



At a Glance: Childhood Lead Exposure and Educational Outcomes

Childhood lead exposure remains prevalent in the United States, affecting millions of children nationwide. There is no safe level of exposure to lead, and its effects on child IQ, behavior, crime in later life, and many other adverse health effects have been widely documented.¹

Several recent studies have explored the specific effects of lead on educational outcomes. These studies show a strong relationship between slightly elevated blood lead levels in young children and decreased scores on end-of-grade tests in elementary school. While similar educational effects were documented for higher blood lead levels decades ago,² the recent studies confirm that the connection between blood lead and poor educational outcomes remains true for blood levels as low as 3-4 µg/dL.

New Findings

- A study including more than 57,000 children found that blood lead levels as low as 4 µg/dL at three years of age increase the likelihood that a child will be classified as learning-disabled in elementary school.³
- Researchers have found that blood lead levels of 3 µg/dL and above are associated with decreases in end-of-grade test scores.⁴ Third grade test scores provide an important school success indicator, since low scores are highly correlated with high-school dropout rates.
- Children with higher blood lead levels are less likely to place into advanced and intellectually gifted programs. These results hold true even when considering factors such as race, family income, and others that might affect learning-disabled status.³
- Among all school children in North Carolina tested for lead, three in four black children had a blood lead level above 3 µg/dL, compared to two in four white children.⁴
- A study including over 48,000 children found that children were at least 30% more likely to fail third grade reading and math tests if their blood lead level was over 5 µg/dL. Non-Hispanic



black students in this study had an average blood lead level more than twice that of non-Hispanic white students.⁵

- Elevated blood lead levels have a strong independent relationship with test scores. The size of this effect is similar to other factors associated with school performance, such as birth weight, maternal education, and race/ethnicity.⁵

Together, these recent studies show an alarming and consistent connection between low-level lead exposure and the ability of children to do well in school. The studies also demonstrate that lead accounts for important differences in educational achievement among racial and income groups. Costs stemming from lead exposure are well established;^{6,7} one recent estimate found the societal costs of lead poisoning to be \$50.9 billion in a single year,⁸ and costs to the special education system alone are conservatively estimated at \$38,000 over three years per lead-poisoned child.⁹ As the nation strives to improve its education system and school performance, lead exposure cannot be overlooked as a critical factor.

Health and educational outcomes are inextricably linked. Decreased educational attainment from childhood lead exposure will have intergenerational impacts since maternal education and socioeconomic status are strong predictors of childhood health. Reducing childhood lead exposure will require a long-term commitment to lead poisoning prevention from schools, parents, and all levels of the government.

References

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