Quest Diagnostics Health Trends®
Lead Exposure in Children Under Age Six

This Health Trends® Report, also published in JAMA Pediatrics, is one of the first studies of its size and scale on childhood lead exposure. Based on an analysis of 1,141,441 children <6 years old living in 50 states and the District of Columbia who underwent blood lead level (BLL) testing between October 2018-February 2020, this study found that over half of U.S. children tested positive for lead in their blood.

With this study, Quest Diagnostics seeks to bolster incomplete national data on detectable lead levels in children, as well as investigate the individual- and community-level factors associated with BLLs in children.

Key Findings

Over half of children
(576,092/1,141,441) tested had detectable (≥1.0 µg/dl) levels of lead.

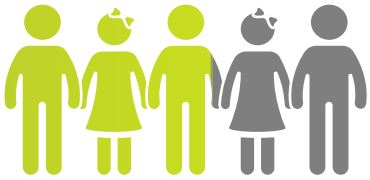
"Our Quest analysis finds that half of American children are exposed to lead, a substance that is not safe for children at any level. Moreover, the study found that kids in areas with the highest rates of poverty are also the most at risk, highlighting the critical role of social disparities in health."

Dr. Harvey Kaufman, MD, FCAP
Senior Medical Director

There are stark disparities in children's lead levels based on exposure, older homes, poverty and race

Detectable BLLs were found in:

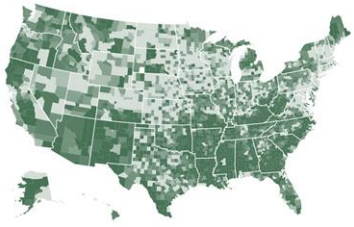
57.6%
of children from predominately Black non-Hispanic Zip Codes.



56.0%
of children from predominately Hispanic non-White Zip Codes.

vs

48.7%
of children from predominately White non-Hispanic Zip Codes.



Children in areas with the highest levels of poverty were **nearly 2.5 times** as likely to have elevated BLLs than children in areas with the lowest levels of poverty (2.9% versus 1.2%).

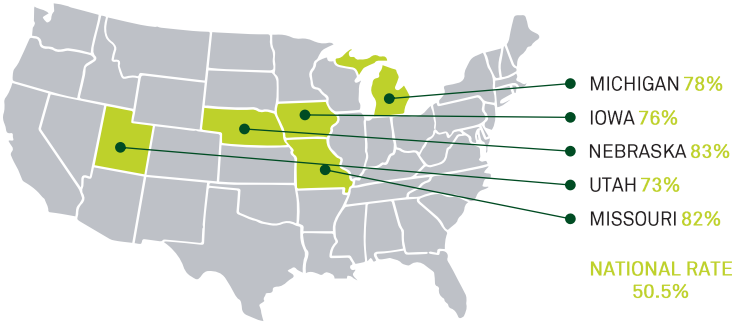
Detectable BLLs were found in:

60.2%
of children living in Zip Codes with the highest levels of poverty.

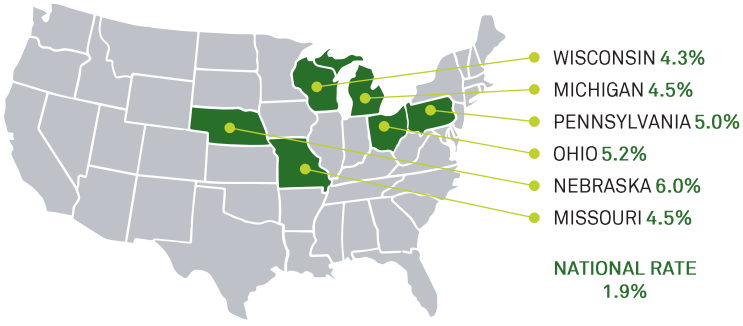
38.8%
of children living in Zip Codes with the lowest levels of poverty.

Striking differences in BLL by state

The highest proportions of children with detectable BLL were found in five states. These rates are **considerably higher** than the 50.5% of children with a detectable BLL nationally.



Children in six states, primarily in the Rust Belt, had proportions of elevated BLL (≥5.0 µg/dL) **more than double** the national rate.



A decline in elevated BLLs

The overall percentage of children with elevated BLLs of ≥5.0 µg/dL **declined by 36%** to 1.9% vs. 3% in a previous Quest study based on data from 2009-2015.

Screening and action must be taken to eliminate the threat of lead exposure

To eliminate the effect of lead on all children's health, the U.S. must focus efforts to prevent children from being exposed to lead, beginning in high-risk areas. Children, families, and society achieve the most benefit from interventions that ensure that the U.S. mitigates lead exposures in homes and other settings before a child is ever exposed. In the meantime, it is vital that each and every child is screened for lead and immediate actions are taken to mitigate exposure in cases of elevated levels.

"Public health authorities have worked commendably to reduce lead exposure for decades, yet substantial risk remains. Our study is a cautionary tale of the enormous challenge of remediating environments following contamination with toxins dangerous to human health."

Dr. Harvey Kaufman, MD, FCAP
Senior Medical Director
Quest Diagnostics

If the US achieved BLLs of 0% among U.S. children born in 2018, an overall benefit of **~$84 billion** over the lifetimes of these children would result, according to the Health Impact Project.

Methodology:

This cross-sectional, retrospective study analyzed de-identified results from blood lead tests performed at a large clinical laboratory October 2018-February 2020. The study analyzed pediatric BLL abstracted from a large clinical laboratory database of 1,141,441 children <6 years old living in 50 states and the District of Columbia who underwent blood lead testing during study period. Children with lead testing of unknown source (n = 7,508) and with elevated BLL (≥ 5.0 µg/dL) who received capillary blood lead testing without confirmatory venous testing (n = 1,999) were excluded. Lead exposure was evaluated by individual demographic categories included sex, age, and insurance type; community-level demographic categories included pre-1950s housing, poverty-income ratios, predominant race/ethnicity, and geographic regions.

About Quest Diagnostics Health Trends®

Quest Diagnostics Health Trends® is a series of scientific reports that provide insights into health topics, based on analysis of objective clinical laboratory data, to empower better patient care, population health management and public health policy. The reports are based on the Quest Diagnostics database of 48 billion de-identified laboratory test results, believed to be the largest of its kind in healthcare. Health Trends has yielded novel insights to aid the management of allergies and asthma, prescription drug monitoring, diabetes, Lyme disease, heart disease, influenza and workplace wellness. Quest Diagnostics also produces the Drug Testing Index (DTI)™, a series of reports on national workplace drug positivity trends based on the company's employer workplace drug testing data.

https://newsroom.questdiagnostics.com/health-trends

Quest Diagnostics empowers people to take action to improve health outcomes. Our diagnostic insights reveal new avenues to identify and treat disease, inspire healthy behaviors and improve health care management. www.QuestDiagnostics.com

For further information: Kim Gorode (Media): mediacontact@questdiagnostics.com, Ellen Murphy (Media): ellen.murphy@syneoshealth.com