



**Testimony before the
Committee on Environment and Public Works
United States Senate**

**The Latest Science on Lead's Impacts
on Children's Development and Public
Health**

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Good morning Chairman Boxer, Ranking Member Inhofe, and distinguished members of the Committee. Thank you for the opportunity to be here today. I am Dr. Christopher Portier, Director of the National Center for Environmental Health (NCEH) at the Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR). CDC works 24/7 to keep America safe from health threats of all kinds. Many of these health threats originate from our interactions with our environment. CDC's environmental health programs help to save lives, protect people from harmful environmental exposures, and save money by preventing costly illnesses and disabilities.

Today I will focus my remarks on CDC's Healthy Homes and Lead Poisoning Prevention Program, the state of the science regarding lead exposure and children's health, and the Advisory Committee on Childhood Lead Poisoning Prevention's (ACCLPP) *Recommendations to CDC/NCEH Regarding Blood Lead Level of Concern*.

No safe blood lead level for children has been identified.¹ For more than 30 years, CDC has protected children from environmental lead exposure. Children are exposed to lead from a variety of sources. Some of the more common sources include lead-based paint in homes built before 1978, lead-contaminated dust and soil, plumbing and items containing lead—such as toys, candy, and other products.

CDC's Healthy Homes and Lead Poisoning Prevention program accomplishes its mission by building strong partnerships with Federal, State, and local agencies and other

¹ CDC. Preventing lead poisoning in young children. Atlanta, GA: US Department of Health and Human Services, CDC; 2005. <http://www.cdc.gov/nceh/lead/publications/PrevLeadPoisoning.pdf>

organizations and gathering essential data to inform the development of preventive interventions and policies. Over the years, the number of children with elevated blood lead levels has declined due to population-wide strategies to protect children from lead exposure. Collaborative public health efforts by CDC, the U.S. Environmental Protection Agency (EPA), the U.S. Department of Housing and Urban Development (HUD), State and local health departments, and others drove these improvements. CDC's lead surveillance identifies children with high blood lead levels. CDC funds support development of model local building codes to prevent and mitigate exposures. CDC leverages interagency partnerships to target and remediate the homes where children with elevated blood lead levels live. Finally, CDC tracks exposed children to ensure that their blood lead levels fall. However, the best way to protect children from these harmful exposures is to prevent them in the first place.

The Congressional FY 2012 appropriation for the CDC's Lead Poisoning Prevention Program reduced program funding to \$2 million from the FY 2011 funding level of \$29.2 million. The appropriation requires CDC to maintain technical field expertise as allowed with the resources provided. CDC has funded state lead poisoning prevention programs into September 2012 using appropriated dollars from the FY 2011 budget. In FY 2012, CDC will maintain critical expertise and analysis at the national level as a resource for states and localities. This resource will include software and technical assistance support of the surveillance system that tracks lead exposures in children, staff that can provide expertise and epidemiological support in response to a lead poisoning outbreak, continued support of the Advisory Committee on Childhood Lead Poisoning

Prevention, and work with Federal partners to collaborate on evidence-based healthy homes policies.

State and local health departments use CDC funding to implement childhood lead poisoning prevention programs that identify children who are most at risk and link their families with timely and appropriate interventions. CDC's healthy homes and lead surveillance system identifies areas where many children have high blood lead levels, and triggers wide-spread actions to control lead hazards before more children in these areas are exposed. CDC works with HUD to identify and remedy repeat properties, those which have multiple cases of children with elevated blood lead levels. CDC has also provided information to Federal agencies, including the Department of Justice (DOJ) and EPA, to target enforcement actions that protect children. By 2009, property owners had made more than 186,000 targeted properties lead-safe because of consent agreements reached as a result of enforcement actions informed by CDC data. State and local childhood lead poisoning prevention programs that CDC supports also provided information to health care providers and educators. This information guides treatment and prevention of harmful lead exposure in children and informs and empowers parents to protect their children from lead exposure.

The President's budget for FY 2013 continues to support the prevention of childhood lead exposure through the Healthy Home and Community Environments program. This program proposes to mitigate health hazards in homes such as lead exposure, secondhand smoke, asthma triggers, radon, and others. Findings indicate that multi-component, multi-trigger home based environmental interventions that include the prevention of childhood lead exposure improve overall quality of life, reduce health care costs, and improve productivity.

Let me share one family's story. In 2011, a Connecticut family reported being "devastated and lost" when they found that their little girl had an elevated blood lead level. Using funding in part from CDC, the State of Connecticut and a local lead program were able to provide services to the family, hire a lead abatement contractor, and oversee a prompt and complete lead abatement project. The parents expressed their gratitude by saying, "Because of all of you, we were able to persevere and make our house safe. You were our guidance, our support, and we cannot thank you all enough." This story is repeated across the country as Federal, State, and local resources are used to control lead hazards and make housing lead-safe.

Prevention is important to protect children. Elevated blood lead levels frequently go unrecognized, because they often occur with no obvious symptoms. Lead exposure can affect nearly every system in the body. Left unchecked, lead exposure harms children in many ways. Lead exposure can result in brain and nervous system damage, and stunt growth². The behavioral and learning problems associated with lead exposure include attention-deficit/hyperactivity disorder, juvenile delinquency, and criminal behavior.³ When blood lead levels increase, so do adverse health effects. No safe blood lead level for children has been identified. Research has shown that blood lead levels are associated with measurable reductions in IQ, even at very low levels.⁴ Research⁵ suggests that

² Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for Lead (*Update*). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

³ Mason J, Brown MJ. Estimates of cost for housing-related interventions to prevent specific illnesses and deaths. *J Public Health Manag Pract*. 2010; 16(5S):S79–S89.

⁴ Low Level Lead Exposure Harms Children: A Renewed Call for Primary Prevention Report of the Advisory Committee on Childhood Lead Poisoning Prevention of the Centers for Disease Control and Prevention. 2012. http://www.cdc.gov/nceh/lead/ACCLPP/Final_Document_030712.pdf

children with blood lead levels near the reference value may have a higher prevalence of poor academic achievement, a higher risk of poor impulse control, and a higher risk of attention deficit disorder. Furthermore, research⁶ suggests that at blood lead levels in the range of 6-10 µg/dL there may be signs of reduced postnatal growth, delayed puberty in girls, decreased hearing acuity, and dental caries.

The United States has made substantial improvements in reducing lead in the environment. The decrease in childhood lead exposure is one of the greatest public health achievements of the last 30 years. Between 1976 and 2008, the percentage of children aged 1 to 5 years with blood lead levels greater than 10 µg/dL declined steeply, from 88.2 to 0.9 percent. CDC-led efforts to increase the number of children tested have shown success. In 2009, approximately 66 percent of children from families with low incomes were tested for lead, compared to 21 percent in 1997.

However, it is still much too early to claim a public health victory on lead. Even though the nation succeeded in eliminating many of the worst exposures, lead hazards in residences and public buildings continue to contribute to children's blood lead levels.

CDC estimates more than 500,000 children ages 1-5 have blood lead levels greater than 5 µg/dL, and 150,000 children have blood lead levels greater than 10 µg/dL.⁷ African-

⁵ National Toxicology Program. Pre-publication copy of NTP Monograph on Health Effects of Low-level Lead. Washington, DC: U.S. Department of Health and Human Services, June 13, 2012.

http://ntp.niehs.nih.gov/NTP/ohat/Lead/Final/MonographHealthEffectsLowLevelLead_prepublication_508.pdf

⁶ National Toxicology Program. Pre-publication copy of NTP Monograph on Health Effects of Low-level Lead. Washington, DC: U.S. Department of Health and Human Services, June 13, 2012.

http://ntp.niehs.nih.gov/NTP/ohat/Lead/Final/MonographHealthEffectsLowLevelLead_prepublication_508.pdf

⁷ National Health and Nutrition Examination Survey (NHANES) 2007-2010 using 2010 census population data.
<http://www.cdc.gov/nchs/nhanes.htm>

American children are three times more likely than white children to have blood lead levels greater than 5 µg/dL⁸ – a significant disparity requiring continued attention.

Since 1991, CDC has stated consistently that there is no safe blood lead level threshold for children. CDC emphasizes the importance of having children tested for lead exposure at ages 1 and 2. Because of this danger, CDC, along with other federal agencies, emphasize the importance of primary prevention of lead exposure – through interventions that control or eliminate lead hazards before children are exposed.

Previously, CDC identified 10 µg/dL as a blood lead level of concern and recommended action to mitigate the child's exposure and monitor the child's health. Over the last several years, however, a growing body of scientific evidence documents adverse effects in children with blood lead levels below 10 µg/dL. Thus, in late 2010, CDC requested that the Advisory Committee for Childhood Lead Poisoning Prevention form a workgroup to evaluate CDC's blood lead level of concern and recommend changes if necessary.

In January 2012, the advisory committee recommended that:

CDC should use a childhood blood lead level reference value based on the 97.5th percentile of the population blood lead level in children ages 1-5 (currently 5 µg/dL) to identify children and environments associated with lead-exposure hazards. The reference value should be updated by CDC every four years based on the most recent population based blood lead surveys among children.

⁸ Jones D, Homa D, Meyer P, et. al. Trends in Blood Lead Levels and Blood Lead Testing Among US Children Aged 1 to 5 Years, 1988–2004. *Pediatrics*. 2009; 123 (3): e376-385. <http://pediatrics.aappublications.org/content/123/3/e376.abstract>

CDC responded to the recommendations on May 16, 2012, agreeing with the recommendations and providing potential strategies that are achievable within the FY2012 and proposed FY2013 resources. The response also highlights additional strategies with proven effectiveness.

The recommendations reiterate CDC's longstanding message that primary prevention is the key to protecting children from lead exposure. CDC emphasizes that the best way to end childhood lead exposure is to control or eliminate exposures. Targeting the environments of children with the highest blood lead levels is part of our strategy moving forward. The term "blood lead level of concern" will no longer be used as it implies a level below which there is no concern. Instead, CDC will be using "blood lead reference value" to indicate high exposure and a need for intervention to prevent additional exposure. Interventions that control or eliminate lead sources before children are exposed have demonstrated success in reducing the risk of elevated blood lead levels.^{9,10,11}

CDC remains committed to reaching the Healthy People 2020 goals of eliminating blood lead levels above 10 µg/dL and the disparity in risk based on race and social class. CDC continues to work with state and local communities, and other federal partners including EPA and HUD to maximize our nation's efforts to control lead sources so children are not exposed to lead. In addition, CDC will continue to work with these partners to support

⁹ Yeoh B, Woolfenden S, Wheeler D, Alperstein G, Lanphear B. Household interventions for prevention of domestic lead exposure in children. Cochrane Database of Systematic Reviews 2008, <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD006047.pub3/abstract>

¹⁰ Brown MJ, Gardner J, Sargent J, Swartz K, Hu H, and Timperi R. Effectiveness of Housing Policies to Reduce Children's Lead Exposure. American Journal of Public Health, 2001;91:621-624. <http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.91.4.621>

¹¹ Brown MJ. Costs and Benefits of Enforcing Housing Policies to Prevent Childhood Lead Poisoning. Medical Decision Making, 2002;22:482-492. <http://mdm.sagepub.com/content/22/6/482.abstract>

physicians and parents so that they have access to the resources they need to safeguard and promote children's health and development.

Thank you for the opportunity to present this testimony to you today. I would be happy to answer any questions.