/isdh/files/FINAL(2.0)CD_Reportable_Diseases_List-1-7-2016.pdf. Indiana collects surveillance information through an output from the Lead Data Flow database.

The ISDH has experienced technological issues with data output from Lead Data Flow in late 2014 and continues to experience relational database output issues at the time this report was written. The epidemiologist 'scrubs' the data to remove: duplicates, individuals out of the legislative reportable age range (over 6), and out of state results data. The accuracy of this data depends heavily on the healthcare professional entering correct data into the lead database. Missing data cannot assist with efforts to prevent and understand the population affected by lead poisoning in Indiana. Data integrity remains of top importance for health practitioners; not only testing children but also reporting all lead data to the State Department of Health will provide the quality of information needed to protect human health.

HIGHLIGHTS FROM 2015

- The Lead Data Flow Database experienced technical difficulties during 2015, which may underreport the number of screenings and lead results for the year. As of April 1, 2016, the Indiana State Department of Health is continuing to receive case reports from 2015.
- In 2015, there were 41,267 unique Hoosier children screened in Indiana. Therefore, the screening rate for childhood lead poisoning program for the state is 7%, based on the United States Census Population Estimate of 593,434 for 2014, the most current year offered.
- Of the 41,267 unique Hoosier children tested, 1,727 were at or above the CDC reference level of 5µg/dL. The incidence rate for childhood lead poisoning at the 5µg/dL and above level is about 42 per 1,000 children tested.
- Of the 41,267 unique Hoosier children tested, 127 were confirmed cases with a blood level at 10µg/dL and above. All of the in-state children were confirmed with a venous blood test.
- Of the 41,267 unique Hoosier children tested in 2015 with lead levels at 5µg/dL or above:
    - 55% are males.

o Asian/ Pacific Islander and Black children had the highest incidence rates at 44 and 46 per 1,000 children tested, respectively.

o 27% are covered by Medicaid and had lead poisoning incidence rates at 55 per 1,000 children tested. However, 52% of the testing data did not include a Medicaid status for the child. Medicaid had the highest lead rates when compared to non-Medicaid children and children with unknown Medicaid status.

- For 2015, the age of children with the highest lead poisoning rates using the confirmed case data is age 4. For 2014, it was age 6.

EFFORTS PURSUED IN 2015

Due to the decreasing number of children screened in the last five years, ISDH has made large efforts to increase screenings among the counties, especially by sorting the county data for the previous years to understand lead exposures in Indiana. ISDH has been actively involved in childhood lead poisoning awareness and outreach. Activities include the development of outreach materials for conference and public meeting events, epidemiology project posters to help explain lead poisoning in Indiana, collaboration among local health departments and other ISDH divisions, and annual conference presentations on lead poisoning investigative activities.

The following examples demonstrate a portion of the activities performed in 2015:

Case Management

The Case Management training module was updated in late 2015 and reorganized to present at local health departments throughout the state, in collaboration with the Indiana State Department of Health Laboratory Blood Lead Sample training.

The primary goal of the increased statewide training is to raise awareness for increased screening efforts by local health departments and to ensure that parents of children under the age of six will be given opportunities to have their children screened for lead exposure. Community outreach efforts are highlighted with updated literature and website information to assist local health departments with consumer education and identification of environmental hazards that may contribute to lead poisoning of children.

Many smaller local health departments may not have a lead screening program due to understaffing or a lack of training on the risk for lead poisoning within the Local Health Officer's jurisdiction. It is the goal of the Lead and Healthy Homes Program to assist local health departments with the upstart or update of lead programs in all 92 counties.

Outreach Materials

In conjunction with the updated Case Management training module, outreach materials have been made available on the website at http://www.in.gov/isdh/26550.htm . The Lead Program Display and Brochure are a vibrant addition to the overall marketability of the program when participating in community outreach events. The brochure has been translated into Spanish to assist with reaching Spanish-speakers in the community. Being an immigrant and/or minority are two risk factors for lead poisoning. The information in this new brochure provides updated guidance from the CDC including the basis for the blood lead reference level (5µg/dL), research on health effects from lower levels of lead exposure, and important risk factors that may impact a child's susceptibility to lead. The theme for the Childhood Lead Poisoning Prevention Display is an Action Plan for parents to: 1) Get your home tested, 2) Get your child tested, and 3) Get the Facts.

FIGURE 1 – INDIANA STATE DEPARTMENTOF HEALTH, LEAD & HEALTHY HOMES PROGRAM BROCHURE

A supplemental nutrition guide will also be provided to children and parents. Research shows that a child's nutritional intake can impact the amount of lead that is absorbed into the body. By providing diets that are rich in iron, calcium, and other nutrients, high lead absorption may be avoided.

One population in Indiana that is impacted by dietary intake of lead through various food and herbal remedies is the Burmese population. A previous investigation in 2009, found that Burmese children in Allen County who used a certain cosmetic product called Thanaka, were more likely to experience lead poisoning than children who did not use the product. This information guided the current efforts at ISDH to understand lead poisoning within this population.

ISDH Food Protection Program Involvement in the Burmese Lead Investigation

In March 2014, the Fort Wayne - Allen County Department of Health investigated a Burmese child with an elevated blood lead level. The child's living environment did not indicate that the exposure was due to housing. For that reason, a traditional Burmese cosmetic used on the child was tested for lead. The results were then reported to the Food Protection Program as they regulate cosmetics. The cosmetic did test positive for lead, but not at a level high enough to be the sole source of the child's lead poisoning.

In the coming months, additional samples from similar investigations were received. This prompted the Food Protection Program to work with ISDH Environmental Public Health and Allen County Lead Programs to identify the possible source(s). The ISDH Environmental Public Health Program, Environmental Epidemiologist then identified and reported higher rates of elevated blood lead levels among the Burmese populations in both Allen and Marion Counties.

The ISDH Food Protection, Environmental Public Health and Allen County Lead Programs developed a sampling plan to investigate traditional foods, cosmetics, and pharmaceutical products used by the Burmese population in Indiana. Of the 77 food, cosmetic and pharmaceutical products collected; 65% contained some level of lead. Pharmaceutical, and to a lesser extent seafood products, were most likely to contain lead levels above 15 ppm.

As an immediate result of these findings, a product advisory for the most contaminated products was created and translated. The advisory will be posted in the stores and community areas frequented by the Burmese population. The Food Protection Program has also shared these results with federal and other state partners.

ISDH Food Protection and Environmental Public Health partners also met with Marion County Public Health Department Food and Lead Programs to discuss joining the investigation and adopting the sampling initiative used in Allen County. Marion County is currently coordinating with the Burmese community leaders to facilitate acceptance from the community before beginning their own investigation.

Figure 2 - Elevated herbal remedy sample from the investigation

Comparing County Lead Poisoning and Older Housing Project

Lead poisoning remains an environmental health threat to children, as well as pregnant women, since many sources of lead contamination still exist in Indiana. The age of Indiana's housing stock remains the primary threat, as a large percentage of housing statewide was built before 1978, and a large proportion of the housing stock is privately owned. As young families purchase and remodel older homes, the lead paint dust becomes a silent danger for the children of Indiana.

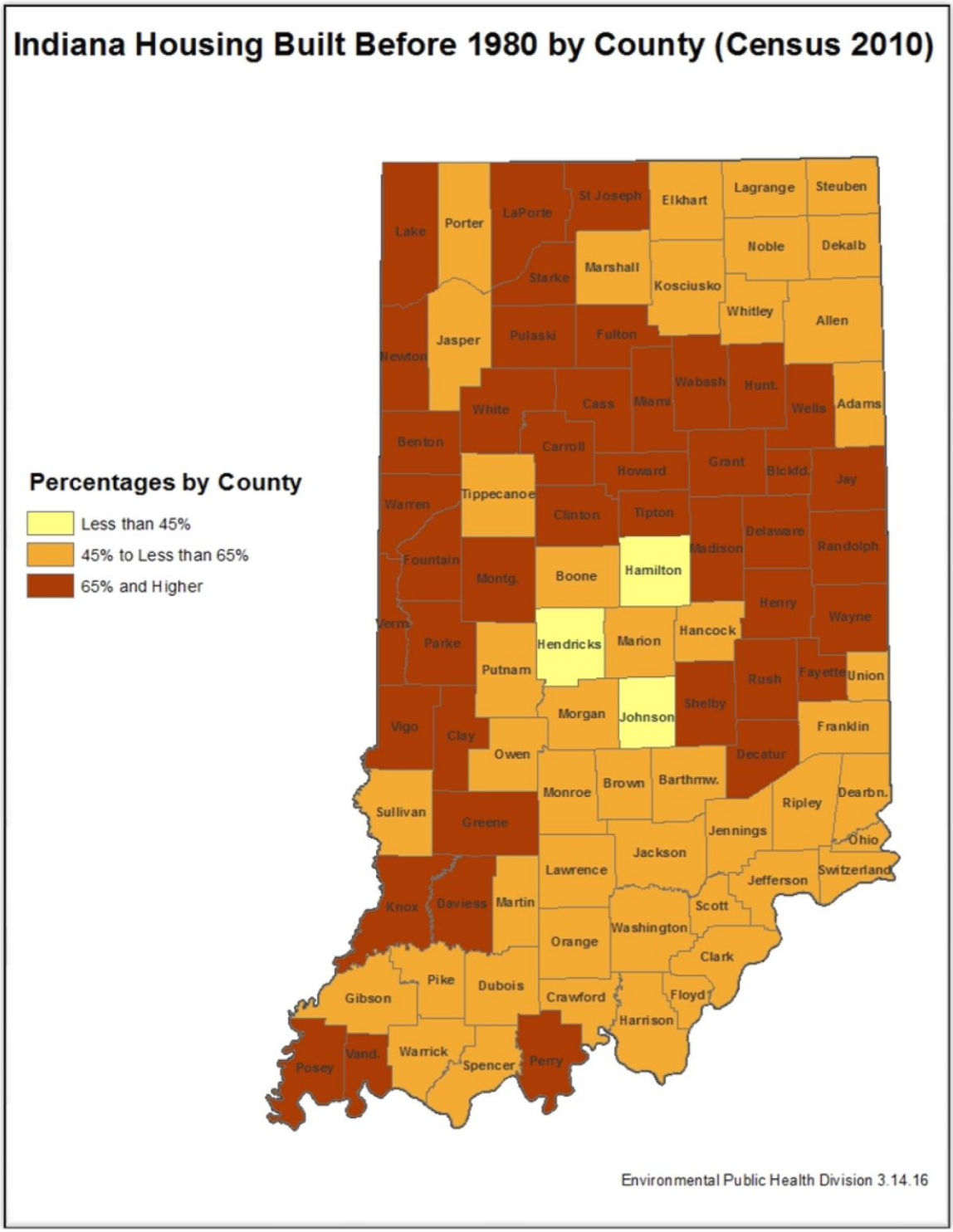

FIGURE 2 = INDIANA HOUSING BUILD BEFORE 1980 BY COUNTY (CENSUS 20010)

In 2015, the EPH division along with assistance from an intern from IUPUI, aggregated six years (2009-2014) of childhood lead screening data for the 92 counties in Indiana. With this data, the EPH division can examine lead poisoning trends at the county level and potential sources of lead

poisoning. When comparing the percentage of older housing (pre-1980) with childhood lead poisoning rates, the variance is 30% at a significance level of .0001. Therefore, 30% of lead poisoning rates were being explained by the percentage of older housing in the county.

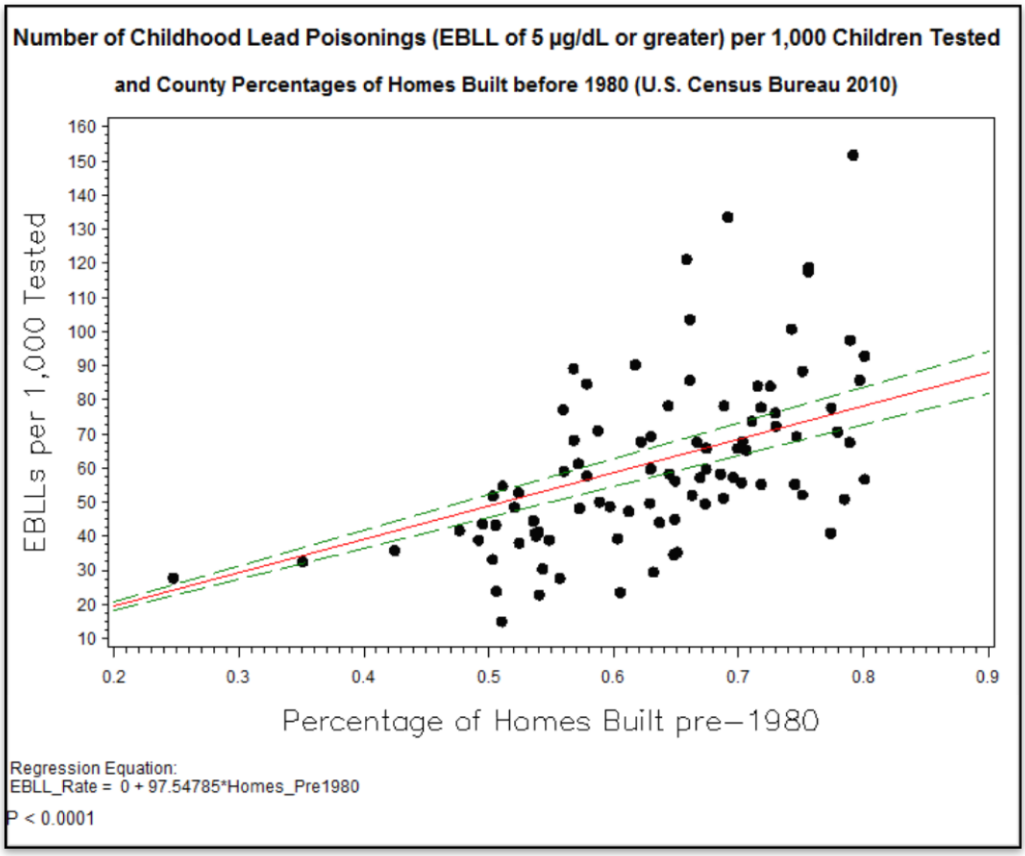

FIGURE 3 – NUMBER OF CHILDHOOD LEAD PERCENTAGE (EBLL OF 5 UG/DL OR GREATER) PER 1,000 CHILDREN TEST AND COUNTY PERCENTAGES OF HOMES BUILT BEFORE 1980 (U.S. CENSUS BUREAU 2010)

We also obtained a regression equation from plotting the counties' housing and lead poisoning data. With this equation, we can estimate lead poisoning (5µg/dL and above) per 1,000 children tested, based on the county's percentage of housing built before 1980. In 2016, the EPH division obtained a fellowship with the Association of State and Territorial Health Officials to look at lead poisoning data at the Census Tract Level, while considering older homes and the childhood population for that census tract. These surveillance efforts bring us closer to targeting children and communities at risk for irreversible effects of lead poisoning before it happens. This effort will also help us identify children who may be at-risk for lead exposure but who would not be seen in the lead poisoning data due to lack of screening.

CDC REFERENCE LEVEL FOR LEAD POISONING

The Center for Disease Control and Prevention (CDC) estimates that children residing in approximately four million American households are being exposed to high levels of lead. This means that approximately half a million children between the ages of 1 and 5could have blood lead levels above the CDC reference value of 5 micrograms per deciliter (µg/dL).

In 2012, the CDC reclassified the blood level of concern from 10 to 5 µg/dL and suggests initiation of public health action. The research involving blood lead at low levels (1-10ug/dL) and the non-observable impacts has caused concern. These impacts of low level poisonings are not as obvious as the high-dosage acute effects. These low level effects include long term detriments to IQ and social skills, and contribute to the development of behavioral disorders.

The CDC acknowledges that there is **no safe level of lead** in the blood (Centers for Disease Control). Indiana recognizes this and provides case management starting at 10 µg/dL and provides direct outreach and lead education beginning at 5 µg/dL and above. Progressively, some counties have initiated case management at the new CDC reference level of 5 instead of 10. Counties that have been able to implement these health-conscious programs usually have the depth in staff, resources, and community efforts to implement the new case management standard. ISDH is in the process of capturing these new efforts by some of the counties.

Understanding Childhood Lead Poisoning in Indiana from 2005-2014

Number of Children Tested from 2005 to 2014

Simultaneously in 2015, with the data organized by the Environmental Public Health Division for the last ten years and aggregating this data, we are more narrowly able to look at childhood lead poisoning in Indiana at the county level. Organized in the table below for each year, are: the number of children under the age of 6 tested, the number of lead poisonings at the new CDC reference value of 5µg/dL and above, the number of lead poisonings at the old reference value of 10µg/dL and above, and the number of confirmed cases at 10µg/dL and above (according to Indiana code).

10 YEARS OF CHILDHOOD LEAD TESTING

Year	Number of Unique Hoosier Children Tested	Number of Children with an Initital BLL of 5µg/dL and Higher	Number of Children with an Initial BLL of 10µg/dL and Higher	Number of Confirmed** Cases (≥10µg/dL)
2005	43,685	5,362	985	426
2006	48,214	5,338	918	421
2007	65,361	6,833	1,125	489
2008	62,652	5,586	973	433
2009	59,871	5,127	792	374
2010	61,563	4,136	682	276
2011*	59,900	3,793	585	242
2012	53,265	3,034	494	247
2013	48,102	2,323	420	165
2014	40,811	1,766	289	124
2015	41,267	1,727	355	127
Total	584,691	45,025	7,618	3,324

*In 2011 CDC announces reductions in funding to childhood lead programs.

**Confirmed Cases- Among the children whom were elevated and received a follow up test to confirm a blood level of 10ug/dL or higher. If a child received an initial venous test, follow up testing was not

needed to be a confirmed case. An initial elevated capillary necessitates a follow up test to confirmed an elevated level of 10ug/dL or higher.

In order to view this data at a comparable rate, refer to the chart below.

HOOSIER CHILDREN TESTED AND BLOOD LEAD LEVELS

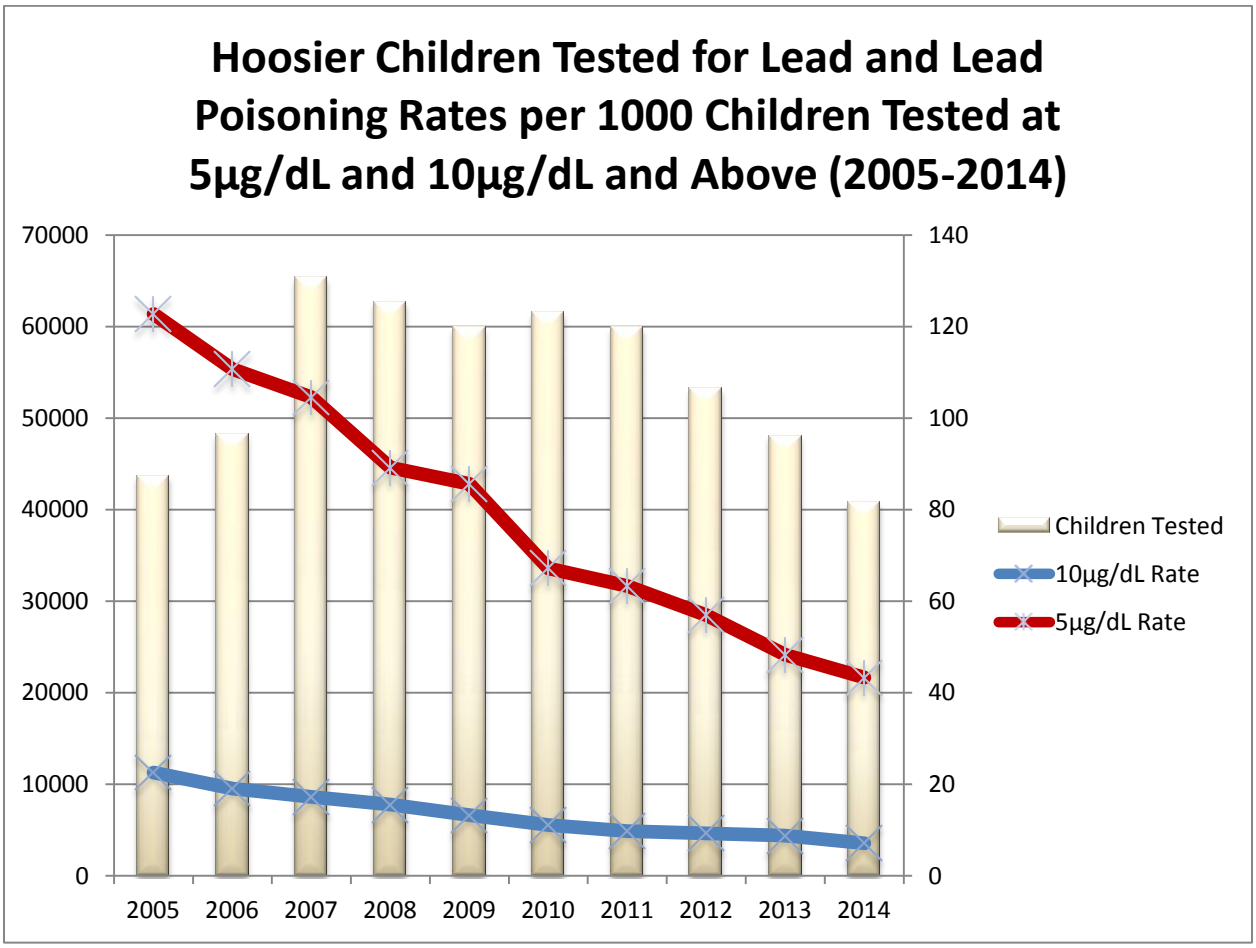

Table 1 – Hoosier Children tested for lead and lead poisoning rates per 100 tested at 5ug/dL and 10ug/dL and above (2005-2014)

Lead Testing with Comparable Rates from 2005 to 2014

According to the figure above, the number of Hoosier children tested ranged from 40,811 in 2014 to the 65,361 in 2007 during the ten year period (2005 to 2014). This range in the number of children tested can be attributed to the level of funding from the federal government each year, as well as local and state testing initiatives, and public concern over lead in toys in 2007. We anticipate lead testing to increase during the year 2016 due to the Flint Water Crisis in Michigan and national awareness of lead poisoning issues.

Most importantly, the rates (a method used to make comparisons across the same size population) of children with an elevated blood lead level at 5µg/dL and 10/µg/dL have both decreased during this ten year period. However, we have observed that as screening rates decrease, the number of children we find with lead poisoning also decreases. Overall, the above figure matches national lead poisoning trends.

Confirmed Cases from 2005 to 2014

According to Indiana law, a child becomes a confirmed case when they receive either: at least (one) venous blood test or (two) capillary blood tests with a blood lead result at 10µg/dl or above. Children that have a blood lead result, that does not meet the two above conditions do not become a confirmed case and receive case management. Many times, children do not become confirmatory cases due to not receiving confirmatory testing to confirm a child's high blood lead level. Unique issues exist for the at-risk population including the transition of residences or temporary housing or lack of transportation access to a testing facility.

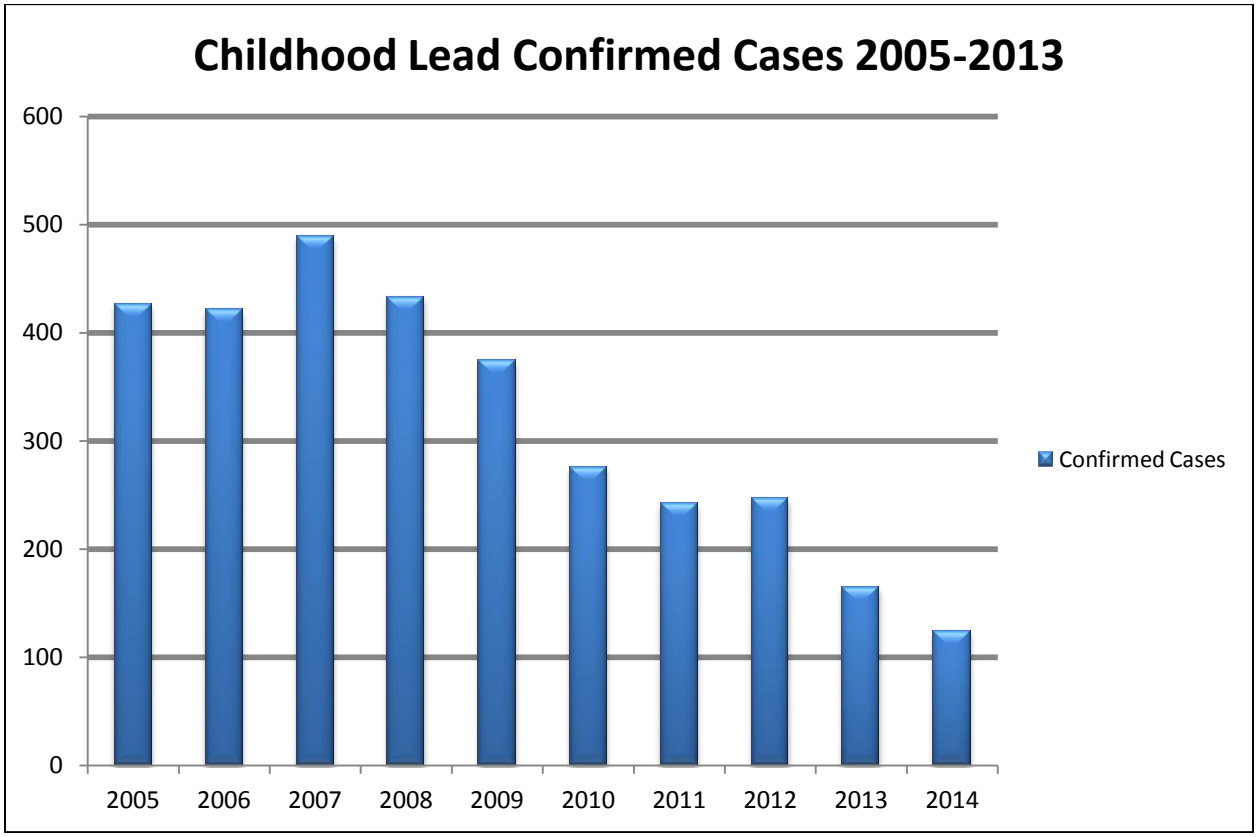

Table 2 – Childhood Lead Confirmed Cases 2005-2013

In this table, the number of confirmed children for the ten years of data matches the testing numbers for each year. As the number of children tested increased, the number of confirmed

cases increased and vice versa. The number of children that became a confirmed case between 2005-2014 ranged from 124 in 2014 to 489 in 2007. This data does not include children that are a confirmed case from 5-9µg/dL.

The Number of Out of State Children Tested in Indiana Clinics from 2005 to 2014

New information included in this report is the number of children tested with an out of state address from 2005 to 2014.

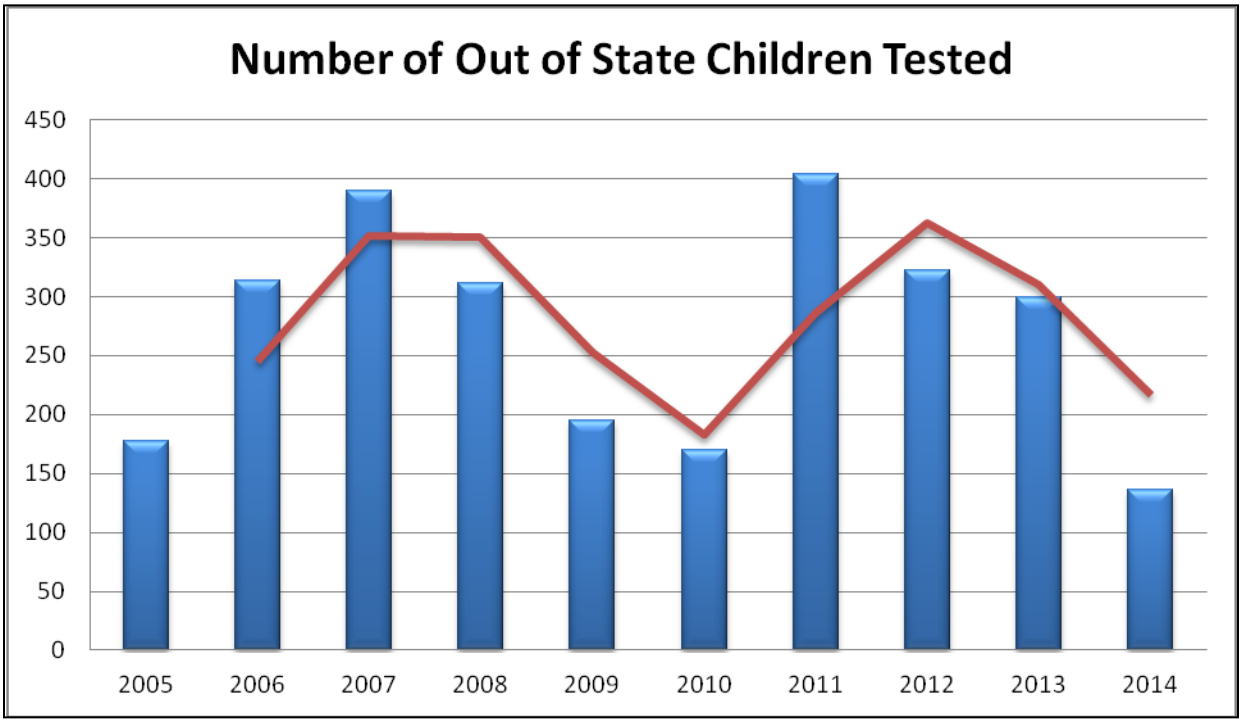

TABLE 1 – NUMBER OF OUT OF STATE CHILDREN TESTED

The number of out of state children tested in Indiana ranged from 136 in 2014 to 404 in 2011. The red line indicates a trendline to display the variability in this testing over the years. Indiana testing sites located near state borders may be closer to residents outside of Indiana than testing facilities within neighboring states. There are many transient families that may be included in this group. The number of out of state children tested in Indiana seems to follow the same testing pattern for Hoosier children as well.

Any fluctuations between testing in Hoosiers and out of state children may be attributed to the reporting of out of state addresses in that year. For example, in 2015 there were 514 out of state children screened in Indiana according to the data reported to the State. This is the highest number of out of state children reported among the past eleven years. Better reporting of children's addresses may be affecting this.

Simultaneously, data for Hoosier children are also being plotted to understand the factors that contribute to childhood lead poisoning in Indiana. This starts with separating the lead testing

data by county. Testing data that does not include an address for a child cannot be used in this type of analysis.

The following is the county data for 2015:

2015 COUNTY DATA

Data listed in the below table comes from a few different data sources and used for county comparisons. The number of children tested by county includes children with a county field in their address information for their lead test result. The percentage of housing built before 1980 comes from the 2000 Census Data.

Lead based paint was banned in 1978 and therefore, we use the 1980 cut off data based on the census data available. The number of children with a screening result of 5 µg/dL and above is included for the county along with the rate per 100 children tested. Using a rate allows us to compare the counties due to different population sizes. We can also look at the rate for the previous year 2014.

The rate for 2014 (per 1,000 in the previous year's report) was changed to per 100 due to the number of counties with low number of children being screened due to smaller population sizes. Number of risk assessments and hazards identified from a risk assessment are included by county. Risk assessments can be conducted for children pre or post 2015 children and the number of hazards identified may be larger than the number of risk assessments done.

Cty Name	Children Tested (2015)	Increase or Decrease in Testing from 2014	% Pre-1980 Housing (2000 Census)	Initial EBLL Test at (≥5µg/dL) (2015)	Pb Poison Rate per 100 (2015)	Pb Poison Rate per 100 (2014)	Hazards Identified (2015)	Risk Assessments (2015)	% Children <6 Under Poverty (2000 Census)
Adams	148	+	65%	10	6.8	6.2	78	33	15%
Allen	2297	-	62%	131	5.7	6.7	1123	171	15%
Bart.	765	+	63%	28	3.7	2.6	7	16	10%
Benton	56	+	80%	*	*	6.3	4	2	8%
Blackford	96	+	72%	10	10.4	10.1	11	1	14%
Boone	326	+	51%	8	2.5	2.5	6	5	5%
Brown	50	-	55%	*	*	*	0	1	9%
Carroll	176	+	66%	10	5.7	6.3	0	0	9%
Cass	300	+	79%	9	3.0	5.8	17	6	12%
Clark	644	-	56%	14	2.2	2.1	2	9	13%
Clay	103	+	69%	5	4.9	*	0	0	18%
Clinton	310	+	76%	22	7.1	10.7	22	4	14%
Crawford	75	+	59%	*	*	*	0	0	34%
Daviess	37	-	67%	*	*	*	7	6	24%
De Kalb	264	+	63%	6	2.3	*	0	1	8%

Cty Name	Children Tested (2015)	Increase or Decrease in Testing from 2014	% Pre-1980 Housing (2000 Census)	Initial EBLL Test at (≥5µg/dL) (2015)	Pb Poison Rate per 100 (2015)	Pb Poison Rate per 100 (2014)	Hazards Identified (2015)	Risk Assessments (2015)	% Children <6 Under Poverty (2000 Census)
Dearborn	142	-	52%	*	*	4.5	14	4	10%
Decatur	141	+	66%	7	5	*	1	3	14%
Delaware	541	-	74%	47	8.7	7.1	0	23	20%
Dubois	44	+	54%	*	*	*	0	2	5%
Elkhart	1004	-	57%	56	5.6	5.6	46	21	13%
Fayette	293	+	78%	8	2.7	8.8	2	7	8%
Floyd	583	-	61%	18	3.1	3.4	11	7	18%
Fountain	64	-	69%	*	*	13.7	0	1	13%
Franklin	188	+	54%	*	*	*	0	0	7%
Fulton	45		66%	*	*	*	0	0	11%
Gibson	214	+	64%	14	6.5	7	0	0	14%
Grant	895	-	77%	26	2.9	3.5	7	2	21%
Greene	158	-	65%	*	*	2.3	0	0	17%
Hamilton	1415	+	24%	15	1.1	1.7	25	13	3%
Hancock	238		48%	5	2.1	2.9	10	6	3%
Harrison	417	+	50%	*	*	2.6	0	0	8%

Cty Name	Children Tested (2015)	Increase or Decrease in Testing from 2014	% Pre-1980 Housing (2000 Census)	Initial EBLL Test at (≥5µg/dL) (2015)	Pb Poison Rate per 100 (2015)	Pb Poison Rate per 100 (2014)	Hazards Identified (2015)	Risk Assessments (2015)	% Children <6 Under Poverty (2000 Census)
Hendricks	340	+	35%	8	2.4	4.5	0	12	2%
Henry	221	+	78%	15	6.8	8.0	6	32	13%
Howard	311	-	72%	10	3.2	8.6	18	12	19%
Huntington	268	+	71%	10	3.7	*	9	9	6%
Jackson	151	-	58%	8	5.3	4.9	2	3	11%
Jasper	74		54%	6	8.1	*	0	1	8%
Jay	181		80%	6	3.3	4.0	0	0	16%
Jefferson	259	+	64%	7	2.7	4.8	1	1	14%
Jennings	77	-	50%	*	*	*	0	0	10%
Johnson	479	+	42%	15	3.1	3.8	0	3	6%
Knox	226	+	79%	13	5.7	5.5	9	9	26%
Kosciusko	337	-	60%	6	1.8	3.4	0	2	9%
La Porte	276	-	70%	23	8.3	6.0	29	29	16%
Lagrange	81		56%	8	9.9	*	0	0	10%
Lake	2520	+	73%	160	6.3	7.6	242	139	21%
Lawrence	267	+	60%	13	4.9	*	0	1	14%

Cty Name	Children Tested (2015)	Increase or Decrease in Testing from 2014	% Pre-1980 Housing (2000 Census)	Initial EBLL Test at (≥5µg/dL) (2015)	Pb Poison Rate per 100 (2015)	Pb Poison Rate per 100 (2014)	Hazards Identified (2015)	Risk Assessments (2015)	% Children <6 Under Poverty (2000 Census)
Madison	859	+	75%	66	7.7	9.7	1	28	15%
Marion	7270		65%	313	4.3	4.7	476	197	17%
Marshall	70	-	63%	*	*	*	0	1	10%
Martin	82	+	57%	*	*	*	0	1	18%
Miami	176	-	75%	10	5.7	4.9	2	1	14%
Monroe	952	-	51%	26	2.7	1.1	0	2	16%
Montg.	236	-	71%	15	6.4	6.5	0	3	13%
Morgan	293	-	54%	*	*	*	0	7	8%
Newton	49	+	73%	*	*	*	0	1	7%
Noble	236	+	63%	11	4.7	*	13	3	12%
Ohio	16		57%	*	*	*	0	0	12%
Orange	72	+	58%	*	*	*	0	0	10%
Owen	177	-	50%	*	*	2.4	0	3	10%
Parke	63		67%	8	12.7	*	0	0	22%
Perry	71	-	70%	*	*	*	0	0	20%
Pike	28		65%	*	*	*	0	1	11%

Cty Name	Children Tested (2015)	Increase or Decrease in Testing from 2014	% Pre-1980 Housing (2000 Census)	Initial EBLL Test at (≥5µg/dL) (2015)	Pb Poison Rate per 100 (2015)	Pb Poison Rate per 100 (2014)	Hazards Identified (2015)	Risk Assessments (2015)	% Children <6 Under Poverty (2000 Census)
Porter	462	+	54%	*	*	1.9	12	14	8%
Posey	120	-	67%	*	*	5.0	0	1	11%
Pulaski	55	+	67%	*	*	*	0	0	12%
Putnam	139	+	56%	7	5	*	0	5	10%
Randolph	101	-	80%	9	8.9	11.3	0	0	19%
Ripley	285	+	59%	*	*	*	0	1	8%
Rush	57		76%	8	14	16.4	25	4	6%
Scott	129		52%	*	*	*	0	0	17%
Shelby	59		70%	7	11.9	10.6	21	10	13%
Spencer	156	+	57%	*	*	4.4	0	1	9%
St Joseph	1195	-	69%	101	8.5	7.5	342	129	17%
Starke	23		67%	*	*	*	0	1	18%
Steuben	311	+	54%	7	2.3	*	0	0	9%
Sullivan	36	-	64%	*	*	*	0	0	18%
Switzerland	37		51%	*	*	*	1	1	20%
Tippecanoe	1731	+	52%	48	2.8	3.6	9	22	19%

Cty Name	Children Tested (2015)	Increase or Decrease in Testing from 2014	% Pre-1980 Housing (2000 Census)	Initial EBLL Test at (≥5µg/dL) (2015)	Pb Poison Rate per 100 (2015)	Pb Poison Rate per 100 (2014)	Hazards Identified (2015)	Risk Assessments (2015)	% Children <6 Under Poverty (2000 Census)
Tipton	34		79%	5	14.7	*	0	1	6%
Union	92	+	62%	5	5.4	*	10	1	14%
Vandb.	770	-	70%	52	6.8	7.1	25	13	20%
Vermillion	99		72%	*	*	9.2	0	1	12%
Vigo	674	-	73%	53	7.9	6.9	14	8	20%
Wabash	202	-	75%	8	4.0	4.2	0	0	13%
Warren	35		66%	*	*	*	0	0	15%
Warrick	178	+	51%	*	*	*	1	4	8%
Washing.	115	-	49%	*	*	*	0	0	16%
Wayne	1128	+	79%	77	6.8	10.9	39	21	19%
Wells	195	+	69%	*	*	*	0	1	11%
White	197	+	75%	13	6.6	9.4	6	5	8%
Whitley	161	+	61%	*	*	*	0	1	6%
Unknown	3744			41	1.1				
Total	41,267						2,706	1,090	

Green means an increase of more than 10 from the previous year, Red means a decrease from the previous year for number of children tested, * means that data less than 5 have been suppressed to protect confidentiality.

ENDNOTES

Lead and Healthy Homes Program
100 N Senate Ave, N855
Indianapolis, IN 46204
(317) 233-1294

The information contained in this report was compiled by the Lead and Healthy Homes Program in compliance with IC 16-41-39.4-5 available at http://www.in.gov/legislative/iac/ which requires:

IC 16-41-39.4
Annual Report
Sec. 5.

For each county the following information concerning children who are less than seven (7) years of age:

i. The number of children who received a blood lead test.
ii. The number of children who had a blood test result of at least ten (10) micrograms of lead per deciliter of blood.
iii. The number of children identified under subdivision (2) who received a blood test to confirm that they had lead poisoning.
iv. The number of children identified under subdivision (3) who had lead poisoning.
v. The number of children identified under subdivision (4) who had a blood test result of less than ten (10) micrograms of lead per deciliter of blood.
vi. The average number of days taken to confirm a blood lead test.
vii. The number of risk assessments performed for children identified under subdivision (4) and the average number of days taken to perform the risk assessment.
viii. The number of housing units in which risk assessments performed under subdivision (7) documented lead hazards as defined by 40 CFR 745.
ix. The number of housing units identified under subdivision (8) that were covered by orders issued under IC 13-14-10-2 or by another governmental authority to eliminate lead hazards.
x. The number of housing units identified under subdivision (9) for which lead hazards have been eliminated within thirty (30) days, (3) months, and six (6) months.

REFERENCES

Centers for Disease Control. (n.d.). Retrieved February 9, 2015, from www.cdc.gov: www.cdc.gov/nceh/lead/

United States Census Bureau. Population Estimates for States: Current Estimates Data. https://www.census.gov/popest/data/

Gould, E. (2009). Childhood lead poisoning: Conservative estimates of the social and economic benefits of lead hazard control. Environmental Health Perspectives. 117:7 (1162- 1167).

Minnesota Department of Health. (2014). Economic burden of the environment on two childhood diseases: Asthma & Lead Poisoning in Minnesota. http://www.health.state.mn.us/divs/hpcd/tracking/projects/burden.html

Needlemen, S. e. (1990). *British Medical Journal.* Retrieved February 4, 2016, from National Library of Medicine, National Institute of Health: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1663823/

Peter Muenning, M. M. (2009, September 7). *JAMA Pediatrics.* Retrieved February 11, 2016, from JAMA: http://archpedi.jamanetwork.com

Report incidences of the following infections, diseases, or conditions to the Local Health Department — Phone Number: _____

Reportable Communicable Diseases and Conditions for Health Care Providers, Hospitals, and Medical Laboratories

Effective December 25, 2015

410 IAC 1-2.5-75 & 76

Report immediately on suspicion (!). Report within 24 hours (*). All others report within 72 hours or as noted.

Acquired Immunodeficiency Syndrome (AIDS)
*Animal Bites
Anaplasmosis (*Anaplasma* species)
! Anthrax (*Bacillus anthracis*)
! Arboviral encephalitis (Eastern Equine, St. Louis, La Crosse, West Nile, California, Western Equine, Powassan, Japanese)
Babesiosis (*Babesia* species)
! Botulism (*Clostridium botulinum*)
! Brucellosis (*Brucella* species)
Campylobacteriosis (*Campylobacter* species)
Carbapenemase-producing Carbapenem-resistant Enterobacteriaceae (CP-CRE)
Chancroid (*Haemophilus ducreyi*)
! Chikungunya virus
Chlamydia trachomatis, genital infection
! Cholera (*Vibrio cholerae*)
Cryptosporidiosis (*Cryptosporidium* species)
Cyclosporiasis (*Cyclospora cayetanensis*)
Cysticercosis (*Taenia solium*)
! Dengue
! Diphtheria (*Corynebacterium diphtheriae*)
! Eastern equine encephalitis (EEE)
Ehrlichiosis (*Ehrlichia* species)
! *Escherichia coli* infection (Shiga toxin-producing *E. coli* (STEC)) including, but not limited to:
E. coli O157;
E. coli O157:H7;
Shiga toxin detected; or
Non-O157 *E. coli*
Giardiasis (*Giardia* species)
Gonorrhea (*Neisseria gonorrheae*)
Granuloma inguinale (*Calymmatobacterium granulomatis*)
**Haemophilus influenzae,* invasive disease
Hansen's disease (leprosy) (*Mycobacterium leprae*)
! Hantavirus pulmonary syndrome
! Hemolytic uremic syndrome, postdiarrheal
! Hepatitis, viral, Type A
Hepatitis, viral, Type B
! Hepatitis, viral, Type B, pregnant woman (acute and chronic) or perinatally exposed infant
Hepatitis, viral, Type C (acute), within five (5) business days
Hepatitis, viral, Type Delta
! Hepatitis, viral, Type E
Hepatitis, viral, unspecified
Histoplasmosis (*Histoplasmosis capsulatum*)
HIV infection/disease (The following conditions related to HIV are laboratory reportable)
Cryptococcus neoformans
Kaposi's sarcoma (biopsies)
Pneumocystis carinii
! HIV infection/disease, pregnant woman or perinatally exposed infant
Influenza-associated death (all ages)
! Japanese encephalitis
! La Crosse encephalitis (California serogroup viruses)
Legionellosis (*Legionella* species)
Leptospirosis (*Leptospira* species)
Listeriosis (*Listeria monocytogenes*, invasive)
Lyme disease (*Borrelia burgdorferi*)
Lymphogranuloma venereum
Malaria (*Plasmodium* species)
! Measles (Rubeola)
! Meningococcal disease (*Neisseria meningitidis*, invasive)
*Mumps
*Novel influenza A
*Pertussis (*Bordetella pertussis*)
! Plague *(Yersinia pestis)*
! Poliomyelitis
! Powassan virus
Psittacosis (*Chlamydia psittaci*)
! Q Fever (*Coxiella burnetti*)
! Rabies in humans or animals, confirmed and suspect animal with human exposure
Rabies, postexposure treatment
Rocky Mountain spotted fever (*Rickettsia* species)
! Rubella (German Measles)
! Rubella congenital syndrome
Salmonellosis, non-typhoidal (*Salmonella* species)
! Shigellosis (*Shigella* species)
! Smallpox (Variola infection)
Adverse events or complications due to smallpox vaccination (vaccinia virus infection) or secondary transmission to others after vaccination.
! St. Louis encephalitis (SLE)
Staphylococcus aureus, vancomycin resistance level of MIC ≥ 8 µg/mL or severe *Staphylococcus aureus* in a previously healthy person
Streptococcus pneumoniae, invasive disease and antimicrobial susceptibility testing
Streptococcus, Group A, invasive disease (*Streptococcus pyogenes*)
Syphilis (*Treponema pallidum*)
Tetanus (*Clostridium tetani*)
Toxic shock syndrome (streptococcal or staphylococcal)
Trichinosis (*Trichinella spiralis*)
*Tuberculosis, cases, suspects, and latent infection (*Mycobacterium tuberculosis*)
For latent infection, a positive screening test, negative or normal chest x-ray, no evidence of extra-pulmonary disease, and provider diagnosis are necessary. Report latent infection within five (5) business days.
! Tularemia (*Francisella tularensis*)
! Typhoid and paratyphoid fever, cases and carriers (*Salmonella Typhi or Paratyphi*)
Typhus, endemic (flea-borne)
Varicella (chicken pox)
Vibriosis (*Vibrio* species)
! West Nile Virus (WNV)
! Western equine encephalitis (WEE)
! Yellow fever
Yersiniosis (*Yersinia* species)

Other Reportable Conditions and Diseases of Public Health Significance (Non-communicable)

- Report all blood lead results (capillary and venous) in children and adults within one week (410 IAC 29-3-1)
- Report injury resulting from fireworks or pyrotechnics within 5 business days after a person receives treatment (IC 35-47-7-7)
- Report confirmed cases of cancer occurring in residents diagnosed or treated in Indiana to the state cancer registry (410 IAC 21-1-2)

Indiana State Department of Health
An Equal Opportunity Employer

Report incidences of the following infections, diseases, or conditions to the Local Health Department — Phone Number: _____

Immediately report <u>outbreaks</u> of any of the following upon suspicion:

1. Any disease required to be reported under this section
2. Newborns with diarrhea in hospitals or other institutions
3. Foodborne or waterborne diseases in addition to those specified by name in this rule
4. Streptococcal illnesses
5. Conjunctivitis
6. Impetigo
7. Nosocomial disease within hospitals and health care facilities
8. Influenza-like-illness
9. Viral meningitis
10. Unusual occurrence of disease
11. Any disease (e.g. anthrax, plague, tularemia, *Brucella* species, smallpox, or botulism) or chemical illness considered a bioterrorism threat, importation, or laboratory release.

Reporting is required of any specimen derived from the human body yielding microscopic, bacteriologic, immunologic, serologic, or other evidence of infection by any of the organisms or agents listed.

1. <u>Test</u>: name, date, test results, specimen source, normal limits for the test, test result interpretation, and laboratory's accession number or other numeric identifier.
2. <u>Person</u>: name, address, and date of birth (or age if date of birth is not available)
3. <u>Submitter</u>: name, address, and telephone number of attending physician, hospital, clinic, or other specimen submitter
4. <u>Laboratory</u>: name, address, telephone number, and CLIA ID number of the laboratory performing the test

---

Laboratories shall submit all isolates of the following organisms to the ISDH Laboratory for further evaluation within three (3) business days of isolation:

1. Carbapenamase producing-carbapenam resistant Enterobacteriaceae (CP-CRE)
2. *Haemophilus influenzae*, invasive disease
3. *Neisseria meningitidis*, invasive disease
4. **Escherichia coli* (Shiga toxin-producing *E. coli* (STEC)) isolates
5. *Staphylococcus aureus,* vancomycin resistance level of MIC ≥ 8 μg/mL
6. *Mycobacterium tuberculosis*
7. *Streptococcus pneumoniae,* invasive disease, isolates from persons less than five (5) years of age
8. *Listeria monocytogenes*
9. **Salmonella* species isolates
10. **Shigella* species isolates
11. **Vibrio cholerae* isolates
12. **Vibrio* species, *Grimontia hollisae* (*Vibrio hollisae*), and *Photobacterium damselae* (*Vibrio damsela*) isolates

*If isolate of organism is not available, submit clinical specimens per IAC 1-2.5-76(f)

Any infection, disease or condition submitted via electronic laboratory reporting should continue to be reported to the Indiana State Department of Health. Any questions on submission should be directed to the Epidemiology Resource Center at 317-233-7125. For facilities unable to submit via ELR please fax reports to 317-234-2812.

Any questions on isolate submission should be directed to the Indiana State Department of Health Laboratories at 317-921-5500.

Indiana State Department of Health

An Equal Opportunity Employer