

Science heroes of Flint's lead water crisis

February 15 2016, by Tabitha M. Powledge



Old news, from a doc in Rome—in the second century BC, quoted by William Finnegan in the New Yorker. Finnegan's is [a fine angry summary](#) of thousands of years of accumulated medical knowledge about the evils of lead, epitomized currently by the lead-filled water crisis in Flint, Michigan—and a scary number of other places.

Lead exposure in childhood, he points out, "can cause stunted growth, permanent mental retardation, speech impairment, hearing loss, reproductive problems, and kidney damage."

Mike the Mad Biologist says its lead crisis means Flint is facing "[an educational catastrophe.](#)" He argues that the effects of lead poisoning are close to the test-score differences between poor children and those better off and between black and white children.

Incidental Economist Aaron Carroll cites data suggesting that "high blood [lead levels](#) were associated with [increased oppositional, hyperactive and bullying behaviors in children](#). Teenagers who had high lead levels in childhood were more likely to have had sex by 13, be pregnant by age 17 and smoke or drink while in their early teens. There is even some evidence of a connection to crime."

Lead poisoning is a problem far beyond Flint. At Vox, Sarah Frostenson points out that "[lead exposure is a pervasive issue](#) in the United States. In some places outside of Flint, more than half of children test positive for lead poisoning." The post includes a CDC map showing county-level lead poisoning data throughout the US. It's mostly blank because counties are not required to report [lead poisoning](#) data.

[Every child should be tested for lead](#), says doc Claire McCarthy at the Harvard Health Blog. The post summarizes all the ways lead can get into human blood besides a contaminated water supply such as Flint's. She also links to lead resources posted by the American Academy of Pediatrics.

Heroes getting the lead out

Finnegan's post is mostly about Virginia Tech water scientist Marc Edwards, who began his career of water whistleblower inadvertently in 2003 in Washington DC. Public agencies, including the Environmental Protection Agency, punished Edwards for pointing out lead contamination of Washington water. Finnegan focuses on "the baffling and destructive role played by public agencies in lead-water crises."

Which later included the Centers for Disease Control and Prevention's 6-year stonewall. Edwards was vilified, but this is a world in which virtue is, very occasionally, not only its own reward; the MacArthur Foundation bestowed one of its "genius" grants on Edwards.

The Edwards group also spearheaded the Flint lead contamination story with a report last September. As many as 12,000 children may have been poisoned with lead. "[T]he [idea of science as a public good is being lost](#)," Edwards recently told Steve Kolowich at the Chronicle of Higher Education. "[W]e have to get this fixed, and fixed fast, or else we are going to lose this symbiotic relationship with the public. They will stop supporting us."

Another science-based hero in the Flint/lead story is pediatrician Mona Hanna-Attisha, who was inspired by the Edwards group's findings to compare Flint hospital records. She found that the number of kids whose blood levels of lead tested high had [almost doubled](#) since the city switched its water supply to the Flint River in 2014.

Hanna-Attisha, too, was abused by government agencies for her revelations. "This poisoning of an entire population was [entirely preventable](#)," she told The Huffington Post.

Flint residents also turned themselves into [citizen-scientists](#). "Half the water industry does not understand what these people learned on their own to protect their children," Edwards told Anna Maria Barry-Jester at FiveThirtyEight.

The post shows off the site's data smarts with a display of Hanna-Attisha's data on changing lead levels in Flint's children. There are also graphic comparisons of data released by different agencies. The ones from the state of Michigan systematically understate the amounts of [lead](#) found in water.

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