Indiana State Department of Health
Lead & Healthy Homes Program

2013 Surveillance Report

June 2014

The Indiana Lead Poisoning Prevention Program and Maternal and Child Health are pleased to present the 2013 annual surveillance report. As part of our commitment to Healthy People 2020 and the Life Course Health Systems Perspective, this report provides information regarding the number of Indiana children tested for lead poisoning, the number of children found to have elevated blood lead levels, and the number of children who, as a result of an elevated blood lead level, received case management services. The Life Course Perspective offers a broader way of looking at health, over an entire lifespan, as opposed to disconnected stages, and suggests a complex relationship between behavioral, psychological, social, and environmental factors contributing to the health outcomes across a person's life.

Lead poisoning is the most preventable condition of children in the United States. Possibly 4 million households with children in them are being exposed to high levels of lead, according to the CDC[1]. In Indiana, lead poisoning is defined as an individual having 10 micrograms of lead per deciliter of blood (10 µg/dL); however, the Centers for Disease Control and Prevention has recently (2012) reclassified the blood lead level of concern from 10 µg/dL to 5 µg/dL. It's important to note that while levels of concern have long been classified, no safe level of lead has yet been determined by the CDC.

Lead poisoning or lead in the blood, when it occurs, may result in harmful, irreversible health effects. These complications are variable, potentially affecting nearly every system in the body, including kidney and nervous system damage, Attention Deficit/Hyperactivity Disorder (AD/HD), decreased IQ, learning disabilities, seizures, coma, and even death.

Indiana recognizes the importance of lead screening and prevention. In 2013, 48,457 unique children have been screened for elevated blood lead levels. Among the children tested, the number of elevated blood lead levels above or equal to 5 µg/dL in Indiana is 2,316, which is 5% among those screened. The Indiana Lead and Health Homes Program and local health departments provided case management services, including, but not limited to, home visits, education, prevention techniques, and referrals, to 174 new, confirmed cases of lead poisoned children under the age of 7 during 2013. The program led to 1,473 risk assessment inspections of residences of lead-poisoned children conducted in 2013.

Despite being banned for residential use in 1978, lead-based paint remains the leading risk factor for lead poisoning. Due primarily to the current breakdown of existing lead-based paint in older homes, ingestion and inhalation of lead-based paint particles remains a serious health concern. Nearly 2 million homes, more than 63 percent of residential structures, in Indiana were built prior to 1978, making this concern highly relevant for Indiana. Children between the ages of 1 to 3 years of age are at greatest risk for being lead poisoned due to their prevalence of hand-to-mouth activity behavior, their developing bodies and brains, and their size. Children, on a pound-for pound basis, breathe more air, drink more water, and eat more food than adults, meaning they can potentially be exposed to a higher percentage of carcinogens and chemicals.

In 2014, in order to further improve the health of Indiana families, we look forward to increasing awareness of lead poisoning hazards and health effects and raise the rates of identification of poisoned children, based on CDC standards. Awareness and identification include increased outreach and education for prevention techniques, increased rates of screening for children 6 and under, and increased timeliness and effectiveness of delivery of case management services at this time. We also intend to increase and improve reporting, to increase education and outreach capacity.

Thank you for reviewing this annual report. Please direct questions regarding the data report here to Magan Meade, Environmental Epidemiologist with the Division of Environmental Public Health. She may be reached by email at MMeade@isdh.in.gov, or by telephone at (317) 233-9264.

Sincerely,

Michael Mettler, REHS, Director
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We would like to acknowledge all of those local health departments, medical professionals and laboratory personnel who test, diagnose and treat lead-poisoned children in Indiana. We also acknowledge our debt to the State of Illinois Department of Public Health Lead Program for the design of this report.

To report the results of blood lead testing or for more information about childhood lead poisoning please contact the Indiana Lead and Healthy Homes Program at 317.233.1294, Lead Poisoning Statistics at 317.233.9264, the Indiana Family Helpline toll-free at 800.421.7837 *or* visit http://www.in.gov/isdh/26550.htm

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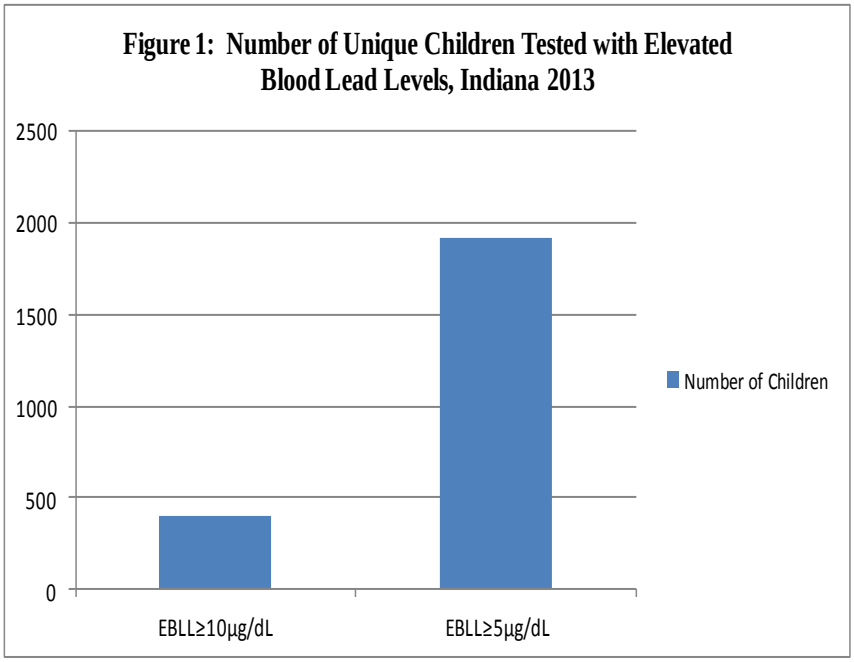
Introduction and New CDC Standard

The mission of the Indiana Lead and Healthy Homes Program (ILHHP) is to eliminate the incidence of childhood lead poisoning in Indiana. The Centers for Disease Control and Prevention's (CDC) standard for an "elevated blood lead level" (EBLL) is 5µg/dL – 5 micrograms of lead per deciliter of blood. In 2013, 48 out of 1,000 Hoosier children tested exhibited elevated blood lead levels ≥5µg/dL compared to 8 out of 1000 at the ≥10µg/dL Indiana standard; the number of children found to have elevated blood lead levels continues to decline. However, total screening rates remain low – only 8% of all children aged 6 and under were tested in 2013.



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 those who receive Medicaid benefits. Testing for that specific population was 24.9% in 2013. Reporting Medicaid status remains an issue. However, these statistics point out that the level of lead poisoning may be significantly under-reported in Indiana, since 38% of the EBLL's≥10µg/dL were from Medicaid children. Although Indiana does not have universal testing requirements in place, parents/guardians of "at risk" children are strongly encouraged to have their children tested for lead poisoning. "At risk" is defined 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 or 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.

The Indiana State Department of Health identifies children demonstrating elevated blood lead levels and monitors the treatment of these children since the early 1990s. Program activities include determining and examining potential sources of lead exposure, estimating the extent of EBLLs in Indiana, providing follow-up case management, and allocating resources for primary prevention. In 2003 the Indiana legislature enacted Article 29 of Indiana Administrative Code Title 410 to specify procedures for reporting, monitoring and preventing lead poisoning. Article 32 of Indiana Administrative Code Title 410 was enacted in 2010 to formalize definitions and enforcement for the lead-based paint program. Indiana is committed to defining roles and responsibilities for enforcement of these rules to meet Healthy People 2020[1] objectives set forth by the US Department of Health and Human Services. The primary objective is to reduce mean blood-lead levels of children by 10% and ultimately the

elimination of elevated blood lead levels in children. In 2010, ILHHP revised its statewide Childhood Lead Poisoning Elimination Plan to reflect these targets. The program also worked with retailers, contractors, business owners, landlords and homeowners to comply with the Environmental Protection Agency's (EPA) Renovation, Repair and Painting (RRP) rule[2] which went into effect in April 2010. This rule requires specific work practices to prevent lead contamination in pre-1978 homes and facilities. In 2011, ILHHP expanded its programming to assess risks to Hoosier children in a more holistic fashion, collecting data reflecting the seven principles of healthy housing (keeping a home dry, clean, pest-free, safe, contaminate-free, well ventilated, and maintained),[3] which may act synergistically to affect lead poisoning.

Sources:
[1] http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicid=12
[2] http://www.epa.gov/lead/pubs/renovation.htm
[3] http://www.nchh.org/What-We-Do/Healthy-Homes-Principles.aspx

The information contained in this report was compiled by the Indiana Lead and Healthy Homes Program in compliance with IC 16-41-39.4-5[4] which requires:

Sec. 5.

a. The state department shall, in cooperation with other state agencies, collect data under this chapter and, before March 15 of each year, report the results to the general assembly for the previous calendar year. A copy of the report shall be transmitted in an electronic format under IC 5-14-6 to the executive director of the legislative services agency for distribution to the members of the general assembly.
b. The report transmitted under subsection (a) must include 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, three (3) months, and six (6) months.

Sources:
[4] http://www.in.gov/legislative/iac/
[5] http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=ACS&_submenuId=datasets_1&_lang=en&_ts=http://factfinder.census.gov/servlet/STTable?_bm=y&-context=st&-qr_name=ACS_2009_5YR_G00_S2504&-ds_name=ACS_2009_5YR_G00_&-CONTEXT=st&-tree_id=5309&-redoLog=false&-_caller=geoselect&-geo_id=01000US&-format=&-_lang=en

Indiana Childhood Elevated Blood Lead Levels ≥10 (Calendar Year 2013)

Table 1. Number of Unique Children Tested for Lead in Indiana by Age, 2013

Variable	Number of Unique Children Tested (N)	Proportion of Children Tested Based on Total Population (%)	Number of Children with EBLL ≥ 10 µg/dL (N)	Children with EBLL ≥ 10 µg/dL Children Tested (per 1,000)
Number of children tested, age 0-6 years	48,457	8.0	403	8
Age		**Proportion of Unique Children Tested Based on Age Group (%)**		
<1	1,455	3.0	10	7
1	20,422	42.1	128	6
2	11,792	24.3	102	9
3	4,742	9.8	71	15
4	4,659	9.6	38	8
5	3,559	7.3	33	9
6	1,828	3.8	21	11

*The estimated number of children age 0-6 years was 602,643.[1]

Table 2.Number of Unique Children Tested for Lead in Indiana by Race and Ethnicity, and Blood Lead Level, 2013

Racial Distribution[1]	Number of Children Tested (N)	# of Children with EBLL ≥ 10 µg/dL	Racial Distribution Percentage EBLL≥10µg/dL (%)	Rate of Children with EBLL≥ 10 µg/dL Children Tested (per 1,000)
White	21,580	208	51.6	10
Black	7,089	74	18.4	10
Asian/Pacific Islander	803	*	*	*
American Indian/Alaska Native	81	*	*	*
Multiracial/Other	2,687	13	3.2	5
Unknown/missing	16,217	102	25.3	6
Ethnic Distribution[1]				
Hispanic	5,800	49	12.2	8

[1]Reporting race and ethnicity data remains a challenge due to inconsistent collection and reporting.

[1] http://www.census.gov/newsroom/releases/pdf/PEP_2012_PEPSYASEX.pdf

Table 3. Number of Unique Children Tested for Lead in Indiana by Blood Lead Level, 2013

BLL in microgram per deciliter	Number of Children Tested (N)	Proportion of Total Tests Completed (%)
<=4 µg/dL	46,141	95.2
5 – 9 µg/dL	1913	3.9
10 – 14 µg/dL	270	.56
15 – 19 µg/dL	75	.15
20 – 24 µg/dL	23	.05
>= 25 µg/dL	35	.07

Blood Lead Levels by Age

Lead poisoning is an environmental health issue that can affect anyone; however, children, due to their age, size, and developmental status, are particularly susceptible to sustaining irreversible health complications. Figure 2 illustrates the breakdown of children screened for lead poisoning based on age. Children, 3 years of age, exhibit the highest rates of lead poisoning, at 15 per 1,000 children (Figure 3). This is likely attributed to their frequent hand-to-mouth behavior, which creates a higher risk for poisoning by ingestion. Due to their greater risk for adverse outcomes from an elevated blood lead level, children should be tested before the age of 7. Hoosier children who were screened in 2013 were between the ages of 0 and 6, while 76.3% tested (Figure 2) were in the high risk age group of 1 to 3 years of age.

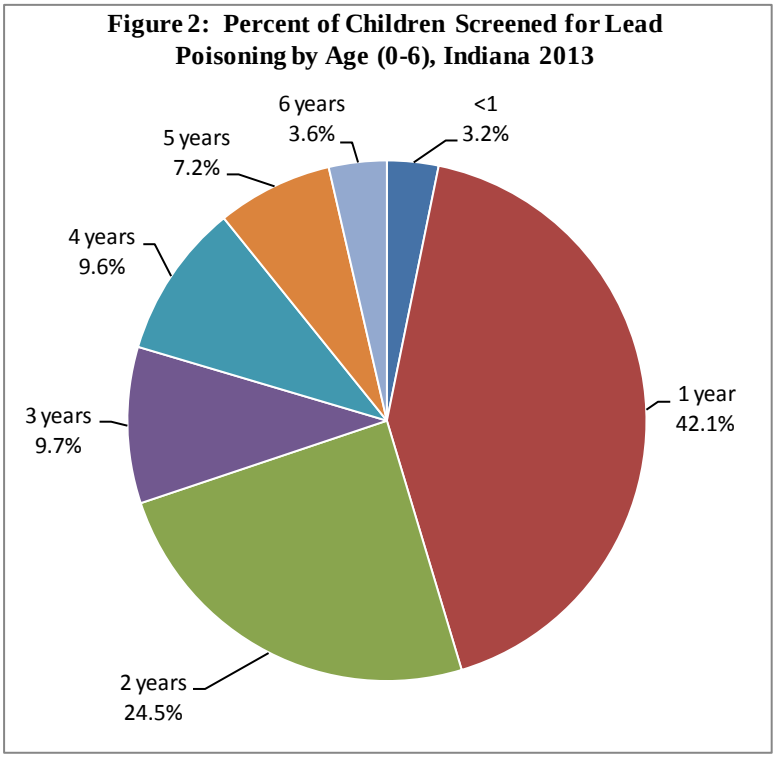
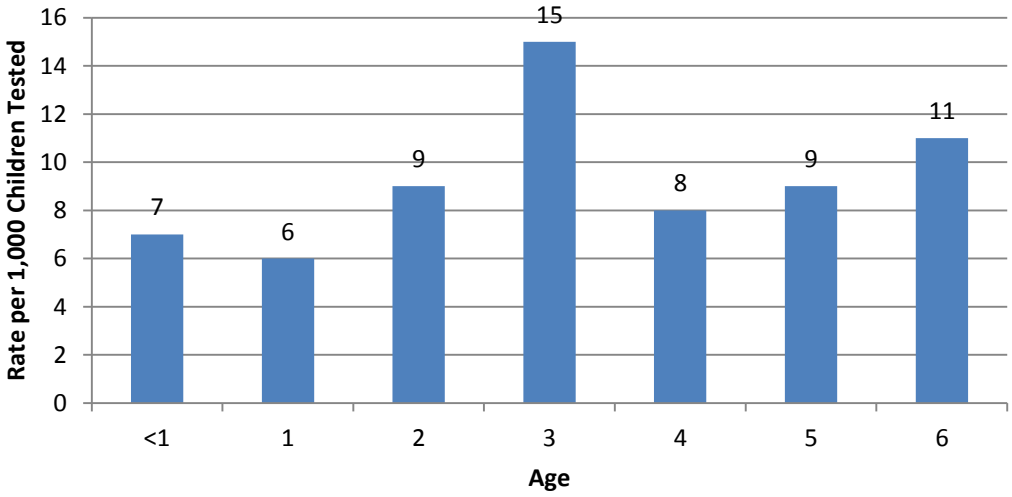


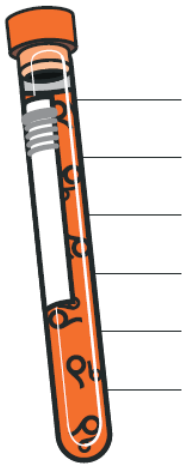
Figure 3 demonstrates the rate of lead poisoning by age per 1,000 children tested in each age group.

Figure 3: Lead Poisoning Rate by Age of Child per 1,000 Children Tested, Indiana 2013



Distribution of Elevated Blood Lead Levels and Adverse Health Effects

Figure 4: Adverse Health Effects in Children by Blood Lead Level[1]



Kidney: atrophy and interstitial nephritis	80-120
Nervous system: overt clinical encephalopathy	80-100
Gastrointesintal: colic	60-100
Formation of blood cells: anemia	20-40
Formation of blood cells: biochemical (enzyme) changes	< 10 *
Nervous system: IQ/learning disruption	< 10 *

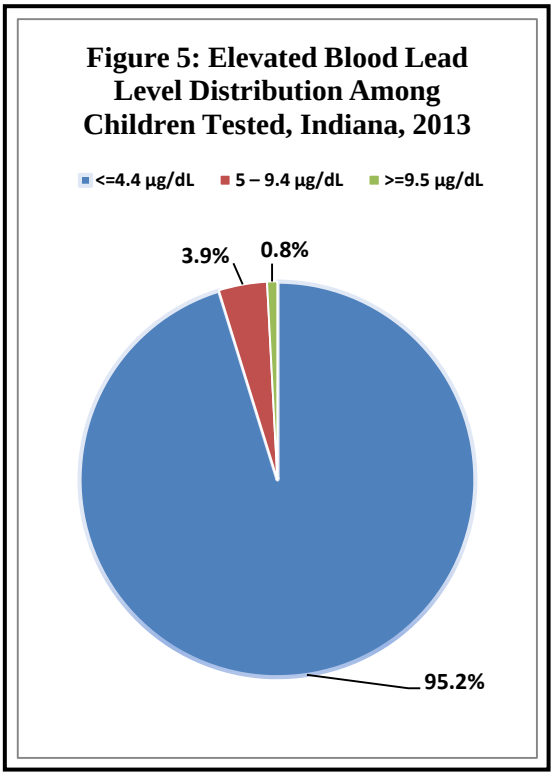
Blood lead levels in micrograms of lead per deciliter of blood (µg/dl)

* No evidence of threshold

[1]Adapted from: http://www.chem.unep.ch/pops/pdf/lead/leadexp.pdf

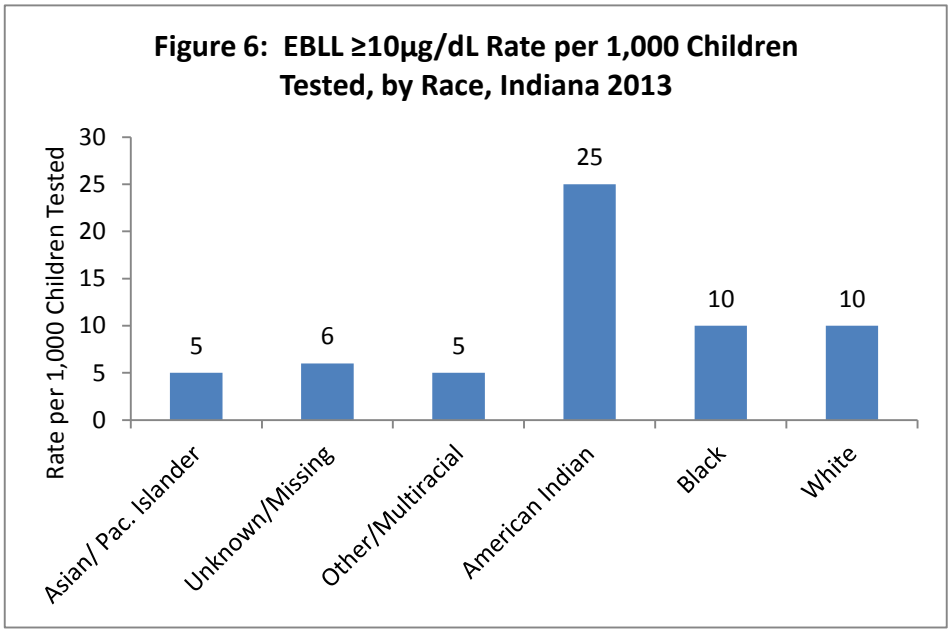
Even at low levels of lead, there may be no overt signs or symptoms exhibited; however, low levels of lead, over time, may lead to developmental delays, learning problems, attention difficulties, and hyperactivity. Moderate levels of lead can cause constipation, abdominal pain, and poor appetite. Higher levels can lead to irritability, vomiting and lethargy. Serious health conditions, include kidney and other organ failure, encephalopathy (degenerative disease of the brain), and gastrointestinal colic. Levels above 100 µg/dL can result in death. Figure 4 illustrates the adverse health effects that may result from specific levels (µg/dL) of lead.

Figure 5 represents the breakdown of blood lead levels based on the total number of children tested. In 2013, 95.2% of lead tests in Indiana had a blood lead level (BLL) of ≤ 4.4 µg/dL, 3.9% had a BLL between 5 and 9.4 µg/dL, and .8% had a BLL of ≥10 µg/dL (the classified threshold in Indiana that qualifies a child for individual services, 9.5 or above are rounded up).

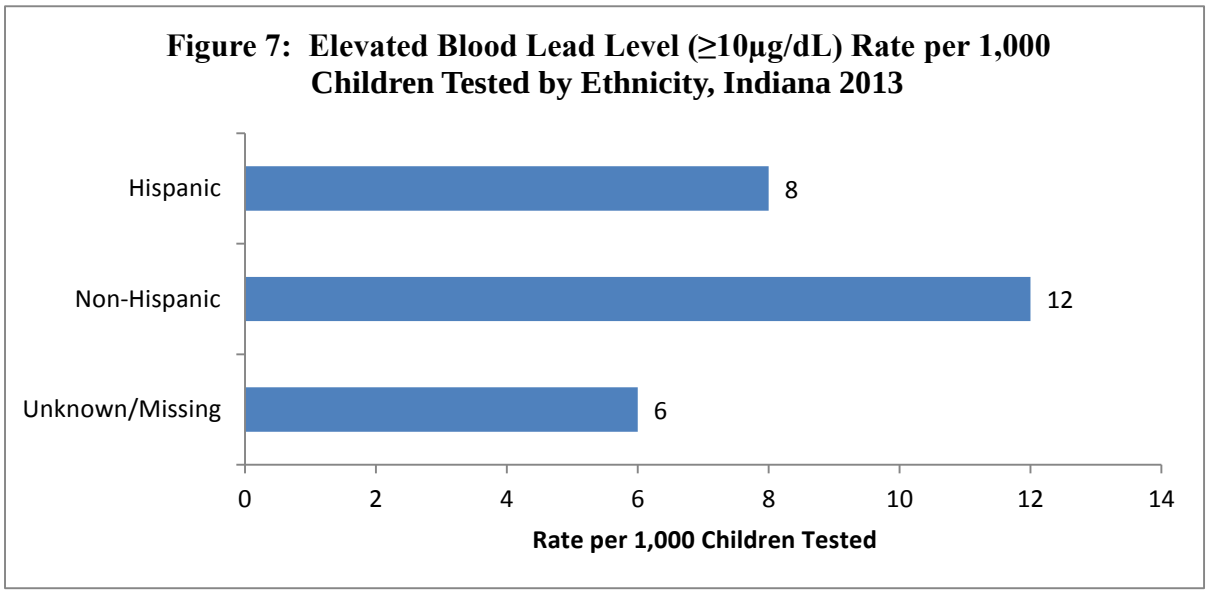


Race and Ethnicity in Relation to Lead Poisoning

Racial disparities exist in lead poisoning among Hoosier children. Belonging to a minority group is one of seven risk factors that classifies a child as being “at risk” for lead poisoning. Unfortunately, data regarding race is not consistently collected or reported. Among the data collected, Figure 6 shows the lead poisoning rate by racial group of children in Indiana in 2013. It’s important to note that some rates may be inflated due to the limited number of tests done and the number of elevated blood levels among that group.



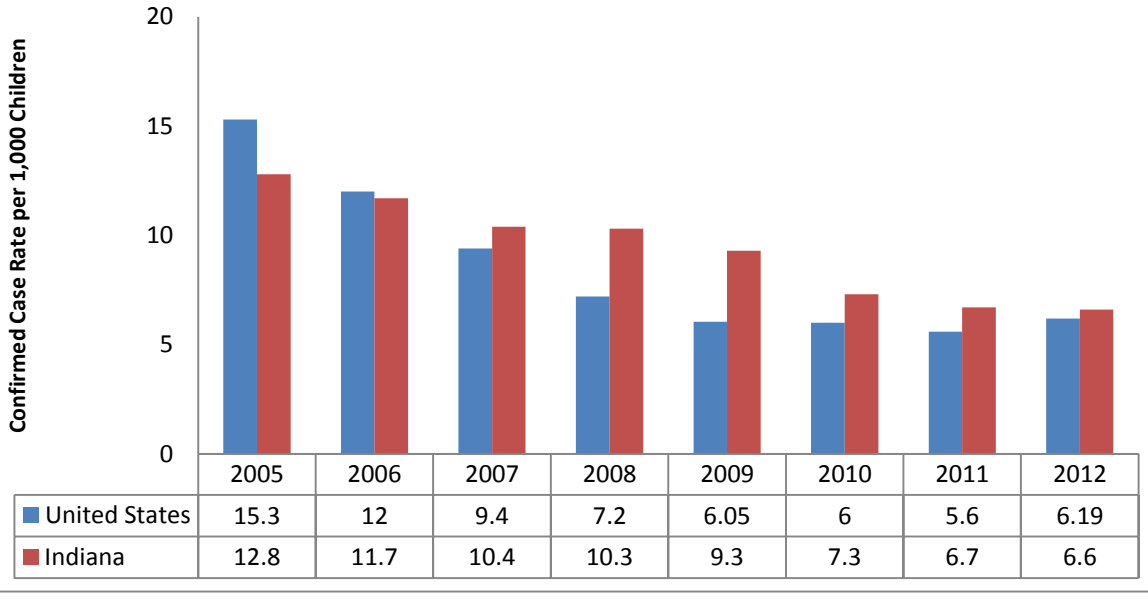
Disparities also lie in data collected regarding ethnicity among Hoosier children. As with race, it is often times difficult to measure ethnicity, leading to a lot of "unknown" or missing data. Figure 7 illustrates the rate of lead poisoning by ethnicity. Reiterating the data collection problems regarding ethnicity, children with unknown or missing data had an EBLL occurrence of 6 per 1,000 children tested. Non-Hispanic children had a higher lead poisoning rate (12 per 1,000 children tested) compared to Hispanic children (8 per 1,000 children tested). Even though these numbers are close, Hispanic children accounted for 12% of all lead poisoned children in Indiana in 2013.



Confirmed Case Rate Comparison: Indiana & US, 1997 – 2012

Similar to lead poisoning rates for the United States (as a whole), the percentage of lead poisoned confirmed cases of children in Indiana has steadily declined since 2005. Indiana surpassed the rate of lead poisoned children in 2007 for confirmed cases compared to the U.S. This may be due to increased screening. As the Indiana Lead and Healthy Homes Program continues to incorporate healthy homes principles in lead poisoning outreach and prevention, it will also remain committed to its primary mission: to eliminate the incidence of lead poisoning among Indiana's children. This also includes updating the blood lead level classification from 10µg/dL to 5µg/dL, to match the CDC standard. Figure 8 provides a graphic comparison of confirmed cases of lead poisoning in Indiana and for the nation for the period 2005 – 2012, based on CDC data.

Figure 8: Confirmed Case Rates (EBLL≥10µg/dL), Indiana and U.S. 2005-2012 (based on CDC reporting)



	2005	2006	2007	2008	2009	2010	2011	2012
United States	15.3	12	9.4	7.2	6.05	6	5.6	6.19
Indiana	12.8	11.7	10.4	10.3	9.3	7.3	6.7	6.6

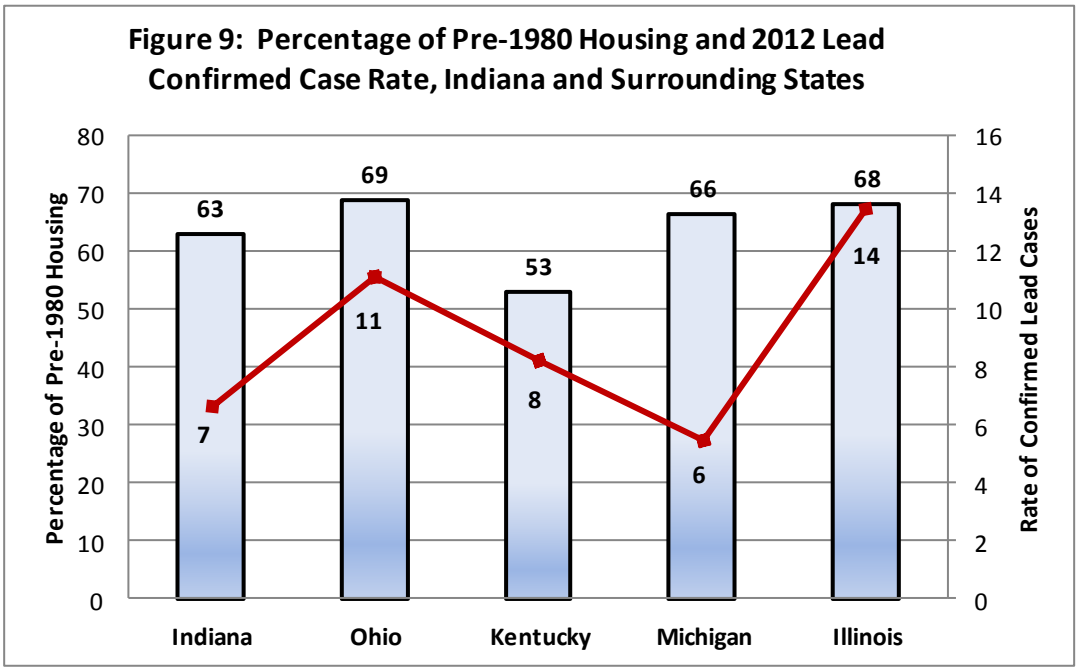
Source: Center for Disease Control and Prevention National Lead Surveillance Program

Pre-1980 Housing Units in Indiana and Surrounding States

A key risk factor for lead poisoning in children is exposure to lead-based paint. Lead-based paint is typically found in housing built prior to 1978, the year in which the manufacture of lead-based paint intended for residential use was prohibited by federal legislation. According to the 2012 American Community Survey data, nearly 2 million (63%), housing units in Indiana were built prior to 1980 (data is presented in 10-year increments; this is the nearest time-point to 1978 from which to derive estimates). Figure 10, on the following page, maps pre-1980 housing in Indiana by county[2]. Only one county, Hamilton County, has less than 25% of its available housing built prior to 1980. Eighty-five out

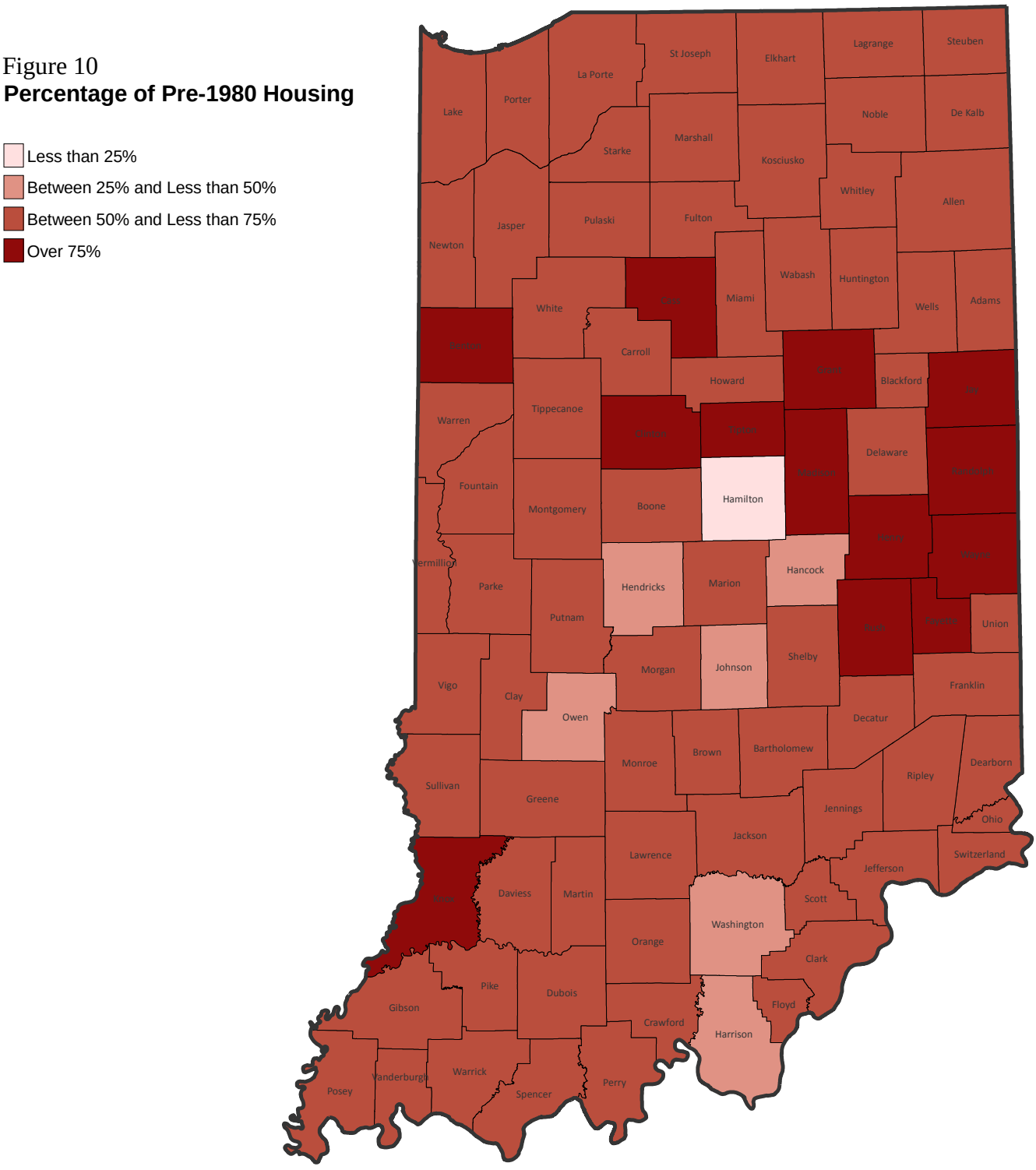
of Indiana's ninety-two counties (92%) have over 50% of housing stock built before 1980. Thirteen Indiana counties have over 75% of their available housing built prior to 1980.

In comparison with surrounding states, Indiana has a similar percentage of housing stock built prior to 1980 (63%); yet, the statewide lead poisoning rates are among the lowest. The figure below illustrates confirmed case rates and percentage of pre-1980 housing for Indiana, Ohio, Michigan, Kentucky and Illinois (all EBLL rates are from 2012).



Percentage of Pre-1980 Housing Units in Indiana (2013)

Figure 10
Percentage of Pre-1980 Housing



Lead Rates in Medicaid-Enrolled Children

In alignment with federally-mandated standards, Indiana requires that all children receiving Medicaid benefits must be screened for lead at ages 1 and 2. A child receiving Medicaid benefits must also be tested any time between ages 3 and 5 if they were not previously tested between the ages of 1 and 2. In December 2013, 45% of all of Indiana's children, who were between the ages of 0 and 6 years of age, were in Medicaid. With less than half of Indiana's child population receiving these benefits, a significant portion of Hoosier children are at at-risk for lead poisoning, and a much larger number should have been tested in 2013. 24.9% of Medicaid-eligible children were among the tested, accounting for 38% of the EBLL's≥10µg/dL. When accounting for those whose Medicaid statuses were recorded, 43.7% of children tested were in Medicaid. The Indiana Lead and Health Homes Program continue to work with the Office of Medicaid Policy and Planning (OMPP) to increase testing rates among children under the requirements of the Medicaid Early and Periodic Screening, Diagnostic, and Treatment Program (EPSDT).

Table 4, Screening Rates for Children Enrolled in Medicaid, 2013

Children Receiving Medicaid Benefits	Number of Children (N)	Proportion among Total Children Tested (%)	Proportion Among the Reported Medicaid Status Children (%)
Yes	12,075	24.9	43.5
No	15,680	32.4	56.5
Missing	20,702	42.7	N/A

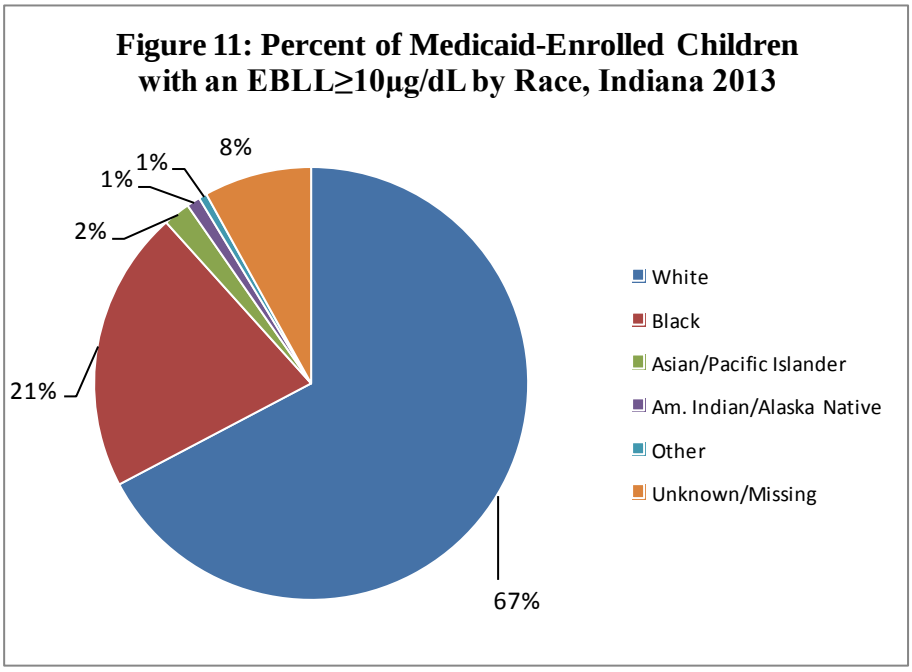
Table 5. Elevated Blood Lead Level Rates in Medicaid-Enrolled Children by Age Group, 2013

Age	Number of Medicaid-Enrolled Children (N)	Number of Medicaid-Enrolled Children Tested (N)	Percent of Medicaid-Enrolled Children Tested (%)	Number of Medicaid-Enrolled Children with EBLL≥10 (N)	Rate of Medicaid-Enrolled Children with EBLL >= 10 µg/dL per 1,000 Medicaid-Eligible Children Tested
<1	44,788	233	.52	2	9
1	39,667	4762	12.0	42	9
2	36,925	3118	8.4	42	13
3	36,266	1430	3.9	31	22
4	37,689	1194	3.2	18	15
5	38,053	940	2.5	10	11
6	37,784	398	1.1	10	25
Total	**271,172**	**12,075**		**155**	

Table 6, as well as Figure 12 (on the following page), reveals racial disparities that lie among children who receive Medicaid benefits. Due to the low number of incidents of EBLL's in the smaller groups, it's hard to analyze lead poisoning rates among demographics.

Table 6. Elevated Blood Lead Levels in Medicaid-Enrolled Children by Demographics, 2013

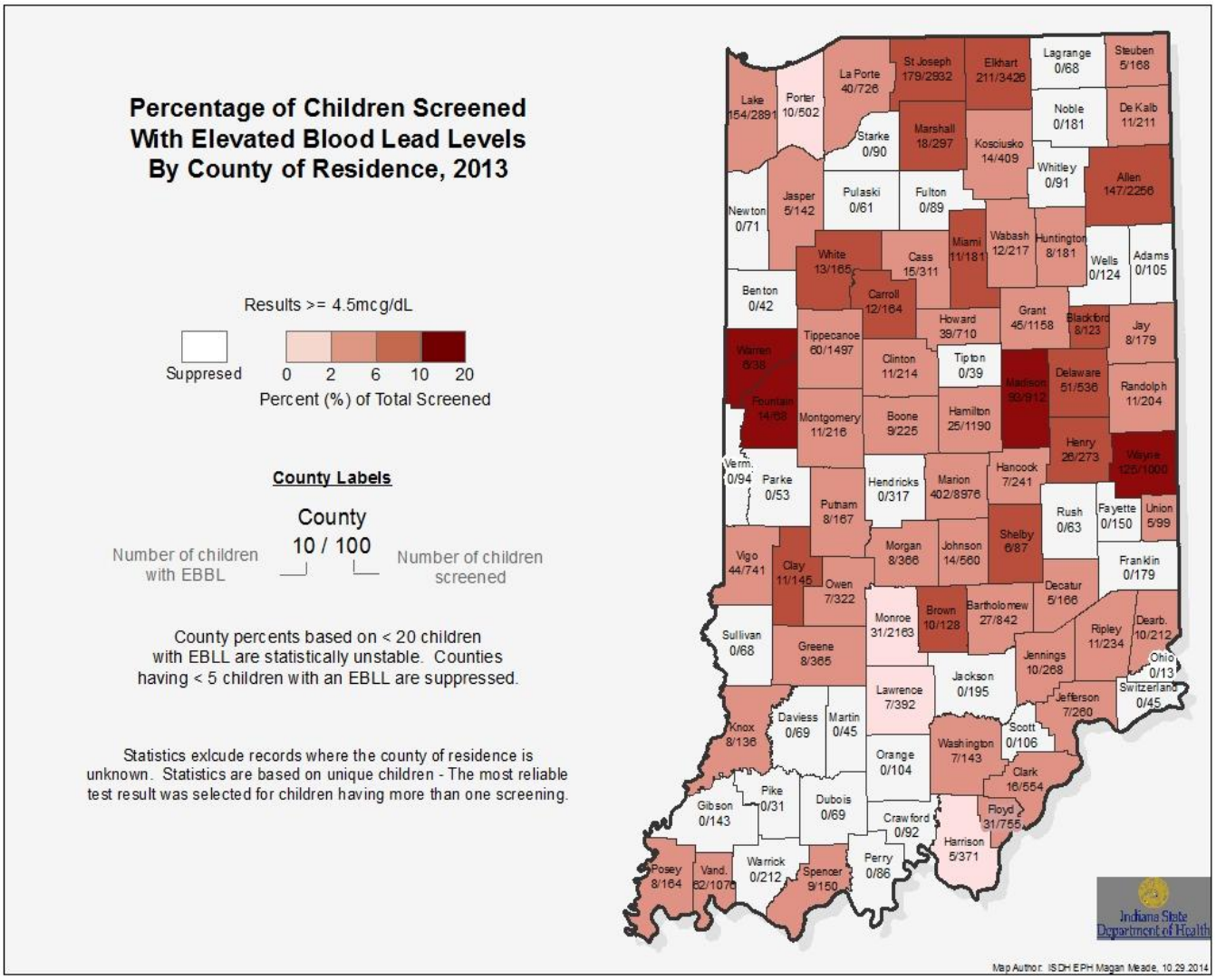
Demographic	Number of Medicaid-Enrolled Children Tested (N)	Number of Medicaid-Enrolled Children with EBLL≥10 (N)	Rate of Medicaid-Enrolled Children with EBLL >= 10 µg/dL per 1,000 Medicaid-Eligible Children Tested	Percentage of EBLL≥10µg/dL Among Each Demographic
Female	5,975	72	12	40%
Male	6,098	83	14	60%
Missing	2	0	N/A	N/A
Race				
White	6867	105	15	68%
Black	2842	32	11	21%
Asian/Pacific Islander	378	*	8	2%
Am. Indian/Alaska Native	21	*	48	1%
Other	378	*	12	1%
Unknown/Missing	1589	13	8	8%
Ethnicity				
Ethnicity: Hispanic	1837	14	8	9%
Total	**12,076**	**155**		



Elevated Blood Lead Levels by County

Indiana's lead program is implemented at the county level. Each county has its own screening and lead case management program. In figure 12, we can see the number of elevated blood lead levels for the state of Indiana by county, based on the number of children tested in that county. For counties with less than five children with an elevated blood lead level, this data is kept confidential. Suppressed counties or counties with no EBLL incidents are highlighted in white. Among the counties with the most EBLLs are Wayne, Fountain, and Warren. Counties with more screening may affect the number of EBLLs. These counties also have the majority of housing built before 1980.

Figure 12, Elevated Blood Lead Levels by County Among Unique Children Tested, 2013



2013 Indiana County Level Data

Table 7 (Required county-level data)

County	Unique Children Tested	Children with Initial EBLL[1]	Children with EBLL Capillary[2]	Children with EBLL Venous[3]	Children with Confirmed EBLL[4]	Average # Days to Confirm	Risks Assessments Performed	Hazard(s) identified	Hazard(s) remediated
Adams	107	0	0	0	0		17	7	0
Allen	2,049	27	11	17	8	14	117	93	1
Bartholome	722	9	8	*	0		20	12	0
Benton	33	0	0	0	0		1	1	0
Blackford	108	*	0	*	*		1	0	0
Boone	201	*	*	*	0		4	2	0
Brown	80	0	0	0	0		1	1	0
Carroll	127	*	*	0	0		6	0	0
Cass	281	*	*	0	0		2	2	0
Clark	507	*	*	*	*		15	10	2
Clay	196	*	0	*	*	43	2	2	0
Clinton	197	*	*	*	*		5	4	0
Crawford	75	0	0	0	0		0	0	0
Daviess	56	*	*	*	*		4	4	0
Dearborn	179	*	0	*	0		9	8	0
Decatur	142	*	0	*	0		4	2	0
Dekalb	181	*	*	*	*		1	0	0
Delaware	503	11	8	*	*		19	11	0
Dubois	76	0	0	0	0		6	0	7

County	Unique Children Tested	Children with Initial EBLL[1]	Children with EBLL Capillary[2]	Children with EBLL Venous[3]	Children with Confirmed EBLL[4]	Average # Days to Confirm	Risks Assessments Performed	Hazard(s) identified	Hazard(s) remediated
Elkhart	3,345	32	24	12	6	17	70	29	0
Fayette	139	*	*	*	0		4	2	0
Floyd	680	*	*	0	0		9	6	0
Fountain	65	7	0	7	7		9	8	0
Franklin	143	0	0	0	0		2	2	0
Fulton	68	0	0	0	0		1	0	0
Gibson	133	0	0	0	0		1	0	0
Grant	1,046	5	*	*	*		9	4	0
Greene	357	0	0	0	0		0	0	0
Hamilton	1,096	9	7	*	*	21	11	2	1
Hancock	210	*	*	*	*		9	5	0
Harrison	355	*	*	0	0		1	0	0
Hendricks	296	5	*	*	*		13	10	0
Henry	253	5	*	*	*		12	5	0
Howard	605	*	*	*	*		13	9	0
Huntington	155	0	0	0	0		2	2	0
Jackson	176	0	0	0	0		6	2	0
Jasper	148	*	0	*	*		0	0	0
Jay	150	0	0	0	0		1	1	0
Jefferson	213	*	*	*	0		18	13	0
Jennings	241	*	*	*	*		18	9	0
Johnson	479	*	*	0	0		25	13	8

County	Unique Children Tested	Children with Initial EBLL[1]	Children with EBLL Capillary[2]	Children with EBLL Venous[3]	Children with Confirmed EBLL[4]	Average # Days to Confirm	Risks Assessments Performed	Hazard(s) identified	Hazard(s) remediated
Knox	139	*	*	*	*	4	12	2	0
Kosciusko	320	*	*	0	0		6	2	0
Lagrange	60	0	0	0	0		0	0	0
Lake	2,926	25	7	18	11		135	120	0
LaPorte	590	*	*	*	0		21	15	0
Lawrence	360	0	0	0	0		19	13	2
Madison	891	17	15	*	*		33	26	0
Marion	8,805	95	41	58	45	22	323	314	178
Marshall	264	5	5	*	*	31	8	7	0
Martin	38	0	0	0	0		3	0	0
Miami	151	*	0	*	*		2	2	0
Monroe	1,975	7	*	6	5	3	8	3	0
Montgomer	204	0	0	0	0		5	1	0
Morgan	346	*	*	0	0		8	5	1
Newton	60	*	0	*	*		2	2	0
Noble	170	*	*	0	0		0	0	0
Ohio	9	0	0	0	0		2	1	0
Orange	101	*	0	*	0		3	1	0
Owen	291	0	0	0	0		1	1	0
Parke	45	0	0	0	0		0	0	0
Perry	67	0	0	0	0		0	0	0
Pike	28	0	0	0	0		1	0	0

County	Unique Children Tested	Children with Initial EBLL[1]	Children with EBLL Capillary[2]	Children with EBLL Venous[3]	Children with Confirmed EBLL[4]	Average # Days to Confirm	Risks Assessments Performed	Hazard(s) identified	Hazard(s) remediated
Porter	464	*	0	*	0		15	7	66
Posey	153	0	0	0	0		2	2	0
Pulaski	60	0	0	0	0		1	0	0
Putnam	160	0	0	0	0		1	1	0
Randolph	185	*	*	*	*	92	32	25	0
Ripley	213	*	*	*	*		23	20	32
Rush	51	*	*	0	0		17	10	0
Scott	86	0	0	0	0		3	1	0
Shelby	76	*	0	*	*		13	7	0
Spencer	147	*	*	*	0		0	0	0
St Joseph	2,794	34	16	20	13	18	155	130	0
Starke	52	0	0	0	0		2	1	0
Steuben	150	0	0	0	0		2	2	0
Sullivan	69	0	0	0	0		0	0	0
Switzerland	35	0	0	0	0		1	1	0
Tippecanoe	1,295	12	9	*	*		14	8	0
Tipton	32	0	0	0	0		0	0	0
Union	70	*	*	0	*	2	2	2	0
Vanderburg	1,027	23	9	18	12	30	22	14	3
Vermillion	91	*	0	*	*		8	6	0
Vigo	763	8	*	6	*		10	6	0
Wabash	182	*	*	*	*		1	1	0

County	Unique Children Tested	Children with Initial EBLL[1]	Children with EBLL Capillary[2]	Children with EBLL Venous[3]	Children with Confirmed EBLL[4]	Average # Days to Confirm	Risks Assessments Performed	Hazard(s) identified	Hazard(s) remediated
Warren	37	*	*	0	0		0	0	0
Warrick	192	0	0	0	0		5	2	0
Washington	116	0	0	0	0		5	1	29
Wayne	916	27	12	17	11	46	33	29	0
Wells	111	*	*	0	0		3	1	0
White	163	*	0	*	*		22	13	0
Whitley	84	0	0	0	0		5	3	0
Unknown	1,271	8	*	8	10	17	16	0	0
Indiana	**45,058**	**451**	**230**	**250**	**181**	**26**	**1473**	**1089**	**330**

*Suppressed data due to confidentiality.

[1]Unique children with blood levels >=10 (Venous or Capillary).
[2]Unique children with blood levels >=10 (Capillary).
[3]Unique children with blood levels >=10 (Venous).
[4]Unique children with confirmed lead poisoned (1 venous or 2 capillaries (within 84 days) or 1 capillary followed by venous) for first time confirmed children only.

Glossary

The sources for these definitions are the Medical Dictionary Online (http://www.online-medical-dictionary.org/) noted as [1], the Centers for Disease Control and Prevention Epidemiology Glossary (http://www.cdc.gov/reproductivehealth/epiglossary/glossary.htm#I) noted as [2], The Free Dictionary (http://www.thefreedictionary.com/) noted as [3], the National Center for Healthy Housing (http://www.nchh.org/What-We-Do/Healthy-Homes-Principles.aspx) noted as [4], the Centers for Disease Control and Prevention Lead home page (http://www.cdc.gov/nceh/lead/) noted as [5], the online article "The Biochemistry and physiology of vitamin D" (http://vitamind.ucr.edu/biochem.html), noted as [6].

Anemia: Reduction in the number of circulating red blood cells. [1]

Atrophy: Decrease in the size of a cell, tissue, or organ associated with pathological conditions. [1]

Blood/brain barrier: Specialized cells that form a transport barrier between the cerebral capillaries and the brain tissue. [1]

Case management: Traditional term for all the activities which a physician or other health care professional normally performs to insure the coordination of the medical services required by a patient so that care is continuous and comprehensive. [1]

Colic: Syndrome with intermittent abdominal pain characterized by sudden onset and cessation. This condition usually occurs in the abdominal region but may occur in other body regions as well. [1]

Confirmed test: A second capillary or a single venous test performed to confirm a blood lead level.

Deciliter: A metric unit of volume equal to one tenth of a liter. [3]

Elevated blood lead level (EBLL): An elevated blood lead level in a child is defined as 10 or more micrograms of lead per deciliter (µg/dL) of blood. [5]

Encephalopathy: Any degenerative disease of the brain (often associated with toxic conditions). [3]

Incidence: A measure of the frequency with which an event, such as a new case of illness, occurs in a population over a period of time. [2]

Interstitial nephritis: Inflammation of the interstitial tissue of the kidney, inflammation of kidney tubules. [1]

Lead poisoning: Lead poisoning occurs when blood lead levels are equal to or greater than 10 µg/dl (micrograms per deciliter). [5]

Medicaid-eligible: Those children who are enrolled in Medicaid but who may or may not have used Medicaid services.

Microgram: A unit of mass equal to one thousandth (10^{-3}) of a milligram or one millionth (10^{-6}) of a gram. [3]

Primary prevention: Prevention of disease in susceptible individuals or populations through promotion of health and specific protection, such as immunization, as distinguished from the prevention of complications or after-effects of existing disease. [1]

Proportion: A type of ratio in which the numerator is included in the denominator. The ratio of a part to the whole, expressed as a ``decimal fraction'' (e.g., 0.2), as a fraction (1/5), or, loosely, as a percentage (20%). [2]

Risk assessment: The qualitative or quantitative estimation of the likelihood of adverse effects that may result from exposure to specified health hazards. [1]

Seven principles of healthy housing: Homes that are *Dry***:** Damp houses provide a nurturing environment for mites, roaches, rodents, and molds, all of which are associated with asthma; *Clean:* Clean homes help reduce pest infestations and exposure to contaminants; *Pest-Free:* Recent studies show a causal relationship between exposure to mice and cockroaches and asthma episodes in children; yet inappropriate treatment for pest infestations can exacerbate health problems, since pesticide residues in homes pose risks for neurological damage and cancer; *Safe:* The majority of injuries among children occur in the home. Falls are the most frequent cause of residential injuries to children, followed by injuries from objects in the home, burns, and poisonings; *Contaminant-Free:* Chemical exposures include lead, radon, pesticides, volatile organic compounds, and environmental tobacco smoke. Exposures to asbestos particles, radon gas, carbon monoxide, and second-hand tobacco smoke are far higher indoors than outside; *Ventilated:* Studies show that increasing the fresh air supply in a home improves respiratory health; *Maintained:* Poorly-maintained homes are at risk for moisture and pest problems. Deteriorated lead-based paint in older housing is the primary cause of lead poisoning, which affects some 240,000 U.S. children. [4]

Surveillance: The systematic collection, analysis, interpretation, and dissemination of health data on an ongoing basis, to gain knowledge of the pattern of disease occurrence and potential in a community, in order to control and prevent disease in the community. [2]

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[1] http://www.cdc.gov/nceh/lead/

[2] http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_3YR_DP04&prodType=table