




Understanding the neurocognitive effects and developmental outcomes of low level lead toxicity

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Early Intervention Training Program February 14, 2018

Today's presenters



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Objectives

- Understand how lead exposure occurs and methods of prevention
- Explore the developmental implications of lead exposure and the long term impact on child outcomes
- Appreciate the role of Early Intervention in improving outcomes for children who have been lead exposed and some of the strategies that may be employed
- Discuss current Early Intervention pilot work and statewide efforts



Lead in the news:
























What is the most common source of lead exposure?

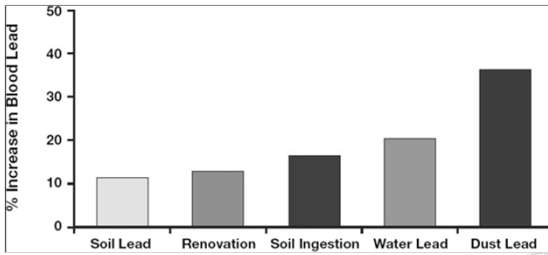
- Water flowing through pipes with lead parts
- Lead paint**
- Lead-glazed ceramics (plates, cups, etc.)
- Children's toys and jewelry




*Figure 3. Council on Environmental Health, Prevention of Childhood Lead Toxicity. Pediatrics. 2016;38(1):e20161493.



Sources of Lead Exposure



Source of Lead Exposure	% Increase in Blood Lead
Soil Lead	~11%
Renovation	~13%
Soil Ingestion	~17%
Water Lead	~20%
Dust Lead	~37%

Lead Exposure Can Happen Anywhere

Air emissions
Fuel used by smaller aircraft releases lead into the air and the environment. Smelting—the process for extracting lead from batteries and electronic devices—can cause widespread contamination of air, soil, and groundwater in surrounding communities.

Lead paint hazards
Peeling and cracking paint creates flakes and dust in homes, schools, and child care facilities, where it can be ingested by children, and deteriorating exterior paint on buildings can contaminate soil.

Water
Though the exact number is unknown, millions of pipes made with lead, called lead service lines, carry drinking water to residences. Fixtures and solder used in homes and other buildings, such as schools, can also be a source of contamination.

Consumer products and food
Lead paint is still used commercially for some hobbies and in consumer products such as adult novelty jewelry. Certain foods, spices, health remedies, and candies contain trace amounts of lead, as do some progressive hair dyes.

Source: Centers for Disease Control and Prevention, "Sources of Lead," <https://www.cdc.gov/nceh/lead/tips/sources.htm>
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Lead Exposure During Pregnancy

Lead can also be transferred to a fetus during pregnancy and to an infant when a mother with high elevated blood lead levels breast feeds.

A newborn exposed to lead before birth may:

- Experience **prematurity**
- Have a **low birth weight**
- Have **slowed growth**

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"Preventing and Testing for Childhood Lead Poisoning: A Reference Guide for Physicians and Health Care Providers." Illinois Department of Public Health.

What percent of Illinois homes were built before 1978?

A. 85%
B. 73%
C. 66%
D. 54%
E. 44%

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Lead Exposure via Paint

- **Lead-based paint** is present in 75% of Illinois homes built before 1978.
- **66% of Illinois homes** were built before 1978 including **81% of Chicago homes**.

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Illinois Department of Public Health, Lead Poisoning Prevention, Fokun, F., Simpson, E., McMea, K., & the Illinois Department of Public Health, Illinois Lead Program 2015 Annual Surveillance Report, Dec 2016.

But also...

MAY 23, 2017
Plat 1 uniquely recalls Tostitos' Wicker Furniture Due to Violation of Federal Lead Paint Standard
The paint used on the wicker furniture can contain excessive levels of lead, which is a violation of the federal lead paint standard.
Remedy: Consumers should stop using the recalled furniture immediately and return it for any Plat 1 signature store for a full refund or a manufacturer credit.
Units: About 3,300 (in addition, about 75 units sold in Canada)

JULY 19, 2016
Pliny Remembrance Recalls Children's Jewelry Due to Violation of Lead Standard
The silver jewelry sold in the jewelry and watches section had a trace of the element lead, which is toxic if ingested by young children and can cause adverse health effects.
Remedy: Consumers should immediately take the recalled jewelry away from children and contact Pliny Remembrance for a full refund.
Units: About 6,700 bracelets and 3,300 necklaces (in addition, 300 bracelets and 100 necklaces sold in Canada)

FEBRUARY 10, 2017
Restoration Hardware Recalls Metal Top Dining Tables of Lead Exposure
The table's metal top can contain lead and presents a risk of lead exposure to children. Lead is toxic if ingested and can cause adverse health effects.
Remedy: Consumers should immediately stop using the recalled tables, cover the tables and place the table out of the reach of children and contact Restoration Hardware to receive a free replacement table or a full refund.
Units: About 2,700

OCTOBER 2016
OSI Outdoors Recalls Children's Water Bottles Due to Violation of Lead Standard; Sold Exclusively at L.L.Bean
The lead solder on the base of the bottles contains high levels of lead, which is toxic if ingested by young children and can cause adverse health effects.
Remedy: Consumers should immediately stop using the recalled water bottles and contact L.L.Bean for a full refund.
Units: About 6,700

JANUARY 10, 2017
Active Kids Recalls Children's Toy Shields and Games That Sell Due to Lead Violations; Sold Exclusively on Amazon.com (Recall #2017)
Excessive lead paint levels on the yellow shield and black blades on the sword, and the black paint on the green hat can violate the federal lead paint standard. In addition, the black paint also contains lead and the black paint also contains lead. Lead is toxic if ingested by young children and can cause adverse health effects.
Remedy: Consumers should immediately take the recalled toys and games out of the reach of children and contact Active Kids for a full refund.
Units: About 75

MAY 8, 2015
Baby's Dream Recalls Cribs and Furniture Due to Violation of Lead Paint Standard
The grey paint on the cribs and furniture exceed federal lead limits, if ingested, lead can cause adverse health effects.
Remedy: Consumers should immediately contact Baby's Dream to arrange for an exchange.
Units: About 4,600 cribs and furniture pieces

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US Consumer Product Safety Commission, www.cpsc.gov
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TRUE OR FALSE?:

Adults and children are at equal risk of lead exposure.

A. True
B. False

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FALSE!

Children are at increased risk of lead exposure and the toxic effects of lead.



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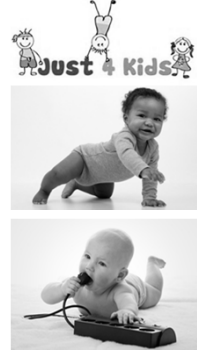
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Presentation Title Here #149878

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Why are kids at increased risk?

- Increased exposure
- Immature blood brain barrier
- Increased absorption from the GI tract
 - Children absorb up to 70%
 - Adults absorb only about 20%
 - Increased rates of iron deficiency
- Increased retention of absorbed lead in the body
 - Children <2 yo retain ~50%
 - Adults retain only 1%



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Lowry JA, Sep 2016. Childhood Lead Poisoning: Clinical Manifestations and diagnosis. UpToDate. [July 7 2016; Oct 26 2016].

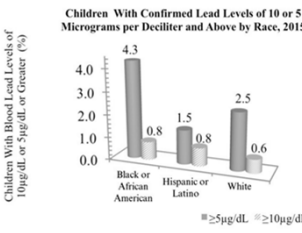
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Which kids are at the greatest risk?

Children who are:

- Living in poverty,
- Members of racial-ethnic minority groups,
- Recent immigrants,
- Living in older, poorly maintained rental properties,
- OR, have parents who are exposed to lead at work.

Figure 8: Childhood BLLs by Race in 2015



Source: Illinois Lead Program Surveillance Data, 2015

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Fokam, F., Simpson, E., & McAfee, K. & Illinois Department of Public Health, Illinois Lead Program 2015 Annual Surveillance. Dec 2016.

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True or False?:

Chelation removes all lead in the body.

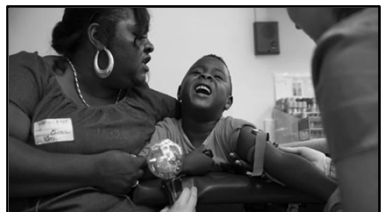
A. True
B. False

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FALSE



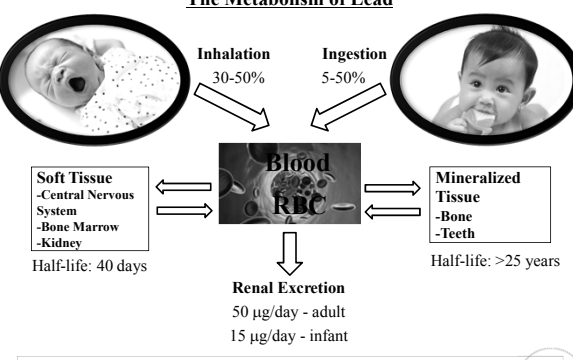
Hawthorne, Michael & Smith Richards, Jennifer. (April 2017) "Kids poisoned by lead in CHA housing; landlords still got paid." *Chicago Tribune*.

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The Metabolism of Lead



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"Why Care about lead poisoning and where does it come from." Helen Birns, Ann & Robert H. Lurie Children's Hospital of Chicago. March 2016.

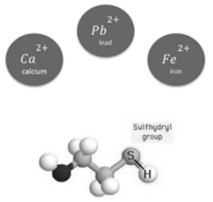
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How does lead affect the body?

- Interferes with interactions of divalent cations and sulfhydryl groups

WIDESPREAD PHYSIOLOGIC EFFECTS
(including brain metabolism, nerve conduction, and DNA/RNA synthesis to name a few)

- Main affects are on **3 organ systems**:
 - Heme biosynthesis
 - Renal system -> Cardiovascular system
 - Central and peripheral nervous systems
 - Acute encephalopathy
 - Hearing loss
 - Peripheral neuropathy
 - Neurobehavioral deficits **



**Even at low blood lead levels (less than 5 µg/dL)

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Levy JA. Sep 2016. Childhood Lead Poisoning: Clinical Manifestations and diagnosis. UpToDate. (July 7 2016; Oct 26 2016).


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Toxic Blood Lead Levels

According to the CDC:

- A blood lead level greater than **0 µg/dL** is **unsafe** for a child.
- At a blood lead level of **5 µg/dL** **public health actions** should be initiated.
- At a blood lead level of **45 µg/dL** **chelation therapy** is recommended.



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Symptoms of Lead Poisoning in Children

*Lead poisoning rarely causes symptoms except at very high levels




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Proving the Toxic Effects of Low Level Lead Poisoning



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Establishing the Toxic Effects of Lead on Learning & Development

1979: Needleman et al prove children with increased dentin levels of lead are more likely to have neurocognitive deficits

1 st & 2 nd Graders	-Lower IQ scores -Impaired speech and language processing -Decreased attention
5 th Graders	-Lower IQ scores -Increased use of special education services -Higher rate of school failure

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Needleman, HL, et al. Deficits in psychologic and classroom performance of children with elevated dentine lead levels. N Engl J Med. 1979 Mar 29;300(13):689-95

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Needleman's 11-year follow up:

- 7x increase in failure to graduate
- Lower class standing
- Increased absenteeism
- 6x increase in reading disabilities
- Deficits in vocabulary, fine motor skills, reaction time, and hand-eye coordination

Needleman, H.L., et al. *The Long-Term Effects of Exposure to Low Doses of Lead in Childhood: An 11-Year Follow Up Report.* NEJM. 1990 Jan 11; 322(2): 83-88

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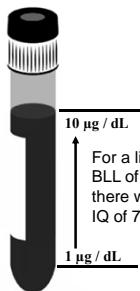
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Long-term Impact: Lead and IQ

2003: [Canfield et al](#) measured BLL at 6, 12, 18, 24, 36, 48, and 60 months then administered an Intelligence Scale (IQ test) at the ages of 3 and 5 years

- An increase in the lifetime avg BLL of 1 µg/dL associated with a change of **-0.46 IQ point**
- If BLL <10 µg/dL, an increase in avg lifetime BLL of 1 µg/dL was associated with a change of **-1.37 IQ points**



For a lifetime average BLL of up to 10 µg/dL, there was a decline in IQ of 7.4 points.

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Canfield RL, et al. *Intellectual Impairment in Children with Blood Lead Concentration below 10 µg per Deciliter.* The New England Journal of Medicine Vol 328: 16, April 17, 2003. 1517-1526.

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Qualifying the Impact of Lead

2007: Miranda et al link blood lead surveillance data with end-of-grade testing data to determine whether blood lead levels in early childhood are related to educational achievement in early elementary school

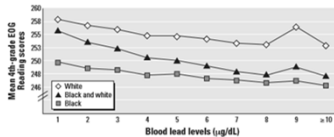


Figure 3. 4th-grade mean Reading EOG test results stratified by blood lead levels.

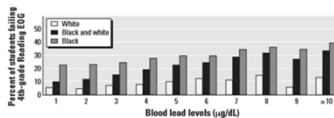


Figure 4. Percent of students failing 4th-grade Reading EOG.

Miranda, et al. *The Relationship between Early Childhood Blood Lead Levels and Performance on End-of-Grade Tests.* Environmental Health Perspectives. Vol 115: Number 9, August 2007. 1242-1247.

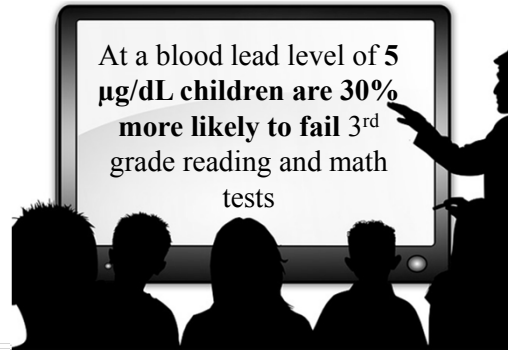
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Long-term Impact: Lead in the Classroom

At a blood lead level of 5 µg/dL children are 30% more likely to fail 3rd grade reading and math tests




Evens A, Wojtczak D, Lanphear B, et al. *The effect of childhood lead exposure on school performance in Chicago public schools: A population-based retrospective cohort study.* 2015. Environ Health 14:21.

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Long-term Impact: Lead and ADHD



“Approximately 1 in 5 cases of ADHD among U.S. children have been attributed to lead exposure.”

—American Academy of Pediatrics Council on Environmental Health

Prasad R, Lashley SP, Juliger P, et al. *The association of tobacco and lead exposure with attention-deficit/hyperactivity disorder.* Pediatrics. 2008; 121(5): 811-816.

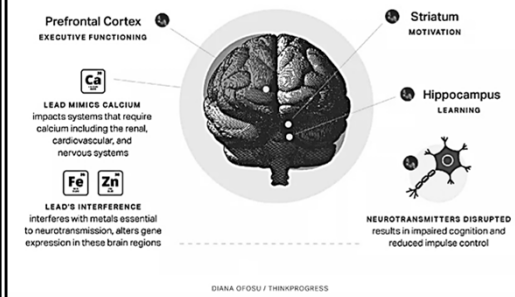
Hogg J, T. Esmore, A. L. Natsirajan, N., et al. (2016). Variation in an iron metabolism gene moderates the association between blood lead levels and attention-deficit/hyperactivity disorder in

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Lead on the Brain



Prefrontal Cortex
EXECUTIVE FUNCTIONING

Striatum
MOTIVATION

Hippocampus
LEARNING

LEAD MIMICS CALCIUM impacts systems that require calcium including the renal, cardiovascular, and nervous systems

LEAD'S INTERFERENCE interferes with metals essential to neurotransmission, alters gene expression in these brain regions

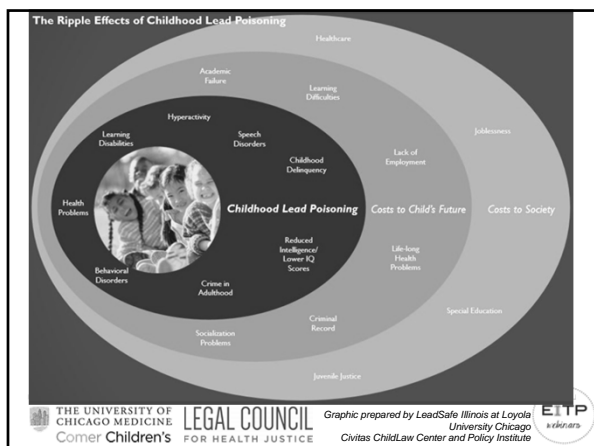
NEUROTRANSMITTERS DISRUPTED results in impaired cognition and reduced impulse control

DIANA OJOSU / THINKPROGRESS

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Which family should receive a childhood lead risk questionnaire at their 12 month Well Child Check?

- A. A family living in Chicago
- B. A family living outside Chicago but in a high risk ZIP code
- C. A family receiving Medicaid benefits
- D. A family on private insurance living outside of a high risk or Chicago ZIP code**

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Lead Screening Guidelines Age 6 and Under

Medicaid	High risk zip code	Everyone else	Chicago
<p>Blood test by 12 & 24 months regardless of risk</p> <p>BLL for children between 36 & 72 months if never tested before</p>	<p>Blood test by 12 and 24 months</p>	<p>Risk assessment at all WCC from 6mo to 6yr</p> <p>Blood test for those determined to be at risk</p>	<p>BLL at 6, 12, 18, 24 & 36 mo OR at 9, 15, 24 and 36 mo</p> <p>Annual BLL for children 4-6yo unless prior tx of ≥ 2 annual BLL <10 ug/dl</p>

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American Academy of Pediatrics. Detection of Lead Poisoning. AAP.org "Lead Poisoning Prevention." Chicago Department of Public Health. https://www.cityofchicago.org/city/en/depts/cdph/supp_info/food_environment/childhood_lead_poisoningpreventionandhealthyhomesprogram1.html
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Follow-up from a Positive Screen ≥ 10 $\mu\text{g/dL}$

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    graph TD
      A[Repeat blood lead test and follow-up medical evaluation as needed.] --> B[Public health department (local, state or city) will be notified and should provide nurse case management services.]
      B --> C[Nurse case management should connect family to various services, educate family on lead exposure, refer for environmental investigation and developmental screening.]
    
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What public health department services does a child with an elevated blood lead level between 5 and 10 $\mu\text{g/dL}$ receive?

- A. Nurse home visiting only
- B. Environmental inspection only
- C. Nurse home visiting and environmental inspection
- D. A home lead test kit and brochure
- E. None of the above**

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Follow up from a positive screen ≤ 10 $\mu\text{g/dL}$

*Except Chicago

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Where we are now: Illinois Lead Program 2015 Annual Surveillance Report

- Blood lead levels in tested Illinois children averaged **2.3µg/dL**.
- 1 in every **192** children tested had a confirmed elevated blood lead level
- 1 in **25** children tested met the recommended federal reference value ($\geq 5 \mu\text{g/dL}$) for public health intervention.

“The burden of Illinois childhood lead poisoning remains one of the highest in the nation.”

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Fokum, F., Simpson, E., & McAfee, K. & Illinois Department of Public Health. Illinois Lead Program 2015 Annual Surveillance. Dec 2016.
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What percentage of Illinois children received a blood lead screening in 2015?

- A. 80-90%
- B. 50-60%
- C. 30-40%
- D. 20-30%**
- E. 10-20%

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Fokum, F., Simpson, E., & McAfee, K. & Illinois Department of Public Health. Illinois Lead Program 2015 Annual Surveillance. Dec 2016.
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	Number of Children Age 5 and Under who Received Blood Lead Level Testing in 2015	Number of Children Age 5 and Under With Blood Lead Level $\geq 5 \mu\text{g/dL}$ in 2015
Chicago	86,803 (47% Chicago Children)	3,007 (3.5%)
Illinois	248,223 (26% IL Children)	10,040 (4.0%)
U.S.A.	2,415,604 (10% US Children)	79,957 (3.3%)

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Fokum, F., Simpson, E., & McAfee, K. & Illinois Department of Public Health. Illinois Lead Program 2015 Annual Surveillance. Dec 2016.
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How we can do better:

Primary Prevention

- Decrease exposure
 - Stricter regulations
 - Removal/mitigation of lead in homes
 - Water treatment

Education

Improved education of:

- Families
- Healthcare providers
- Policy makers
- Early Care and Education Providers
- General public

Intervention

Addressing deficits before they begin:

- Early childhood education/Head Start
- Early Intervention
- Home Visiting

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Newborn A 1 month B 6 months C Ideal start of EI services 2 years D

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Adapted from Courchesne E, Pierce K. Brain overgrowth in autism during a critical time in development: implications for frontal pyramidal neuron and interneuron development and connectivity. Int J Dev Neurosci 2005; 23:153-70
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Principles of EI


- Support**
 - families to promote their child's optimal development
- Facilitate**
 - child's participation in family and community activities
- Encourage**
 - active family participation
- Collaborate**
 - with families and teams
- Develop, implement, monitor and modify**
 - intervention plans & strategies
- Build plans**
 - around family routines
- Embed strategies**
 - into daily routines

“Early Interventionists coach, consult, & collaborate with families & community members so they are comfortable and confident that they can promote child learning, development, & participation in everyday activities.”

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True or False? Children who have been lead exposed are automatically eligible to receive Early Intervention services.

A) True
 B) False



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Improving Access to Early Intervention Services for Children with Lead Exposure



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Changing Qualification for EI

The CDC lowered the "blood lead level of concern" to **5 µg/dL** as recently as 2012

Illinois' current level of concern remains **double that at 10 µg/dL**

IDEA Part C allows states to include "disorders secondary to exposure to toxic substances" as an example of a condition that states may adopt for children to **automatically qualify** for EI services

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Methodology for Establishing Automatic Eligibility

STEP 1	STEP 2	STEP 3	STEP 4
Literature review on health and developmental impact of lead poisoning; survey of state requirements for automatic eligibility for EI	EI and Lead Workgroup assembled by Illinois EI Interagency Council with members, advocates, pediatricians, and state/city/county public health agency staff	Data analysis on EI and lead data collected from Illinois, Cook County, and Chicago Departments of Public Health. Preliminary recommendation of automatic eligibility at a BLL of 5 and above	ICDD funded pilot to provide recommendations for statewide roll out of automatic eligibility for EI and development of guidance for EI providers to best support families with lead exposed children

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Automatic Eligibility Based on Blood Lead Level in U.S.A

Elevated blood lead level as medical condition resulting in high probability of developmental delay

- Colorado (lead poisoning encephalopathy)
- Connecticut (≥ 25 µg/dL)
- Delaware (elevated blood lead level requiring chelation)
- Iowa (≥ 20 µg/dL)
- Kansas (lead intoxication, lead acetate, tetraethyl lead, other lead compounds, unspecified lead compound)
- Louisiana (elevated blood lead level requiring chelation)
- Maryland (≥ 20 µg/dL)
- Michigan (venous blood lead level at or above reference value recommended by the CDC; 5 µg/dL)
- Minnesota (≥ 45 µg/dL)
- Missouri (≥ 10 µg/dL)
- Oregon (< 10 µg/dL)
- Rhode Island (lead intoxication)
- Tennessee (< 10 µg/dL)
- West Virginia (15 µg/dL)
- Wisconsin (> 10 µg/dL)

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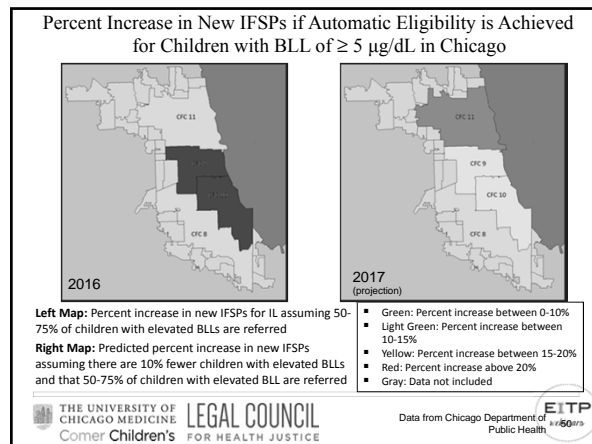
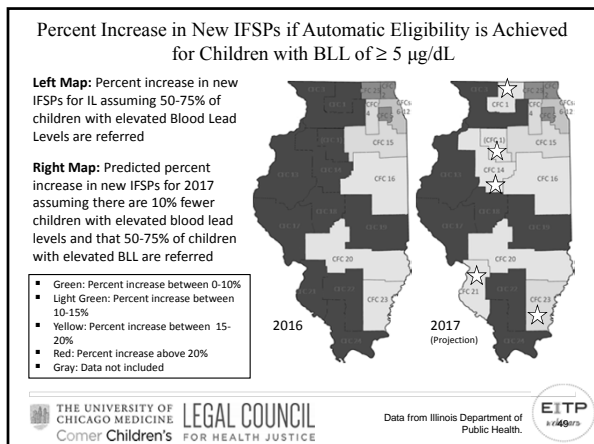
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Children with Elevated Blood Lead Levels by CFC

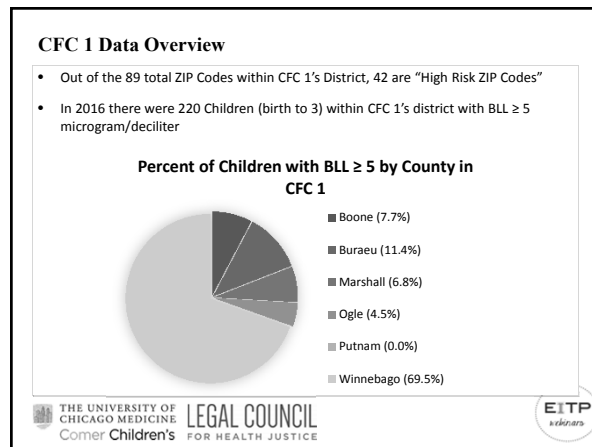
Prevalence of Children Ages 0-3 with a BLL ≥ 5 µg/dL per CFC served in Illinois 2014-2016

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 x1467rs



- ### Goals of Current Pilot
- 1. Identifying and serving** infants and toddlers who have been exposed to dangerous levels of lead by providing Early Intervention services. Pediatrician role is VITAL.
 - 2. Increasing awareness** of opportunities for mitigating the long term effects of lead exposure through timely referral and provision of EI services.
 - 3. Facilitating data collection** and analyzing pilot data to better inform statewide implementation of a new policy (to be adopted) of automatic eligibility for Early Intervention among children zero to age three who have been exposed to dangerous levels of lead.
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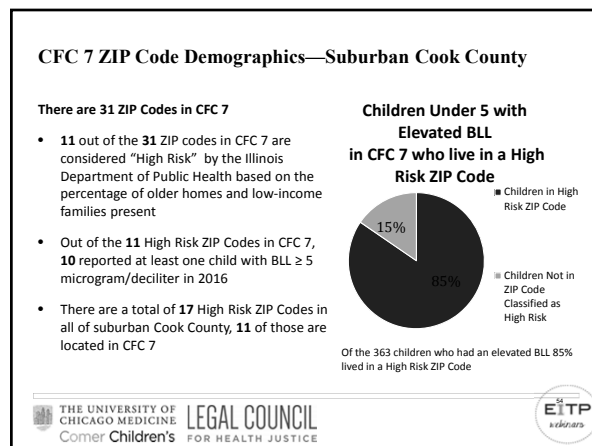


Do you work with children living in CFC 1?

A. Yes


B. No

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Do you work with children living in CFC 7?

A. Yes
B. No




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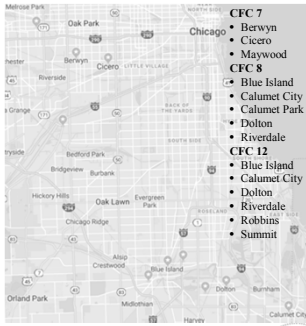
Lead Hazard Reduction Demonstration Grant Program – HUD



Cook County Department of Health (CCDPH) was awarded a Lead Hazard Reduction Demonstration (LHRD) Grant from HUD.

The LHRD Grant Program helps income-eligible homeowners in priority communities in suburban Cook County by funding the renovation work needed to eliminate or control lead-based paint hazards in their homes.

Homes occupied by children with elevated blood lead between 5-9 are a priority.



CFC 7
• Berwyn
• Cicero
• Maywood

CFC 8
• Blue Island
• Calumet City
• Calumet Park
• Dolton
• Riverdale

CFC 12
• Blue Island
• Calumet City
• Dolton
• Riverdale
• Robbins
• Summit

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Service Guidelines: For Young Children with Elevated Blood Lead Levels

Part 1	Part 2	Part 3
Medical Context	Supporting Child Development	Tenants Rights
Developmental Outcomes	Building Parent Capacities	Reducing Risk of Lead Exposure
Lasting effects of lead	Effects in School Setting	Nutrition Guidelines
	Delegate Agency Obligations	

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So what can you do?




EARLY INTERVENTION IS KEY

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ZERO TO THREE
Early connections last a lifetime

For children who have a low frustration tolerance, try the following strategies:

- Help them learn to wait – explain to them why waiting is important or necessary
- Help them cope – tell them you understand how hard things can be and help them problem solve
- Use humor

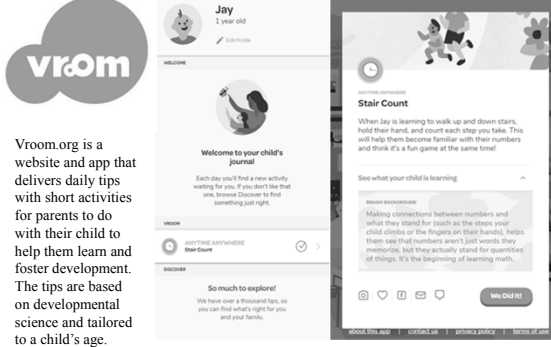


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"Frustration Tolerance." Zero to Three Early Connections Last a Lifetime. <https://www.zerotothree.org/resources/346-frustration-tolerance>

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Vroom.org is a website and app that delivers daily tips with short activities for parents to do with their child to help them learn and foster development. The tips are based on developmental science and tailored to a child's age.

"Journal." Vroom. <https://app.vroom.org/journal>

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Center on the Developing Child
HARVARD UNIVERSITY

<p>Active Games</p> <p>Play song games that require children to start and stop, or slow down and speed up, such as "Jack in the Box," "Freeze Dance," or "Ring Around the Rosie."</p>	<p>Matching / Sorting Games</p> <p>Engage toddlers in a silly sorting game such as putting small shapes in big bucket, and big shapes in a small bucket.</p>	<p>Imaginary Play</p> <p>Play along with the child and let the child direct the play. Let the child tell you what role you should play and how you should do it.</p>	<p>Conversation and Storytelling</p> <p>Talking about feelings by labeling children's feelings as they are noticed or by telling the story of a time a child became upset.</p>

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"Executive Function Activities for 18- to 36-month-olds." Enhancing and Practicing Executive Function Skills with Children from Infancy to Adolescence. <http://www.cdc.gov/ncjy/2015/05/Enhancing-and-Practicing-Executive-Function-Skills-with-Children-from-Infancy-to-Adolescence-1.pdf>

ASQ
Ages & Stages Questionnaires

Fine Motor Skills: 12 to 16 Months

Baby is using fingers with more skill now. He can point with his index finger and can pick up tiny bits of cereal with his thumb and finger.


Carton Construction: Save different sizes of paper cereal boxes or juice boxes to use for blocks. Show baby how to stack them, then knock them down. Line them up to make a wall and then knock them down again: "What fun to knock them all down!"





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Twombly, Elizabeth & Ginger Fink. "Fine Motor Activities to Help Your Baby Grow and Learn." ASQ-3 Learning Activities. Pg. 45.

Nutrition for Lead-Exposed Children

Breakfast: Oatmeal with raisins 

Lunch: Grilled cheese & orange juice 

Dinner: Chicken, sweet potato, & broccoli 

<p>IRON</p> <ul style="list-style-type: none"> Green leafy vegetables Tuna & salmon Dried beans and pasta Raisins, dates & prunes Poultry without the skin Oatmeal 	<p>CALCIUM</p> <ul style="list-style-type: none"> Milk Cheese and Yogurt Green leafy vegetables Salmon Calcium-enriched orange juice Tofu 	<p>VITAMIN C</p> <ul style="list-style-type: none"> Oranges Grapefruit Limes and lemons Strawberries Cantaloupe Potatoes and sweet potatoes Tomatoes Broccoli
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Preventing Lead Poisoning: Tips For Families

Wash hands and toys frequently and remove shoes when entering a home	Clean floors with a wet mop and use a wet cloth to wipe dusty surfaces	Run cold water for a minute before using a tap and avoid using hot tap water to make baby formula
Maintain a healthy diet high in calcium, vitamin c and iron	Utilize safe work practices when repairing or renovating, e.g. avoid dry sanding.	Prevent exposure to areas in a home with old paint, and avoid bare soil

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"Lead Poisoning: Symptoms and Causes." Mayo Clinic. <https://www.mayoclinic.org/diseases-conditions/lead-poisoning/symptoms-causes/ Mayo-20154717>

Coming soon(ish) ...

- Lowering of the IDPH blood lead level of concern
- Decision regarding universal vs targeted blood lead screening
- New algorithm instructing providers on at what ages to test for blood lead
- Early Intervention automatic eligibility for lead-exposed children with a BLL of $\geq 5 \mu\text{g}/\text{dL}$ for all CFCS

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"We cannot sit back and wait 20 years to see the consequences of lead poisoning in our schools and in our criminal justice system ... there are ways to mitigate damage ... and we can do things now that can lessen the impact. This is a unique opportunity to build a model public health program."

—Dr. Mona Hanna-Attisha, Flint, MI



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Survey & Certificate




You will receive email with survey from Early Intervention Training Program (eitraining@illinois.edu)

Must complete unique survey to get certificate

Certificate will be emailed after survey completion (within 24 hours)

Issues with survey or certificate, please contact us at eitraining@illinois.edu




Thank you for supporting the children and families of Illinois!

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eitp.education.illinois.edu

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The Early Intervention Training Program at the University of Illinois

The Children's Research Center
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