



Lead Poisoning in the 21st Century: The Silent Epidemic Continues

Creating a disturbing sense of déjà vu and in line with current trends of science denial, some skeptics are seeking to minimize the Flint, Michigan, water crisis and thus impede efforts to mitigate this humanmade disaster and prevent similar crises. They argue that the rise in Flint children's blood lead levels did not warrant a state of emergency and that Flint's kids were not poisoned. They are wrong.

We represent three generations of pediatricians and child health researchers. In our professional lifetimes, we have seen repeated reductions in the levels of lead considered toxic as new research has shown time and again that blood lead levels previously considered safe are in fact harmful to children's health. With each of these reductions, we have battled waves of skepticism from well-meaning academicians, the inertia of government agencies, and nefarious attempts by industry and their agents to undermine the science and to dismiss the increasingly clear evidence of lead's toxic effects at ever lower levels.

The science is now unequivocal. There is no acceptable level of lead. There is no safe threshold. Lead is pernicious at the lowest increments of exposure. The World Health Organization and the Centers for Disease Control and Prevention have declared that no level of lead in blood is safe.

Driven by austerity and a corrosion of democracy, Flint's public health disaster resulted in population-wide lead contamination of drinking water. In many homes it was categorized as hazardous waste. Not surprisingly, people interpret ingesting a poison as being poisoned. This definition of poisoning may not be equivalent to the toxicologist's definition of acute poisoning, but it is poisoning and its consequences can be lifelong. This semantic nit-picking is counterproductive.

There should be no disconnect between doctors who treat individual patients and public health practitioners who look at population-wide data and implications. Today, children rarely come to our emergency departments and intensive care units with symptoms of acute lead

intoxication—seizing and being comatose—as they often did in generations past. However, this does not equate to no harm done. The impact of lead is insidious and often referred to as a “silent epidemic.”

The effects of lead poisoning are not usually detected in a short visit with a doctor. The population impacts are, however, staggering. The consequences are one or two more kids in each classroom with symptoms of attention deficit hyperactivity disorder, 10 or 15 more kids in each school in special education programs, and fewer kids who are truly gifted. A five-point reduction in average IQ caused by widespread exposure to lead will result in a 50% increase in the number of children with IQ scores below 70 and a 50% decrease in the number with IQs higher than 130. In adults, lead exposure results in cardiovascular and kidney problems. And some studies have shown that children exposed to lead are at increased risk for school failure, unemployment, and incarceration.

Now more than ever, it's time to renew and refocus efforts to ensure that the blood of children in cities such as Flint; Detroit, Michigan; Chicago, Illinois; Baltimore, Maryland; Newark, New Jersey; Philadelphia, Pennsylvania; and beyond are never used as detectors of environmental contamination. Specifically, this means a renewed effort to update outdated action levels, remediate homes, replace lead pipes, and eliminate all the other sources of lead in our environment before our children are poisoned. That is the legacy we hope to leave the next generation. *AJPH*

*Mona Hanna-Attisha, MD, MPH
Michigan State University
Flint, MI*

*Bruce Lanphear, MD, MPH
Simon Fraser University
Vancouver, BC, Canada*

*Philip Landrigan, MD, MSc
Boston College
Chestnut Hill, MA*

doi: 10.2105/AJPH.2018.304725

41 Years Ago

Benefits of the Selective Use of Influenza Vaccine

For well over a decade ... the Public Health Service has advocated the selective use of influenza vaccine. Rather than the control of morbidity in the general population, the policy objective has been the reduction or minimization of excess mortality among the elderly and those with certain chronic debilitating conditions ... The strategy called for the routine annual immunization of high-risk persons regardless of the prospects for epidemic activity in any given year. ... Detailed analyses have shown that ... the policy is justifiable on economic as well as epidemiologic grounds.

From *AJPH*, November 1977, p. 1067

100 Years Ago

Centralized Health and Relief Agencies in an Influenza Epidemic

The earliest and most striking feature that came to our attention in planning our campaign for combating the pandemic of influenza, which has ravaged this state for the past month, was the absence of uniform methods of organization in the various health agencies upon which we were obliged to rely. It was perfectly apparent that everyone was anxious to help ... but there was likewise evidence that each wanted to go along in their own accustomed groove. ... A short time sufficed to prove to us that ... we must coordinate these forces under one administrative head to work for the common good of all.

From *AJPH*, October, 1918, p. 744