

Preventing Childhood Lead Exposure in Pennsylvania

Lead remediation can help prevent future crime



Acknowledgements

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Fight Crime: Invest in Kids

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In Pennsylvania, nearly 9,000 young children suffer from lead poisoning each year.¹ Lead poisoning can lead to multiple health issues, both in childhood and later in life, potentially increasing children's risk of future crime. By implementing lead remediation practices, and investing in children's health now, we can prevent Pennsylvania's children from being exposed to lead and ensure that they are less likely to be involved in the justice system later in life.

Researchers estimate that approximately 500,000 young children in the United States have elevated levels of lead in their blood. In 2012, the Centers for Disease Control and Prevention determined that lead poisoning was a lead level of five micrograms of lead per deciliter of blood.² Children can be exposed to lead through inhaling or ingesting lead dust, drinking water from lead pipes, or consuming paint

chips or soil that contain lead.³ Lead exposure can occur in homes, schools, or child care facilities.⁴

As a result of the COVID-19 pandemic, testing for lead exposure decreased by 34 percent between January and May 2020. This reduction in testing caused an estimated 9,600 children with elevated lead levels to be missed, and to not receive the treatment they needed.⁵ In residential housing, homes built prior to 1950 have the highest risk of containing lead-based paint.⁶ Lead exposure can impact children's health in the short term, but can also impact their future health, school performance, and job prospects. In Pennsylvania, the main source of lead poisoning is lead-based paint. The state didn't ban this type of paint for residential use until 1978, and Pennsylvania ranks fifth in the country for old housing, with 70 percent of residential units having been built prior to 1980.⁷ This high potential for

“ Childhood lead exposure can cause behavior problems, and increased risk for future crime. Investing in lead remediation can keep kids healthy now, and out of trouble later.”



David W. Sunday Jr.
District Attorney, York County, PA

lead exposure has a significant impact on the children in our state, and disproportionately impacts children of color and those in low-income families; lead remediation measures must be implemented in order to allow Pennsylvania’s children to grow up in safe and healthy environments, and to avoid future crime.⁸

Risks of lead exposure

Lead exposure, especially among young children, can have lasting negative impacts. Children are more at-risk for the damaging effects of lead than adults, because children’s bodies absorb more lead, and their brains and nervous systems are more susceptible to damage from lead poisoning. The symptoms caused by lead exposure can range from hearing problems and headaches to slowed growth, learning

difficulties, behavior problems, and damage to the nervous system and brain.⁹ While the severity of these symptoms can depend on the level of lead in a child’s blood, there is no safe level of lead exposure in children.¹⁰

Lead exposure in the United States and Pennsylvania

Lead exposure is one of the most common preventable poisonings in children. Six percent of children between one and two years old have toxic levels of lead in their blood. These rates are even higher among Black children, with 11 percent between the ages of one and five having toxic blood lead levels.¹¹ In Pennsylvania, lead poisoning occurs in Black children at nearly five times the rate of White children, and Hispanic children experience lead poisoning at twice the rate of White children.¹²

Testing for lead poisoning in Pennsylvania

As of 2019, Pennsylvania had the second-highest number of children who tested positive for lead poisoning in the United States. Of the ten states with the highest rates of lead poisoning, Pennsylvania ranked second-worst for testing children. In 2017, less than a third of the 300,000 children under two years old were tested for lead poisoning. For children under the age of six, testing rates were even lower, at approximately 19 percent.¹³

In 2019, the Pennsylvania Department of Health tested over 176,000 children between the ages of 0 and 5 for lead exposure. Approximately 6,400 of those tested had blood levels over five micrograms per deciliter. Among those tested, Black and Hispanic children had higher percentages of elevated blood lead levels than White children.¹⁴

While rates have decreased slightly among children testing positive for lead in Pennsylvania, more progress must be made in order to protect children in our state. In 2017, 9,325 children tested positive for lead poisoning, only a slight decrease from 9,643 in 2015. Additionally, only 15 percent of rural children, and 19 percent of urban children were screened for lead poisoning.¹⁵

Childhood lead exposure increases the risk of future crime

Lead exposure can occur even before a child is born. Children who experience prenatal exposure to lead committed an average of two more delinquent acts as adolescents. Additionally, children who were exposed to lead in early childhood committed, on average, nearly five more delinquent acts as adolescents than their peers who were not exposed to lead as children.¹⁶ A longitudinal study of the relationship between lead exposure and crime found that populations that had lead in their drinking water had higher homicide rates after 20 years, compared to areas where lead was not present in drinking water.¹⁷

One study found that, as blood lead levels increased, so did the risk of being arrested for a violent crime in young adulthood. For every five micrograms per deciliter increase in the level of lead in a child's blood at age 6, their likelihood of being arrested for violent crime as young adults increased by almost half.¹⁸ Another study linked preschool blood lead levels with data on detention rates for 120,000 children born in Rhode Island between 1990 and 2004. The researchers found that, as lead levels increased, so did rates of suspension from school and juvenile incarceration. Rates of



suspension were estimated to increase by as much as seven percent for boys, and nine percent for girls.¹⁹

Other consequences of lead exposure

Research suggests that lead exposure in childhood can lead to future learning disabilities, behavior issues, and problems with impulse control.²⁰ These issues can lead to crime in adulthood, making lead exposure prevention a priority for law enforcement.

Lead poisoning can lead to poor school performance. A study conducted in Chicago found that after adjusting for other

predictors of school performance, including poverty, higher levels of lead in the blood were associated with lower reading and math scores in third grade children. For every increase of five micrograms of lead per deciliter of blood, a student's risk of failing math or reading increased by as much as 32 percent.²¹

In addition to negative impacts on learning, lead exposure can be costly. The estimated total cost of the lifetime economic burden of childhood lead exposure in Pennsylvania is \$3.1 billion. This figure was calculated for the 2019 birth cohort, and includes the costs of increased health care, increased spending on education, reduced lifetime productivity, and premature mortality. Additionally, the direct costs of crime due to lead exposure nationally is estimated to be over \$1.7 billion.²² Experts predicted that over 15,000 children in Pennsylvania (11 percent of all births in the state) to have elevated levels of lead in their blood in 2019.²³

Successes and areas for future progress

While lead poisoning is a significant challenge for the health and safety of

children in Pennsylvania, it is entirely preventable. Thanks to efforts to reduce lead exposure in children, the state has made progress in protecting children from lead's damaging effects. Between the 1970s and 1990s, the elimination of lead from gasoline, banning lead paint in residential homes, and banning lead pipes and plumbing fixtures saw significant declines in blood lead levels in children. However, lead poisoning still occurs, particularly among families with low incomes, and children of color are disproportionately poisoned because they are more likely to live in older properties with deteriorated lead-based paint.²⁴

Pennsylvania is taking steps to prevent future lead exposure in children. In 2019, Pennsylvania received a \$2.5-million federal Housing and Urban Development grant to evaluate homes in the state's most high-need areas for lead. The grant is designed to target outreach to homes with the highest need, in order to reduce lead exposure for children.²⁵ While progress is being made, more must be done to protect Pennsylvania's children from the harmful effects of lead.

Conclusion

One way to prevent children from being exposed to lead is lead remediation. Lead remediation strategies are designed to eliminate lead hazards in a home. The Environmental Protection Agency requires anyone who performs lead remediation projects in facilities and homes built prior to 1978 to be certified and to follow specific practices.²⁶ Lead remediation can prevent future lead exposure, and help reduce future health care costs. Every dollar spent on removing lead-paint-based hazards results in a return of three dollars in the form of avoided health care costs and loss of lifetime earnings.²⁷ Additionally, lead remediation investments help reduce future criminal activity.²⁸ By investing in lead remediation practices now, Pennsylvania can protect children not only from lead exposure, but also from potential future crime.

Endnotes

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