Targeting blood lead level screening

An improved screening index tested in Atlanta to better target low-level lead exposure across Georgia

Why does this matter?



Exposure to lead - especially at an early age - can cause serious health impacts.

- Exposure to high levels can cause permanent nerve damage and death.
- Exposure to low levels can cause cardiovascular disease, behavioral effects (i.e., ADHD), and decreases IQ.

Children are more likely to come into contact with lead due to crawling and hand-to-mouth behaviors

The CDC:

Reference value for **high lead exposure** is a blood lead level (BLL) of: **3.5 µg/dL**[a]

Recommends screening children for lead exposure if they are at **higher risk** *

* Risk factors include socioeconomic factors, house age

The Georgia Department of Public Health (DPH):

Recommends BLL screening for children enrolled in Medicaid and those in **16 "high risk" counties** *[b]

* Risk is determined by the number of children with BLL above 5 µg/dL per county and housing age.

a: µg/dL = micrograms of lead per deciliter of blood; at the time of this study, the CDC reference value for high lead exposure was **5 µg/dL**. It was changed to 3.5 µg/dL in 2021.
b: In 2022, the DPH updated its guidelines to 16 high risk counties, using BLL data and housing age. At the time of this study, there were 14 high risk counties based on BLL levels.

What did we want to know?

1. Do current BLL screening recommendations accurately capture high risk areas across Georgia?
2. Would smaller geographic areas (e.g., zip code) create a screening index that better targets at-risk children in Greater Atlanta?

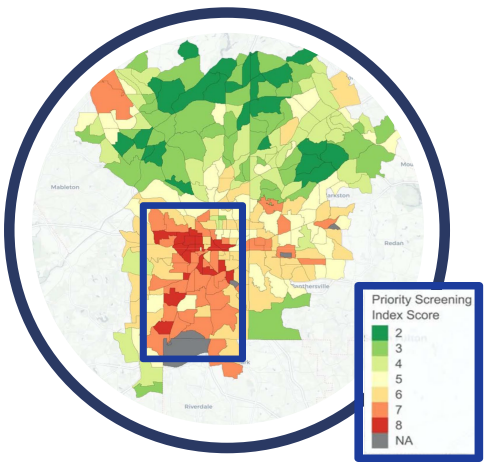
What did we do?

To create a **priority screening index** to target BLL screening in Greater Atlanta, we:

1 Gathered existing data:

- 20 years of BLL data from the GA DPH
- Demographic data (year house was built, income level, etc.) from US Census database
- Breakdown of Atlanta by county, zip code, and census tract

2 Combined the data to create a screening index that identified census tracts, zip codes, and counties at higher risk of lead exposure



What did we find?

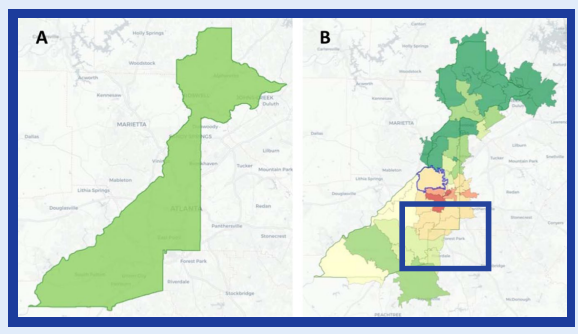
- 18 census tracts in Greater Atlanta received the highest possible risk score, with the majority in the Westside of Atlanta.
- At the time of this study, county-level analysis did not highlight Fulton County as a high-risk area, although census and zip code-level analyses do.
- Higher BLLs among children under 5 were also related to living in a house built before 1950.

What does this mean?

State public health officials should incorporate poverty, housing, and existing BLL data from smaller geographic areas (e.g., census tracts) to prioritize screening

Improved screening is crucial for reaching the most vulnerable children and eliminating health disparities.

*For example: the state's previous risk index did not include Fulton County, where **high lead levels** were found in the **English Avenue** and **Vine City neighborhoods***



Additional Resources

CDC Childhood Lead Poisoning Protection Program
https://www.cdc.gov/lead-prevention/php/about-clppp/index.html

GA DPH Healthy Homes and Lead Poisoning Prevention
https://dph.georgia.gov/environmental-health/healthy-homes-and-lead-poisoning-prevention

Fulton County Blood Level Testing Resources
https://fultoncountyboh.com/environmental-health/blood-lead-level-testing/

The Saikawa Lab soilSHOP resources and interactive map
https://www.saikawalab.com/soilshop

This infographic summarizes a project conducted by HERCULES member the Saikawa Lab: Distler, S., & Saikawa, E. (2020). A new screening index to better target low-level lead exposure in Atlanta, Georgia. *Scientific Reports*, *10*(1), 1-11. https://doi.org/10.1038/s41598-020-85000-0

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