



Article Summary

Findings of a Statewide Environmental Lead Inspection Program Targeting Homes of Children with Blood Lead Levels as Low as 5 µg/dL

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Background

Lead poisoning is a major environmental health threat for children in Maine. In 2012, the U.S. Centers for Disease Control and Prevention (CDC) declared there is no safe level for lead in a child's blood and lowered the blood lead level (BLL) reference value to 5 µg/dL. In response, the Maine Legislature amended the Lead Poisoning Control Act's definition of childhood lead poisoning to match the new reference level. This required the Department of Health and Human Services to lower the level that initiates inspections for lead hazards in a home from a BLL of 15 µg/dL to 5 µg/dL. To evaluate this change, scientists at Maine's public health agency, Maine CDC, joined colleagues from Harvard School of Public Health, Maine Medical Center Research Institute, and the University of Southern Maine and reviewed the frequency of abatement orders in homes based on two BLL categories (5 to 9 µg/dL vs ≥ 10 µg/dL) and using two different federal lead dust standards.

Methods

- Children were included in the study if they were reported to Maine's Childhood Lead Poisoning Prevention Unit between September 1, 2016, and March 31, 2018, and the family 1) had a completed environmental inspection; 2) had only one child in the study; 3) had not recently painted before inspection; and 4) had not received lead hazard remediation advice.
- Licensed risk assessors conducted environmental inspections for lead hazards, which included sampling highest-risk surfaces (windowsills, doors, stairs, floors) for lead dust and classifying dust hazards based on U.S. Environmental Protection Agency (EPA) regulatory standards. Risk assessors also noted if dust samples exceeded U.S. Department of Housing and Urban Development (HUD) action levels.
- We compared lead dust levels found during inspections using the higher EPA standards and the lower HUD action levels to determine if there were differences between dust levels for the two BLL categories.
- For a subset of children (32) who had a pre-abatement BLL of 5 to 9 µg/dL and a post-abatement follow-up blood test we analyzed if lead abatement methods lowered BLLs.

Key Findings

- Inspections of homes of children who had BLLs as low as 5 to 9 µg/dL were nearly as likely to find lead hazards that required abatement as inspections of homes of children with higher BLLs (77% vs. 85%).
- Risk assessors identified lead dust hazards in homes 80% of the time using the new HUD action levels and 62% of the time using current EPA standards. HUD standards identified more homes than EPA standards that required abatement due to paint or dust hazard (86% vs. 79%).
- The exploratory analysis of a subset of children identified that the majority of children had 15% to 40% less lead in their blood 1 to 6 months post abatement.

Significance

- Environmental inspections in homes of children with BLLs 5 to 9 µg/dL is a public health imperative.
- We found twice as many "dust-only" lead hazards and fewer homes with no lead hazards using HUD action levels highlighting that EPA standards are not stringent enough.
- Existing lead abatement methods are successful at reducing BLLs that were already less than 10 µg/dL.

For More Information

- For data about lead poisoning, screening, and risk factors: data.mainepublichealth.gov/tracking
- For more on preventing lead poisoning in Maine and screening guidelines: maine.gov/healthyhomes