OVERVIEW

A Hidden Problem
Lead-Poisoned Children in the United States

Despite increased attention on childhood lead poisoning since the water crisis in Flint, Michigan, most efforts to describe the scope of the problem only focus on the children who have been tested for lead. However, no one has described how many children are not even being tested. Results of new research from the California Environmental Health Tracking Program suggest that many children may be falling through the cracks. ***Learn more at www.cehtp.org/hiddenlead.***

Lead poisoning is preventable

Lead poisoning and its public health impacts are completely preventable. However, lead-based paint and lead dust remain in millions of older homes in the United States and continue to harm the developing brains of children. Other sources of lead include lead pipes, contaminated soil, and consumer products. While we should not wait until children are poisoned to find and remove hazardous lead from the environment, identifying all lead-exposed children (children with lead in their bodies) is essential to addressing this issue. Our research suggests that, for much of the country, current lead testing practices fall short of that goal.

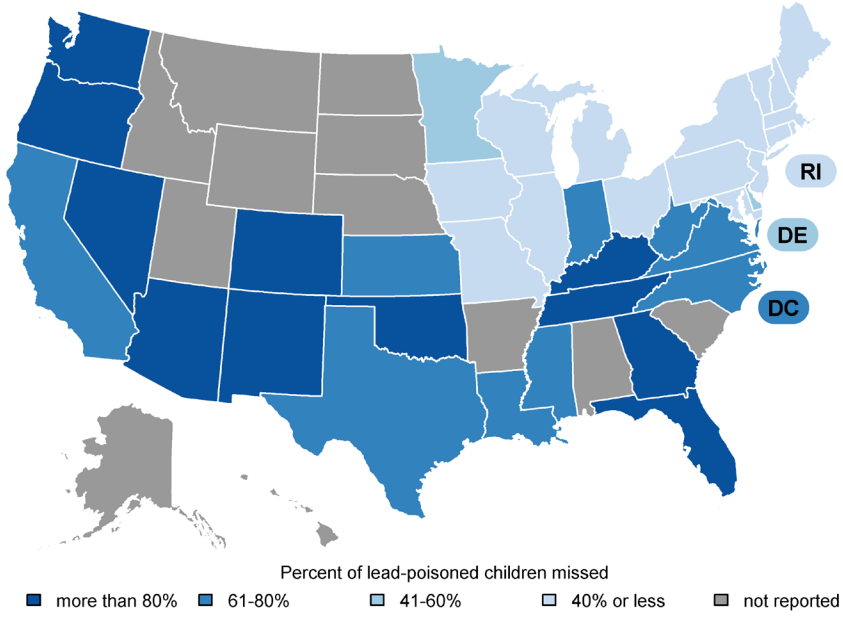
An incomplete picture of lead poisoning

Commonly cited estimates of lead poisoning in children are based on results of blood tests conducted by medical providers. These estimates are incomplete because lead testing is not required for all children in the U.S., testing guidelines vary by state, and not all states report lead testing data. To assess the scope of the problem, the California Environmental Health Tracking Program (CEHTP), a program of the Public Health Institute, developed a statistical model using data from the National Health and Nutrition Examination Survey (NHANES) to estimate the actual number of lead-exposed children across the U.S. by state. Results were published in the journal *Statistics in Medicine*.[1]

How man children are falling through the cracks?

To better understand how many lead-poisoned children may have been missed, we compared our estimates of the true number of lead-poisoned children with the numbers of children diagnosed with lead poisoning and reported to the Centers for Disease Control and Prevention (CDC) from 1999-2010. For this analysis, lead poisoning was defined as having a blood lead level of 10 ug/dL or higher among children 1-5 years old. Results from this analysis were published in the journal *Pediatrics*.[2]

Percent of lead-poisoned children missed in the U.S., by state



We estimated that 1.2 million children had lead poisoning from 1999-2010. In states that reported data to the CDC during this time, there were 944,000 lead-poisoned children, of whom only 607,000 were identified and reported. This suggests that:

- Nationally, only 64% of lead-poisoned children were identified.
- In California, only 37% of lead-poisoned children were identified.
- Many states missed more than half of their lead-poisoned children.

In conducting our research, we also found that:

- Black children are at greatest risk for having high levels of lead in their bodies, compared to other children.
- Hispanic children are at greatest risk for having any lead in their bodies.
- Lead poisoning isn't just an East Coast problem. The West and South regions each only found about a quarter of their lead-poisoned children, and the South had the most lead-poisoned children in the U.S.

Our research indicates that:

- Lead poisoning in children is a problem throughout the country.
- Estimates of child lead poisoning based on medical testing data are too low.
- Current child lead testing practices are not effective in many states.

Serious health and economic consequences

While blood lead levels in U.S. children have been reduced since the removal of lead from paint and gasoline, lead continues to present a danger to children. No level of lead in the body is safe, and harmful impacts occur at even the lowest measureable exposures to lead. High levels of lead can damage one's kidneys, nervous system, and other major organs, and can lead to seizures or death. Even low levels of lead can decrease cognitive functioning and IQ, are associated with behavioral problems, and have been shown to reduce a child's school performance, educational attainment, and future earning potential. In addition to lasting health effects, lead exposure has been estimated to cost over $50 billion nationally each year due to decreased cognitive functioning and lost lifetime productivity.[3] In California, lead exposure costs an estimated $8-11 billion for all children born in a single year.[4]

When children are not tested, their families are less likely to receive the information and assistance needed to remove lead from the child's environment. Toxic lead will continue to persist in the environment and put future generations of children at risk until mitigation measures are taken—such as the removal of lead-based paint from homes.

Lead testing as part of a comprehensive strategy

Blood lead testing is a critical activity and should be part of a comprehensive strategy to prevent further exposure in children already found to be lead-exposed, identify and remove lead from our environment, and prevent lead exposure in future generations. Our findings suggest that medical providers in many states should increase blood lead testing of children. While strategies for improving testing practices will vary by state, our results broadly demonstrate that medical providers must take lead poisoning more seriously as an urgent public health issue.

For more information

Interactive maps with detailed findings are available at www.cehtp.org/hiddenlead.

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3. Trasande L, Liu Y. Reducing the staggering costs of environmental disease in children, estimated at $76.6 billion in 2008. Health Aff (Millwood). 2011;30(5):863-870. doi:10.1377/hlthaff.2010.1239.

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