

Identifying and Preventing Lead Poisoning in Detroit's Children

Executive Summary

Children residing in Detroit are disproportionately exposed to lead in their homes and communities. Lead exposure, in any amount, is toxic to the human body and interferes with development. Therefore, young children and pregnant women are most vulnerable to lead's adverse health impacts. This includes physical damage to major organ systems, and significant cognitive, psychological, and neurobehavioral impairments. To reduce the long-term effects of lead exposure, early identification of lead in the blood is crucial. The Lead Injustices Action group aimed to increase community awareness and lead screening in high-risk Detroit neighborhoods. Policy action is needed to support the early identification of lead-poisoned Detroit children and prevent further lead exposure.

Scope of the Problem

There is no safe level of lead in the human body- especially in children.¹ Lead in the blood has harmful, irreversible effects. With acute high levels, lead poisoning can cause anemia, multi-organ damage, renal failure, seizures, coma, and death.² With chronic low levels, lead poisoning can cause significant cognitive, psychological, and neurobehavioral impairment.³ Longitudinal studies link early childhood lead exposure with deficits in academic performance, attention, and behavior in children, as well as developmental disabilities.⁴ During pregnancy, lead in the blood becomes a source of exposure to the developing fetus.² Fortunately, lead poisoning is preventable, when aimed at the source.

Detroit is an old industrial city with an aging infrastructure. Residents are exposed to lead through the soil, dust, pipes, and paint. The main source of exposure for Detroit residents is through lead-based paint used in homes built before 1978.⁵ Strikingly, it's estimated that 74% of the city's housing was built before 1955.⁵ Therefore, the State of Michigan considers all children in the city of Detroit to be at-risk.⁵ Each year, approximately 1,500 children under the age of 6 test positive for elevated blood lead levels.⁶ At present, it is estimated that Detroit has over 10,000 lead-poisoned children.⁶ Although alarmingly high, this number is likely an underestimate. At best, only 33% of children were lead tested in 2019 and the percentage of children screened has only further declined due to the COVID-19 pandemic.⁷

The housing crisis in Detroit has reemerged the childhood lead crisis. The identified high-risk zip codes align with poverty rates and the number of deteriorating homes where historically, lead paint was heavily used. As such, the proportion of lead-poisoned children is not evenly distributed across the city of Detroit (**Figure 1**). Thus, children are disproportionately exposed to lead in their environment based on where they live, and policy action is needed to remedy this health disparity.

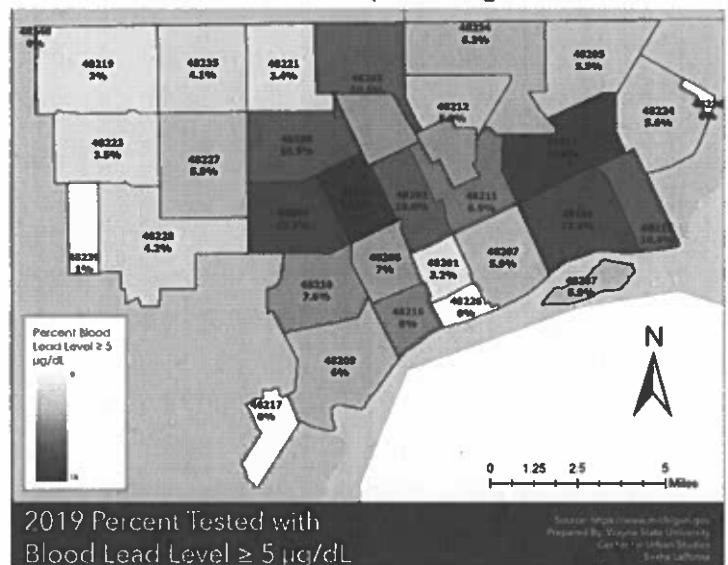


Figure 1.

¹ Blood Lead Levels in Children. Centers for Disease Control and Prevention. https://www.cdc.gov/nceh/lead/prevention/blood_lead_levels.htm. Published May 28, 2020.

² Childhood lead poisoning: Information for advocacy and action (UNEP, UNICEF 1999). World Health Organization. <http://www.who.int/ceh/publications/leadpoison/en>. Published February 21, 2019.

³ Mason LH, Harp JP, Han DY. Pb neurotoxicity: neuropsychological effects of lead toxicity. *BioMed Research International* 2014,2014(Article ID 840547):1-8.

⁴ Delgado CF, Ullery MA, Jordan M, Duclos C, Rajagopalan S, Scott K. Lead Exposure and Developmental Disabilities in Preschool-Aged Children. *Journal of Public Health Management and Practice*. 2018;24(2).

⁵ Lead Poisoning. CLEARCorps Detroit. <https://clearcorpsdetroit.org/lead-faq/>. Published October 16, 2020.

⁶ Centers for Disease Control and Prevention. Detroit Childhood Lead Poisoning Prevention Program Summary Report, 2004. Available at: <http://fixdetroit.files.wordpress.com/2010/09/cdc-audit-summary-091109-rf.pdf>

⁷ "Lead Poisoning Endangers Generations of Detroit Children ...". <https://www.metrotimes.com/detroit/lead-poisoning-endangers-generations-of-detroit-children-with-no-end-in-sight/Content?oid=25809555>.

Science Policy Network- Detroit's Action Group Initiative

Our group has taken actionable steps toward lead justice in the city of Detroit by aiming to understand the scope of the lead crisis to inform community outreach and advocate for policy. Throughout our initiative, we canvassed and distributed over 600 informative flyers within the highest-risk zip code, 48206. We established a partnership with the Michigan Department of Human Health Services, Wayne Health, and a community organization, D-LEAD, to host a free community-wide lead testing day. Notably, the lead testing day took place in a centrally located park, bringing health screens directly to residents. Of the 14 lead screens, 2 patients presented with elevated blood lead levels (14%) and were linked to follow-up programs. All patients accepted community resources on lead education, medical support, and housing equity.

Policy Recommendations

As supported by the Centers for Disease Control and Prevention (CDC), there are two approaches for preventing lead poisoning in children: 1) removal of lead hazards from the environment, and 2) lead screening and linkage to follow-up care. Addressing lead hazards at the source is the most effective way to ensure that children do not experience the harmful long-term effects of lead exposure. Lead testing is also essential for identifying children who may already be exposed to reduce the damaging effects of lead. Therefore, policy action is needed to combat lead poisoning in Detroit's children. Science Policy Network- Detroit supports the following:

- 1. Appropriately identifying lead poisoned children**
 - a) modifying lead-related definitions (HB 5413)
 - b) aligning the blood lead reference value with the CDC's (3.5 µg/dL; HB 5415, HB 5417)
 - c) Providing coverage for lead screenings for all children six years and younger (HB 5416)
- 2. Providing proper resources and support to lead-poisoned children**
 - a) ensuring physicians are trained to mitigate lead's adverse health effects (HB 5414)
 - b) resources for lead poisoned families (HB 5418)
 - c) reporting cases to the Health Department for better data and risk management (HB 5423)
- 3. Preventing childhood lead exposure at the source**
 - a) requiring lead paint inspections upon deed transfers (HB 5419)
 - b) ensuring thorough lead paint abatements (HB 5420)
 - c) continued support for lead abatement programs (HB 5421)

Conclusion

Exposure to lead is widespread among Detroit's children and has serious, irreversible development and long-term health consequences. Screening for elevated blood lead levels is crucial for identifying and treating lead-poisoned children. Additionally, eliminating lead hazards from the source, *old Detroit homes*, has the greatest potential for prevention, as supported by the spatial distribution of lead-poisoned Detroit children. Detroit's lead crisis can be combated using a comprehensive public health approach- utilizing data and research to understand the scope of the problem, outreach initiatives to increase community awareness and accessibility to resources, and policy action to promote and protect the health of people and the communities where they live. Thus, policies aimed at appropriately identifying lead poisoned children, providing proper resources and support to lead-poisoned children, and preventing childhood lead exposure at the source are greatly needed.

Prepared by Science Policy Network- Detroit

Breanna Borg, Katherine Dwyer, Shreya Desai, Daed Daher, Lyndsey Braman, Vincent Dolgikh, Benjamin Hedge, Siddhi Nair, Hilary Marusak, Elizabeth Kutter, Lyke Thompson