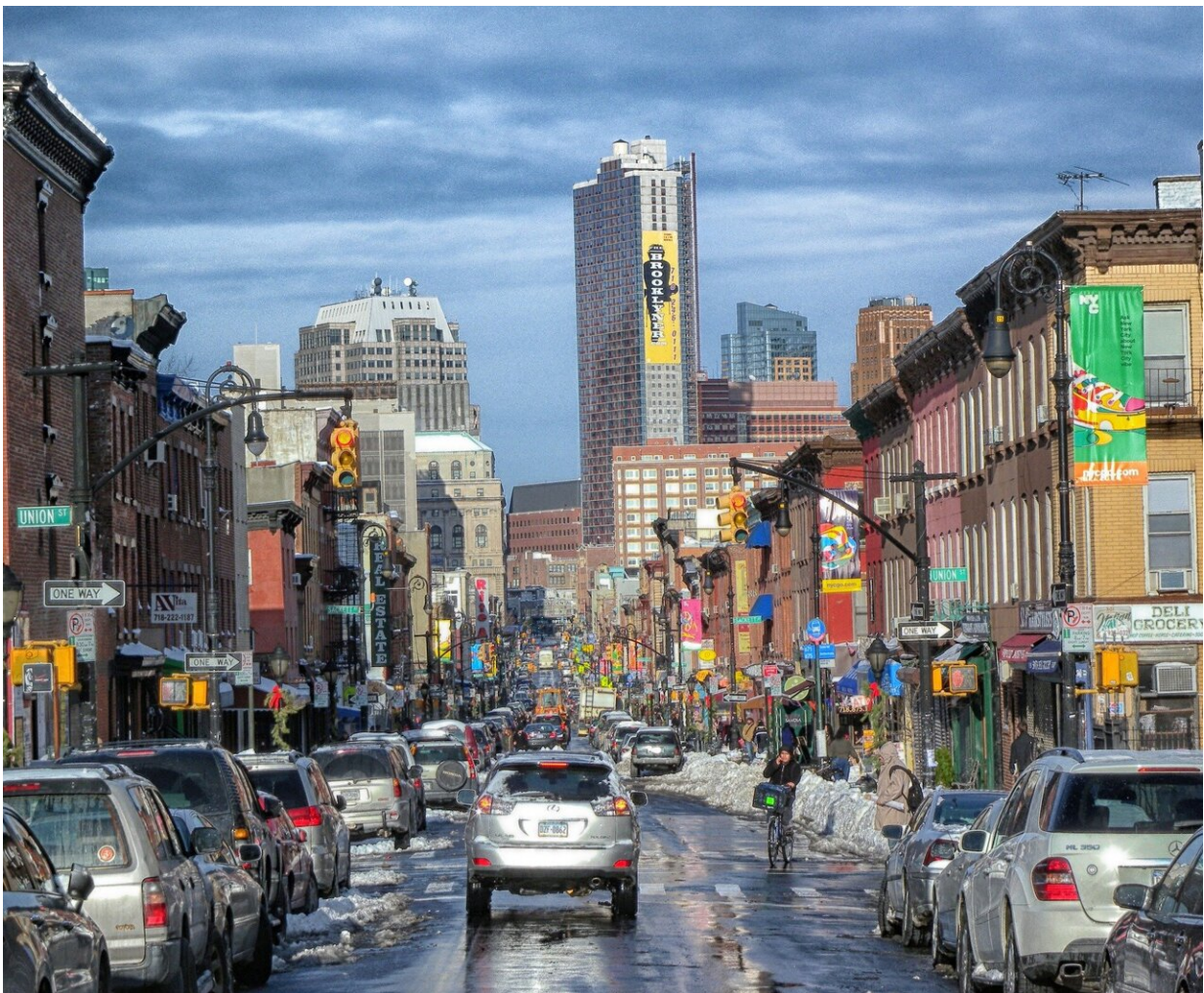


Lead service lines disproportionately impact New York Hispanic/Latino communities, kids already at risk of exposure

August 30 2023



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Results from a study just released by Columbia University Mailman School of Public Health show major inequities in the location of lead service lines across New York City. Communities with large numbers of Hispanic/Latino residents and those with children who are already highly vulnerable to lead exposure from numerous sources are disproportionately impacted by water service lines that may contain lead. The study findings are published online in the journal *Environmental Health Perspectives*.

There is no safe level of lead exposure for children. Even at lower levels of exposure, lead is associated with impaired cognitive function, attention-related behavioral problems, and diminished academic performance. Lead service lines are a significant source of lead to drinking water, even when source water contains no lead.

Out of over 850,000 residential service line records analyzed, over 136,000 (16%) were potentially made of lead, and over 227,000 (27%) were made of an unknown material, which could also include lead. In total, over 40% of service lines in the city could contain lead.

The largest absolute number of potential lead and unknown service lines were in Brooklyn (91,377) and Queens (66,508), respectively. Relative to other boroughs, a larger proportion of service lines with potential lead were in the Bronx (21%) and Queens (20.5%); Brooklyn had the largest proportion of service lines made of unknown material that might also contain lead (33%).

The researchers determined whether service lines that could contain lead were evenly distributed throughout New York City. The researchers established that communities with higher proportions of Hispanic/Latino residents had a higher prevalence of service lines that could contain lead. The researchers also identified that potential lead service lines were also more likely to impact communities where children were already highly

vulnerable to lead from all sources, including paint, dust, and water.

"Our objective was to evaluate whether the location of lead service lines was associated with community race, ethnicity, and child vulnerability to total lead exposure," said Anne Nigra, Ph.D., assistant professor of Environmental Health Sciences at Columbia Public Health. "Our goal was to help inform equitable interventions, especially the replacement of all lead service lines. These findings support that [policy makers](#) in NYC and NY State should consider these inequities in lead service line locations when prioritizing lead service line replacement efforts. They should work to immediately identify and replace all lead service lines."

The researchers also found differences within boroughs of the city. Specifically, potential lead service lines were associated with higher proportions of non-Hispanic White and non-Hispanic Asian residents in the Bronx and Manhattan, and higher proportions of non-Hispanic Black residents in Queens.

Although the U.S. EPA Lead and Copper Rule requires public water systems to conduct routine compliance monitoring for lead at taps throughout the distribution system and intervene to reduce lead corrosion, current regulations are inadequate to reduce water lead exposure and eliminate racial/ethnic disparities in water lead exposure, according to the researchers.

The Infrastructure Investment and Jobs Act of 2021 allocated billions of dollars to improving drinking water quality across the US, but individual states set the prioritization criteria for determining which municipalities receive funding for lead service line replacement efforts. Under NYS's current lead service line replacement program, municipalities are prioritized for funding if those municipalities are low income (median household income $< 0.5 \times$ state median) or have a high percentage of children with blood lead level $> 5 \mu\text{g/dL}$.

"The high number of service lines that might contain lead in residential buildings throughout NYC and the significant inequities in lead service line prevalence underscores the importance of prioritizing lead service line replacement for the most impacted communities," noted Nigra. "Our findings suggest that NYC communities with known potential for child [lead exposure](#) from paint and dust may also be highly vulnerable to water lead from lead service lines."

Nigra and colleagues point out that numerous studies have called for justice-oriented interventions and policies that protect the most highly exposed communities. And while advancing environmental justice necessitates that all lead service lines should be identified and replaced, efforts should also prioritize the most impacted communities.

"Improvements to public health demands attention to all potential lead sources, including water, soil, and paint.," observed Nigra.

"Future analyses in New York and around the nation should consider the pathways through which these inequities arose, including assessing differential disinvestment by neighborhood and patterns of residential segregation."

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More information: *Environmental Health Perspectives* (2023). [DOI: 10.1289/EHP12276](https://doi.org/10.1289/EHP12276)

Provided by Columbia University's Mailman School of Public Health

Citation: Lead service lines disproportionately impact New York Hispanic/Latino communities, kids already at risk of exposure (2023, August 30) retrieved 29 April 2024 from <https://medicalxpress.com/news/2023-08-lines-disproportionately-impact-york-hispaniclatino.html>

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