Timeline Tuesday
Data Snapshot: Child Lead Poisoning

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25 YEARS OF COUNTING DELAWARE KIDS

HIGHMARK DELAWARE
Data Overview

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Community Perspective Panelists

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LEAD POISONING TIMELINE

**HISTORY**
Dr. John Lockhard Gibson first describes lead toxicity in children

**PAINT**
Sale of lead-based residential paint is banned in the U.S.

**SCREENING**
Delaware General Assembly passes the Childhood Lead Poisoning Prevention Act, mandating screening children at 12 months of age

**GASOLINE**
Lead in on-road gasoline phases out when it is banned by the Environmental Protection Agency

**2ND SCREENING**
Delaware legislates expansion of formal lead screening process to include a second screening at 24 months for children at high risk for exposure

**GOALS**
Continue primary prevention & increase screening rate to identify children with elevated blood levels early

Office of Healthy Environments

- Lead Poisoning Prevention Program
- Healthy Homes Program
- Radon Awareness Program
- Occupational Health Program

* All working together to address health problems in a multifaceted and comprehensive manner
Lead poisoning remains the **#1 environmental threat** to the health of America’s children, as well as a health risk for people of all ages.

Lead Poisoning is **100% PREVENTABLE!**
Leading Cause of Elevated Blood Lead Levels in Children

Elevated blood lead levels in children are most often associated with deteriorating lead-based paint in the home.
How Does a Child Usually Get an Elevated Blood Lead Level (EBLL)?

A child’s typical hand-to-mouth behavior increases their ingestion of any toxicants in dust or soil.
Children’s Brain Development

Fully **90 percent** of a child’s brain development is accomplished by the age of **FIVE**.

While blood lead levels can be decreased by removing the source of lead exposure, neurological damage is **irreversible**.
Hazards of Lead Exposure

- Permanent brain damage in small children
- Difficulty in thinking, learning, remembering
- Decreased kidney function
- Increased blood pressure
- Increased chance of having a miscarriage
- Mothers with elevated blood lead levels have babies with elevated blood lead levels, as lead crosses the placental barrier.
Potential Socio-Behavioral Effects of Elevated Blood Lead Levels in Children

**Potential Early Connected Issues**

- Irritability, aggression
- Hyperactivity
- Diminished attention span
- Learning disabilities, speech disorders
- Lowered IQ
- Behavioral challenges

**Potential Long-Term Connected Issues**

- Academic challenges
- Health difficulties
- Employment hurdles
- Trouble socializing
- Criminal and violent behavior
 Lead Absorption

- **Children** absorb *50 percent* of *ingested* lead and retain at least *30 percent*.
- Lead is stored in the kidneys, liver, bones (marrow) and brain.
- A healthy diet, low in fat and rich in calcium and iron, will help inhibit lead absorption.
Children at High Risk of Elevated Blood Lead Levels

- Young children
  - Over 43,000 children less than 6 years old are on Medicaid. *It is suspected that an overwhelming majority of these children on Medicaid reside in older homes in a high-risk geographic area of the state.*
  - It is estimated that many children on Medicaid in Delaware do not get a lead test at 12 months of age and again at 24 months of age as required by federal law.
    - KIDS COUNT will have more information on this front soon as they’re investigating health utilization of children with EBLLs in the Medicaid claims.

Source: Delaware Department of Public Health and Social Services Division of Medicaid and Medical Assistance
Children at High Risk of Elevated Blood Lead Levels

- Populations living below the poverty level
- Victims of housing inequity
  - 59.2% of residential properties in Delaware were built before 1978 when lead paint was banned for indoor use in homes.
  - An estimated 41,841 (or 70.8%) children under 6 years old live in the highest-risk geographic areas of Delaware.
- Pregnant women
- Those whose parents have workforce hazards
Which Counties have the Most Children Under 6 Years Old with Elevated Blood Lead levels?

- Kent: 19.49%
- New Castle: 13.48%
- Sussex: 67.04%

2013 - 2018 Data

Over 37% of all childhood lead poisoning cases occur in the City of Wilmington!

Source: Delaware Department of Health and Social Services, Division of Public Health, Childhood Lead Poisoning Prevention Program
A major concern: low testing rates across the state of Delaware, even though Delaware Law requires ALL children get at least one Lead Test.
Lead Testing & Diagnoses Through Recent Years

Lead Poisoning
Young Children Tested in Delaware

Source: Delaware Department of Health and Social Services, Division of Public Health, Childhood Lead Poisoning Prevention Program
Lead Testing & Diagnoses Through Recent Years

Young Children Identified in Delaware

Source: Delaware Department of Health and Social Services, Division of Public Health, Childhood Lead Poisoning Prevention Program
Number of Test Results with Elevated Blood Lead Level of Children Under Six Years Old by ZCTA*, Delaware 2010-2017

Notes: Centers for Disease Control (CDC) defined a reference level of 5 micrograms per deciliter (µg/dL) to identify children with elevated blood lead levels.

*Zip Code Tabulation Areas (ZCTAs) are a statistical geographic entity produced by the U.S. Census Bureau for tabulating summary statistics from 2010 Census. ZCTAs are generalized area representation of U.S. Postal Service Zipcode Service Area.

Sources: Lead Poisoning Prevention Program Office of Healthy Environments
Division of Public Health Delaware Department of Health and Social Services
U.S. Census Bureau
Map created by: Delaware Health Statistics Center
Lead Surveillance Work Plan: Goals Moving Forward

- Increase numbers of children <6 years old tested for blood lead.
- Improve data usage -> I.D. geographic areas and populations at high risk.
- Target interventions to high-risk geographic areas and populations.
- Increase prevention and intervention.
- Increase identification of children exposed to lead and linkage to recommended services.
Delaware Regulations to Reduce Lead Exposure & Lead Poisoning

- Childhood Lead Poisoning Prevention Act
- 4459 Lead Based Paints Hazards
- 4459B Residential Property Renovation, Repair and Painting
- Title 16, Chapter 26 Childhood Lead Poisoning Prevention Act (Delaware General Assembly)
  Childhood Lead Poisoning Advisory Committee
- New Castle County’s Reception of Grants per the Lead Abatement Program of 2019
- Delaware’s Healthy Homes & Lead Poisoning Prevention Program
Why Regulate Renovations?

Renovations in older homes create lead paint dust

Dust is the most common way lead gets into the body

Lead-contaminated dust is poisonous to children and adults, even in very small amounts
What is Delaware’s Renovation, Repair & Paint (RRP) Regulation?
<table>
<thead>
<tr>
<th>Blood Lead Levels</th>
<th>Educational Impact</th>
<th>Size of Study</th>
<th>Location of Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 3 µg/dL</td>
<td>Decreased end of grade test scores</td>
<td>More than 57,000 children</td>
<td>North Carolina (Miranda et al. 2009)</td>
</tr>
<tr>
<td>4 µg/dL at 3 years of age</td>
<td>Increased likelihood learning disabled classification in elementary school</td>
<td>More than 57,000 children</td>
<td>North Carolina (Miranda et al. 2009)</td>
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<td>Poorer performance on tests</td>
<td>35,000 children</td>
<td>Connecticut (Miranda et al. 2011)</td>
</tr>
<tr>
<td>5 µg/dL</td>
<td>30% more likely to fail third grade reading and math tests</td>
<td>More than 48,000 children</td>
<td>Chicago (Evens et al. unpublished data)</td>
</tr>
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<td></td>
<td>More likely to be non-proficient in math, science, and reading</td>
<td>21,000 children</td>
<td>Detroit (Zhang et al. 2013)</td>
</tr>
<tr>
<td>5-9 µg/dL</td>
<td>Scored 4.5 points lower on reading readiness tests</td>
<td>3,406 children</td>
<td>Rhode Island (McLaine et al. 2013)</td>
</tr>
<tr>
<td>≥10 µg/dL</td>
<td>Scored 10.1 points lower on reading readiness tests</td>
<td>3,406 children</td>
<td>Rhode Island (McLaine et al. 2013)</td>
</tr>
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<td>10 and 19 µg/dL</td>
<td>Significantly lower academic performance test scores in 4th grade</td>
<td>More than 3,000 children</td>
<td>Milwaukee (Amato et al. 2012)</td>
</tr>
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<td>≥ 25 µg/dL</td>
<td>$0.5 million in excess annual special education and juvenile justice costs</td>
<td>279 children</td>
<td>Mahoning County, Ohio (Stefanak et al. 2005)</td>
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References


• U.S. Census Bureau, 2007-2011 American Community Survey.
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www.dekidscount.org