



State of Illinois
Illinois Department of Public Health

ILLINOIS LEAD PROGRAM 2019 ANNUAL SURVEILLANCE REPORT



October 2019

Dear Colleagues,

The Illinois Department of Public Health (IDPH) is pleased to present the 2019 annual Surveillance Report on childhood lead-poisoning prevention activities within the state. The goals of the Illinois Lead Program are:

- Primary prevention.
- Early detection through blood lead testing and surveillance.
- Provide ongoing case management and environmental services to children who have been exposed to lead.
- Coordinate care and services with other agencies for children and families.

There is no safe level of lead in the body. Childhood lead exposure is known to contribute to learning disabilities, to developmental delays, to behavioral problems and to other negative health effects.

Public Act 100-0723 of 2019, requires public health intervention at blood lead levels of 5 µg/dL or greater. In 2019, IDPH had grant agreements with 101 local health departments or delegate agencies to provide case management care for lead-exposed children in 97 of 102 counties. Additionally, 31 of the delegate agencies also had grant agreements to provide environmental investigation services. IDPH provided services to five counties with no delegate agency.

The burden of Illinois childhood lead exposure remains one of the highest in the nation. Illinois law requires reporting of all blood lead tests to IDPH. Of approximately 237,000 children tested in 2019, more than 7,000 had blood lead levels at the public health intervention level.

This report is intended to serve as a standard public reference for legislators; decision-makers; community-based organizations; city, state, and federal agencies; as well as health professionals, researchers, and all who seek information on lead poisoning prevention in Illinois.

The Illinois Lead Program looks forward to a continued collaboration with local health departments and other federal, state, and local partners.

Very truly yours,



Ngozi Ezike, M.D.

Director

PROTECTING HEALTH, IMPROVING LIVES

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To report the results of all blood lead tests or
for more information about the elimination of childhood lead poisoning, contact the
Illinois Lead Program at 866-909-3572 or 217-782-3517 or visit dph.illinoislead.gov
The hearing impaired may dial 800-547-0466

Scope of the Illinois Lead Program Surveillance

- Estimate the extent of elevated blood-lead levels among Illinois children
- Monitor and promote the follow-up of children with elevated blood-lead levels
- Identify potential sources of lead exposure
- Help allocate resources for lead poisoning prevention activities
- Provide information for education and policy

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ACRONYMS AND SYMBOLS USED IN THIS ANNUAL REPORT

<i>ABLR</i>	<i>Adult Blood Lead Registry</i>
<i>ACOG</i>	<i>The American College of Obstetricians and Gynecology</i>
<i>BLL</i>	<i>Blood Lead Level</i>
<i>CDC</i>	<i>U.S. Centers for Disease Control and Prevention</i>
<i>CLIA</i>	<i>Clinical Laboratory Improvement Amendments</i>
<i>CLRQ</i>	<i>Childhood Lead Risk Questionnaire</i>
<i>CPSC</i>	<i>Consumer Product Safety Commission</i>
<i>FDA</i>	<i>U.S. Food and Drug Administration</i>
<i>IDPH</i>	<i>Illinois Department of Public Health</i>
<i>DHS</i>	<i>Illinois Department of Human Services</i>
<i>EBLL</i>	<i>Elevated Blood Lead Level</i>
<i>HFS</i>	<i>Illinois Department of Healthcare and Family Services</i>
<i>HHPSS</i>	<i>Healthy Homes and Lead Poisoning Surveillance System</i>
<i>HUD</i>	<i>U. S. Department of Housing and Urban Development</i>
<i>IHDA</i>	<i>Illinois Housing and Development Authority</i>
<i>IVRS</i>	<i>Illinois Vital Records System</i>
<i>IQ</i>	<i>Intelligence Quotient</i>
<i>LSL</i>	<i>Lead service line</i>
<i>OSHA</i>	<i>Occupational Safety and Health Administration</i>
<i>Ppb</i>	<i>Parts per billion</i>
<i>Program</i>	<i>Illinois Lead Program</i>
<i>U.S. EPA</i>	<i>U. S. Environmental Protection Agency</i>
<i>µg/dL</i>	<i>Micrograms per deciliter</i>
<i>WIC</i>	<i>Special Supplemental Nutrition Program for Women, Infants, and Children</i>
<i>≥</i>	<i>Greater than or equal to</i>

DEFINITIONS

Act: Illinois Lead Poisoning Prevention Act

Capillary blood draw: Blood samples collected by finger-stick method

Case Management: Activities that involves coordinating, providing, and overseeing the services required to reduce blood lead levels.

Child: A person under the age of 16. In this report emphasis is placed on children 6 years of age or younger at the time of testing except as otherwise stated.

Code: Illinois Lead Poisoning Prevention Code

Community water system: A public water system that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents for at least 60 days a year.

Confirmed blood lead level: A blood lead level resulting from a single venous blood test. Elevated capillary blood test results shall be confirmed by a venous test.

Delegate Agency: Unit of local government or health department approved by IDPH to carry out provisions of the Act and Code.

Elevated blood lead: Blood lead level ≥ 5 $\mu\text{g}/\text{dL}$

Evaluation: Administration of Childhood Lead Risk Questionnaire (CLRQ) to parent by a health care provider.

HHL PSS: Is a centralized web-based system that provides more immediate access to test results and collaboration between IDPH and its delegate agencies. HHL PSS provides tools for Program and delegate agencies to track and manage blood lead surveillance; environmental investigations, abatement or mitigation; and case management activities.

Housing unit: A house, apartment, mobile home, group of rooms, or single room that is occupied or intended for occupancy.

Lead service line: A service line constructed of lead or containing lead.

Medical assistance programs: The authorized Social Security Acts of Title XIX that include Medicaid, All Kids, and Moms & Babies <https://www.illinois.gov/hfs/MedicalPrograms/AllKids/Pages/default.aspx>.

Non-community water system: A public water system that is not a community water system, that has at least 15 service connections used by non-residents, or regularly serves 25 or more non-resident individuals daily for at least 60 days a year and includes vending machines.

Non-transient non-community water system: A non-community water system that regularly serves the same 25 or more persons at least six months a year.

Percentage of children tested: Children tested for blood lead divided by population of children multiplied by 100.

Service Line: Piping from the source of a private water supply on the premises or from the main in the street, alley, or at the curb to within and about any building or buildings where a person or persons live, work, or assemble. It does not mean water distribution piping in the building or facility (225 ILCS 320/2).

Test: The quantifiable result of a blood lead drawn on a child.

EXECUTIVE SUMMARY

This is the Illinois Lead Program's 26th annual surveillance report of childhood lead poisoning prevention activities within the state of Illinois and encompasses information for the period of January through December 2019. This report is intended to serve as a standard reference for legislators; community-based organizations; city, state, federal agencies; as well as health care professionals and researchers who seek information on lead poisoning prevention in Illinois.



ACT and CODE The Illinois Lead Poisoning Prevention [Act](#) [410 ILCS 45], authorizes IDPH's Office of Health Protection, Division of Environmental Health, Lead Program, to promulgate, administer, and enforce the Illinois Lead Poisoning Prevention [Code](#) (77 IL. Admin Code 845). Public Act 100-0723 of 2019, now requires public health intervention at confirmed blood lead levels ≥ 5 $\mu\text{g}/\text{dL}$.

Delegate Agencies In 2019, IDPH had grant agreements with 101 local health departments or delegate agencies to provide case management care for lead-exposed children in 97 of 102 counties. Additionally, 31 of the delegate agencies also had grant agreements to provide environmental investigation services. IDPH provided services to five counties with no delegate agency.

Challenge There is no safe level of lead in the body. Lead exposure is one of the most prevalent yet preventable environmental health hazards. Lead is a neurotoxin that can affect the brain and nervous system. Childhood lead exposure contributes to learning disabilities, developmental delays, behavioral problems, and other negative health effects.

Lead Burden Childhood lead exposure in Illinois remains one of the highest in the nation. In 2019, more than **7,000** Illinois children tested had elevated blood lead levels (EBLL) ≥ 5 $\mu\text{g}/\text{dL}$ and more than 4,000 were confirmed by a venous test.

Children at Highest Risk Those with persistent hand-to-mouth behaviors, especially those 3 years of age and younger; access to lead-containing products; and those residing in or frequently visiting pre-1978 housing. **Fifty-eight** percent of pre-1978 housing units have lead-based paint and 68% of those have significant lead-based paint hazards.

Mission The mission of the Program is to eliminate the incidence of childhood and prenatal lead exposure.

Vision The vision of the Program is to provide a lead-safe environment for all children and pregnant persons.

GOALS

- Prevent childhood and prenatal lead exposure through community and health care provider education and public awareness campaigns
- Identify children and pregnant persons exposed to lead, provide prompt interventions to reduce EBLLs, and improve health and developmental outcomes

Funding The Program is currently supported by the Lead Poisoning Screening, Prevention, and Abatement Fund; Illinois State General Revenue Funds; U.S. Centers for Disease Control and Prevention (CDC); the U.S. Environmental Protection Agency (U.S. EPA); and U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services.

Key Facts on Illinois Childhood Lead Poisoning Surveillance According to the CDC Wonder national data system, there were an estimated 1 million children 6 years of age and younger in Illinois and approximately 237,000 were tested

for blood lead in 2019. Amongst the 24% children tested:

- Approximately 55% had received a blood lead test at least once in their lifetime.
- About 55% had at least one venous blood lead test.
- BLLs in children averaged 2.1 µg/dL.
- Of the 7,000 (3%) children tested in 2019 with BLLs ≥5 µg/dL for public health intervention:
 - ▶ 59% had a confirmatory venous test and 41% were capillary tests.
 - ▶ 60% were 2 years of age or younger.
 - ▶ 69% benefited from programs administered by Medicaid.
 - ▶ 44% were Black or African American, 32% White, 10% Hispanics, 5% Asians, and 9% other.
- Of almost 264,000 total tests analyzed, 4.2% had BLLs ≥5 µg/dL (test positivity).
- Approximately 60% of the 4.9 million occupied housing units in Illinois were built prior to the lead-paint ban of 1978.

CDC is dedicated to eliminating childhood lead poisoning as a public health problem through strengthening blood lead testing, reporting, and surveillance, linking exposed children to recommended services, and targeted population-based interventions.

<https://www.cdc.gov/nceh/lead/default.htm>

Figure 1: Illinois Lead Program Activities and Outcomes

INPUTS

Governor's Cabinet on Children and Youth
 Delegate agencies
 Strategic plan
 Financial resources (CDC, EPA, COIIN, State)
 Inter/Intra Agency Data Sharing Agreements with HFS (Medicaid) and DHS (WIC), DCEO, University of Chicago
 Illinois Lead Poisoning Prevention Code/Act
 High-risk ZIP codes
 Public Health Home Visit and Environmental Health Assessment Data (HHLPSS, EDW, CENSUS, CDC, IVRS, I-Care)
 Technical support (CDC surveillance support, DoIT), SAS, GIS, SQL
 Adult Blood Lead Epidemiology and Surveillance (ABLR)
 MCEH COIIN
 Maternal and Child Health Collaborative Improvement and Innovation Network

ACTIVITIES

Subcontract with 92 delegate agencies from 94 of 102 counties.
 Collaborate through MOUs, intra/interagency agreements and COIIN.
 Primary Prevention: Educate/train/create public awareness
 Illinois Lead Program Training Course by IDPH staff
 Intervention: Identify and test at-risk population.
 Follow-up home visit and environmental investigations.
 Identify, assess, prevent, refer, or remediate emerging sources of lead hazards.
 Families resources referrals
 Implement HHLPSS and collaborate with CDC for technical assistance.
 Share quarterly surveillance with CDC.
 Manage and analyze data.
 Reference information from other databases (Medicaid, WIC, ABLES, CENSUS, Refugees, housing, I-CARE, IVRS).
 Partner with federal authorities to develop a plan of action to enforce housing and health codes (CDC, HUD, EPA).
 Update Act/Code

OUTPUT

- Strategic partnerships and collaboration
- Education/outreach, case management, and Environmental interventions
- HHLPSS statewide access
- Annual Surveillance Report
- Compliance with federal and state laws

OUTCOME

SHORT-TERM GOALS
 Identify lead exposed children and pregnant persons and provide prompt interventions

LONG-TERM GOALS
 Prevent childhood and prenatal lead exposure through public awareness and intervention

IMPACT
 Elimination of elevated blood lead levels in children and pregnant people.

STAKEHOLDERS:

- General Public
- Public Universities - UIS, U of Chicago, UIC
- Local Entities - Local health departments, housing authority, schools, hospitals, organizations
- State Government - General Assembly, governor, states attorneys, attorney general, IDPH, IHDA, IDHS, HFS, IEPA, ISBE, DCEO, IDFPR
- Federal Government - Congress, CMS, USEPA, HHS-CDC, HUD, USDA, FDA, CPSC

LEAD POISONING

CHILDHOOD LEAD POISONING
IN ILLINOIS REMAINS ONE OF
THE HIGHEST IN THE NATION



THERE IS NO SAFE LEVEL
OF LEAD IN THE BODY



LEAD POISONING CAN
AFFECT A CHILD'S ABILITY
TO THINK LEARN AND
BEHAVE.

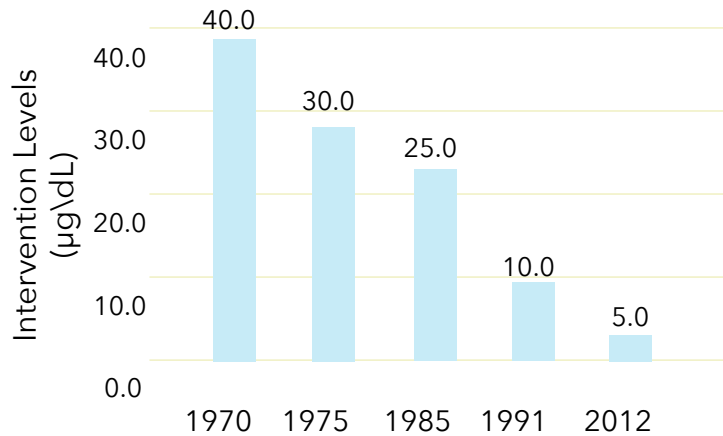


THE ONLY WAY TO KNOW IF
A CHILD IS LEAD POISONED
IS TO GET TESTED

In Illinois, it is estimated that approximately 60,109 children are likely to have elevated blood lead levels (EBLL)

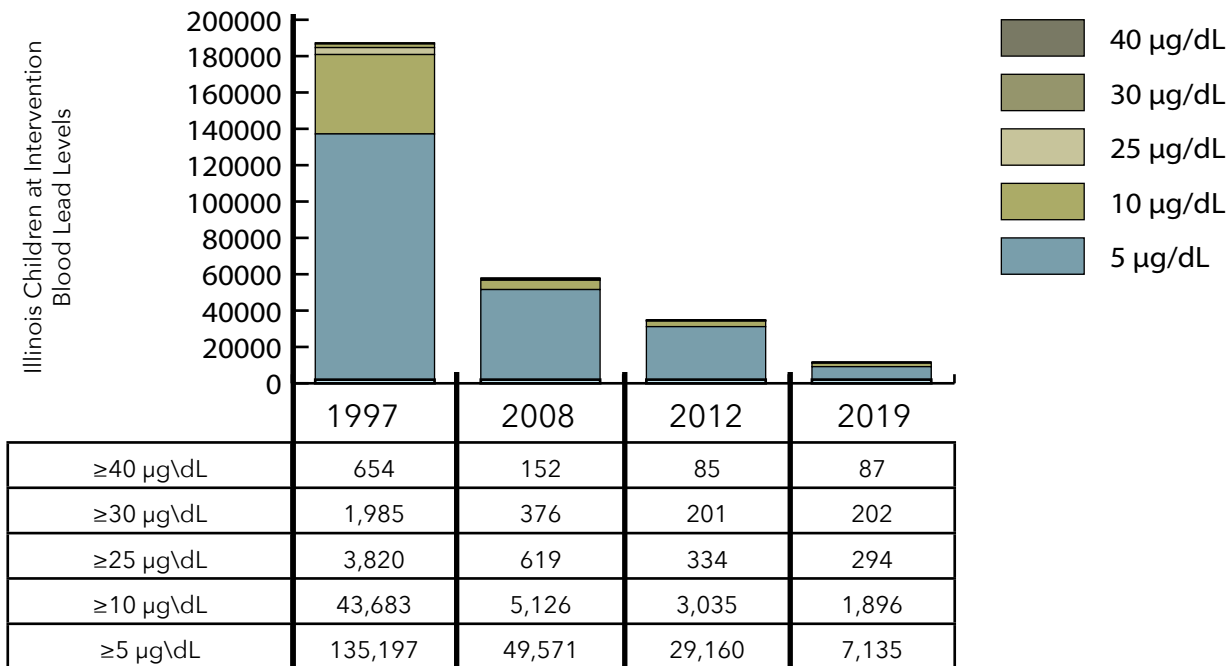
CHANGES IN BLOOD LEAD LEVELS FOR PUBLIC HEALTH INTERVENTION

Figure 2: CDC Recommended Intervention Levels through the Years



Reference level as established by the CDC is the recommended blood lead level that triggers public health intervention. Figure 2 shows how the intervention level has evolved through the years.

Figure 3: Illinois Children Tested at Different Intervention Across Time: 1997-2019



The number of Illinois children with BLLs at intervention levels has decreased with time. In 2019, 87 children had lead levels ≥ 40 µg/dL compared to 654 children in 1997 (Figure 3).

Regulations that mandated removal of lead from food canning, gasoline, new residential paint, plumbing, and other sources significantly contributed to the decrease in childhood lead poisoning.

SOURCES OF LEAD EXPOSURE

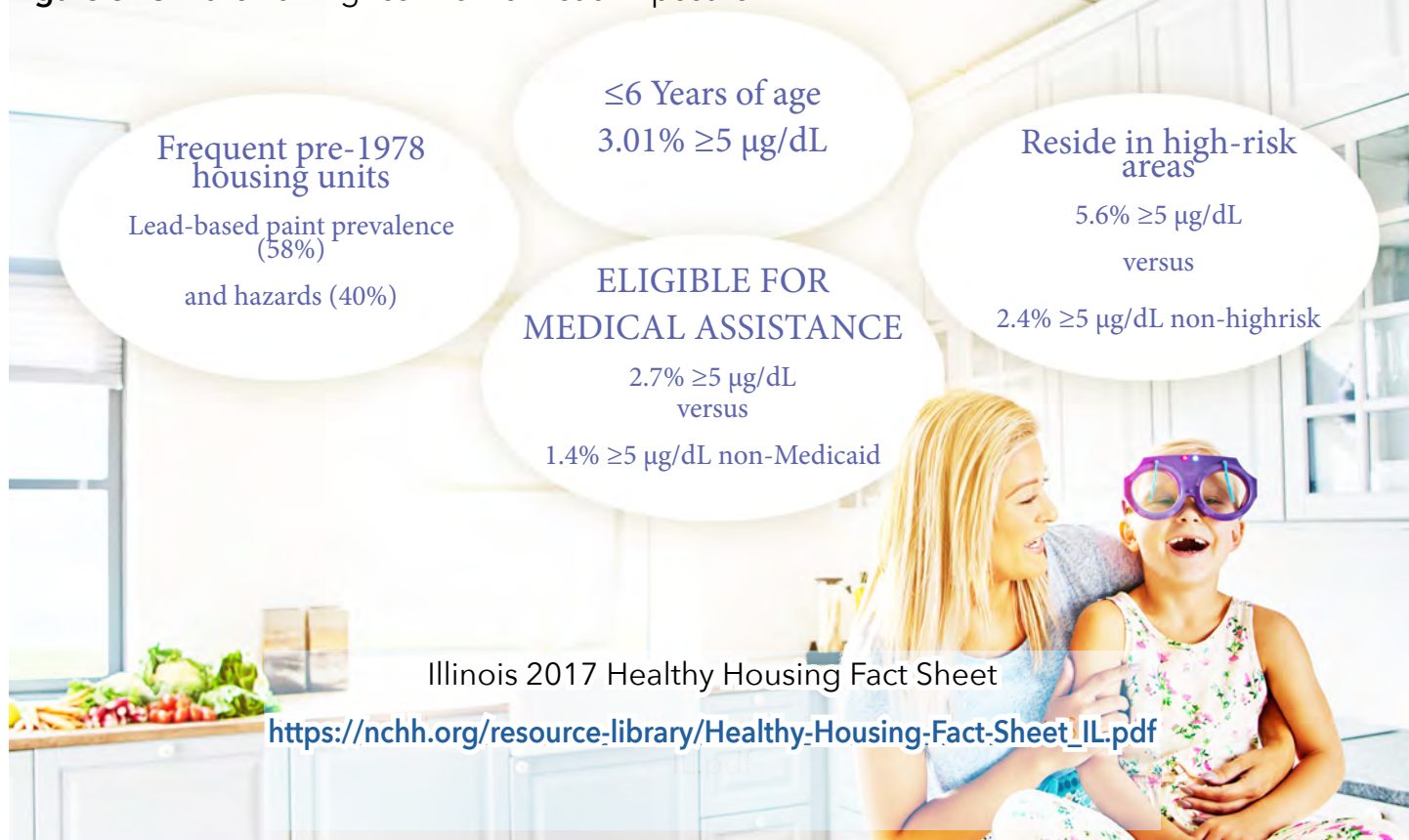
Figure 4: Sources of Lead Exposure



For more information about sources of lead exposure, refer to the following websites: ; <https://www.cdc.gov/nceh/lead/default.htm>

CHILDREN AT HIGHEST RISK FOR LEAD EXPOSURE

Figure 5: Children at Highest Risk for Lead Exposure



Illinois 2017 Healthy Housing Fact Sheet

https://nchh.org/resource-library/Healthy-Housing-Fact-Sheet_IL.pdf

LEAD IN WATER

Go to: <http://dph.illinois.gov/topics-services/environmental-health-protection/lead-in-water>

LEAD PREVALENCE AND PRE-1978 HOUSING

Table 1: Estimates of Pre-1978 Housing Units with Lead Hazards in Illinois

Year Structure Built	Illinois Estimate	Prevalence of Lead-based Paint ²		Significant Lead-based Paint Hazard Like contaminated dust or soil ¹	
		% Prevalence	Illinois Units	% Hazard	Illinois Units with Lead Hazards
1960 to 1977	1,258,628	23.8	299,553	7.7	96,914
1940 to 1959	980,370	73.7	722,533	48.7	477,440
Pre-1940	1,137,000	82.6	939,162	68.5	778,845
Pre-1978	3,375,998	58.1	1,961,248	40.1	1,353,200

Older homes with deteriorated lead paint continue to be the primary source of lead exposure in Illinois. Approximately 63% of the 5.3 million Illinois housing units were built prior to the residential lead paint ban of 1978. Based on a national survey, 58% of pre-1978 Illinois housing units have lead-based paint and 40% have significant lead-based paint hazards like contaminated dust or soil (Table 1).

Source: U.S. Census Bureau, 2019 American Community Survey one-year estimate Year Structure Built Table B25034 , 1Table 5-1; 2Table 4-1, American Healthy Homes Survey, 2011: http://portal.hud.gov/hudportal/documents/huddoc?id=AHHS_REPORT.pdf

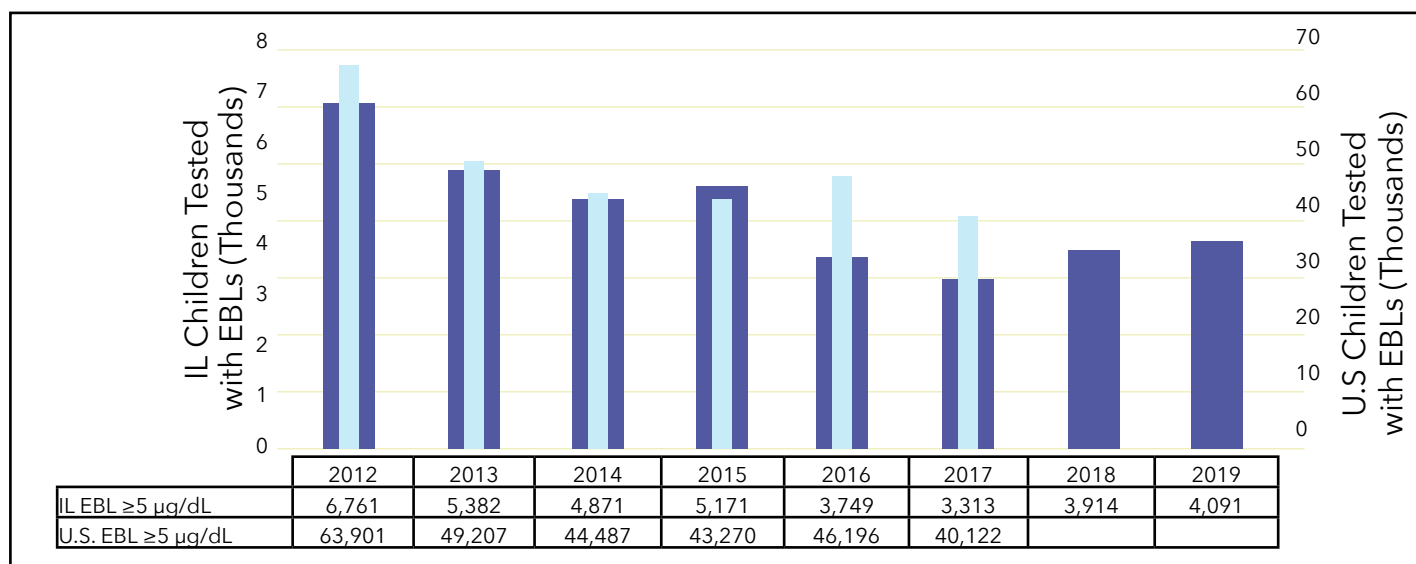
For Illinois counties estimates of pre-1978 housing units with lead hazards, [click here for appendix 1](#).

Each dollar invested in lead hazard control yields returns between \$17-\$221, through reduced crime, increased taxable income, lower health care costs and other social and economic benefits.

(Source: *Childhood lead poisoning: conservative estimates of the social and economic benefits of lead hazard control* E Gould - *Environmental Health Perspectives*, 2009 - <https://www.ncbi.nlm.nih.gov/>)

ILLINOIS AND U.S. CHILDHOOD BLOOD LEAD PREVALENCE: 2012 - 2019

Figure 6: Illinois and U.S. Children with Elevated Blood Lead Levels 2012 - 2019

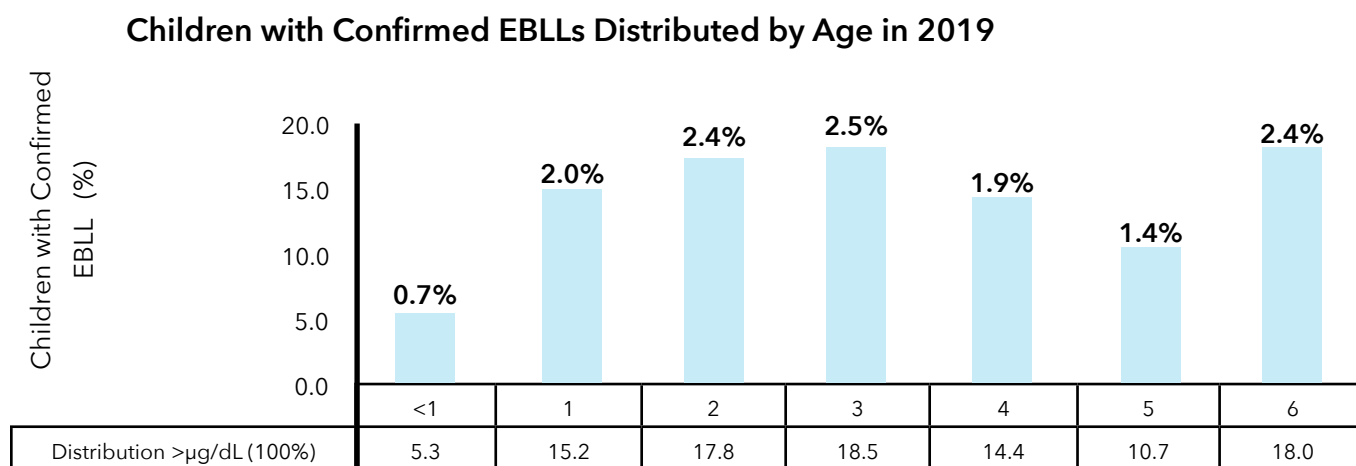


DATA SOURCE: Illinois Lead Program Surveillance Data, 2018-2019; Illinois and United States average 2012-2017 based on data reported by the CDC at <http://www.cdc.gov/nceh/lead/data/national.htm>.

Illinois and U.S. continue to make progress in reducing childhood blood lead exposure. Nearly 10% of children with elevated lead levels reside in Illinois. Figure 6 represents children 5 years of age and younger at time of testing with BLL ≥ 5 $\mu\text{g}/\text{dL}$. Illinois BLLs ≥ 5 $\mu\text{g}/\text{dL}$ has significantly decreased from 6,761 in 2012 to 3,313 in 2017. Note: In order to compare with national data compiled by CDC this figure only includes children 5 years of age and younger. For details on blood lead testing in Illinois, Chicago, and the United States, click [appendix 4 here](#).

BLOOD LEAD LEVELS BY AGE

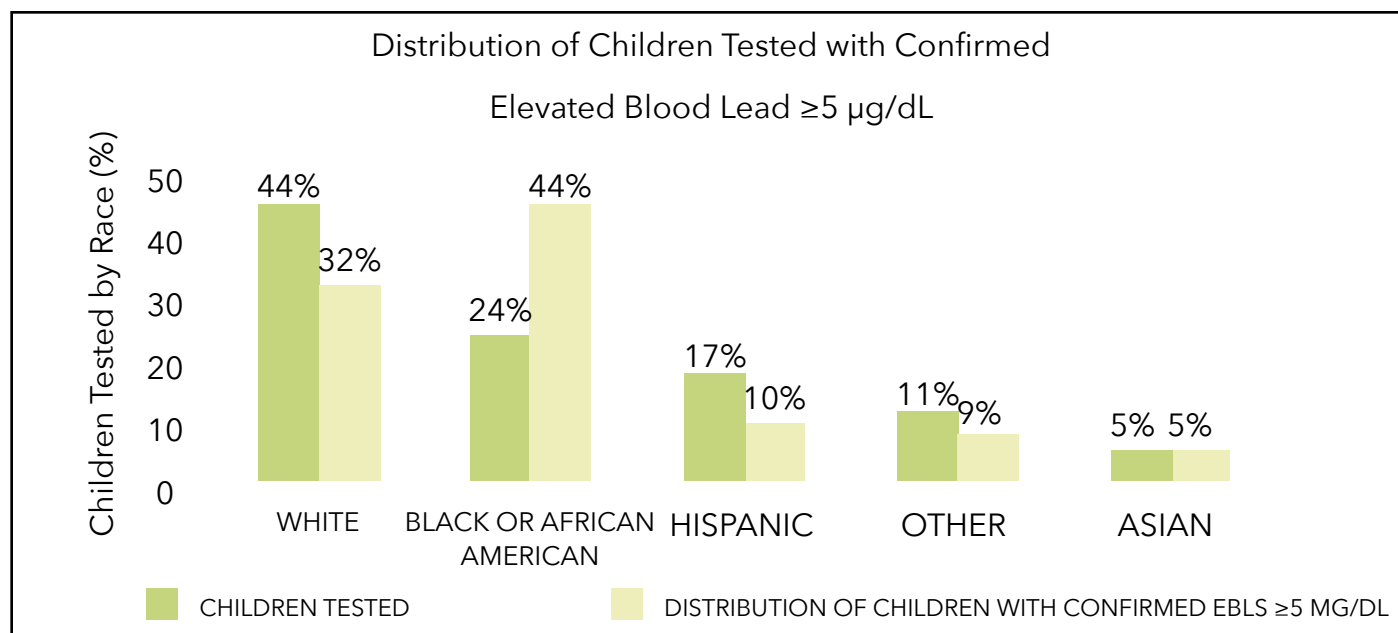
FIGURE 7: Children with Confirmed Elevated Blood Lead Levels by Age



DATA SOURCE : Illinois Department of Public Health – Healthy Homes and Lead Poisoning Surveillance (HHL PSS) Database, 2019. Confirmed EBLLs only include venous blood lead test results. For more details on blood lead levels by age click here for [appendix 2](#). Illinois law requires physicians to perform a blood lead test on all children 6 years of age or younger who live in a high-risk area. Children are required to be evaluated for lead exposure if they reside in a low-risk area. Approximately 40% of Illinois children reside in high-risk areas. A total of 8,546 children 7 to 15 years of age were also tested for blood lead in 2019. Of the 526 children in this age group with BLLs $\geq 5\mu\text{g}/\text{dL}$, 46% were confirmed by a venous test. For newly confirmed cases identified for the first time in 2019, click here for [appendix 5](#).

BLOOD LEAD LEVELS BY RACE

Figure 8: Children with Confirmed EBLs ≥ 5 $\mu\text{g}/\text{dL}$ Distributed by Race in 2019



Data Source: Illinois Department of Public Health - Healthy Homes and Lead Poisoning Surveillance System

Black or African American children are disproportionately affected by lead exposure. Although they have a low testing rate (32%), they still remain the highest percentage of children with EBL's (44%), making them the only race with a higher incident of EBL's than testing rate.

Comparatively, children in other race categories tested as follows:

White: 44% of all children tested, 32% of all children with a confirmed EBLs ≥ 5 $\mu\text{g}/\text{dL}$ were white.

Hispanic: 17% of all children tested, 10% of all children with a confirmed EBLs ≥ 5 $\mu\text{g}/\text{dL}$ were Hispanic.

Asian: 5% of all children tested, 5% of all children with a confirmed EBLs ≥ 5 $\mu\text{g}/\text{dL}$ were Asian.

Other/Unidentified: 11% of all children tested, 9% of all children with a confirmed EBLs ≥ 5 $\mu\text{g}/\text{dL}$ were classified as "Other/Unidentified."

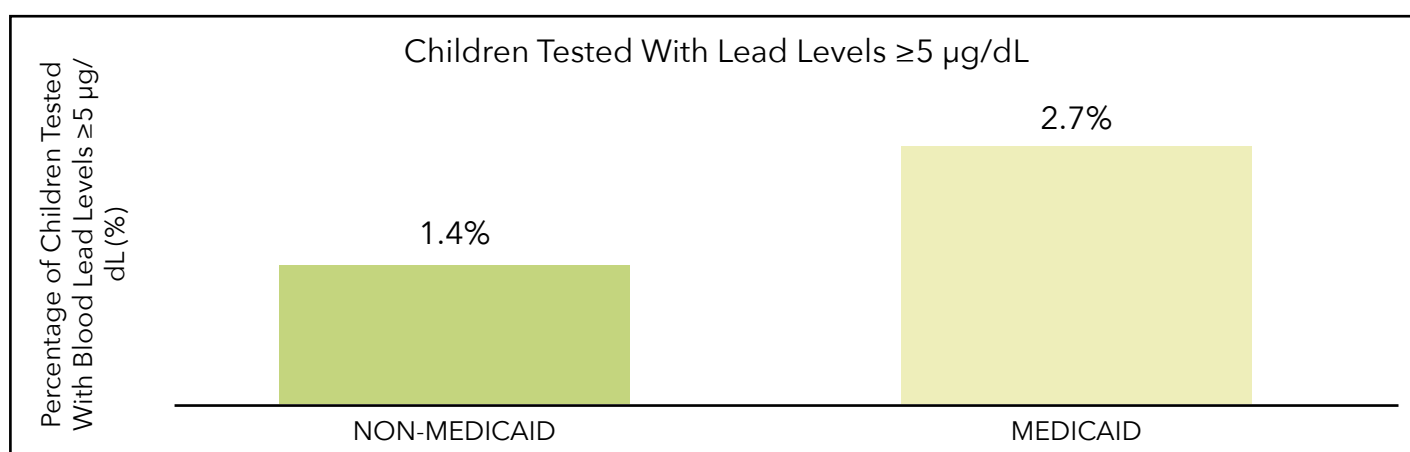
Additionally, looking at the percentage of children with confirmed EBLs ≥ 5 $\mu\text{g}/\text{dL}$ in each race category further shows the disproportionate effect of lead exposure to Black or African American children. Of the 55,810 Black or African American children tested, **4.5%** had confirmed EBLs ≥ 5 $\mu\text{g}/\text{dL}$, more than twice of any other race group tested. Of the 103,000 Whites tested, **1.8%** had confirmed EBLs ≥ 5 $\mu\text{g}/\text{dL}$. Of the 11,000 Hispanics tested, **1.4%** had confirmed EBLs ≥ 5 $\mu\text{g}/\text{dL}$.

For more details on blood lead levels by race/ethnicity, click [appendix 3 here](#)

LEAD LEVELS OF CHILDREN BY MEDICAID STATUS

State and federal mandates require all children enrolled in HFS' medical programs to be considered at-risk for lead exposure and to receive a blood lead test prior to 12 and 24 months of age. If a child is 3-6 years of age and has not been tested, a blood lead test is required. All children enrolled in HFS medical programs are expected to be tested regardless of where they live.

Figure 9: Medicaid and Non-Medicaid Children Tested with Elevated Blood Lead Levels in 2019



Data source: Illinois Department of Public Health - HHLPS and the Illinois Department of Healthcare and Family Services Enterprise Data Warehouse

Of all children tested, approximately 69% were Medical Assistance Program recipients in 2019. Of the Medicaid recipients tested, 2.7% had lead levels $\geq 5 \mu\text{g/dL}$ compared to 1.4% for non-recipients. Of all children tested with confirmed BLLs $\geq 5 \mu\text{g/dL}$, 82% were Medicaid-enrolled and 18% were non-Medicaid. Figure 9 highlights the difference between elevated blood lead levels based on Medicaid eligibility status.

For Medicaid and non-Medicaid enrolled children tested for blood lead by county [click appendix 6 here](#). For more information on providers who test for blood lead go to:

<https://www.illinois.gov/hfs/MedicalProviders/NonInstitutional/Pages/ProviderBloodLead.aspx>

For information on the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), read

WIC Participation and Blood Lead Levels among Children 1-5 Years: 2007-2014 <https://ehp.niehs.nih.gov/EHP2384/>

BLOOD LEAD LEVELS IN REFUGEE CHILDREN

Table 2: BLLs in Refugee Children ≤6 Years of Age in 2019

Number of Refugee Children	N	%
Total number of refugee children who completed the initial health assessment.	207	
Children who completed the initial health assessment, including a blood lead test.	191	92.3%
Children with EBLL ≥5 µg/dL.	40	20.9%

Data source: Illinois Department of Public Health - Center for Minority Health, 2019. IDPH Minority Health’s Refugee Health Assessment Program monitors the testing of refugee children for blood lead exposure following CDC guidelines as part of the initial domestic refugee health assessment.

Illinois Refugee Health Program: <https://www.cdc.gov/immigrantrefugeehealth/guidelines/lead-guidelines.html>



Beware of lead in some cultural products, e.g., pay-loo-ah, daw tway gaw mo, greta, azarcon, litargirio, surma, tiro (tozali or kwalli), lozeena, tamarind, lead-glazed ceramics, make-up and beauty products.

ADULT BLOOD LEAD REGISTRY

The Program and Adult Blood Lead Registry (ABLR) comprise the Illinois blood lead surveillance (Figure 10).

Figure 10: Illinois Blood Lead Surveillance Programs

PROGRAM

CHILDREN 15 YEARS
OF AGE AND YOUNGER

ILLINOIS BLOOD LEAD SURVEILLANCE

ABLR
16 YEARS OF AGE
AND OLDER

Adult Blood Lead Registry (ABLR), maintained by Division of Epidemiologic Studies, collects blood lead data for adults 16 years of age and older and notifies federal enforcement agencies to trigger inspections and/or interventions. ABLR made eight referrals to the Occupational Safety and Health Administration (OSHA) for eight companies with employees who had BLL ≥ 40 $\mu\text{g}/\text{dL}$ in calendar year 2019.

Illinois Health and Hazardous Substances Registry Annual Reports, Section 5.1: <https://dph.illinois.gov/content/dam/soi/en/web/idph/files/publications/fy20ihhsannualreport112320final.pdf>

[Distributions and Trends in Elevated Blood Lead Levels in Adults - Illinois, 2005-2017](#)



Data on 14,000 adults showed that an increase of 1 to 6.7 micrograms of lead per deciliter of blood (5 $\mu\text{g}/\text{dL}$) was significantly associated with an increase in mortality of 37% for all-causes, 70% for cardiovascular, and 108% for ischemic heart disease..... Lanphear et al., 2018

BLOOD LEAD TESTING DURING PREGNANCY

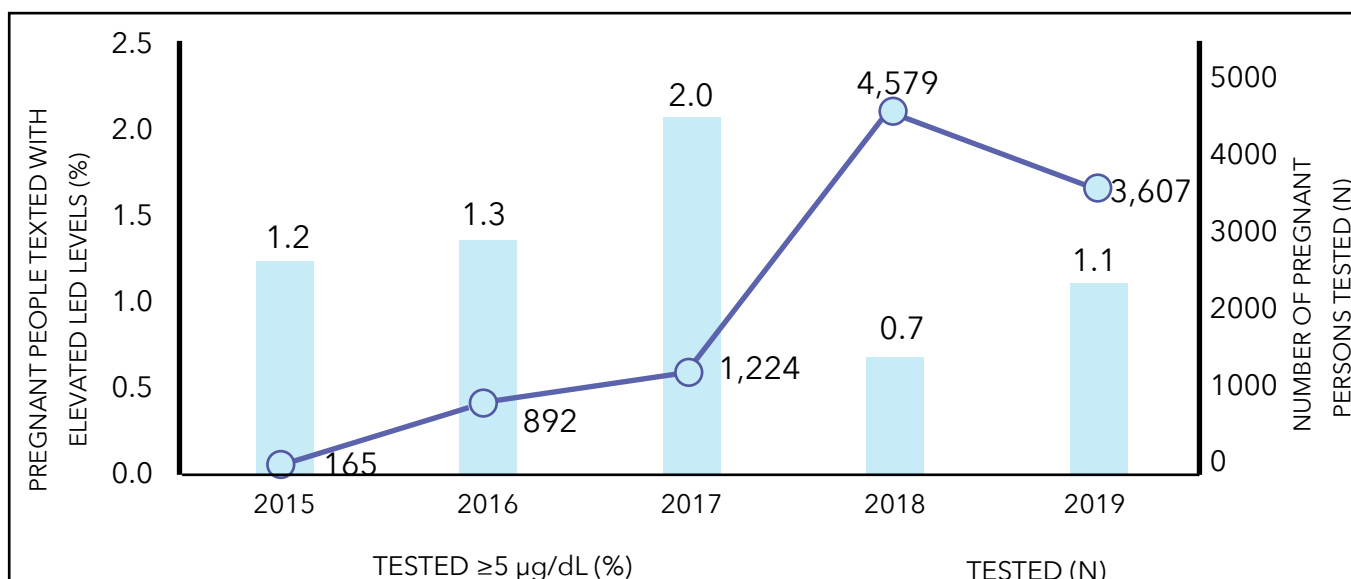
In October 2015, the Program started collecting blood lead data for pregnant persons in accordance with Section 6.2 of the Act. <http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1523&ChapterID=35>. A total of 10,287 prenatal blood lead results were collected from October 2015 to December 2019 and 42 were confirmed at EBLLs $\geq 5 \mu\text{g/dL}$ (Table 4 and figure 11).

Table 3: Pregnant Persons Blood Lead Levels: 2015-2019

Prenatal Persons Tested	Mean Age (Yr)	EBLLs $\geq 5 \mu\text{g/dL}$ (N, %)	BLLs $\geq 5 \mu\text{g/dL}$ (%)
10,287	27	111	1.1

Data source: Illinois Department of Public Health - HHL PSS. *This is an ongoing study. Note that 42 of 111 with EBLLs $\geq 5 \mu\text{g/dL}$ were confirmed by venous blood draw.

Figure 11: Pregnant Persons Tested and Reported to IDPH with Elevated Lead Levels: 2015-2019

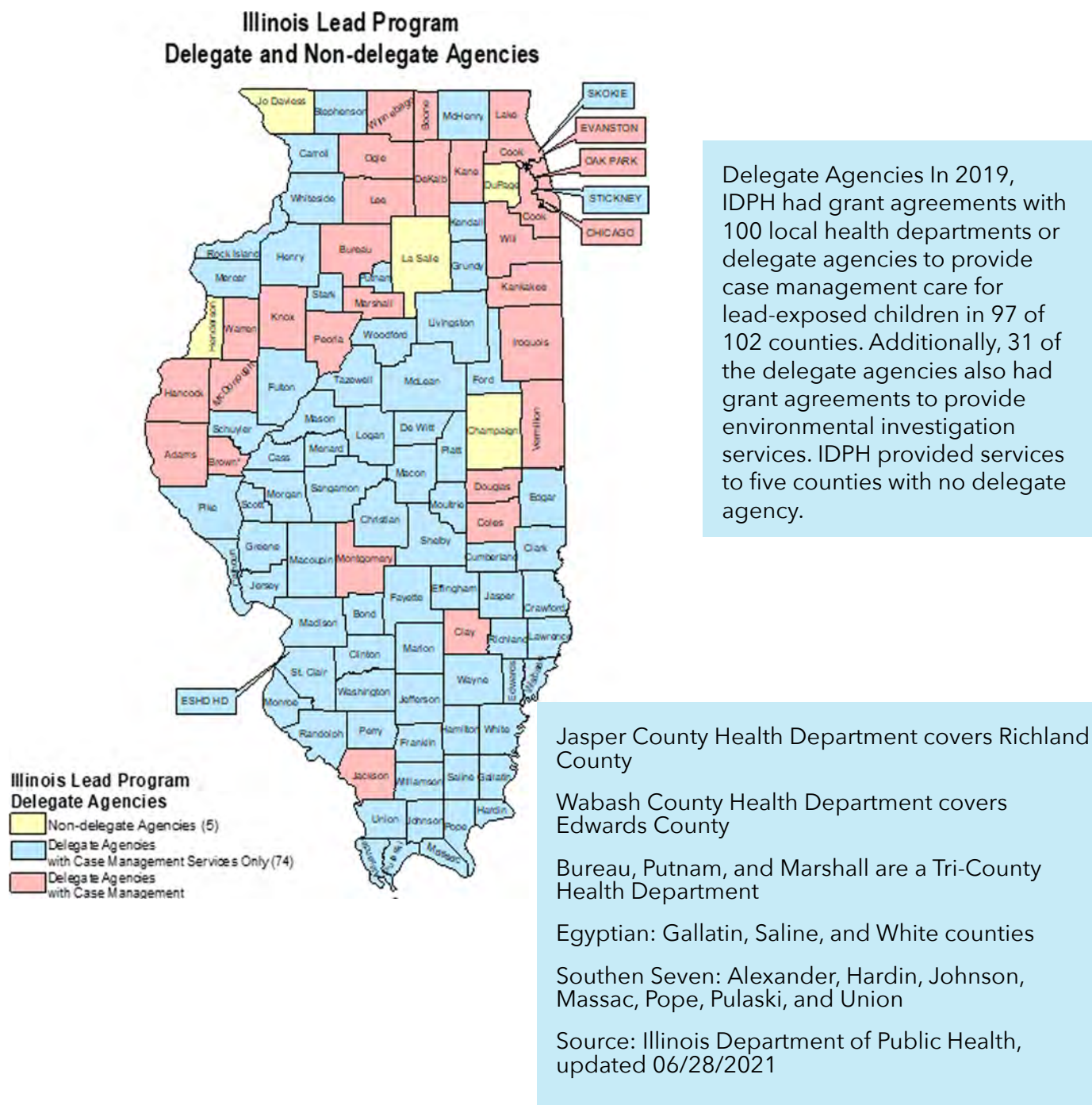


Data source: Illinois Department of Public Health - HHL PSS. *This is an ongoing study. For more information, go to CDC Guidelines for the identification and management of lead exposure in pregnant and lactating women. Available at: <http://www.cdc.gov/nceh/lead/publications/leadandpregnancy2010.pdf>

For every $5 \mu\text{g/dL}$ increase in prenatal/childhood blood lead level, there is a higher risk of being arrested for a violent crime as a young adult by almost 50%. <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.0050101>

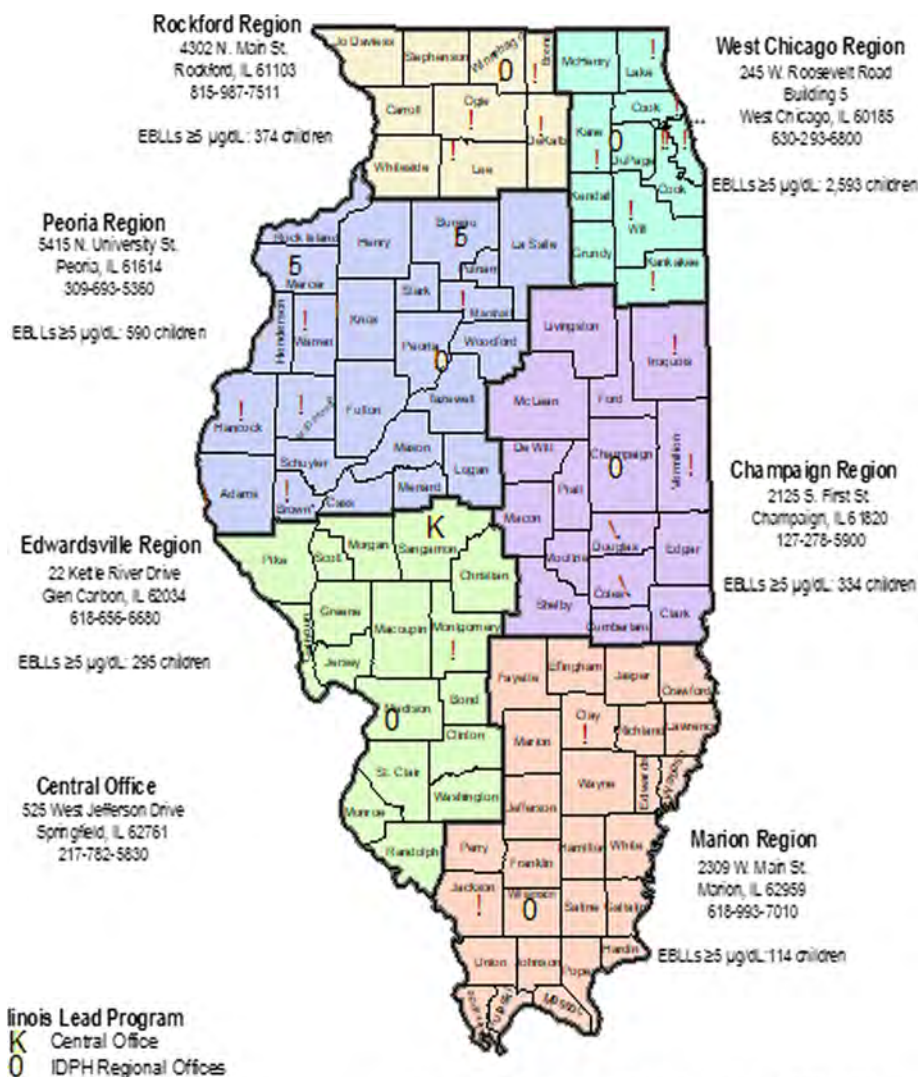
C. Intervention - Case Management of Children with Elevated Blood Lead Levels

Figure 12: Illinois Lead Program Delegate and Non-delegate Agencies in Fiscal Year 2019



D. Intervention - Children Identified with Elevated Blood Lead Levels by Region

Figure 13: Delegate Agencies with Environmental Investigations and Children with Confirmed Elevated Blood Lead Identified for the First Time in 2019 by Environmental Health Regions



The six environmental regional offices of IDPH each had lead risk assessors who conducted home inspections for children with confirmed EBLL ≥ 5 $\mu\text{g/dL}$ in areas not covered by the 31 delegate agencies with environmental health services agreement. In 2019, a total of 3,085 children were identified for the first time with confirmed elevated blood lead levels (Figure 13).

Source: Illinois Department of Public Health, Updated 12/14/2020
Based on fiscal year 2020 delegate agencies with environmental health services

Environmental remediation is required by law when a lead hazard has been identified in a home where a child with an EBLL lives or frequents. Remediation is necessary to prevent on-going exposure to lead hazards. Children who return to an environment where lead hazards still exist remain at risk for further exposure.

IDPH requires any person who conducts lead services in a regulated facility in Illinois to be appropriately licensed. Licenses expire annually and must be renewed (Table 5).

For a list of licensed lead abatement contractors [click here](#).

For a list of licensed risk assessors and inspectors [click here](#).

For approved training providers [click here](#).

Table 4: Lead Licenses Issued 2017-2019

Licenses Issued	2017	2018	2019
Lead abatement workers	805	850	859
Lead abatement supervisors	412	600	361
Lead inspectors	73	75	81
Lead risk assessors	430	350	575
Lead abatement contractors	154	155	143

DATA SOURCE: Illinois Department of Public Health - Licensing Database

Lead licenses training course providers are required to submit notification of all initial and refresher courses to IDPH no later than seven calendar days prior to the start of all IDPH-approved courses (Table 6).

Table 5: Total Number of Notifications and Lead Courses Held 2015-2019

Class notifications and courses held	2015	2016	2017	2018	2019
Notifications of upcoming lead courses received by IDPH	390	382	639	453	431
Number of lead courses held	262	220	524	227	214

DATA SOURCE: Illinois Department of Public Health - Licensing Database

COMPLIANCE AND ENFORCEMENT

The U.S. EPA authorizes the IDPH to carry out the compliance and enforcement aspects within the Act and Code in lieu of federal requirements.

- Conducted on-site investigations of lead mitigation/abatement projects statewide per notifications received by IDPH Central Office related to residential (513), school (162), and other (36) sites (Table 6):
 - Determined if individuals on-site were properly licensed.
 - Ensured lead mitigation/abatement activities were conducted in compliance with the Act and Code.

- Sought enforcement actions, fines, and penalties against persons found in violation of the Act and Code, including but not limited to persons performing lead services, such as lead inspection, risk assessment, mitigation, and abatement.

- Generated a summary compliance and enforcement action report for IDPH activities.

Table 6: Total Number of Abatement Projects

Compliance Type	2017	2018	2019
Abatement Projects	659	663	711

Source: Illinois Department of Public Health - Illinois Lead Program Database 2017-2019.

INTERACTIVE MAP

Visit the Illinois Department of Public Health's website at

<http://dph.illinois.gov/topics-services/environmental-health-protection/lead-poisoning-prevention/childhood-surveillance>

SOCIETAL COST OF LEAD POISONING

--one cohort of children ages 1 to 2. years old who are estimated to have EBLs above the CDC reference value, the costs could be as high as \$699,115,749.73

- \$812,959.40 in costs associated with immediate medical intervention
- \$2,408,258.43 in costs associated with treatment of lead-related ADHD
- \$2,035,516.79 in parental work loss due to time taken off to care for child with an EBL above 5 µg/dL
- \$2,758,371.30 in costs associated with additional special education services for children with lead poisoning
- \$691,100,643.81 in potential earnings over a lifetime.

https://www.pewtrusts.org/~media/assets/2010/02/22/063_10_paes-costs-of-lead-poisoning-brief_web.pdf

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LET US KNOW HOW YOU USE THE ILLINOIS LEAD SURVEILLANCE REPORT

1. Why do you read this report?
2. How do you use the information provided in this report?
3. What information in this report is most valuable to you?
4. What additional information would you like to read about from future reports?
5. How can the content of this report be improved?

Provide feedback by email: dph.lead@illinois.gov, phone: 217-782-3517 or FAX:217-557-1188



Appendix 1: Pre-1978 Housing Units and Children 2 Years of Age and Younger Tested with Elevated Blood Lead Levels by County or Delegate Agencies: 2019

Illinois/County/ City/Deleagate Agency	Total Housing Units	Pre-1978 Housing Unit Estimates	Children <3 years of age at time of testing in 2019 for blood lead		
			Children Tested	EBL≥5 µg/dL	EBL≥10 µg/dL
	N	%	N	%	%
Illinois	5,334,847	64	155,737	5.6	1.3
Adams	30,167	70	737	7.5	2.0
Alexander	3,984	72	42	7.1	2.4
Bond	7,211	58	183	2.7	0.0
Boone	20,054	42	639	3.6	0.5
Brown	2,451	66	81	3.7	1.2
Bureau	15,696	76	272	9.2	2.9
Calhoun	2,870	63	23	4.3	0.0
Carroll	8,458	71	130	8.5	2.3
Cass	5,831	73	167	12.0	5.4
Champaign	90,783	52	1,323	0.6	0.2
Christian	15,593	72	343	4.1	1.7
Clark	7,787	63	222	2.3	1.4
Clay	6,413	62	203	6.9	2.0
Clinton	15,704	51	343	2.9	0.6
Coles	23,543	66	677	2.8	0.7
Cook w/o Chicago	983,682	70	22,576	2.7	0.4
Chicago	1,200,305	80	46,823	5.7	0.7
Crawford	8,693	70	164	5.5	1.2
Cumberland	4,881	59	119	4.2	1.7
DeKalb	41,143	52	752	2.8	0.8
DeWitt	7,565	72	157	10.8	3.2
Douglas	8,431	70	194	4.1	1.5
DuPage	358,421	52	4,748	1.5	0.3
Edgar	8,823	74	197	11.7	3.0
Edwards	3,183	68	74	0.0	0.0
Effingham	14,816	54	287	3.1	0.3
Fayette	9,297	66	261	5.0	0.4
Ford	6,336	79	118	5.9	3.4
Franklin	18,660	68	381	3.1	0.8
Fulton	16,296	77	218	10.1	3.7
Gallatin	2,748	66	57	1.8	0.0
Greene	6,404	76	170	6.5	1.2
Grundy	20,566	45	433	5.3	1.4
Hamilton	4,108	63	63	4.8	1.6
Hancock	9,254	73	145	11.0	5.5
Hardin	2,195	65	15	0.0	0.0
Henderson	3,861	68	32	9.4	6.3
Henry	22,161	78	468	13.5	3.0
Iroquois	13,508	75	165	9.1	3.0
Jackson	28,921	57	559	2.7	0.7

Illinois Lead Program 2019 Annual Surveillance Report

Illinois/County/ City/Delestate Agency	Total Housing Units	Pre-1978 Housing Unit Estimates	Children <3 years of age at time of testing in 2019 for blood lead		
			Children Tested	EBL≥5 µg/dL	EBL≥10 µg/dL
	N	%	N	%	%
Illinois	5,334,847	64	155,737	5.6	1.3
Jasper	4,350	61	66	4.5	0.0
Jefferson	16,954	57	227	4.4	2.6
Jersey	10,100	54	272	3.7	1.1
Jo Daviess	13,686	58	192	4.7	0.5
Johnson	5,626	51	57	3.5	0.0
Kane	185,566	48	4,812	3.5	1.0
Kankakee	45,400	62	1,258	4.5	1.1
Kendall	41,463	25	599	1.8	0.3
Knox	23,958	80	493	13.0	5.3
Lake	262,553	46	4,093	1.9	0.5
LaSalle	50,087	69	1,086	8.2	3.1
Lawrence	7,047	76	165	4.8	0.6
Lee	15,098	74	215	1.4	0.9
Livingston	15,910	73	433	8.3	2.8
Logan	12,081	79	217	8.3	0.9
McDonough	14,443	69	270	4.4	0.0
McHenry	117,813	39	1,565	1.0	0.4
McLean	71,852	49	1,686	4.3	1.5
Macon	50,467	74	1,380	9.3	3.6
Macoupin	21,639	68	446	5.4	0.7
Madison	118,806	62	2,707	2.5	0.6
Marion	18,228	62	520	5.6	1.3
Marshall	5,907	72	116	7.8	4.3
Mason	7,058	79	164	9.8	2.4
Massac	7,135	59	50	0.0	0.0
Menard	5,709	60	91	4.4	0.0
Mercer	7,407	76	155	5.2	0.6
Monroe	13,931	38	325	3.7	1.2
Montgomery	13,107	69	283	7.8	2.8
Morgan	15,524	69	416	7.5	2.9
Moultrie	6,405	69	122	4.1	0.0
Ogle	22,636	63	451	5.3	1.6
Peoria	83,753	72	2,870	7.1	1.7
Perry	9,565	66	184	7.1	2.2
Piatt	7,389	64	107	5.6	2.8
Pike	7,973	75	248	5.6	1.2
Pope	2,778	56	7	14.3	14.3
Pulaski	3,170	64	36	8.3	0.0
Putnam	3,125	61	44	2.3	0.0
Randolph	13,905	65	321	1.9	0.3
Richland	7,512	66	153	9.2	3.3
Rock island	66,063	78	1,830	5.3	1.6

Illinois Lead Program 2019 Annual Surveillance Report

Illinois/County/ City/Delegated Agency	Total Housing Units	Pre-1978 Housing Unit Estimates	Children <3 years of age at time of testing in 2019 for blood lead		
			Children Tested	EBL≥5 µg/dL	EBL≥10 µg/dL
	N	%	N	%	%
Illinois	5,334,847	64	155,737	5.6	1.3
St. Clair w/o ESHD	92,116	50	1,457	4.5	1.0
Saline	11,719	68	282	5.3	1.4
Sangamon	91,229	62	1,768	4.4	1.4
Schuyler	3,454	66	62	1.6	0.0
Scott	2,453	77	69	8.7	0.0
Shelby	10,564	68	233	3.9	0.9
Stark	2,662	82	76	13.2	1.3
Stephenson	22,004	73	697	11.9	3.2
Tazewell	58,584	71	1054	3.6	0.9
Union	7,993	62	101	1.0	0.0
Vermilion	36,121	79	824	2.5	0.4
Wabash	5,564	72	161	1.9	1.9
Warren	7,694	83	235	10.2	2.1
Washington	6,635	64	102	6.9	1.0
Wayne	7,971	60	152	5.9	0.7
White	7,185	70	119	3.4	0.8
Whiteside	25,820	75	492	5.1	1.0
Will	241,498	37	4,844	2.5	0.6
Williamson	31,082	54	475	3.8	1.7
Winnebago	125,800	62	3,487	3.6	1.1
Woodford	15,478	58	407	3.2	1.0
Egyptian	21,652	68	468	4.3	1.1
ESH2	27,239	81	2,254	4.1	0.6
Evanston	31,970	82	1,103	2.1	0.4
Oak Park	23,139	89	595	3.9	0.3
Skokie	24,368	86	858	1.7	0.3
Southern Seven3	32,881	60	308	3.2	0.6
Stickney	2,393	94	277	1.4	0.0

Data source: ^{d,e,f}Illinois Department of Public Health - HHL PSS 2019. ^aPre-1978 housing unit was estimated from U.S. Census Bureau, 2014-2018 5-Years American Community Survey, Table B25034-Year Structure Built

¹Egyptian Counties: Galatin, Saline, and White

²ESH2 or East Side Health District includes the cities of Alorton, Brooklyn, Cahokia, Centreville, East St. Louis, Fairmont City, Lovejoy, National Stock Yards, Sauget, and Washington Park

³Southern Seven Counties: Alexander, Hardin, Johnson, Massac, Pope, Pulaski, and Union

^aData reported for U.S., Illinois, county, and delegate agencies; ^bTotal Housing Units - U.S. Census Bureau, 2014-2018 5-Years American Community Survey, Table B25034-Year Structure Built; ^cPre-1978 Housing Units Estimates: U.S. Census Bureau, 2013-2017 5-Years American Community Survey, Table B25034-Year Structure Built; ^dTotal number of children 2 years of age or younger at the time of blood lead testing in calendar year 2019 (test date - birthdate ≤2 years old). Children are considered to be 2 years of age until their 3rd birthday.

^ePercentage of children 2 years of age or younger tested with elevated blood lead levels $\geq 5\mu\text{g}/\text{dL}$ (numerator) based on all children 2 years of age or younger tested in 2019 (denominator).

^fPercentage of children 2 years of age or younger tested with elevated blood lead levels $\geq 10\mu\text{g}/\text{dL}$ (numerator) based on all children 2 years of age or younger tested in 2019 (denominator).

While the current acceptable error range is $\pm 4\mu\text{g}/\text{dL}$, most laboratories that do blood lead analyses perform at an error range within $\pm 2\mu\text{g}/\text{dL}$. The portable desktop blood-lead analyzers operate within a $\pm 3\mu\text{g}/\text{dL}$ error range.

Note: As required by the [Act](#) (410 ILCS 45/7), health care providers shall report all blood lead test results to IDPH. If a child has multiple tests, the highest venous result is selected for this report. If there is no venous test on a child, the peak capillary blood lead result is selected for the report. A child was counted only once for each year in which he or she was tested or had a follow-up test.



Appendix 2 : Children Tested for Blood Lead by Age from January 1 to December 31, 2019

Age (Years)	Estimated Population ^a	Total Tested	Children Tested				
			<5 µg/dL		≥5 µg/dL		
		n	n	%	n		%
					Venous	Capillary	
<1	143,723	30,034	29,394	97.9	212	428	2.1
1	145,936	66,100	62,510	94.6	1,341	2,249	5.4
2	149,504	48,325	45,300	93.7	1,153	1,872	6.3
3	153,181	33,814	31,690	93.7	838	1,286	6.3
4	154,590	32,069	30,486	95.1	619	964	4.9
5	152,251	28,396	27,299	96.1	406	691	3.9
6	151,861	8,096	7,647	94.5	195	254	5.5
7-15		9,072	8,546	94.2	240	286	5.8
≤6 years	1,051,046	246,835	236,465	97.0	4,252	2,883	3.0

Data source: Illinois Department of Public Health - HHL PSS 2019. ^aPopulation data compiled from bridged-race Vintage 2019 (2011-2019) post-censal population estimates (released by NCHS on 6/25/2019). Available on CDC WONDER Online Database. Accessed at <http://wonder.cdc.gov/bridged-race-v2018.html> on Oct 20, 2020 .

A total of 8,546 children 7 to 15 years of age were also tested for blood lead in 2019. Of the 526 children in this age group with BLLs ≥5µg/dL, 46 percent were confirmed by a venous test.

Appendix 3: Children Tested for Blood Lead by Race/Ethnicity - January 1 to December 31, 2019

Racial Classification	Estimated Population ^a	Children Tested by Race in 2019					
		Total Tested		<5 µg/dL	≥5 µg/dL		
		n	n	%	n		%
					Venous	Capillary	
Black or African American	187,506	55,810	52,295	93.7	2,499	1,016	6.3
White	794,883	103,039	100,305	97.3	1,827	907	2.7
Hispanic or Latino	252,253	39,616	38,879	98.1	556	181	1.9
Asian or Pacific Islander	62,516	10,993	10,601	96.4	259	133	3.6
Total	1,051,046	236,465	229,330	97.0	4,252	2,883	3.0

Data Source: Illinois Department of Public Health - HHLPSS 2019. ^aPopulation data compiled from bridged-race Vintage 2019 (2010-2019) post-censal population estimates (released by NCHS on 11/05/2020). Available on CDC WONDER Online Database. Accessed at <http://wonder.cdc.gov/bridged-race-v2019.html> on November 5, 2020.

Appendix 4: Blood Lead Burden of Children 5 Years Old and Younger in Illinois, Chicago, and the United States: 2016-2019

	2016		2017		2018		2019	
	N	%	N	%	N	%	N	%
Illinois Children Tested	229,519	24.3	229,203	23.8	229,900	24.8	228,552	21.9
BLL \geq 10 μ g/dL	1,736	0.8	1,670	0.7	1,053	0.5		
BLL \geq 5 μ g/dL	8,154	3.6	4,477	2.0	3,913	1.7	4,091	1.8
Illinois without Chicago	143,174		144,994		144,955		143,183	
BLL \geq 10 μ g/dL	1,152	0.8	1,142	0.8	633	0.4		
BLL \geq 5 μ g/dL	5,399	3.8	2,192	1.5	2,137	1.5	2,448	1.7
Chicago	86,345		84,209		84,945		85,369	
BLL \geq 10 μ g/dL	584	0.7	528	0.6	420	0.5		
BLL \geq 5 μ g/dL	2,755	3.2	2,285	2.7	1,776	2.1	1,643	1.9
United States ¹	2,517,134	17	2,014,208	18.7				
BLL \geq 10 μ g/dL	12,135	0.5	11,097	0.6				
BLL \geq 5 μ g/dL	46,196	2.1	40,122	2.0				

Source: Illinois Lead Program Surveillance Data, 2016-2019 and U.S. Centers for Disease Control and Prevention (CDC) Blood Lead Surveillance available at the time at: <https://www.cdc.gov/nceh/lead/data/national.htm> (downloaded November 16, 2020)

CDC only reported blood lead data for children 5 years of age and younger. In order to compare Illinois data to the national data published by CDC, Appendix 4 only included children 5 years of age and younger (<72 months) whose BLL results were reported to IDPH in 2016, 2017, 2018, and 2019.

Appendix 5: Children Tested and Newly Confirmed Cases in 2019

Illinois/ County/ Delegate Agency	Estimated Population 6 Years of Age and Younger ^a	All Children Tested in 2019	Children Ever Tested by December 31, 2019 ^c	Children tested for the first time in 2019 based on all children ever tested ^d		New confirmed cases identified for the first time in 2019 based on all children tested ^e	
						EBL>5 µg/ dL	EBL>5 µg/ dL
	N	N	%	N	%	%	%
Illinois	1,067,942	236,465	55	140,633	59.5	1.9	0.4
Adams	5,710	1,051	76	743	70.7	2.9	0.9
Alexander	578	71	87	51	71.8	6.9	2.8
Bond	1,147	223	75	155	69.5	1.3	0.0
Boone	4,324	912	66	533	58.4	1.3	0.0
Brown	403	102	81	79	77.5	1.9	1.0
Bureau	2,478	467	65	350	74.9	3.5	1.7
Calhoun	338	54	36	44	81.5	0.0	0.0
Carroll	1,020	233	74	142	60.9	1.3	0.4
Cass	1,132	266	86	197	74.1	5.6	2.6
Champaign	15,943	1,794	50	1,499	83.6	0.3	0.1
Christian	2,352	492	78	367	74.6	1.7	1.2
Clark	1,315	292	80	222	76.0	2.4	1.7
Clay	1,135	245	84	176	71.8	1.2	0.4
Clinton	3,043	444	50	332	74.8	1.3	0.4
Coles	3,469	793	86	541	68.2	0.5	0.1
Cook w/o Chicago	441,324	40,287	23	23,812	59.1	1.3	0.2
Chicago	253,669	89,331	57	45,875	51.4	2.7	0.4
Crawford	1,419	236	66	179	75.8	2.5	0.4
Cumberland	913	147	61	97	66.0	0.7	0.7
DeKalb	8,353	1,358	51	918	67.6	1.1	0.1
DeWitt	1,183	211	69	161	76.3	4.7	1.4
Douglas	1,758	263	56	189	71.9	1.8	0.7
DuPage	77,364	7,835	35	5,580	71.2	0.7	0.2
Edgar	1,262	337	84	202	59.9	6.0	1.2
Edwards	523	124	80	102	82.3	0.8	0.0
Effingham	3,158	450	50	304	67.6	0.2	0.0
Fayette	1,717	326	70	229	70.2	1.8	0.3
Ford	1,121	180	60	133	73.9	3.9	1.1

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Illinois/ County/ Delegate Agency	Estimated Population 6 Years of Age and Younger ^a	All Children Tested in 2019	Children Ever Tested by December 31, 2019 ^c	Children tested for the first time in 2019 based on all children ever tested ^d		New confirmed cases identified for the first time in 2019 based on all children tested ^e	
						EBL>5 µg/ dL	EBL>5 µg/ dL
	N	N	%	N	%	%	%
Illinois	1,067,942	236,465	55	140,633	59.5	1.9	0.4
Franklin	3,250	561	62	437	77.9	1.0	0.2
Fulton	2,437	383	58	317	82.8	6.4	2.4
Gallatin	367	86	84	56	65.1	0.0	0.0
Greene	1,000	264	83	170	64.4	2.7	0.8
Grundy	4,530	751	44	501	66.7	0.5	0.2
Hamilton	633	113	67	90	79.6	1.8	0.9
Hancock	1,364	222	70	157	70.7	3.6	2.3
Hardin	234	33	56	26	78.8	0.0	0.0
Henderson	461	61	55	49	80.3	3.3	3.3
Henry	3,957	784	71	560	71.4	4.0	1.8
Iroquois	2,136	326	57	221	67.8	3.1	1.2
Jackson	4,311	926	74	600	64.8	0.9	0.1
Jasper	795	88	43	53	60.2	0.0	0.0
Jefferson	3,341	382	58	316	82.7	2.3	0.5
Jersey	1,582	382	77	227	59.4	1.3	0.5
Jo Daviess	1,326	301	66	180	59.8	0.7	0.3
Johnson	828	106	54	85	80.2	0.9	0.0
Kane	47,944	9,599	59	4,850	50.5	1.1	0.4
Kankakee	9,097	2,282	69	1,137	49.8	1.2	0.5
Kendall	12,587	926	25	753	81.3	0.5	0.0
Knox	3,858	696	68	610	87.6	4.8	2.3
Lake	57,758	6,988	40	4,406	63.1	0.7	0.2
LaSalle	8,557	1,665	65	1,230	73.9	2.0	0.7
Lawrence	1,136	225	81	170	75.6	2.7	0.0
Lee	2,498	357	45	270	75.6	1.1	0.0
Livingston	2,770	553	71	389	70.3	3.0	1.2
Logan	2,083	320	64	222	69.4	2.4	0.3
McDonough	1,889	339	73	243	71.7	1.8	0.0
McHenry	24,297	2,409	31	1,712	71.1	0.3	0.2

Illinois Lead Program 2019 Annual Surveillance Report

Illinois/ County/ Delegate Agency	Estimated Population 6 Years of Age and Younger ^a	All Children Tested in 2019	Children Ever Tested by December 31, 2019 ^c	Children tested for the first time in 2019 based on all children ever tested ^d		New confirmed cases identified for the first time in 2019 based on all children tested ^e	
	N	N	%	N	%	EBL>5 µg/ dL	EBL>5 µg/ dL
						%	%
Illinois	1,067,942	236,465	55	140,633	59.5	1.9	0.4
McLean	14,236	2,086	67	1,539	73.8	1.8	0.7
Macon	8,925	2,681	68	1,287	48.0	2.3	0.9
Macoupin	3,381	666	68	476	71.5	1.7	0.3
Madison	21,552	3,864	59	2,527	65.4	0.7	0.3
Marion	3,403	699	77	488	69.8	1.0	0.1
Marshall	826	153	69	122	79.7	1.4	1.4
Mason	979	314	78	164	52.2	2.6	0.3
Massac	1,068	146	47	122	83.6	0.0	0.0
Menard	951	122	46	92	75.4	1.6	0.0
Mercer	1,127	232	74	174	75.0	0.4	0.4
Monroe	2,732	438	54	344	78.5	1.4	0.2
Montgomery	2,075	386	74	281	72.8	2.8	1.0
Morgan	2,333	695	93	483	69.5	2.9	0.8
Moultrie	1,400	169	47	120	71.0	1.8	0.0
Ogle	3,983	703	45	528	75.1	2.3	0.9
Peoria	17,155	3,656	67	2,794	76.4	2.3	0.6
Perry	1,467	302	71	207	68.5	1.4	0.3
Piatt	1,371	172	47	145	84.3	3.5	1.2
Pike	1,304	333	87	253	76.0	2.6	0.6
Pope	158	16	62	12	75.0	0.0	0.0
Pulaski	455	62	51	56	90.3	1.6	0.0
Putnam	406	61	54	56	91.8	0.0	0.0
Randolph	2,351	439	67	304	69.2	1.6	0.2
Richland	1,477	205	54	164	80.0	2.4	0.5
Rock Island	12,437	2,898	79	1,975	68.2	1.8	0.8
St. Clair w/o ESHD	23,069	1,996	16	1,480	74.1	1.0	0.5
Saline	2,059	448	80	299	66.7	1.6	0.2
Sangamon	15,632	2,979	59	1,801	60.5	1.1	0.4

Illinois Lead Program 2019 Annual Surveillance Report

Illinois/ County/ Delegate Agency	Estimated Population 6 Years of Age and Younger ^a	All Children Tested in 2019	Children Ever Tested by December 31, 2019 ^c	Children tested for the first time in 2019 based on all children ever tested ^d		New confirmed cases identified for the first time in 2019 based on all children tested ^e	
						EBL>5 µg/ dL	EBL>5 µg/ dL
	N	N	%	N	%	%	%
Illinois	1,067,942	236,465	55	140,633	59.5	1.9	0.4
Schuyler	405	95	81	72	75.8	0.0	0.0
Scott	363	99	96	73	73.7	2.0	0.0
Shelby	1,734	299	62	211	70.6	1.7	0.3
Stark	423	126	97	99	78.6	0.0	0.0
Stephenson	3,431	1,152	94	635	55.1	5.2	2.3
Tazewell	10,881	1,251	46	1,115	89.1	1.0	0.6
Union	1,248	166	53	139	83.7	0.6	0.0
Vermilion	6,922	1,347	71	937	69.6	2.6	0.4
Wabash	1,030	227	73	157	69.2	0.0	0.0
Warren	1,474	321	78	252	78.5	6.2	2.2
Washington	1,114	167	54	128	76.6	1.1	0.0
Wayne	1,452	224	69	155	69.2	0.9	0.0
White	1,113	204	71	137	67.2	0.5	0.5
Whiteside	4,387	862	73	501	58.1	1.4	0.2
Will	58,188	8,903	45	5,356	60.2	0.8	0.2
Williamson	5,577	745	54	563	75.6	0.5	0.3
Winnebago	25,174	5,232	70	3,250	62.1	2.3	0.6
Woodford	3,206	450	51	402	89.3	1.4	0.2
Egyptian	3,539	738		492	66.7	1.1	0.3
ESHD2	6,611	3,827	196	1,929	50.4	0.4	0.1
Evanston	6,043	1,546	82	946	61.2	1.2	0.1
Oak Park	4,837	822	65	530	64.5	1.3	0.1
Skokie	4,980	1,195	69	760	63.6	1.3	0.2
Southern Seven ³	4,570	600		491	81.8	1.4	0.3
Stickney	583	577		377	65.3	0.3	0.0

Data source: Illinois Department of Public Health - HHL PSS 2019. aPopulation data compiled from bridged-race Vintage 2019 (2010-2019) post-censal population estimates (released by NCHS on 6/25/2020). Available on CDC WONDER Online Database. Accessed at <http://wonder.cdc.gov/bridged-race-v2019.html> on Oct 21, 2020. bOnly children ≤6 years of age; cChildren tested at least once in their lifetime as of December 31, 2019 with denominator of Estimated Population 6 Years of Age and Younger; d denominator of all children tested in 2019b

Appendix 6: Proportion of Children Tested for Blood Lead in 2019 by County and Medicaid

Illinois/ County/ Delegate Agency	All Children Tested in 2019	Medicaid Enrolled Children (%)			Non-Medicaid Enrolled Children (%)		
		Children Tested	EBL>5 µg/dL	EBL>10 µg/dL	Children Tested	EBL>5 µg/ dL	EBL>10 µg/dL
	N	%	%	%	%	%	%
Illinois	236,465	68.7	2.7	2.1	31.3	1.4	1
Adams	1,051	62.3	9.6	6.7	37.7	1.8	1
Alexander	71	86.8	8.5	8.5	13.2	0	0
Bond	223	73.1	4.4	3.8	26.9	0	0
Boone	912	69.8	2.8	2.3	30.2	1.1	1.1
Brown	102	54.2	1.9	1.9	45.8	0	0
Bureau	467	63.3	11.2	9.5	36.7	1.8	0
Calhoun	54	60.8	0	0	39.2	0	0
Carroll	233	66.7	6.5	3.9	33.3	0	0
Cass	266	66.8	12.9	7.4	33.2	3.7	3.7
Champaign	1,794	57.5	0.7	0.5	42.5	0.7	0.7
Christian	492	75.6	4.1	2.5	24.4	1.7	0.9
Clark	292	63.6	6.4	4.3	36.4	0.9	0.9
Clay	245	80.2	6.9	2	19.8	2	0
Clinton	444	57.5	3.3	2.8	42.5	0	0
Coles	793	68.3	2.9	1.4	31.7	0.4	0
Cook w/o Chicago	40,287	41	1.5	0.3	59	2.8	0.4
Chicago	89,331	60	3.7	0.7	40	6.9	0.4
Crawford	236	69.9	7.5	2.5	30.1	1.4	0
Cumberland	147	69.2	2	1	30.8	0	0
DeKalb	1,358	70.5	1.3	1.3	29.5	1.6	1.6
DeWitt	211	67.3	8.8	5.1	32.7	3	1.5
Douglas	263	60.9	8.8	5	39.1	0	0
DuPage	7,835	55.1	1	0.8	44.9	1	0.7
Edgar	337	74.2	10.7	8.7	25.8	6.8	5.7
Edwards	124	61.9	1.5	1.5	38.1	0	0
Effingham	450	75.9	0.9	0.3	24.1	0.9	0
Fayette	326	79.3	5	2.3	20.7	10.3	1.5
Logan	320	72	5.4	3.1	28	1.1	1.1

Illinois/ County/ Delegate Agency	All Children Tested in 2019	Medicaid Enrolled Children (%)			Non-Medicaid Enrolled Children (%)		
		Children Tested	EBL>5 µg/dL	EBL>10 µg/dL	Children Tested	EBL>5 µg/ dL	EBL>10 µg/dL
	N	%	%	%	%	%	%
Illinois	236,465	68.7	2.7	2.1	31.3	1.4	1
Ford	180	74	7.6	5.3	26	0	0
Franklin	561	72.6	3.8	2.2	27.4	0	0
Fulton	383	64.2	10.2	9.4	35.8	4.4	2.2
Gallatin	86	74	1.9	1.9	26	0	0
Greene	264	64.8	4.3	4.3	35.2	2.2	2.2
Grundy	751	52.9	2.2	1.4	47.1	1.9	0.9
Hamilton	113	63.3	4.3	1.4	36.7	0	0
Hancock	222	63.6	10.9	7.2	36.4	3.8	3.8
Hardin	33	85.7	4.2	4.2	14.3	0	0
Henderson	61	75.4	4.3	4.3	24.6	0	0
Henry	784	60.5	13.6	8	39.5	6.5	4.1
Iroquois	326	66.9	10	9	33.1	1	1
Jackson	926	78.7	2.2	1.3	21.3	1.1	0.5
Jasper	88	76.7	4.3	0	23.3	0	0
Jefferson	382	72.6	5.8	3.3	27.4	0	0
Jersey	382	54.1	2.9	1.4	45.9	0.6	0.6
Jo Daviess	301	58.1	3	3	41.9	0.8	0
Johnson	106	77.5	5.1	3.8	22.5	0	0
Kane	9,599	70.6	2.5	1.6	29.4	2.7	1.7
Kankakee	2,282	68.3	2.8	1.8	31.7	1	0.7
Kendall	926	59.4	0.8	0.4	40.6	1.7	1.5
Knox	696	70.2	10.4	7.2	29.8	6.5	5.5
Lake	6,988	64.1	1.1	0.8	35.9	1.8	1.3
LaSalle	1,665	66	6.5	5.1	34	4.3	2.1
Lawrence	225	68.2	4	2.7	31.8	1.4	1.4
Lee	357	67.1	2.1	2.1	32.9	0.8	0.8
Livingston	553	65.3	6.4	3.9	34.7	3.7	3.1
Logan	320	72	5.4	3.1	28	1.1	1.1

Illinois/ County/ Delegate Agency	All Children Tested in 2019	Medicaid Enrolled Children (%)			Non-Medicaid Enrolled Children (%)		
		Children Tested	EBL>5 µg/dL	EBL>10 µg/dL	Children Tested	EBL>5 µg/ dL	EBL>10 µg/dL
	N	%	%	%	%	%	%
Illinois	236,465	68.7	2.7	2.1	31.3	1.4	1
McDonough	339	71.4	4.4	4	28.6	0	0
McHenry	2,409	62.5	0.5	0.4	37.5	0.5	0.1
McLean	2,086	49.3	3.8	2.3	50.7	3	2.4
Macon	2,681	82.4	6.9	4.7	17.6	2.6	1.8
Macoupin	666	67.2	5.4	4.7	32.8	2.5	1.5
Madison	3,864	66.9	1.7	1.3	33.1	1	0.8
Marion	699	77.1	2.8	1.7	22.9	0.6	0
Marshall	153	68.1	3.7	1.8	31.9	2	0
Mason	314	73.3	9.9	5.4	26.7	1.2	0
Massac	146	84.3	0	0	15.7	0	0
Menard	122	70.3	0	0	29.7	0	0
Mercer	232	66.4	4.6	2.6	33.6	0	0
Monroe	438	29	2.7	2.7	71	1.8	1.1
Montgomery	386	67.4	5.1	3.9	32.6	0	0
Morgan	695	72.9	5.3	4.2	27.1	5.6	4
Moultrie	169	60.8	5.4	2.2	39.2	1.7	1.7
Ogle	703	65	3.1	3.1	35	1.6	1.2
Peoria	3,656	66.4	7.5	3.3	33.6	2.7	0.9
Perry	302	72.5	5.2	1.4	27.5	0	0
Piatt	172	56.6	7.4	7.4	43.4	0	0
Pike	333	69.8	3.9	2.6	30.2	1	1
Pope	16	73.3	18.2	18.2	26.7	0	0
Pulaski	62	82.5	1.9	0	17.5	0	0
Putnam	61	54.5	6.7	3.3	45.5	0	0
Randolph	439	63.2	2.6	2.3	36.8	0.6	0.6
Richland	205	64.8	7.8	3.1	35.2	1.4	1.4
Rock Island	2,898	71.9	6.4	4	28.1	2.3	1.5

Illinois/ County/ Delegate Agency	All Children Tested in 2019	Medicaid Enrolled Children (%)			Non-Medicaid Enrolled Children (%)		
		Children Tested	EBL>5 µg/dL	EBL>10 µg/dL	Children Tested	EBL>5 µg/ dL	EBL>10 µg/dL
		N	%	%	%	%	%
Illinois	236,465	68.7	2.7	2.1	31.3	1.4	1
St. Clair without ESH D	1,996	55	5.3	1.6	45	5.5	1.8
Saline	448	74.5	2.2	1.6	25.5	0	0
Sangamon	2,979	79.5	2.9	1.8	20.5	1.4	1.2
Schuyler	95	61.7	10	4	38.3	6.5	0
Scott	99	75.3	8.2	5.5	24.7	4.2	0
Shelby	299	79.1	2.2	1.3	20.9	0	0
Stark	126	61.3	6.6	2.6	38.7	8.3	0
Stephenson	1,152	76.3	13.7	11.3	23.7	5.5	4.4
Tazewell	1,251	50.7	4.6	2.8	49.3	1.2	0.7
Union	166	77	0	0	23	0	0
Vermilion	1,347	77.5	3.7	3.7	22.5	1.3	1.3
Wabash	227	65.2	1.4	1.4	34.8	0	0
Warren	321	70.8	16.4	16	29.2	7.5	6.5
Washington	167	51.7	5.2	3.9	48.3	4.2	2.8
Wayne	224	75.8	5.2	2.3	24.2	1.8	0
White	204	77.5	4.4	4.4	22.5	4.3	4.3
Whiteside	862	70.5	2.9	2.1	29.5	2.1	1.2
Will	8,903	63.9	1.2	0.9	36.1	0.4	0.2
Williamson	745	72.2	1.5	0.6	27.8	0.5	0
Winnebago	5,232	75.6	4.1	3.5	24.4	2.7	2.3
Woodford	450	38.7	3	2.4	61.3	2.7	1.5
ESH D2	3,827	85	3	0.6	15	3.2	1
Evanston	1,546	35	2.2	0.6	65	2	0.5
Oak Park	822	17	5.6	2.5	83	5.1	0.9
Skokie	1,195	26	3.9	2.9	74	1.3	0.6
Stickney	577	60	0.8	0.3	40	2.1	0

Data source: Illinois Department of Public Health -HHL PSS 2019 and Illinois Department of Healthcare and Family Services Enterprise Data Warehouse, 2019 through an interagency data agreement. The SAS (statistical analysis software) and SQL (Structured Query Language) codes were used to query databases. This data may not be complete at time of this analysis.

Appendix 7: Children Tested for Blood Lead by County and Delegate Agencies in 2018 and 2019

Illinois/ County Delegate Agency	CHILDREN TESTED FOR BLOOD LEAD IN 2018				CHILDREN TESTED FOR BLOOD LEAD IN 2019				Children ever Tested Before the Age 7 by December 31, 2019
	TESTED	Tested (capillary or Venous) with EBL >5 µg/dL		2018 New Confirmed Cases, EBL >5 µg/dL	TESTED	Tested (capillary or Venous) with EBL >5 µg/dL		2018 New Confirmed Cases, EBL >5 µg/dL	
Adams	1,238	96	7.8	36	1,051	88	8.4	31	76
Alexander	65	6	9.2	<5	71	6	8.5	5	87
Bond	202	9	4.5	<5	223	10	4.5	<5	75
Boone	1,011	16	1.6	13	912	25	2.7	12	66
Brown	87	7	8.0	<5	102	5	4.9	<5	81
Bureau	416	25	6.0	13	467	43	9.2	16	65
Calhoun	27	0	0.0	0	54	1	1.9	0	36
Carroll	221	13	5.9	7	233	14	6.0	<5	74
Cass	283	24	8.5	7	266	33	12.4	14	86
Champaign	1,778	19	1.1	8	1,794	11	0.6	6	50
Chicago	88,762	2,269	2.6	1,324	89,339	2,154	2.4	1,171	57
Christian	502	15	3.0	8	492	21	4.3	8	78
Clark	251	8	3.2	<5	292	10	3.4	8	80
Clay	287	14	4.9	<5	245	17	6.9	<5	84
Clinton	398	7	1.8	<5	444	16	3.6	6	50
Coles	799	27	3.4	6	793	28	3.5	<5	86
Cook w/o Chicago	41,102	582	1.4	270	40,279	617	1.5	315	23
Crawford	269	11	4.1	<5	236	12	5.1	6	66
Cumberland	158	4	2.5	0	147	9	6.1	<5	61
DeKalb	1,278	45	3.5	12	1,358	32	2.4	15	51
DeWitt	198	14	7.1	<5	211	20	9.5	10	69

Illinois/ County Delegate Agency	CHILDREN TESTED FOR BLOOD LEAD IN 2018				CHILDREN TESTED FOR BLOOD LEAD IN 2019				Children ever Tested Before the Age 7 by December 31, 2019
	TESTED	Tested (capillary or Venous) with EBL >5 µg/dL		2018 New Confirmed Cases, EBL >5 µg/dL	TESTED	Tested (capillary or Venous) with EBL >5 µg/dL		2018 New Confirmed Cases, EBL >5 µg/dL	
Douglas	270	10	3.7	<5	263	12	4.6	5	56
DuPage	7,828	111	1.4	49	7,840	121	1.5	49	35
East Side Health District	4,159	122	2.9	20	3,825	142	3.7	16	196
Edgar	347	21	6.1	9	337	40	11.9	20	84
Edwards	129	7	5.4	<5	124	1	0.8	<5	80
Effingham	491	8	1.6	0	450	12	2.7	<5	50
Evanston	1,529	31	2.0	12	1,546	26	1.7	16	82
Fayette	308	9	2.9	<5	326	17	5.2	6	70
Ford	187	8	4.3	<5	180	11	6.1	7	60
Franklin	565	18	3.2	<5	562	16	2.8	6	62
Fulton	342	26	7.6	7	383	39	10.2	24	58
Gallatin	106	3	2.8	<5	86	1	1.2	0	84
Greene	258	17	6.6	9	264	11	4.2	7	83
Grundy	681	25	3.7	<5	751	35	4.7	<5	44
Hamilton	111	3	2.7	<5	113	6	5.3	<5	67
Hancock	237	19	8.0	9	222	23	10.4	8	70
Hardin	31	0	0.0	0	33	0	0.0	0	56
Henderson	65	0	0.0	0	61	4	6.6	<5	55
Henry	753	63	8.4	25	783	113	14.4	32	71
Iroquois	318	14	4.4	7	326	23	7.1	9	57
Jackson	891	10	1.1	<5	926	20	2.2	8	74
Jasper	90	3	3.3	0	88	4	4.5	0	43
Jefferson	452	19	4.2	<5	382	20	5.2	9	58
Jersey	345	4	1.2	<5	382	11	2.9	5	77

Illinois/ County Delegate Agency	CHILDREN TESTED FOR BLOOD LEAD IN 2018				CHILDREN TESTED FOR BLOOD LEAD IN 2019				Children ever Tested Before the Age 7 by December 31, 2019
	TESTED	Tested (capillary or Venous) with EBL >5 µg/dL		2018 New Confirmed Cases, EBL >5 µg/dL	TESTED	Tested (capillary or Venous) with EBL >5 µg/dL		2018 New Confirmed Cases, EBL >5 µg/dL	
Jo Daviess	324	13	4.0	6	301	11	3.7	<5	66
Johnson	105	3	2.9	0	106	4	3.8	<5	54
Kane	10,847	297	2.7	104	9,611	319	3.3	102	59
Kankakee	2,369	96	4.1	22	2,282	83	3.6	27	69
Kendall	798	10	1.3	<5	925	19	2.1	5	25
Knox	444	62	14.0	37	696	88	12.6	33	68
Lake	7,004	119	1.7	56	6,989	124	1.8	48	40
LaSalle	1,688	97	5.7	37	1,665	139	8.3	34	65
Lawrence	244	13	5.3	6	225	11	4.9	6	81
Lee	433	13	3.0	7	357	6	1.7	<5	45
Livingston	565	34	6.0	9	553	43	7.8	17	71
Logan	352	13	3.7	5	320	26	8.1	8	64
Macon	2,589	245	9.5	59	2,680	239	8.9	64	68
Macoupin	661	54	8.2	10	666	40	6.0	12	68
Madison	3,599	108	3.0	41	3,864	115	3.0	29	59
Marion	669	26	3.9	8	699	37	5.3	7	77
Marshall	104	16	15.4	<5	153	16	10.5	<5	69
Mason	296	35	11.8	7	315	33	10.5	8	78
Massac	119	5	4.2	<5	146	2	1.4	0	47
McDonough	330	20	6.1	7	339	20	5.9	6	73
McHenry	2,644	35	1.3	8	2,409	24	1.0	8	31
McLean	2,839	107	3.8	27	2,087	92	4.4	37	67
Menard	132	7	5.3	<5	122	4	3.3	<5	46
Mercer	240	17	7.1	8	232	8	3.4	<5	74

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Monroe	320	7	2.2	<5	438	14	3.2	6	54
Montgomery	416	11	2.6	5	386	33	8.5	11	74
Morgan	701	52	7.4	18	698	60	8.6	21	93
Moultrie	168	8	4.8	<5	169	6	3.6	<5	47
Oak Park	923	37	4.0	13	822	21	2.6	7	65
Ogle	602	18	3.0	11	703	30	4.3	15	45
Peoria	2,517	267	10.6	79	3,656	296	8.1	82	67
Perry	319	21	6.6	6	302	19	6.3	<5	71
Piatt	133	6	4.5	<5	172	8	4.7	5	47
Pike	290	13	4.5	<5	333	19	5.7	9	87
Pope	35	1	2.9	<5	16	1	6.3	0	62
Pulaski	58	3	5.2	<5	62	3	4.8	<5	51
Putnam	66	1	1.5	<5	61	2	3.3	0	54
Randolph	468	11	2.4	<5	439	10	2.3	7	67
Richland	250	12	4.8	0	205	16	7.8	5	54
Rock Island	2,781	188	6.8	49	2,899	174	6.0	56	79
Saline	463	17	3.7	<5	448	22	4.9	7	80
Sangamon	2,753	134	4.9	26	2,979	127	4.3	34	59
Schuyler	87	6	6.9	<5	95	6	6.3	0	81
Scott	85	3	3.5	<5	99	7	7.1	<5	96
Shelby	281	9	3.2	<5	299	10	3.3	5	62
Skokie	1,065	20	1.9	13	1,195	21	1.8	14	69
St. Clair w/o ESH D	1,660	81	4.9	19	1,997	95	4.8	21	16
Stark	87	11	12.6	<5	126	16	12.7	0	97

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	N	N	%	N	N	N	%	N	%
Illinois									
Stephenson	1,070	117	10.9	37	1,152	158	13.7	61	94
Stickney	593	5	0.8	<5	577	9	1.6	<5	
Tazewell	579	47	8.1	21	1,251	49	3.9	13	46
Union	93	2	2.2	0	166	1	0.6	<5	53
Vermilion	1,230	53	4.3	30	1,347	45	3.3	35	71
Wabash	232	21	9.1	<5	227	5	2.2	0	73
Warren	283	32	11.3	22	321	38	11.8	20	78
Washington	202	11	5.4	5	167	10	6.0	<5	54
Wayne	262	18	6.9	5	224	17	7.6	<5	69
White	212	10	4.7	6	204	7	3.4	<5	71
Whiteside	980	47	4.8	12	862	40	4.6	12	73
Will	8,701	166	1.9	34	8,902	184	2.1	46	45
Williamson	870	42	4.8	<5	745	25	3.4	<5	54
Winnebago	5,691	221	3.9	99	5,231	206	3.9	121	70
Woodford	228	12	5.3	<5	450	13	2.9	5	51
Egyptian	781	30	3.8	12	738	30	4.1	8	78
Southern Seven ³	506	20	4.0	6	600	17	2.8	8	59
Unidentified	2,119	67	3.2	9	352	18	5.1	11	

Data source: Illinois Department of Public Health – Healthy Housing and Lead Poisoning Surveillance System, HHLPSS 2018. aPopulation data compiled from bridged-race Vintage 2018 (2010-2018) postcensal population estimates (released on 6/25/2019) available on CDC WONDER Online Database accessed at <https://wonder.cdc.gov/bridged-race-v2019.html> on Aug 13, 2019. bCapillary or venous blood draw. cConfirmed test in Illinois is a venous blood draw. Actual numbers are available at IDPH. Due to rounding, decimals may not add up perfectly.

¹Egyptian Counties: Galatin, Saline, and White

²ESH or East Side Health District includes the cities of Alorton, Brooklyn, Cahokia, Centreville, East St. Louis, Lovejoy, National Stock Yards, Sauget, Washington Park, and Fairmont City. Source: U.S. Census Bureau, 2010 Census. Single Years of Age and Sex: Summary File 1, Table PCT12. QT-P2

³Southern Seven Counties: Alexander, Hardin, Johnson, Massac, Pope, Pulaski, and Union



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