

Lead Poisoning: Focusing on the Fix

David E. Jacobs, PhD, CIH

Infuriating, frustrating, saddening, racism, demands for solutions—only a few of the words to describe reactions from the public health community and the public at large to the news of the lead in drinking water debacle in Flint, Michigan.

As the nation increasingly turns to its public health professionals for answers, we must speak clearly and forcefully, communicate accurately based on what the science tells us, focus on securing resources needed for solutions, and then make sure that both short- and long-term fixes are really working. To do all that, we must reinvigorate and empower the public and environmental health professionals on which the public relies and reject ill-conceived decisions that:

- disinvest in our communities,
- steal the wealth of our infrastructure by failing to maintain it,
- pinch pennies to benefit only a few, and
- put short-term expediency before long-term welfare.

Two articles in this issue report the ongoing and needless tragedy of childhood lead poisoning. Knighton et al¹ show that even for children in Medicaid, where blood-lead screening is already required, only 39% are actually tested. Coyle et al² show that the housing code process established through the International Code Council continues to be exceedingly slow and, in fact, has continued its historic practice of completely ignoring chronic health issues such as lead poisoning in its model codes. While the 2014 National Healthy Housing Standard (an update of the 1985 APHA [American Public Health Association]/CDC [Centers for Disease Control and Prevention] Minimum Housing Standards) marks an important step forward,³ the Coyle et al data suggest the housing regulatory process is excruciatingly slow and halting, at best. Together, both articles demonstrate the need for more robust and effective responses to lead poisoning, which causes 675 000 deaths around the globe,⁴ and at least

535 000 children in the United States have blood-lead levels above the CDC reference value.⁵

Resources and policy work best when both are comprehensive, yet in all the commentary about Flint, 2 questions have historically hobbled both policy and resources to protect children from lead poisoning: How did that lead get into our pipes and our paint in the first place? And more importantly, why have those who put it there been absolved of responsibility to help fix the mess they made, leaving it to taxpayers and parents to absorb the huge cost of lead poisoning (estimated at over \$55 billion annually in the United States alone)?⁶

The Lead Industries Association (LIA) and paint companies such as Sherwin-Williams, PPG,* and Valspar (all US entities) knowingly made dangerous lead products and succeeded in blocking public health and government from stopping their contamination of millions of our homes, our air, and our drinking water. In 1938, the LIA stated, “In many cities, we have successfully opposed ordinance or regulation revisions which would have reduced or eliminated the use of lead.”⁹ In 1958, the LIA stated, “Every effort is being made to confine . . . regulatory measures . . . to warning labels . . . which are less detrimental to our interest than would be any legislation of a prohibitory nature.”^{10(p102)}

This pattern continues today. In 2014, a group of investors requested the Securities and Exchange Commission (SEC) require Sherwin-Williams to include in

Author Affiliations: National Center for Healthy Housing, Washington, District of Columbia; and University of Illinois at Chicago School of Public Health.

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Correspondence: David E. Jacobs, PhD, CIH, National Center for Healthy Housing, 5025 Hawthorne PI NW, Washington, DC 20016 (djacobs@nchh.org; dejacobsd@gmail.com).

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*On April 20, 2016, PPG agreed to stop manufacturing new lead paint under pressure at its annual shareholders’ meeting in Pittsburgh.⁷ However, Sherwin-Williams refused to end its production of new lead-based paint.⁸

its annual meeting proxy materials for its shareholders a proposal that the company “establish a policy and eliminate the use of all lead compounds in its products.” But Sherwin-Williams successfully (and incredibly) argued that the proposal be excluded from its shareholder meeting, because the manufacture of new lead paint was part of its “ordinary business operations.” The SEC caved in and took no action.¹¹

Those “ordinary business operations” mean that these companies continue to make *new* lead-based paint in other countries, contaminating even more homes. Sherwin-Williams’ “Dutch Boy” lead paints have been found in homes in Lebanon and many other countries.^{12,13} Indeed, Sherwin-Williams and other irresponsible manufacturers have unfortunately succeeded in “Covering the Earth” with lead. But the world’s biggest paint company, AkzoNobel, agreed to stop making new lead paint in 2011 and noted, “there is no need or justification to intentionally add lead compounds to paint.”¹⁴

Aside from industry, what about government? There is certainly evidence of myopia and poor leadership at many levels. For example, one of the nation’s top public health leaders, CDC’s Director Tom Frieden, should not have disbanded the only federal expert advisory committee on lead poisoning in 2013. He should not have tried to cut the CDC lead funding in half, and Congress should not have practically wiped it out in 2012.¹⁵ The US Department of Housing and Urban Development’s (HUD’s) lead program has fared little better, with funding slipping from \$176 million in 2003 to only \$110 million last year. Even with inadequate funding, these programs have been shown to work, just not as well as they could if they had the needed resources. For example, households receiving government housing assistance are about twice as likely to live in lead-safe homes (12% of government-assisted housing has lead hazards, compared with 22% of houses not receiving assistance).¹⁶

In 2000, I helped to craft a cabinet-level Presidential task force plan that would have eliminated the problem by 2010, including an interagency budget plan.¹⁷ But Congress never funded it adequately, and as a direct result, the problem has dragged on needlessly, with much higher costs for property maintenance, special education, crime, health care, litigation—and, of course, human suffering.

The federal government has not established a new national plan to prevent lead poisoning, despite calls from citizens, scientists, and practitioners to do so, nor updated its lead regulations.¹⁸ There has not been a cabinet-level meeting of the President’s Task Force on Environmental Health and Safety Risks to Children since 2004. The US Environmental Protection Agency’s (EPA’s) lead and copper rules for drinking water were last updated 25 years ago, and its water sampling

methods fail to reveal problems before harm is done, as the Flint experience has so painfully shown. EPA lead dust and soil regulations were issued 15 years ago, although its own Science Advisory Board recommended clear steps to update them 6 years ago.¹⁹ The Occupational Safety and Health Administration’s Lead Standards to protect workers were last updated in 1978 (Industry) and 1996 (Construction); both standards still include an adult blood-lead action level of 50 $\mu\text{g}/\text{dL}$, which the science makes clear does not protect health. HUD’s regulations were issued 16 years ago. And there has been inadequate enforcement of even the outdated regulations.

A 1996 federal HUD/EPA rule governing disclosure of lead hazards at the time of sale or lease has not had the intended effect of increasing private investment in making homes safe before children move in. Under pressure from the real estate industry in 1996, the federal lead paint disclosure law²⁰ typically discloses nothing of real value because it does not require any actual testing. EPA’s rule on Renovation Repair and Painting was issued 8 years ago and remains inadequately enforced and persists in using an unvalidated dust test to ensure the house is safe for children at the end of the job.

We can draw certain conclusions from all this:

- Those industries that created this problem have not been held accountable.
- The medical model is insufficient (blood-lead screening and responding only after children are poisoned).
- Housing codes fail to address lead and other compelling health and safety hazards.
- Federal agencies have failed to update regulations and standards based on the most recent science.

● National Objectives for a Lead Elimination Action Drive (NO LEAD): A 3-Point Plan

Although the recent CDC statement correctly requires primary prevention,²¹ the question remains, how can we really get there? A 3-point initiative to find the lead, fix it, and fund it is outlined.

Find it

Although proven detection technologies are available, we still do not know exactly where all lead water pipes and fixtures actually are. We also do not know exactly which surfaces in homes have lead paint and lead dust and lead soil hazards.

In addition to increased testing of homes and pipes, we should expand the number of children who are screened to identify early on those who have been harmed. All at-risk children should have their blood tested at least twice before the age of 2 years, especially Medicaid-eligible children. CDC’s surveillance should

be funded adequately to provide those results for all states and large cities.

Visual examinations for deteriorated paint are still widely used in code compliance, section 8 housing choice vouchers, and many other housing programs. But because lead is not visible to the naked eye, and because lead dust is the main route of exposure for most children, visual examination of paint alone is clearly inadequate. We have well-validated risk assessment and lead inspection protocols and a licensed workforce to implement them. Why not use them?

In short, we should test our homes, drinking water supply lines, yards, playgrounds, schools, and other places children frequent before they are harmed. We should end the practice of responding only after they have been poisoned. Such increased testing could be done by requiring a lead inspection at the time of sale or lease and including information about the presence of lead water supply lines.

Fix it

Both long- and short-term techniques to correct and control lead hazards have been well-validated.²² But instead of fixing the causes of the problem, a common public health practice is to simply move a poisoned child into another home, only to have a new child move into the home to be poisoned by the uncorrected hazards.²³ Once we know where the lead hazards are, prompt action should be taken to correct them. For example, homes with high lead levels in water need ongoing valid monitoring, corrosion control, filters, and/or bottled water until the lead pipes can be replaced. Public health and drinking water professionals need veto power over changes to their water chemistry and/or source. We should begin a long-term program to eliminate all lead drinking water pipes. For homes with lead paint hazards, we should implement immediate, proven measures to correct deteriorated paint and clean up lead dust and soil, as well as a simultaneous long-term effort to remove all residential lead paint from the US housing stock. We need both short- and long-term strategies, not just Band-Aids.

We should ensure that lead-poisoned children get special education needs assessments and provide therapeutic special education and other programs to help mitigate the effects of lead poisoning. Currently, lead poisoning is not a reason for a special needs assessment in most schools, but if children are lead poisoned, it is clear they will have trouble learning.²⁴ Instead of merely criticizing teachers whose students struggle, we should act to address some of the root causes, and lead is one of them.

Part of the fix also means making all regulations consistent with the new CDC blood-lead guidelines

and ensuring that clinical laboratories report all data to CDC, state, and local health authorities. Local governments must have sound systems to refer cases of poisoned children to professional licensed risk assessors to evaluate sources of exposure and mitigate them as CDC recommends.

Finally, the CDC Advisory Committee on Childhood Lead Poisoning Prevention should be restored. This was the nation's only scientific advisory group dedicated to lead poisoning prevention before it was disbanded by the CDC director in 2013.

Fund it

It has now been nearly 100 years since most countries in the world banned the use of lead in paint.²⁵ For the companies that refused to do so (and still refuse to this day), they should be forced to pay to help clean up the mess they have made from lead paint, lead pipes and fixtures, and soil and dust contamination. Industry must pay to help fix the problem, not just pay their lawyers to drag out court cases for decades and overturn verdicts that have held them accountable.

Investing in fixing lead hazards is economically sound, and according to the World Health Organization is slightly more cost-effective than vaccines.²⁶ Each dollar invested in lead paint hazard control results in a return of \$17 to \$221 or a net savings of \$181 billion to \$269 billion in the United States *for each cohort of children*.²⁷ The President's Task Force interagency budget request needs updating, and with it full funding to at least \$230 million per year for HUD and \$38 million for CDC. Such funding is a tiny fraction of the \$40 billion overall HUD budget and the \$11 billion overall CDC budget. Medicaid plans should reimburse for lead poisoning home visits. Research on lead is at its lowest funding level in 20 years. The National Safe and Healthy Housing Coalition²⁸ is working with others to make sure Congress does the right thing by funding these programs. On May 4, 2016, the nation's largest gathering of lead poisoning prevention professionals (the National Lead and Healthy Homes conference, comprised of the National Safe and Healthy Housing Coalition, the Lead and Environmental Hazards Association, and the National Association of Lead and Healthy Homes Grantees) unanimously passed a declaration calling on the President and Congress to take specific muscular action to rid the nation of lead poisoning.²⁸

● Conclusion: What Are Our Values?

How we respond to the continuing challenge of lead poisoning says much about us as a people. Can public health command the necessary resources? We have,

in fact, done this before. The sanitation movement at the turn of the last century relied on, among other things, a public health and housing intervention (indoor plumbing) that helped conquer cholera and other diseases. Some will focus their attention on attacking government because there are so many easy marks and it makes for great theater. But at the end of the day, if we are to restore our democracy, government is really us, and public health is one of the most important professions on which our entire population depends.

Ultimately, public health is about empowering people. As public and environmental health care professionals, and allied professions such as housing and other infrastructure professionals, we cannot remain content with just heroics (and they are indeed heroics) to make inadequately funded programs somehow work. As engineers, we cannot remain content with just issuing grades on our crumbling infrastructure. As housing professionals, we cannot be content when our nation remains in inadequate, dangerous, and unaffordable homes. Investments in public health and prevention can revitalize our economy, especially distressed communities that are typically at highest risk.

Our children are counting on us to keep them safe. We should act to give them the bright future they deserve.

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