



November 2023



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Dear Colleagues,

The Illinois Department of Public Health is pleased to present the **2022** Annual Surveillance Report on the state's lead exposure and prevention activities. The goals of the Illinois Lead Program are to:

- Enhance primary prevention and early detection through blood lead testing and surveillance.
- Provide ongoing case management and environmental services to children exposed to lead.
- Coordinate care and services with other agencies for children and families.

There is no safe level of lead in blood. Childhood lead exposure is known to contribute to learning disabilities, developmental delays, and behavioral problems. Illinois childhood lead exposure rates remain among the highest in the nation. In 2022, approximately **194,000** Illinois children were tested for lead exposure, indicating an 18% decrease in testing rate compared to COVID-19 pre-pandemic year 2019.

As a tool to increase testing of at-risk populations, IDPH has revised its high-risk ZIP codes for lead exposure. Illinois is also evaluating its resources to adopt the Centers for Disease Control and Prevention's recommended blood lead reference value (BLRV) \geq 3.5 µg/dL, for case management and environmental investigation services. In 2022, approximately 9,500 children were tested at BLRV and nearly **4,900** at blood lead levels \geq 5 µg/dL.

Growing public awareness of water as a source of lead exposure resulted in an interagency agreement between IDPH and the Illinois Environmental Protection Agency regarding the testing and reporting of water samples with elemental lead.

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

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

Very truly yours,

Sameen Johra

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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 <u>dph.illinois.gov/illinoislead</u> 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

ABLR	Adult Blood Lead Registry
BLL	Blood Lead Level
BLRV	Blood Lead Reference Value
CDC	U.S. Centers for Disease Control and Prevention
CLIA	Clinical Laboratory Improvement Amendments
CLRQ	Childhood Lead Risk Questionnaire
CMS	Centers for Medicare & Medicaid Services
CPSC	Consumer Product Safety Commission
FDA	U.S. Food and Drug Administration
IDPH	Illinois Department of Public Health
IDHS	Illinois Department of Human Services
ESHD	East Side Health District
HFS	Illinois Department of Healthcare and Family Services
HHLPSS	Healthy Homes and Lead Poisoning Surveillance System
HUD	U. S. Department of Housing and Urban Development
IHDA	Illinois Housing and Development Authority
IHFS	Illinois Department of Healthcare and Family Services
IVRS	Illinois Vital Records System
IQ	Intelligence Quotient
OSHA	Occupational Safety and Health Administration
Ppb	Parts per billion
Program	Illinois Lead Program
U.S. EPA	U. S. Environmental Protection Agency
µg/dL	Micrograms per deciliter
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children

≥ Greater than or equal to

Definitions

Act: Illinois Lead Poisoning Prevention Act

Blood lead reference value: Lead in blood ≥3.5 µg/dL

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

Case management: Any activity 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

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.

East Side Health District (ESHD): Delegate agency includes the cities of Alorton, Brooklyn, Cahokia, Caseyville, Centreville, East St. Louis, Fairmont City, Lovejoy, National City, Sauget, and Washington Park, and Scott Air Force Base

Egyptian Health Department: Delegate agency includes Gallatin, Saline, and White counties

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

High risk ZIP code: Illinois laws authorize IDPH to designate areas with increased potential for lead exposure for children 6 years of age or younger based on factors such as age of housing and poverty status.

Housing unit: A house, apartment, mobile home, group of rooms, or single room occupied or intended for occupancy (U.S. Census Bureau).

Percentage of children tested: The number of children tested for blood lead divided by the population of children multiplied by 100 (U.S. Census Bureau).

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

Southern Seven: Delegate agency includes Alexander, Hardin, Johnson, Massac, Pope, Pulaski, and Union counties.

Executive Summary

This is the Illinois Lead Program's 28th annual surveillance report of childhood lead poisoning prevention activities and encompasses information for the period of January through December 2022. It is intended to serve as a standard reference for legislators; community-based organizations; city, state, federal agencies; and 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, requires public health intervention at confirmed blood lead levels $\geq 5 \mu g/dL$.

Delegate Agencies: In fiscal year 2022, IDPH had grant agreements with **102** local health departments or delegate agencies to provide case management care for lead-exposed children in **96** of 102 counties. Additionally, **30** of the delegate agencies covering **27** counties also had grant agreements to provide environmental investigation services. IDPH provided services to **six** counties with no delegate agency.

Problem: 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 **2022**, **9**,466 children were tested at blood lead reference value (BLRV) \geq 3.5 µg/dL and **4**,893 at \geq 5 µg/dL.

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. Of the **58%** pre-1978 housing units with lead-based paint, **40%** have significant lead-based paint hazards. Approximately **62%** of the **5.4 million** housing units in Illinois were built prior to the lead-paint ban of 1978.

Mission: The program's mission is to eliminate the incidence of childhood and prenatal lead exposure.

Vision: The program's vision 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 women exposed to lead, provide prompt interventions to reduce lead exposures, and improve health and developmental outcomes

Funding: The program is currently supported by the Lead Poisoning Screening, Prevention, and Abatement Fund, Illinois General Revenue Funds, and grants from the Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, and Centers for Medicare and Medicaid Services (CMS).

Key Facts on Illinois Childhood Blood Lead Surveillance: According to the CENSUS 2021 American Community Survey five-year estimate, there were an estimated **1.1 million** children 6 years of age and younger in Illinois accounting for about **8%** of the population. A total of **194,321 (18%)** were tested for blood lead in 2022. Amongst the children tested:

- Approximately **59%** had received a blood lead test at least once in their lifetime.
- About **59%** had at least one venous blood lead test.
- BLLs in children averaged **1.9** µg/dL.
- Of the 4,891 (2.5%) children tested in 2022 with BLLs $\geq 5 \mu g/dL$ for public health intervention:
 - > 63% had a confirmatory venous test and 37% were capillary tests.
 - **58%** were 2 years of age or younger.
 - > 68% benefited from programs administered by Medicaid.
 - > 39% White, 30% Black or African American, 23% Hispanics, 5% Asians confirmed case distribution.
- Of 236,734 total tests from all age groups analyzed, 7.4% were at BLRV ≥3.5, and 4.7% at BLLs ≥5 µg/dL (test positivity).



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/lead-prevention/about/

Key Facts About Illinois Children Tested for Lead in Blood in 2021 and 2022



Figure 1: Illinois Lead Program Activities and Outcomes



STAKEHOLDERS:

- General Public
- Public Universities University of Illinois Springfield, University of Chicago, University of Illinois Chicago
- Local Entities Local Health Departments, Housing Authority, Schools, Hospitals, Organizations
- State Government General Assembly, Governor, States Attorneys, Attorney General, IDPH, IHDA, IDHS, IHFS, IEPA, ISBE, DCEO, IDFPR
- Federal Government Congress, CMS, USEPA, HHS-CDC, HUD, USDA, FDA, CPSC



Childhood lead exposure in Illinois remains one of the highest in the nation

In Illinois, if all children were tested, it is estimated that approximately **26,000** children are likely to have been exposed at blood lead reference value $\geq 5 \mu g/dL$.

Changes in Blood Lead Levels for Public Health Intervention



Figure 2: CDC Recommended Public Health Intervention Levels through the Years

In 2021, CDC lowered the blood lead reference value (BLRV) for public health intervention from $\geq 5 \ \mu g/dL$ to **BLRV \geq 3.5 \ \mu g/dL**.

Figure 2 shows how the intervention level has evolved through the years. Pending adoption of the lowered BLRV, the **current Illinois public health intervention level is \geq 5 \mu g/dL**.

Figure 3: Children Tested at Different Blood Lead Reference Values Across Time: 1997-2022



Data Source: Ilinois Department of Public Health - Healthy Homes and Lead Poisoning Surveillance (HHLPSS). If a child had multiple tests, the highest venous result was selected. If there was no venous test on a child, the peak capillary blood lead result was selected. **Children with test results below a limit of detection were ascribed a value equal to the limit of detection.**

The number of Illinois children with lead in blood at confirmed (venous) intervention levels has decreased with time. In 2022, 41 children had lead levels \geq 40 µg\dL compared to 516 children in 1997 (Figure 3).

Also, in 2022, a total of **29** children had lead levels \geq **45** μ g\dL, the level at which chelation is initiated.

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 exposure.

Sources of Lead Exposure

Figure 4: Sources of Lead Exposure



*Consumer goods and products can be a source of lead exposure. Commonly imported items containing lead are ayurvedic medicine, folk medicines, cosmetics (such as Sindoor and Kumkum), toys, glazed pottery, spices (such as curry powder and turmeric), or other food items. Even consumer goods produced in the U.S. can be recalled due to lead content like the **recall of Eames Desk Units and Eames Storage Units**, **WanaBana Apple Cinnamon Fruit Purée Pouches**, <u>Schnucks</u> brand cinnamon-flavored applesauce pouches and variety pack, Weis brand cinnamon applesauce pouches. In addition, just because a product says that it was packaged in the U.S. does not mean it was manufactured here and could possibly be a source of lead. To check product recalls visit:

Where is lead commonly found? - IDPH LeadSourceGuide.pdf (illinois.gov)

Consumer Product Safety Commission (CPSC) Recalls – for non-food consumer goods https://www.cpsc.gov/Recalls/

U.S. Food and Drug Administration (FDA) Recalls - for food products <u>https://www.fda.gov/safety/recalls-market-withdrawals-safety-alerts</u>

For more information about sources of lead exposure https://www.cdc.gov/nceh/lead/prevention/sources.htm

Children at Highest Risk for Lead Exposure

Figure 5: Children at Highest Risk for Lead Exposure



Data Source: Illinois Department of Public Health - Illinois Lead Program 2022

Also visit https://nchh.org/resource-library/fact-sheet_state-healthy-housing_il.pdf

Link to Lead in Water

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

Lead Prevalence and Pre-1978 Housing

Older homes with deteriorated lead paint continue to be the primary source of lead exposure in Illinois. Approximately 62% of the **5.4** million Illinois housing units were built prior to the residential lead paint ban of 1978. Based on the <u>American Healthy Homes Survey</u>, 58% of pre-1978 Illinois housing units have lead-based paint, and 40% have significant lead-based paint hazards (Table 1).

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

Pre-1978 Housing Units with Lead													
Age of Housing Units (Year Built)	Total Housing Units	Prevalence of Lead-Based Paint (LBP) in Midwest	Significant Deteriorating LBP Hazard										
Pre-1978	3,372,353	58%	40%										

Source: U.S. Census Bureau, 2017-2021 American Community Survey Five-Year Estimate, American Healthy Homes Survey 11 Lead Findings Final Report 2021 Objectives of Lead Sampling in the American Healthy Homes Survey (AHHS) (PDF) (hud.gov)

Half of U.S. population exposed to adverse lead levels in early childhood:

MacFarland et. al. estimated that over 170 million Americans alive today were exposed to high-lead levels in early childhood.

https://www.pnas.org/doi/epdf/10.1073/pnas.2118631119



Illinois and U.S. Childhood Blood Lead Prevalence: 2012 - 2022

Illinois and U.S. continue to make progress in reducing childhood blood lead exposure. Figure 6 represents children 5 years of age and younger at time of testing with confirmed BLL \geq 5 µg/dL. Illinois BLLs \geq 5 µg/dL has significantly decreased from 9.2% in 2012 to 1.6%10 in 2022. **Note:** In order to compare with national data compiled by CDC this figure only includes children 5 years of age and younger (< 72 months) as reported by CDC to date. Children with test results below a limit of detection were ascribed a value equal to the limit of detection.



Figure 6: Illinois and U.S. Children with Confirmed Lead in Blood ≥5 µg/dL: 2012 - 2022

Data Source: Illinois Lead Program Surveillance Data, 2019-2022 only; Illinois and United States average 2012-2018 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. Figure 6 represents children 5 years of age and younger at time of testing with confirmed BLL \geq 5 µg/dL. Illinois BLLs \geq 5 µg/dL has significantly decreased from 9.2% in 2012 to 1.6%10 in 2022. **Note:** In order to compare with national data compiled by CDC this figure only includes children 5 years of age and younger (< 72 months) as reported by CDC to date. Children with test results below a limit of detection were ascribed a value equal to the limit of detection.

Blood Lead Levels of Children by Age



Figure 7: Distribution of Children with Confirmed Lead in Blood Distributed by Age in 2022

Data Source: Illinois Department of Public Health – Healthy Homes and Lead Poisoning Surveillance (HHLPSS) Database, 2022. BLLs include number of children per age group with venous BLLs $\geq 5 \mu g/dL$ divided by children tested in age group multiplied by 100. Distribution $\geq 5 \mu g/dL$ relates to number of children with BLLs ≥ 5 by age group divided by total BLLs.

For more details on blood lead levels by age see Appendix 2 on page 31.

A total of **8,429** children 7 to 15 years of age were also tested for blood lead in **2022**. Of the **410** children in this age group with BLLs $\geq 5\mu g/dL$, **380** were confirmed by a venous test.

For newly confirmed cases identified for the first time in 2022, see Appendix 1 on page 25.



Blood Lead Levels of Children by Race/Ethnicity



Figure 8: Children with Confirmed BLLs $\geq 5 \mu q/dL$ Distributed by **Race** in 2022

Data source: Illinois Department of Public Health - Healthy Homes and Lead Poisoning Surveillance System, 2022. Population estimates obtained from CDC WONDER Online Database. Accessed at <u>http://wonder.cdc.gov/bridged-race-v2020.html</u> on October 20, 2022.

Black or African American children are disproportionately undertested for lead exposure. Although they had a low testing rate (19%), they still remained the only race with the highest incident of BLL's greater than testing rate (30%).

Comparatively, children in other race categories tested as follows:

White: 39% of all children tested, 39% of all children with a confirmed BLLs $\geq 5 \mu g/dL$ were White.

Hispanic: 25% of all children tested, **23%** of all children with a confirmed BLL \geq 5 µg/dL were Hispanic.

Asian: 3% of all children tested, 5% of all children with a confirmed BLL $\geq 5 \mu g/dL$ were Asian.

Additionally, looking at the percentage of children with confirmed BLLs $\geq 5 \mu g/dL$ in each race category further shows the disproportionate effect of lead exposure to Black or African American children. Of the **37,272** Black or African American children tested, **2.5%** had confirmed BLLs $\geq 5 \mu g/dL$. Of the **75,683** White children, **1.6%** had confirmed BLL $\geq 5 \mu g/dL$. Of the **46,422** Hispanic children, **1.5%** had confirmed BLLs $\geq 5 \mu g/dL$.

For more details on blood lead levels by race/ethnicity, see appendix 3 on page 31.

Blood Lead Levels of Children by Medicaid Status

State and federal mandates require all children enrolled in IHFS' 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 IHFS medical programs are expected to be tested regardless of where they live.



Figure 9: Medicaid and Non-Medicaid Children Tested for Lead in Blood in 2022

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

Of all children reported in HHLPSS tested for blood lead, in 2022 only 29% were Medical Assistance Program recipients. Of the Medicaid recipients tested, 3.0% had confirmed lead levels $\geq 5 \ \mu g/dL$ compared to 1.8% for non-recipients. Figure 9 highlights the difference between lead in blood based on Medicaid eligibility status.

For Medicaid and non-Medicaid enrolled children tested for blood lead by county, see appendix 1 on page 25.

For more information on providers who test for blood lead go to: <u>https://www.illinois.gov/hfs/MedicalProviders/NonInstitutional/Pages/ProviderBloodLead.aspx</u>

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 <u>https://ehp.niehs.nih.gov/EHP2384/</u>.

Lead Levels of Children by High-Risk ZIP Code Status



Figure 10: Children residing in High-Risk and Low-Risk ZIP Codes Tested with Lead in Blood 2022

An amendment to the act required IDPH to designate areas of the state where children through 6 years of age are considered to be at high-risk for lead exposure and areas where children are considered to be at low risk for lead exposure. The high-risk ZIP codes were based on housing data and family economic status (200% poverty and below) obtained from the U.S. Census.

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 using the childhood lead risk questionnaires (CLRQ). The CLRQ are used in conjunction with high-risk ZIP codes. More than **68%** of Illinois children with BLL \geq 5 µg/dL reside in high-risk areas. Only 37% (391,697) of the 1.1 million children in Illinois reside in the current high-risk ZIP codes.

For more information on the methodology used to designate the 2023 high-risk ZIP codes see page ?.

To view Childhood Lead Risk questionnaire and the 2023 high-risk ZIP codes, go to <u>https://dph.illinois.gov/</u> <u>content/dam/soi/en/web/idph/files/forms/childhoodleadriskquestionaire.pdf</u>, or see appendix 4 on <u>page</u> <u>31?</u>.

Data source: Illinois Department of Public Health - Healthy Homes and Lead Poisoning Surveillance (HHLPSS) Database, 2022.

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 <u>http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1523&ChapterID=35</u>. A total of 3,876 prenatal blood lead results were collected in 2022 and 30 were confirmed at BLLs $\geq 5 \mu g/dL$ (figure 11).



Figure 11: Pregnant Persons Tested and Reported to IDPH with Lead in Blood: 2019-2022

Data source: Illinois Department of Public Health - HHLPSS. *This is an ongoing study.

More information go to CDC Guidelines for the identification and management of lead exposure in pregnant and lactating women, which is available at http://www.cdc.gov/nceh/lead/publications/leadandpregnancy2010.pdf or visit IDPH's website at https://dph.illinois.gov/content/dam/soi/en/web/idph/files/publications/

For every 5 μ 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%. <u>https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.0050101</u>

Blood Lead Levels in Refugee Children

Table 2: BLLs in Refugee Children ≤6 Years of Age in 2022

Number of Refugee Children	Ν	%
Total number of refugee children who completed the initial health assessment	599	
Children who completed the initial health assessment including a blood lead test	537	90
BLL ≥5 µg/dL	83	15

Data source: Illinois Department of Public Health - Center for Minority Health, 2022.

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.

In 2022, there were 599 refugee children 6 years of age and younger at the time of testing who completed the initial health assessment in Illinois. Of those assessed, 537 children had blood lead results recorded in the IDPH Refugee Health Assessment Database, and 83 of these children had an BBLLs \geq 5 µg/dLs (Table 2). Case management services and environmental assessments were conducted by delegated agency staff for children with confirmed BLLs \geq 5 µg/dL. In collaboration with IDPH, these delegate agencies provided outreach and education to health care providers and families of lead-exposed children.

Illinois RefugeeHealth Program https://dph.illinois.gov/content/dam/soi/en/web/idph/files/publications/publicationscmh2015-refugeeprogram-ar.pdf https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6959973/

Beware of lead in some cultural products, e.g., kajal, sauma, 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, and dried plum candies by El Chavito, Inc.



Adult Blood Lead Registry

The Program and Adult Blood Lead Registry (ABLR) comprise the Illinois blood lead surveillance (Figure 12).

Figure 12: Illinois Blood Lead Surveillance Programs



ABLR, maintained by the IDPH Division of Epidemiologic Studies, collects blood lead data for people 16 years of age and older and notifies federal enforcement agencies to trigger inspections and/or interventions.

ABLR made **27** referrals (employees) to the Occupational Safety and Health Administration (OSHA) for companies with employees who had blood lead levels \geq 40 µg/dL of blood. The highest BLL was **55** ug/dL.

Illinois Health and Hazardous Substances Registry Annual Reports, Section 5.1: <u>https://dph.illinois.gov/content/dam/soi/en/web/idph/files/publications/FY21-IHHSR Annual Report Final.pdf</u>

- Notify OSHA quarterly of any company that has employees with blood lead levels equal to or greater than 40 μg/dL.
- Notify OSHA within 24 hours of any case with blood lead level equal to or greater than $60 \mu g/dL$.

Trends in Elevated Blood Lead Levels in Adults – Illinois, 2005-2014 <u>https://dph.illinois.gov/content/dam/soi/en/web/idph/files/publications/publications-opps-trends-ineblls-adults-041516.pdf</u>

Illinois Morbidity and Mortality Bulletin https://dph.illinois.gov/content/dam/soi/en/web/idph/files/publications/publicationsoppsimmb-vol-4-issue-1.pdf

Data on 14,000 adults showed that an increase of 1 to 6.7 micrograms of lead per deciliter of blood (5 μ g/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

Intervention - Case Management of Children with Lead in Blood

Delegate Agencies In 2022 IDPH had grant agreements with **102** delegate agencies to provide case management care for lead-exposed children in **96** of **102** counties. Additionally, **30** of the delegate agencies covering **27** counties also had grant agreements to provide environmental investigation services. IDPH provided services to the **six** counties without delegate agency grant agreement.

Figure 13: Illinois Lead Program Delegate and Non-delegate Agencies in Fiscal Year 2023



Source: Illinois Department of Public Health, updated 06/27/2023

Intervention - Children Identified with Lead in Blood by Region

The **six** environmental regional offices of IDPH each house lead risk assessors who conducted home inspections for children with confirmed BLL $\geq 5 \mu g/dL$ in areas not covered by the **30** delegate agencies with environmental health services agreements.

In 2022, a total of **2,060** children were identified for the first time with confirmed blood in lead $\geq 5 \ \mu g/dL$ (Figure 13).

Figure 14: Delegate Agencies with Environmental Investigations and Children with Confirmed Lead in Blood Identified for the First Time in 2022 by Environmental Health Regions



***Chicago, Evanston, and Oak Park also perform case management and environmental inspections. *Brown is covered by Adams County Health Department.

Source: Illinois Department of Public Health, Updated 12/12/2022



Environmental remediation is required by law when a lead hazard has been identified in a home where a child with an BLL 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.

Lead Licensees

The Act and Code requires any person who conducts lead services in a regulated facility in Illinois to be licensed by IDPH. Licenses expire annually and must be renewed (Table 3).

For a list of licensed lead abatement contractors visit <u>https://data.illinois.gov/dataset/566lead_contractor_registration</u>.

For a list of licensed risk assessors and inspectors visit <u>https://data.illinois.gov/dataset/567lead_risk_assessor_and_inspector_licensees</u>.

For approved training providers visit <u>https://data.illinois.gov/dataset/569lead_training_course_provider_list</u>.

Table 3: Lead Licenses Issued 2019-2022

Licenses Issued	2019	2020	2021	2022
Lead abatement workers	859	718	735	570
Lead abatement supervisors	361	338	331	302
Lead inspectors	81	62	36	77
Lead risk assessors	575	327	243	363
Lead abatement contractors	143	132	125	124

Data source: Illinois Department of Public Health - Licensing Database



Compliance Inspections

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.

- On-site investigations were conducted for lead mitigation/abatement projects statewide per notifications received by IDPH Central Office. A total of 647 abatement projects were completed (Table 4). A total of 45 inspections took place at single family homes, 13 inspections occurred at multi-unit/duplex buildings, and 20 inspections were at schools.
 - 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 4: Total Number of Abatement Projects

Compliance Type	2019	2020	2021	2022
Abatement Projects	711	504	867	647

Source: Illinois Department of Public Health - Illinois Lead Program Database 2019-2022.



Designation of 2023 High-risk ZIP Codes

Objective

All Illinois pediatric health care providers are mandated to test children residing in high-risk areas for lead exposure. Lead, a neurotoxicant, affects a child's ability to think, to learn, or to behave. Only blood tests ascertain exposure. Social distance mitigation during the COVID-19 pandemic in 2020 led to a 24% decrease in testing. The objective of this project in conjunction with Illinois testing laws was to designate ZIP codes at highest risk for lead exposure.

Methods

A proportion of pre-1978 housing units by construction year and ZIP code were orderly scored from 1 to 9, (1=lowest and 9=highest) for lead-based paint prevalence and lead hazards. Similarly, proportions of individuals living below 200 percent income-to-poverty-index were ranked and scored. Risk index based on summed scores ranged from 3 to 27. ZIP codes at median risk index \geq 15 were designated as high risk. The ranked model was validated by regression using actual lead prevalence from 2015 to 2019 data. Additional high-risk ZIP codes were based on lead prevalence at lead reference value \geq 3.5 µg/dL, and postal ZIP codes adjacent to designated high-risk areas.

Results

Based on ranked model, 894 ZIP codes were designated as high risk for lead exposure. Additionally, 118 ZIP codes with lead prevalence above state level, and 19 postal ZIP codes adjacent to high-risk areas became high risk.

Conclusion

Approximately 66% of Illinois ZIP codes were designated as high risk for childhood lead exposure. High-risk ZIP codes are used in tandem with lead risk assessment questionnaire to evaluate and to mandate testing.

High-Risk ZIP Code Designation Criteria



Exploring The Lead-Crime Theorem

By Drashti Panchal, M.S. Candidate

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Childhood exposure to lead poses lasting risks on brain development, potentially impacting academic performance and increasing the likelihood of engaging in criminal behavior¹. This is supported by the lead-crime hypothesis, and emphasized by the CDC. Lead has has been shown to have detrimental effects on learning, attention, and decision-making regions of the brain.²

Case Study A: Dr. Rick Nevin's case study on the legacy effect of lead exposure at preschool level supports misbehaviors in later years. Preschool blood lead trends correlated with a 19-year lag to broadly defined index crimes like threats, uninjured simple assaults, and minor thefts. Separate regressions across different countries reveal a consistent lag of 18-21 years for these index crimes, despite variations in crime recording methodologies and divergent crime trends among nations.³

Case Study B: The case study surrounding the removal of lead from gasoline offers a compelling exploration into the impact of childhood lead exposure on criminal behavior. Driven by the Clean Air Act, this regulatory shift created a natural experiment, showcasing the link between reduced lead exposure and declining violent crime rates. Studies conducted during this period revealed a strong association between decreased environmental lead and a notable decrease in antisocial behaviors among children and teenagers, highlighting the lasting effects of lead exposure on societal conduct and crime.⁴

Case Study C: A unique dataset of preschool blood lead levels, birth, school, and detention records for 125,000 Rhode Island-born children from 1990 to 2004 was utilized to examine lead's impact on school suspension and juvenile detention. Through sibling fixed-effect models and instrumental variable methods utilizing local lead exposure variations, it was revealed that lead levels correlated with a 6% increase in school suspension and a striking 57% rise in the likelihood of juvenile detention among boys, showcasing the profound effect of lead exposure on adverse outcomes in childhood.⁵

Case Study D: A meta-analysis investigating on lead exposure's connection to crime, especially homicide in Western nations, identified publication bias and revealed an effect size of 0.16 (partial correlation) or 0.09 (elasticity) after addressing biases and heterogeneity. While acknowledging lead's role in declining U.S. crime rates, it cautioned against overemphasizing its sole influence, suggesting that reduced blood lead levels accounted for a portion, not the majority, of the observed crime reduction. The study advocated for more rigorous causal research and exploration of diverse factors influencing crime trends since the 1980s.⁶

Conclusion: All these case studies show some connection between decreased lead exposure and reduced crime rates. However, reliance solely on blood lead levels for predicting criminal outcomes is cautioned.⁷ Lead reduction contributes partially to declining crime, prompting the need for comprehensive research to comprehend its influence among numerous crime-shaping factors and advocate for nuanced policy and public health strategies.⁸

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CDC Releases Year 3 Continuation Guidance for the Childhood Lead Poisoning Prevention and Surveillance of Blood Lead Levels in Children Notice of Funding Opportunity

Support primary and secondary prevention strategies for childhood lead exposure prevention and surveillance, including:

- Ensuring blood lead testing and reporting.
- Enhancing blood lead surveillance.
- Improving linkages of lead-exposed children to recommended services.
- Developing policies for targeted, population-based interventions with a focus on community-based approaches for lead hazard elimination.

CDC GOALS 2023

- Identify and engage with multi-sector partners.
- Enhance access for families, children, and partner organizations to resources and to services.
- Enhance skills and knowledge of the community.
- Educate and inform the community about the risk of lead exposure and disparities in BLLs by race, ethnicity, socioeconomic status, geography, and other factors.

Interactive Map

Visit the Illinois Department of Public Health's website at <u>http://dph.illinois.gov/topics-services/environmental-health-protection/lead-poisoning-prevention/childhood-surveillance</u>

Societal Cost of Lead Poisoning

For just one cohort of children ages 1 to 2 years old who are estimated to have BLLs 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 BLL 5 µg/dL and above.
- \$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.

A tool to calculate the cost of lead exposure and the economic benefits of key interventions to reduce lead exposure: <u>http://valueofleadprevention.org/calculations.php?state=Illinois</u>

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Provide feedback by email to <u>dph.lead@illinois.gov</u>, call 217-782-3517, or FAX to 217-557-1188

Appendix 1:

Pre-1978 Housing Units, and Children Tested for Lead in Blood by Delegate Agencies: 2020-2022

	Estimated Population ≤6 Years of Age ⁵	2019		2020			2021		2022											
Illinois/		Children Tes	≤6 Years ted ⁷	Children Tes	Children ≤6 Years Tested ⁷		Children ≤6 Years Tested ⁷			С	hildren ≤0	6 Years Tes	ted ⁷	Children ≤2 Years Tested ⁷		Pre-1978	Medicaid	Non-		
County/ Delegate Agency ¹		≤6 Years of Age⁵	Tested	BLL≥5 µg/dLଃ	Tested	BLL≥5 μg/dLଃ	Tested	BLL≥5 µg/dLଃ	New Confirmed Cases10, BLL ≥3.5 µg/dL	Ever Tested ≤6 as of 12/31/22 ⁶	Tested	BLL≥5 µg/dLଃ	First Test ^s	New Confirmed Cases ¹⁰ , BLL ≥5 µg/dL	New Confirmed Cases ¹⁰ , BLL ≥3.5 µg/dL	Tested	BLL≥5 μg/dL⁰	Housing Units Estimates ¹³	Enrolled¹¹ BLL ≥5 µg/ dLe	Medicaid¹² BLL ≥5 µg/ dLe
	N	N	%	N	%	N	%	%	%	N	%	%	%	%	N	%	%	%	%	
Illinois	1,058,215	236,483	3	179,085	2.8	191,900	2.5	1.8	59	194,321	2.5	58.28	1.06	1.73	113,572	2.4	62	3.0	1.8	
Adams	5,709	1,051	8	732	7.2	752	6.3	3.7	66	582	5.3	82.47	2.41	3.44	446	4.5	67	15.6	2.9	
Alexander	401	71	8.5	49	8.2	81	6.2	8.6	69	86	1.2	74.42	1.16	3.49	56	1.8	66	0.0	0.0	
Bond	1,013	223	5	129	5.4	174	5.7	2.9	79	192	6.3	75.00	0.52	1.56	149	5.4	54	4.9	2.0	
Boone	4,094	912	3	611	2.1	673	2.4	2.1	73	684	2.0	69.59	1.61	2.78	511	1.8	45	0.7	1.1	
Brown	424	102	5	52	5.8	66	4.5	4.5	76	47	4.3	91.49	2.13	2.13	36	5.6	65	0.0	0.0	
Bureau	2,424	467	9	293	9.2	433	7.4	5.5	71	469	5.3	75.69	2.56	2.77	319	6.6	77	10.1	2.0	
Calhoun	292	54	2	47	0	41	0	0.0	53	55	1.8	65.45	0.00	1.82	32	3.1	60	0.0	0.0	
Carroll	1,105	233	6	190	7.4	174	4.6	2.9	65	181	6.1	63.54	2.21	4.42	100	8.0	68	14.6	2.9	
Cass	1,152	266	12	201	13.9	219	7.3	3.7	85	243	10.7	78.60	2.88	5.76	140	10.7	68	10.7	3.3	
Champaign	15,225	1,794	1	1,510	1.2	1,340	1.2	1.3	48	1,237	1.1	88.52	0.65	0.89	979	0.8	47	1.1	0.7	
Chicago	222,185	89,339	2	66,455	2.2	72,646	2.1	2.0	83	70,850	2.1	44.52	1.08	1.90	37,814	2.1	77	2.8	2.3	
Christian	2,800	492	4	359	5.6	367	5.4	2.7	60	365	7.1	68.49	2.47	4.38	229	7.9	69	9.1	3.9	
Clark	1,309	292	3	175	6.9	217	2.8	1.8	78	199	2.0	79.90	0.00	0.50	131	2.3	66	14.3	0.0	
Clay	1,057	245	6.9	155	3.9	178	2.2	1.1	93	231	4.3	76.62	0.43	0.87	159	3.8	55	5.9	2.8	
Clinton	3,005	444	4	381	1.8	284	1.8	0.7	53	333	1.8	76.88	0.00	0.30	235	1.7	52	0.0	1.1	
Coles	3,177	793	4	686	3.9	778	4.5	1.9	95	707	4.2	68.32	0.57	1.41	572	3.5	62	2.2	2.5	
Cook w/o Chicago	214,267	40,279	2	31,153	1.3	34,964	1.2	0.9	53	35,287	1.4	59.38	0.58	0.88	20,238	1.4	68	2.0	1.1	
Crawford	1,402	236	5	95	3.2	261	2.3	0.4	67	212	2.8	85.38	0.94	2.83	123	4.1	66	4.5	2.6	
Cumberland	906	147	6	117	3.4	121	5	0.0	61	135	0.0	71.85	0.00	0.00	100	0.0	63	0.0	0.0	
DeKalb	8,026	1,358	2	1,066	3	737	3.7	3.3	54	1196	2.8	74.92	1.51	1.84	705	3.0	50	1.8	1.3	
DeWitt	1,208	211	10	182	9.3	132	10.6	3.0	66	155	7.7	78.71	1.94	1.94	114	7.9	72	12.9	0.8	

	2022													2020			20		
Non-	Medicaid	Pre-1978	≤2 Years ted ⁷	Children ≤2 Years Tested ⁷		Children ≤6 Years Tested ⁷							Childr	Children ≤6 Years Tested ⁷		≤6 Years ted ⁷	Children Tes	Estimated Population	Illinois/
Medicaid¹² BLL ≥5 µg/ dLe	Enrolled¹¹ BLL ≥5 μg/ dLe	Housing Units Estimates ¹³	BLL≥5 µg/dLº	Tested	New Confirmed Cases ¹⁰ , BLL ≥3.5 µg/dL	New Confirmed Cases ¹⁰ , BLL ≥5 µg/dL	First Test ⁹	BLL≥5 µg/dL⁰	Tested	Ever Tested ≤6 as of 12/31/22 ⁶	New Confirmed Cases10, BLL ≥3.5 µg/dL	BLL≥5 µg/dLଃ	Tested	BLL≥5 µg/dLଃ	Tested	BLL≥5 µg/dLଃ	Tested	≤6 Years of Age ⁵	County/ Delegate Agency ¹
%	%	%	%	N	%	%	%	%	N	%	%	%	N	%	N	%	Ν	N	
0.0	6.1	63	0.0	124	1.75	1.17	76.61	1.8	171	51	2.2	4.3	186	2.1	195	5	263	1,769	Douglas
0.6	0.8	50	1.0	3,923	0.90	0.47	74.45	1.2	6,547	35	0.8	1.1	6,183	1.2	6,461	2	7,840	77,623	DuPage
4.0	16.9	73	7.2	166	4.95	2.83	69.96	7.4	283	99	4.1	5.2	271	11.1	261	12	337	1,133	Edgar
0.0	0.0	65	0.0	61	0.96	0.96	73.08	1.0	104	77	2.7	1.8	111	1.3	78	1	124	533	Edwards
0.3	4.4	51	1.7	235	1.75	1.31	65.07	2.6	458	54	0.8	1.3	382	2.3	301	3	450	3,143	Effingham
1.5	5.7	64	3.4	177	2.00	0.40	71.20	3.2	250	68	1.1	3.3	271	2.9	175	5	326	1,743	Fayette
6.2	28.0	79	11.3	106	8.70	6.52	80.43	12.3	138	61	8.5	12.4	153	8.4	155	6.1	180	1,137	Ford
0.5	2.3	66	3.3	274	0.88	0.66	76.37	2.6	457	66	1.3	2.5	473	1.7	481	3	562	3,143	Franklin
2.9	9.3	74	7.6	197	4.82	2.55	78.19	5.9	353	62	4.9	4.3	324	7.7	298	10	383	2,374	Fulton
2.0	0.0	65	6.9	29	8.77	3.51	77.19	5.3	57	81	0.0	2.9	35	1.6	62	1	86	332	Gallatin
3.8	2.8	73	7.0	142	4.06	2.54	63.96	5.6	197	84	5.5	6.9	218	8.9	157	4.2	264	925	Greene
0.5	4.3	40	3.8	313	1.73	0.43	75.16	3.5	463	46	0.6	3.1	544	3.5	608	5	751	4,660	Grundy
3.9	0.0	61	8.3	48	3.53	3.53	83.53	7.1	85	74	2.6	2.6	115	8.4	83	5.3	113	614	Hamilton
5.4	11.8	70	6.9	130	7.41	5.82	85.71	9.0	189	70	4.6	6.9	218	7.2	152	10	222	1,294	Hancock
0.0	0.0	61	0.0	15	0.00	0.00	81.08	0.0	37	82	3.2	0	31	5.6	18	0	33	149	Hardin
5.9	6.3	63	5.3	38	2.94	2.94	79.41	7.4	68	55	0.0	5.2	58	17.5	40	7	61	426	Henderson
2.3	5.3	/5	5.0	520	3.12	2.12	/0.95	4./	802	/4	3.6	9./	/21	9.9	5/6	14	/83	3,912	Henry
1./	18.2	/2	2.9	102	3.48	1.99	86.07	4.5	201	48	3.1	3.6	223	7.2	235	/	326	2,161	Iroquois
1.1	2.7	52	2.1	328	1.53	1.19	/8.36	2.7	587	68	1.3	1.8	608	2.3	482	2	926	3,900	Jackson
1.1	0.0	58	3.0	204	0.90	0.90	/4.//	1.8	271	48	3.0	0	240	1.4	202	5	202	812	Jasper
0.9	0.0	54	2.5	204	1.08	0.81	85.18	1.0	3/1	51	1.2	1.5	340	2.4	293	2	382	3,253	Jefferson
0.0	2.4	54	1.2	100	0.83	0.83	01.22	1.4	301	01	0.5	2.3	172	3.3	1/7	3	302	1,3/1	Jersey
2.0	0.3	43	2.7	120	2.40	0.00	88.00	1.3	75	۵۱ ۵۲	3.5	0	69	4.0	5/	4	106	915	Jobason
2.0	2.4	44	3.1	3 915	1.64	1 10	56.67	3.4	7 807	57	1.7	33	7 597	2.9	7.083		9.611	45 691	Kane
2.6	5.8	63	3.8	292	2.86	2.11	68.83	4.1	664	51	1.2	2.8	1,044	2.2	1,455	4	2,282	8.968	Kankakee
1 6 0 2 2 2 3 3 0 0 2 3 3 0 0 2 3 3 5 0 0 0 2 3 3 0 0 0 2 2 3 3 0 0 0 2 2 2 2	5.7 28.0 2.3 9.3 0.0 2.8 4.3 0.0 11.8 0.0 6.3 5.3 18.2 2.7 0.0 0.0 2.4 6.3 0.0 2.4 5.8	64 79 66 74 65 73 40 61 70 61 63 75 72 52 58 54 53 43 44 63	3.4 11.3 3.3 7.6 6.9 7.0 3.8 8.3 6.9 0.0 5.3 5.0 2.9 2.1 3.6 2.5 1.2 3.9 2.1 3.1 3.8	233 177 106 274 197 29 142 313 48 130 15 38 520 102 328 55 204 244 128 47 3,915 292	2.00 8.70 0.88 4.82 8.77 4.06 1.73 3.53 7.41 0.00 2.94 3.12 3.48 1.53 0.90 1.08 0.83 2.48 2.67 1.64 2.86	0.40 6.52 0.66 2.55 3.51 2.54 0.43 3.53 5.82 0.00 2.94 2.12 1.99 1.19 0.90 0.81 0.83 2.48 0.00 1.10 2.11	33.07 71.20 80.43 76.37 78.19 77.19 63.96 75.16 83.53 85.71 81.08 79.41 70.95 86.07 78.36 74.77 85.18 61.22 81.99 88.00 56.67 68.83	3.2 3.2 12.3 2.6 5.9 5.3 5.6 3.5 7.1 9.0 0.0 7.4 4.7 4.5 2.7 1.8 1.6 1.4 3.7 1.3 3.4 4.1	250 138 457 353 57 197 463 85 189 37 68 802 201 587 111 371 361 161 7,807 664	34 68 61 66 62 81 84 46 74 70 82 55 74 48 68 48 51 81 61 42 57 51	1.1 8.5 1.3 4.9 0.0 5.5 0.6 2.6 4.6 3.2 0.0 3.6 3.1 1.3 3.0 1.2 0.5 3.5 1.4 1.9 1.2	3.3 12.4 2.5 4.3 2.9 6.9 3.1 2.6 6.9 0 5.2 9.7 3.6 1.8 6 1.5 2.3 5.2 0 3.3 2.2 0 3.3 2.8	271 153 473 324 35 218 544 115 218 31 58 721 223 608 100 340 217 173 69 7,597 1,044	2.3 2.9 8.4 1.7 7.7 1.6 8.9 3.5 8.4 7.2 5.6 17.5 9.9 7.2 2.3 1.4 2.4 3.3 4.8 1.9 2.9 2.2	301 175 155 481 298 62 157 608 83 152 18 40 576 235 482 71 293 272 167 54 7,083 1,455	5 6.1 3 10 1 4.2 5 5.3 10 0 7 14 7 2 5 3 4 3 4 3 4 3 4		3,143 1,743 1,137 3,143 2,374 332 925 4,660 614 1,294 149 426 3,912 2,161 3,900 812 3,253 1,371 1,373 915 45,691 8,968	Fayette Ford Franklin Fulton Gallatin Greene Grundy Hamilton Hamilton Hancock Hardin Henderson Henry Iroquois Jackson Jasper Jasper Jefferson Jersey Jo Daviess Johnson Kane Kankakee

	Estimated Population ≤6 Years of Age ⁵	2019		20	2020		2021		2022											
Illinois/		Children Tes	≤6 Years ted ⁷	Children Tes	Children ≤6 Years Tested ⁷		Children ≤6 Years Tested ⁷			Children ≤6 Years Tested ⁷							Pre-1978	Medicaid	Non-	
County/ Delegate Agency ¹		Tested	BLL≥5 µg/dL [®]	Tested	BLL≥5 µg/dL⁰	Tested	BLL≥5 µg/dL⁰	New Confirmed Cases10, BLL ≥3.5 µg/dL	Ever Tested ≤6 as of 12/31/22 ⁶	Tested	BLL≥5 µg/dLଃ	First Test ⁹	New Confirmed Cases ¹⁰ , BLL ≥5 µg/dL	New Confirmed Cases ¹⁰ , BLL ≥3.5 µg/dL	Tested	BLL≥5 µg/dLº	Housing Units Estimates ¹³	Enrolled¹¹ BLL ≥5 µg/ dLe	Medicaid¹² BLL ≥5 µg/ dLe	
	N	N	%	N	%	N	%	%	%	N	%	%	%	%	N	%	%	%	%	
Kendall	12,989	925	2	818	1.7	873	0.9	0.7	29	916	1.2	77.62	0.76	1.09	547	1.1	23	1.9	0.7	
Knox	3,901	696	13	542	10.8	668	9	4.6	74	936	8.9	65.28	2.56	4.17	628	8.4	79	8.1	5.1	
Lake	59,028	6,989	2	5,696	1.7	5,957	1	0.6	38	6,007	1.3	67.32	0.58	0.83	3,771	1.4	45	0.9	0.6	
LaSalle	8,666	1,665	8	1,384	9.4	1,320	6.7	3.1	68	1,261	5.4	77.72	1.67	3.25	924	5.4	68	9.4	1.6	
Lawrence	1,045	225	4.9	92	3.3	148	5.4	2.7	77	226	4.0	81.42	3.54	3.98	149	3.4	69	7.1	2.0	
Lee	2,465	357	2	277	6.2	330	4.5	3.9	55	333	3.6	71.77	1.80	3.00	183	3.8	73	0.0	2.2	
Livingston	2,728	553	8	424	9.2	511	6.1	2.7	84	523	6.1	77.63	1.15	1.91	428	5.4	75	9.2	1.8	
Logan	2,103	320	8	211	8.1	227	6.6	2.6	53	251	6.8	74.10	2.79	3.59	142	6.3	76	8.0	3.5	
Macon	8,970	2,680	9	2,034	9.7	2,193	7.5	3.0	70	2,244	7.0	50.31	1.65	2.50	1,154	6.8	73	6.5	3.4	
Macoupin	3,415	666	6	442	6.1	592	6.1	2.4	70	610	2.8	69.18	0.82	0.82	361	2.2	67	3.5	1.6	
Madison	21,493	3,864	3	3,043	2.7	2,992	3	1.9	59	3,550	2.0	66.34	0.56	1.04	2,509	1.5	60	3.0	0.7	
Marion	3,437	699	5	469	8.1	487	3.5	0.6	69	579	3.3	68.05	0.86	1.21	347	2.3	59	2.6	1.4	
Marshall	873	153	10.5	140	5	121	2.5	1.7	70	174	3.4	79.31	1.15	1.72	134	3.0	73	4.5	1.3	
Mason	928	315	11	196	7.7	150	5.3	1.3	77	221	5.0	61.54	0.90	2.26	115	4.3	74	5.3	1.4	
Massac	1,162	146	1	74	4.1	120	0.8	0.8	48	199	3.0	89.95	2.01	2.51	122	4.9	55	0.0	2.2	
McDonough	1,773	339	6	157	6.4	226	9.7	8.8	68	251	10.4	77.29	4.78	6.77	185	9.7	66	23.7	4.7	
McHenry	24,596	2,409	1	2,071	1.6	2,124	1.1	0.6	36	2,083	1.5	74.27	0.67	0.86	1,374	1.7	36	2.1	0.7	
McLean	13,797	2,087	4	1,246	6.5	1,164	4.3	1.3	64	1,580	3.5	82.15	1.33	2.15	1243	3.0	48	2.2	1.9	
Menard	1,071	122	3.3	92	5.4	82	6.1	3.7	42	88	10.2	62.50	6.82	10.23	56	10.7	56	15.4	6.5	
Mercer	1,149	232	3	146	6.2	197	2.5	1.0	72	227	6.2	69.16	2.20	3.08	150	7.3	75	11.1	4.5	
Monroe	2,714	438	3	370	1.6	258	1.9	0.8	50	233	1.3	75.54	0.43	1.29	176	1.7	39	4.5	0.5	
Montgomery	2,130	386	9	215	4.7	265	2.6	3.8	73	404	5.4	86.39	2.97	4.46	228	7.0	68	2.4	3.7	
Morgan	2,464	698	9	474	8	471	2.8	2.3	86	494	2.6	76.72	0.81	2.43	308	2.9	70	2.9	1.0	
Moultrie	1,329	169	4	134	6	172	8.7	4.1	52	167	3.6	72.46	1.20	1.20	131	2.3	65	10.3	0.0	
Ogle	3,985	703	4	554	3.2	562	3.6	3.2	61	602	3.0	76.74	1.83	2.82	421	2.4	62	3.2	2.0	
Peoria	17,511	3,656	8	2,746	6.9	3,069	6.9	2.5	73	3,707	6.3	68.65	0.94	1.65	2,765	5.1	69	9.3	2.6	

Illinois/ County/ Delegate Agency ¹	Estimated Population ≤6 Years of Age⁵	2019		2020			2021		2022										
		Children ≤6 Years Tested ⁷		Children ≤6 Years Tested ⁷		Children ≤6 Years Tested ⁷			Children ≤6 Years Tested ⁷					Children ≤2 Years Tested ⁷		Pre-1978	Medicaid	Non-	
		Tested	BLL≥5 μg/dLଃ	Tested	BLL≥5 μg/dL ⁸	Tested	BLL ≥5 µg/dLଃ	New Confirmed Cases10, BLL ≥3.5 µg/dL	Ever Tested ≤6 as of 12/31/22 ⁶	Tested	BLL≥5 µg/dL ⁸	First Test ⁹	New Confirmed Cases ¹⁰ , BLL ≥5 μg/dL	New Confirmed Cases ¹⁰ , BLL ≥3.5 µg/dL	Tested	BLL≥5 µg/dLº	Housing Units Estimates ¹³	Enrolled¹¹ BLL ≥5 µg/ dLe	Medicaid¹² BLL ≥5 µg/ dLe
	N	N	%	N	%	N	%	%	%	N	%	%	%	%	Ν	%	%	%	%
Perry	1,523	302	6	196	4.6	235	3.4	1.3	66	238	2.9	79.83	1.26	1.26	135	3.0	58	2.6	1.5
Piatt	1,399	172	5	127	3.1	155	5.8	5.8	48	145	2.8	77.93	0.00	1.38	82	3.7	60	0.0	2.7
Pike	1,283	333	6	231	6.1	251	4.4	2.4	92	273	6.6	76.56	2.56	2.56	187	5.9	72	4.8	2.2
Роре	244	16	6	9	11.1	16	0	0.0	33	17	5.9	82.35	5.88	17.65	10	10.0	43	0.0	6.7
Pulaski	374	62	4.8	51	2	61	1.6	1.6	70	68	2.9	77.94	0.00	0.00	41	2.4	66	5.9	0.0
Putnam	418	61	3	39	0	46	2.2	0.0	62	57	1.8	84.21	1.75	1.75	43	2.3	57	0.0	2.0
Randolph	2,097	439	2	349	2.3	369	3	1.6	72	355	2.8	68.73	1.41	1.97	251	4.0	59	5.9	1.1
Richland	1,406	205	8	111	10	146	8.9	3.4	55	197	9.6	77.16	3.55	3.55	118	7.6	62	18.9	2.6
Rock Island	12,272	2,899	6	2,241	5.9	2,683	5.4	1.9	82	3,042	5.1	67.78	2.07	3.35	1,980	4.4	75	7.0	2.9
Saline	1,934	448	5	215	2.8	145	3.4	1.4	70	308	4.9	81.82	1.62	1.62	186	3.8	62	0.0	2.3
Sangamon	16,149	2,979	4	2,148	4.3	2,178	3.7	1.8	55	2,310	2.9	65.84	1.21	2.25	1,413	3.3	61	3.6	1.4
Schuyler	345	95	6	71	5.6	78	6.4	3.8	97	73	5.5	79.45	0.00	0.00	46	6.5	65	16.7	0.0
Scott	357	99	7.1	56	5.4	63	7.9	3.2	87	82	7.3	85.37	2.44	2.44	58	6.9	72	11.1	5.5
Shelby	1,651	299	3	243	5.4	237	4.6	1.7	67	247	2.4	70.04	0.40	1.62	187	2.1	66	2.3	1.0
St. Clair w/o ESHD	17,030	1,997	5	1,621	4.2	1,365	2.9	1.4	37	1,400	3.0	70.07	0.79	1.07	922	2.1	48	3.1	1.6
Stark	401	126	13	86	19.8	114	12.3	7.9	100	102	11.8	73.53	3.92	4.90	72	8.3	83	27.8	2.4
Stephenson	3,555	1,152	14	817	11.6	917	9.9	7.2	90	971	10.1	56.44	5.36	7.62	612	10.0	72	15.3	5.4
Tazewell	10,953	1,251	4	1,284	4	1,075	3	1.1	45	1,290	2.7	77.98	0.62	1.01	1069	1.7	69	5.2	1.3
Union	1,250	166	1	157	3.2	194	6.2	6.7	55	162	2.5	75.93	0.62	1.85	111	2.7	57	10.0	0.8
Vermilion	6,571	1,347	3	1,028	3.2	1,329	2.8	4.1	71	1,191	2.9	65.99	2.10	3.61	616	2.6	76	4.0	2.3
Wabash	901	227	2.2	122	2.5	183	2.2	0.0	89	215	1.9	75.81	0.47	1.40	157	1.3	68	0.0	0.6
Warren	1,296	321	12	238	10.5	258	9.7	7.0	90	352	8.5	62.50	4.55	7.10	227	7.0	81	13.6	4.1
Washington	1,110	167	6	176	4.5	132	3.8	1.5	61	170	1.2	75.29	0.00	0.00	108	0.9	61	4.2	0.0
Wayne	1,360	224	8	165	6.1	215	4.7	1.9	71	242	5.8	83.06	1.24	1.24	149	6.7	59	12.9	1.0
White	1,142	204	3.4	142	2.1	115	0.9	0.9	58	136	5.1	80.88	1.47	2.21	80	5.0	73	0.0	4.2
Whiteside	4,383	862	5	472	4.4	610	3.3	2.0	65	773	4.1	73.09	2.07	2.59	362	3.6	75	5.5	2.2

Illinois/ County/ Delegate Agency1	Estimated Population ≤6 Years of Age ⁵	20)19	20)20		2021 2022												
		Children ≤6 Years Tested ⁷		Children ≤6 Years Tested ⁷		Children ≤6 Years Tested ⁷		Children ≤6 Years Tested ⁷						Children Tes	≤2 Years ted ⁷	Pre-1978	Medicaid	Non-	
		Tested	BLL≥5 µg/dLଃ	Tested	BLL≥5 µg/dL ⁸	Tested	BLL ≥5 µg/dLଃ	New Confirmed Cases10, BLL ≥3.5 µg/dL	Ever Tested ≤6 as of 12/31/22 ⁶	Tested	BLL≥5 µg/dLଃ	First Test ⁹	New Confirmed Cases ¹⁰ , BLL ≥5 µg/dL	New Confirmed Cases ¹⁰ , BLL ≥3.5 µg/dL	Tested	BLL≥5 µg/dLº	Housing Units Estimates ¹³	Enrolled¹¹ BLL ≥5 µg/ dLe	Medicaid¹² BLL ≥5 µg/ dLe
	N	N	%	N	%	N	%	%	%	N	%	%	%	%	Ν	%	%	%	%
Will	57,171	8,902	2	7,235	1.9	6,773	1.4	0.7	43	6,192	1.4	64.53	0.45	0.65	3,329	1.4	36	1.6	0.7
Williamson	5,509	745	3	449	3.6	498	2.6	0.8	51	636	2.0	84.12	0.63	1.42	409	1.2	46	4.9	0.9
Winnebago	25,004	5,231	4	4,201	3.7	5,245	3.4	3.7	74	4,962	3.5	62.33	2.42	3.97	3,168	3.4	62	3.4	2.3
Woodford	3,411	450	3	459	4.4	405	3.5	2.0	57	452	2.9	81.42	1.11	1.33	403	3.0	60	0.0	1.5
Egyptian ²	3,408	738	4	419	2.4	295	2.4	1.0	67	501	5.0	81.04	1.80	2.59	295	4.4	66	0.0	2.7
ESHD ³	5,458	3,825	4	2,156	1.8	2,028	2.1	0.8	161	2,199	3.2	58.48	0.68	1.05	1,288	3.0	72	2.8	2.1
Evanston	5,653	1,546	2	1,240	1.7	1,136	2.6	2.2	85	1,174	1.7	66.18	0.77	0.94	862	1.9	77	2.7	0.6
Oak Park	4,473	822	3	645	5.7	827	3.1	1.8	68	826	2.7	71.19	1.33	2.06	630	2.7	87	3.3	1.1
Skokie	6,415	1,195	2	1,243	1.5	1,173	2	2.0	64	1,234	2.0	62.07	1.05	2.03	831	1.9	85	0.4	1.5
Southern Seven⁴	4,494	600	3	412	3.9	572	3.3	4.2	53	644	2.3	82.14	1.09	2.48	402	3.2	55	4.1	1.1
Stickney	528	577	1.6	469	1.1	470	0.9	1.1	326	550	1.1	64.18	0.18	0.36	292	0.3	84	1.1	0.3

Data source: Illinois Department of Public Health - HHLPSS 2019-2022 Illinois Department of Healthcare and Family Services Enterprise Data Warehouse, 2020 through an interagency data agreement.

¹Delegate Agency include unit of local government or local health department approved by IDPH to carry out provisions of the act and code. Local governments include city of Chicago, Egyptian, Evanston, East Side Heath District, Oak Park, Skokie, Southern Seven, and Stickney.

²Egyptian:Gallatin, Saline, and White counties.

³ESHD East Side Health District (ESHD) delegate agency includes the cities of Alorton, Brooklyn, Cahokia, Caseyville, Centreville, East St. Louis, Fairmont City, Lovejoy, National City, Sauget, and Washington Park, and Scott Air Force Base.

⁴Southern Seven: Alexander, Hardin, Johnson, Massac, Pope, Pulaski, and Union counties.

⁵Estimated Population: Illinois ^aPopulation data compiled from bridged-race Vintage 2020 (2010-2020) postcensal population estimates (released by NCHS on 9/22/2021). Available on CDC WONDER Online Database. Accessed at http://wonder.cdc.gov/bridged-race-v2020.html on April 5, 2022 1:02:27. City Source: U.S. Census Bureau, 2016-2020 American Community Survey 5-Year Estimates, Table S0101; ^aEver Tested: Children ≤ 6 years of age tested at least once in their lifetime as of December 31, 2022 divided by Estimated Population 6 Years of Age and Younger (denominator); ⁷ Age at time of testing; ^aBLL ≥5 µg/dL: Children tested with blood lead levels ≥ 5µg/dL (numerator) divided by all children tested for the first time based on all children tested in the year; ¹⁰New Confirmed Cases: Children identified with confirmed venous blood ≥ 5µg/dL for the first time in that year (numerator) divided by all children tested (denominator); ¹¹Medicaid Enrolled: Medicaid enrolled children 6 years of age or younger tested with blood lead levels ≥ 5µg/dL (numerator) divided by all Medicaid enrolled children 6 years of age or younger tested (denominator): ¹²Non-Medicaid children 6 years of age or younger tested (denominator): ¹³Pre-1978 Housing Unit was estimated from U.S. Census Bureau, 2016-2020 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 2022 (test date – birthdate ≤2 years old).

The SAS (statistical analysis software) and SQL (Structured Query Language) codes were used to query databases. Due to rounding, decimals may not add up perfectly.

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 was selected for this report. If there is no venous test on a child, the peak capillary blood lead result was selected. A child was counted only once for each year in which he or she was tested or had a follow-up test. A confirmed test in Illinois is a venous blood draw. Most laboratories that analyzed blood lead were able to quantify and accurately report levels of $<5\mu$ g/dL compared to previous years. While the current acceptable error range is $\pm4\mu$ g/dL, most laboratories that do blood lead analyses perform at an error range within $\pm2\mu$ g/dL. The portable desktop blood-lead analyzers operate within $\pm3\mu$ g/dL error range.

Appendix 1 reflects the number of children tested in 2019 through 2022 and those retested for follow-up by county, lead level \geq 5µg/dL, and Medicaid/non-Medicaid status. In 2022, BLLs in children ranged from 1.0 µg/dL to 364 µg/dL with a mean/median of 2 µg/dL. The most frequent reading was 1.0 µg/dL. In 2022, 56% of Illinois children tested were 2 years of age or younger and accounted for 57% of all children tested with BLLs \geq 5µg/dL.

In 2022, more than 9,466 children were tested at blood lead reference value (BLRV) \geq 3.5 µg/dL. There were 4,893 children 6 years of age and younger identified with a BLL \geq 5 µg/dL, and 3,071 (63%) of them were confirmed with a venous test.

Approximately 59% of Illinois children have received at least one test in their lifetime (Children Ever Tested as of December 31, 2022.)

Appendix 2:

Children Tested for Blood Lead by Age from January 1 to December 31, 2022

			≥5 µg/dL						
Age (Years)	Estimated Population ^a	Total Tested	Children Te	0/					
			Venous	Capillary	70				
<1	140,052	19,855	139	140	2.1				
1	141,151	53,019	840	632	5.4				
2	145,841	39,067	878	429	6.3				
3	147,981	28,271	655	199	6.3				
4	152,494	25,807	480	226	4.9				
5	153,713	24,020	345	229	3.9				
6	151,009	7,101	185	41	5.5				
7-15		19,855	144	14	5.8				
≤6 years	1,032,241	191,887	3,071	1,835	2.8				

Data source: Illinois Department of Public Health - HHLPSS 2022.^a Population data compiled from bridged-race Vintage 2020 (2010-2020) post-censal population estimates (released by NCHS on 9/22/2021). Available on CDC WONDER Online Database. Accessed at <u>http://wonder.cdc.gov/bridged-race-v2020.html</u> on October20, 2022.

Appendix 3:

Children Tested for Blood Lead by Race/Ethnicity January 1 to December 31, 2022

		Children Tested by Race in 2022							
Racial	Estimated	Total Tested	≥5 µg/dL						
Classification	Population ^a		1	0/					
		n	Venous	Capillary	%				
Black or African American	192,043	37,272	921	484	3.77				
White	762,179	75,683	1,206	892	2.77				
Asian	70,357	6,482	158	43	3.10				
Hispanic or Latino	242,171	48,137	698	373	2.22				
Total Children Tested ^₅	1,032,241	194,323	3,071	1,822	2.52				

Data source: Illinois Department of Public Health - HHLPSS 2022.^a Population data compiled from bridged-race Vintage 2020 (2010-2020) post-censal population estimates (released by NCHS on 9/22/2021). Available on CDC WONDER Online Database. Accessed at http://wonder.cdc.gov/bridged-race-v2020.html on October20, 2022. ^bChildren tested include unknown or other races not included on the table. Note: Race and Ethnicity are calculated differently.

Appendix 4:

The 2023 High-risk ZIP Codes for Lead Exposure

State of Illinois Illinois Department of Public Health

Pediatric Lead Poisoning High-Risk ZIP Code Areas

The ** indicate that any ZIP code within a county with the preceding numbers are considered high risk

A	00477	00504	F		00005	00004	00000	B. 1		00070
Adams	02477	60534	Ford	Jetterson	60085	62024	62032	Putnam	62702	02870
62301	62478	60546	609**	62810	60087	62040	62049	61326	62703	62877
62320		60558	61773	62914	60088	62048	62051	61336	62704	
02320	Clay	00000	01//3	02014	00088	02040	02031	01330	62704	Wayne
62324	62434	606**	Franklin	62846	60099	62058	62056	61340	62707	62446
62325	629**	60701	00040	62864		62060	62075	61363	A 1 A 1	62022
62220	020	60706	02812	02004	LaSalle	62061	62076	01000	Schuyler	02023
02330	Clinton	60706	62819	62872	60470	02001	02070	01200	61452	62837
62339	00040	60707	62822	62883	60518	62084	62077	Randolph	623**	62842
62346	62219	60712	02022	62898	60521	62087	62089	00047	020	62042
62247	62245	60714	62825	02000	00531	62000	62001	62217	626	02043
02347	62250	60714	62856	Jersev	60549	62090	62091	62233	Saatt	62850
62348	02230	60803	62965	62029	60551	62095	62094	62227	30011	62878
62349	62253	60804	02003	02020	00551	62097	62533	02237	626**	02070
02040	62265	00004	62874	62030	60557	02037	02000	62242	01	62886
02331	62266	60805	62884	62031	61301	62234	62538	62261	Sneiby	62895
62359	02200	60827	02000	02001	61216	62281	62560	00070	61957	
62360	62293		02090	02052	01010			02272	62422	White
02300	0.1.	Crawford	62891	62063	61321	Marion	Morgan	62277	02422	62820
62365	Coles	62413	62896	1. B	61325	62801	62601	62278	62431	02020
62376	61912	02410	02000	Jo Daviess	61220	02007	02001	02270	62438	02821
	61920	62427	629	61001	01332	62807	02028	62286	62444	62827
Alexander	01320	62433	Fulton	61025	61334	62849	62631	62288	02444	62835
62914	61931	62449		01023	61341	62853	62638	62292	62462	02000
62057	61938	02454	614^^	61028	61242	02000	02000	02202	62463	02844
02957	61043	62451	615**	61036	61342	62854	62650	62297	62465	62861
62969	01343	62454		61041	61348	62870	62651	63673	02403	62862
62088	62440	62479	Gallatin	01041	61350	62875	62665		62534	02002
02000	62469	02470	62867	61059	01000	02073	02003	Richland	62553	62869
62990	02.00	Cumberland	020074	61075	61354	62881	62668	62419	02000	62887
Bond	Cook	62429	62871	01005	61358	62882	62692	62425	02000	
62096	60008	02420	62934	61085	61260	62902	62605	02425	62571	Whiteside
02000	00000	62436	62954	61087	01300	02092	02095	62450		610**
62246	01010	62447	00070	Jahnas :	61364	62893	Moultrie	62452	Stark	61020
62262	60018	62469	02979	Jonnson	61370	Marahell	610**	62060	614**	01230
62272	60022	02400	62984	62908	61272	warsiidii	019	02000	- · ·	61243
02213	00022	DeKalb		62012	013/2	61369	Onle	Rock leland	Stephenson	61250
62275	00020		Greene	02012	Lawrence	61375	00140		610**	04054
62284	60029	11100	620**	62923	604**	61077	00113	61201	0.0	01251
Beene	60042	60115		62939	024~~	013//	61007	61236	Tazewell	61252
DUUIR	00040	60120	Grundy	62067	1 00	61424	61030	61237	61534	61261
61008	60053	00129	60407	02901	L00	615**	01030	01237	01004	01201
61012	60056	60145	00440	62972	605**	010	61043	61239	61554	61270
01012	60069	60146	00416	62985	610**	Mason	61047	61242	61555	61277
01038	00000	00450	60424	00005	61210	G1E**	01010	01014	61664	61000
D	60070	60150	60427	62995	61310	615	61049	61244	01004	01283
Brown	60074	60520	00437	Kana	61318	626**	61054	61256	61568	Will
623**	00074	60550	60444	Nalle	61324		61061	61257	61610	
B	60076	00000	60450	60109	01024	Massac	01001	01237	61611	60408
Bureau	60077	60552	00400	60110	61331	62910	61064	61259	01011	60410
613**	60001	60556	60474	00110	61353	02010	61068	61264	61721	60417
	60091	00000	60479	60120	61267	62908	61001	01201	61733	00417
Calhoun	60093	DeWitt		60121	01307	62953	01091	01205	01755	60421
62006	60104	617**	Hamilton	60123	61378	62960	Peoria	61266	61734	60432
02000	00104	017	62817	00123		02300	Feoria	61278	61747	00432
62013	60130	618**	02011	60144	Livingston	McDonough	61451	01270	61755	60433
62036	60131	Douglas	02828	60151	604**	614**	61517	61279	01755	60434
62047	60153	Douglas	62829	60505	609**	014	61523	61282	61759	60/35
02047	00155	61910	62859	00505	009	623**	01525		L lucio a	00433
62045	60154	61911	02000	60506	613**	Mallann	61526	St. Clair	Union	60436
62053	60155	61012	Hancock	60507	617**	wchenry	61529	62059	62905	60468
62070	60160	01913	61450	00001		60033	61533	62201	62906	60491
02010	00100	61919	01430	Kankakee	Logan	60034	01000	02201	02000	00401
Carroll	60162	61930	623**	60901	617**	00004	61536	62202	62920	60484
61014	60163	61000	Hardin	00001	625**	60180	61539	62203	62926	Williamoon
01014	60164	61941	narum	60910	025	McLean	61660	02200	62952	williamson
61046	00104	61942	62919	60914	626**	NICLEAN	01552	62204	02002	62841
61051	60165	61953	62931	60015	Massa	61701	61559	62205	62961	62921
01001	60169	01000	62082	00313	wacon	61720	61562	62206	62998	02021
01053	00174	61956	02902	60917	61756	61722	01002	02200		02922
61074	60171	DuBaga	Henderson	60935	62501	01722	01009	62207	Vermilion	62933
61078	60173	Durage	04.4**	60040	02501	61724	6160*	62220	609**	620/8
01010	60176	60101	614**	00940	62513	61725	61614	62222	01010	02340
61285	00110	60106	Hanni	60941	62514	01720	01014	02225	01010	62949
Casa	60195	00100	пенту	60954	6252*	61726	61615	62226	61811	62951
Cass	602**	60126	61234	00050	0232	61728	61616	62232	61812	62050
626**	603**	60137	61233	00956	62532	61730	_	62220	01014	02333
Champaign	0000	60181	61225	60961	62537	61701	Perry	02233	01014	62974
Gnampaign	00402	60195	01233	60964	62544	01/31	622**	62240	61817	Winneher
60949	60406	00100	61238	60060	02044	61732	62922	62243	61831	winnebago
61801	60409	60187	61241	00909	62551	61737	02032	62255	01000	61024
61902	00444	60519	61254	Kendall	62554	61744	62888	02200	01032	61063
01002	00411		01207	60536	62573	01/44	62997	02257	61833	61077
61815	60415	Edgar	61258	00544	02010	61745		62258	61834	01077
61816	60419	619**	61262	60541	Macounin	61752	Platt	62264	619/1	61079
61920	00400		61273	60650	62000	61752	61813	02204	01041	61080
01020	00422	Edwards	01210		02005	01700	61818	02282	61844	61101
61821	60425	62476	61274	KNOX	62014	61754	01010	62289	61846	01101
61843	60426	62906	614**	61401	62023	61770	61830	Saline	61949	ь1102
61845	60420	02000	1	61/02	62033	61772	61839	00047	01040	61103
01040	00428	62815	iroquois	01402	02000	01112	61854	02917	61850	61104
61849	60429	62818	609**	61410	62069	61774	01004	62930	61857	01104
61851	60/130	02010		61414	62079	61776	61855	62025	61050	61107
61050	00400	02833	Jackson	61420	62095		61929	02000	01000	61108
01002	00438	Effinaham	62901	01430	02000	Menard	61026	62946	61865	61100
61859	60445	Linngnann	00007	61436	62088	62642	01930	62965	61870	01109
61862	60453	62411	02907	61439	62093	02072	Piko	62077	01070	61111
C1002	00400	62414	62916	61440	02000	626/3	000**	02911	018/6	Mander
01803	60455	62426	62027	01440	02020	62675	623**	62987	61883	woodford
61866	60456	02420	02321	61458	62630	62688	Popo	0		61516
61871	60457	62445	62932	61467	62640	02000	rope	Sangamon	Wabash	61530
010/1	00457	62461	62940	01+07	02040	Mercer	62928	62515	62410	01000
61872	60458	60467	62042	614/2	62649	612**	62938	62520	629**	61545
61875	60459	02407	02942	61474	62667	61/**	62047	02320	020	61561
61977	00400	62473	62950	61495	62672	014	o2947	62530	Warren	61570
010//	60466		62958	01460	02012	Monroe	Dulack:	62539	**aiieii	015/0
61878	60469	Fayette	02900	61488	62674	WOIIIOe	Fulaski	02000	614**	61738
	60470	62011	62966	61/180	62685	62244	62941	©∠558	Machineta	61760
Christian	00472	02011	looner	01403	02000	62248	62956	62561	vvasnington	01700
62083	60473	02080	Jasper	615/2	02080	62270	00000	62615	62214	61//1
625**	60475	62418	62432	Lako	62690	02219	02903	02010	62263	
020	00470	62458	62434	Lake	02000	62295	62964	62625	02203	
Clark	60476	02430	02407	60020	Madison	62208	62070	62661	62268	
00400	60482	62471	62448	60035	62001	02230	02310	62670	62271	
62420	60501	62838	62459	60040	62001	Montgomerv	62976	02070	62803	
62441	00001	62000	62475	00040	02002	62015	62992	62689	02000	
62442	60513	02880	02470	60041	62018	02010	62006	62693	62808	
U2442	00505	62885	62480	60064	62021	62017	02990	02000	62848	
00474	00525	02000								
62474	60525	02000	62481	00004	02021	62019		02701		

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Illinois Department of Public Health Illinois Lead Program

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