THE CONSEQUENCES OF MISSING CHILDREN WITH ELEVATED BLOOD LEAD LEVELS

For at least 20 years, the majority of California children with elevated blood lead levels have grown up unaware of this burden. In 1998, the California auditor estimated that targeted screening policies identified only 10% of the estimated 40 000 children with blood lead levels requiring medical care.[1] In our 2017 study, we estimated that the state's screening policies result in the discovery of only 37% of children with elevated blood lead levels.[2] More than half of the California children at highest risk—those enrolled in Medicaid—did not receive a blood test.[3] In an effort to improve lead screening rates, state legislators introduced a bill that would require lead testing for all children.[4] To better understand the impact of universal screening, the legislature requested an analysis by the California Health Benefits Review Program.[5]

The authors of the California Health Benefits Review Program analysis concluded that there is little evidence to support universal blood lead screening, even though they estimated that the policy would lead to the discovery of an additional 4777 children with elevated blood lead levels.[5] In their analysis, they used the lack of research on universal screening and the opposition to universal screening by "prominent medical professional groups" to determine that this policy is not warranted. They did not consider three consequences of continuing policies that consistently fail to identify children with elevated blood lead levels.

First, the extent of the harm caused by lead exposure will not be understood until all children with elevated blood lead levels are identified. Those formulating strategic plans to end childhood lead poisoning cannot expect to accomplish this goal without knowing how many children they need to reach. Second, not knowing which children have elevated blood lead levels prevents public health officials from identifying the leaded environments that poison children. Those places where children with elevated blood lead levels are exposed through environmental sources will continue to expose younger siblings and other children who inhabit these environments next. Third, children with elevated blood lead levels grow up unaware of their increased risk of cognitive delays and behavioral problems. The teachers and administrators working with these children often do not know that they should provide them with special educational support to mitigate the harms resulting from lead.

Targeted lead screening policies that miss children with elevated blood lead levels result in underreporting of the harm caused by lead poisoning and dampen the urgency necessary for a stronger public health response. So long as public health continues to respond to the lead crisis with incomplete data and defaults to the view of medical professional groups that comprehensive testing is not warranted, the crisis will continue. AJPH

Daniel S. Madrigal, MPH
Eric Roberts, MD, PhD

ABOUT THE AUTHORS

Both authors are with the California Environmental Health Tracking Program, Public Health Institute, Oakland, CA.

Correspondence should be sent to Daniel S. Madrigal, MPH, Public Health Institute, 555 12th St, 10th Floor, Oakland, CA 94607 (e-mail: daniel.madrigal@phi.org). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

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D. S. Madrigal drafted the letter. E. Roberts edited the letter.

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MCMENAMIN ET AL. RESPOND

Thank you for the opportunity to respond to the letter from Madrigal and Roberts regarding our article. We would like to respond to two points made in the letter.

First, the letter stated, "More than half of the California children at highest risk—those enrolled in Medicaid—do not receive a blood test." We would like to clarify that per federal Medicaid requirements, Medicaid-enrolled children are required to be screened for elevated blood lead levels.[1] Therefore, extending screening requirements beyond the Medicaid population, in which rates of elevated blood lead levels are considerably lower, will not address the low screening rates in the Medicaid population.

Second, the letter addresses the consequences of failing to identify the entire

population of children with elevated blood lead levels without addressing the consequences of implementing universal screening requirements in populations at average risk. Our analysis estimated that universal screening would identify an additional 4777 children with elevated blood lead levels but also estimated that an additional 7500 to 22 500 children would receive false-positive test results, an unknown number of children would receive false-negative results, and the requirement would cost $6.2 million annually.[1] In addition, no literature is available to support universal screening policies, including the most recent US Preventive Services Task Force guideline that "recommends against routine screening for EBLL [elevated blood lead levels] in asymptomatic children who are at average risk," with a "D" grade.[2] This was in part based on the harm of universal screening such as false-positive results, anxiety, inconvenience, school and work absenteeism, and the costs of return visits and repeat tests.[2] An update of this recommendation is in progress and may provide additional guidance to decision-makers.[3]

Ultimately, the California legislature rejected the universal screening requirement and passed an amended version of Assembly Bill 1316 in 2017,[4] which instead expands the criteria used to determine children at "high risk" who are required to be screened. Future research will determine to what extent this policy was successful in identifying more children with elevated blood lead levels. As state legislatures grapple with this important and complex issue, we hope that this exchange serves as a call to build the evidence base so that legislators have more comprehensive data regarding the potential benefits and associated costs of universal lead screening requirements. AJPH

Sara B. McMenamin, PhD, MPH
Sarah P. Hiller, MPIA
Erin Shigekawa, MPH, BSPH
Riti Shimkhada, PhD, MPH

ABOUT THE AUTHORS

Sara B. McMenamin is with the Department of Family Medicine and Public Health, University of California, San Diego. Sarah P. Hiller is with the Department of Medicine, University of California, San Diego. Erin Shigekawa is with the California Health Benefits Review Program, Berkeley. Riti Shimkhada is with the Fielding School of Public Health, University of California, Los Angeles.

Correspondence should be sent to Sara B. McMenamin, PhD, MPH, Assistant Professor, University of California, San Diego, Department of Family Medicine and Public Health, 9500 Gilman Dr #0725, La Jolla, CA 92093-0725 (e-mail: smcmenamin@ucsd.edu). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

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CONTRIBUTORS

All authors contributed equally to this letter.

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