

Childhood Lead Poisoning: Blood Lead Testing and Age of Housing

Type of EPHT Indicator	Hazard /Intervention
Measures	<ol style="list-style-type: none"> 1. Number of children born in the same year and tested for lead before age 3 2. Percent of children born in the same year and tested before age 3 3. Number of homes built before 1950 (as measured in the 2000 Census) 4. Number of homes built between 1950 and 1979 (as measured in the 2000 Census) 5. Percent of homes built before 1950 (as measured in the 2000 Census) 6. Percent of homes built between 1950 and 1979 (as measured in the 2000 Census)
Derivation of Measure(s)	<p>Use birth year cohort to calculate the percentage of children with at least one ZIP test prior to age 36 months.</p> <p>Use 2000 Census, Summary file 3, to calculate the percentage of pre-1950 housing units and percentage of children under 5 living in poverty.</p> <p>Merge testing and housing data files by geography.</p>
Unit	<p>Tested child</p> <p>Proportion of houses by age-based hazard assessment</p>
Geographic Scope	Iowa
Geographic Scale	county and state
Time Period	Begin with year 2000 birth cohort and repeat for each succeeding birth cohort once they reach age 3 years.
Time Scale	Annual
Rationale	<p>Elevated BLLs in young children have been associated with adverse health effects ranging from learning impairment and behavioral problems to death. Because children may have elevated BLLs and not have any specific symptoms, CDC recommends a blood-lead test for young children at risk for lead poisoning. Risk factors identified in the National Health and Nutrition Examination Surveys (NHANES) include living in housing built before 1950, especially deteriorating condition, being African American and living in a family in poverty.</p> <p>Many states have adopted a targeted testing strategy (test children at high risk), and some states recommend universal testing (test all young children). Nevertheless, studies have documented low blood-lead testing rates among children at high risk. CDC recommends that state and local childhood lead poisoning prevention programs (CLPPPs) evaluate testing among high-risk populations. All CLPPPs have assessed testing in their states but many methods have been used and it is not possible to compare across states.</p> <p>CLPPPs also administer education campaigns for physicians and</p>

	<p>parents about childhood lead poisoning to enable them to identify children at risk.</p> <p>For both universal testing plans and targeted testing plans, children should be tested at least once before the age of 3 years. Some states require more than one test between the ages of 6 and 36 months. Using a birth cohort, the number of children born in a specific year tested before the age of 36 months can be determined.</p>
Use of the Measure	<p>Identify populations that are not being tested adequately and improve testing</p> <p>Allow for a better understanding of what the blood-lead surveillance data represent</p> <p>Allow for comparison across states; such comparison can be used to target interventions (especially CDC, EPA, HUD)</p> <p>Identify communities at risk and the percentage of children being tested.</p> <p>Identify children who should be tested for lead by identifying high-risk communities</p>
Limitations of the Measure	<p>This measure estimates testing rates in children living in communities which may be at greater risk of exposure due to older housing. It is a surrogate for a child's risk of lead poisoning due to lead paint in the home. A more direct measure would be based on individual children and the actual age of their housing.</p> <p>Some tested children's addresses are not in the CLPPP data system, while only the provider's address is provided for other children. This can result in some tests being attributed to the wrong ZIP code or not being counted at all.</p> <p>Using number of pre-1950s housing from Census does not account for houses that have been renovated or have had lead removed.</p> <p>This measure does not account for other lead sources in the community.</p> <p>Children may be exposed to lead paint in neighboring counties (visiting family, day care)</p> <p>Many states require children be tested more than once. This indicator does not determine how many children are tested more than once to meet such state requirements.</p>
Data Sources	<ol style="list-style-type: none"> 1. Childhood Blood Lead Testing Surveillance data 2. US Census (Summary file 3) 3. Vital statistics birth data for number of births
Limitations of Data Sources	<p>Childhood blood-lead surveillance data</p> <ul style="list-style-type: none"> • Surveillance data are not randomly sampled or representative of the population. • Addresses for all children tested are not included. • Address of the treating clinic is listed sometimes as the address of the child.

- Race and ethnicity are not always captured.

Census data

- Data are available only every 10 years.
- Information on renovation of pre-1950 housing is not available.
- Information on the condition of the housing is not available.
- Address level information on the year the housing was built is not available.

Vital Statistics Birth Data

- Children may move to another ZIP code or county after birth