

Flint's Flopping Fertility Possibly Conflated



By *Lila Abassi* — September 22, 2017



Lead toxicity [1]

Christopher Ingraham at [the Washington Post](#) [2] recently used [a working paper](#) [3] by economists at University of Kansas and West Virginia University to claim that Flint, Michigan's lead contamination crisis is responsible for a "precipitous" drop in the region's fertility rates. The economists claim that switching the water source in Flint in 2014 is responsible for a 12 percent decline in fertility rates, a 58 percent spike in fetal death rates and poorer overall health fetal health. All without measuring any lead in anyone.

Before I begin, I would like to say that what happened in Flint was tragic and gross negligence. The American Council on Science and Health has long stated that there are no safe lead levels. It is imperative for public health officials to be vigilant about the population's health and wellness. Having said that, I would like to point out confounders in their claims about lead and Flint's fertility rates.

The paper says Flint women had 7.5 per 1,000 less live births than controls among women who are of child-bearing age - a 12 percent decrease. The authors speculate that this is likely a reflection of increased fetal death rates and miscarriages versus changes in sexual behavior patterns or contraception use. Yet [readily available census data](#) [4] provide a more obvious explanation. The population of Flint dropped from 102,000 in 2010 to 97,000 by 2016 – that's 5,000 fewer people.

Given the publicity about lead levels and children, if people of child-bearing age moved then it easily accounts for the 200-300 fewer births. If all of the people who moved were trying to start families, it could have caused 2,000 fewer births. For a city approaching 100,000 people, 200 fewer births is within the realm of chance. Instead, the authors leap to lower fertility when the decrease could have been due to population shifts.

The authors also state that there was a 58 percent increase in fetal death rates, which sounds horrible, but it's because they chose to frame this as relative risk, seemingly to get a big, impressive increase. If I give you two Powerball tickets instead of one, that is a 100 percent greater relative risk of winning and you will be thrilled. But if I then tell you the absolute risk of winning is still only two out of 292 million you won't go buy a new Ferrari. The absolute risk in this circumstance is that the fetal death rate increased from 0.63 per thousand live births to 1 per every 1,000 live births – a difference of 0.37 and within statistical variation. But they did not compare that to historical fluctuation, the journalist instead finds a similar anomaly in Washington, D.C. and uses it to advocate for their work.

Their data on birth outcomes such as abnormal conditions (phenotypic anomalies), birth weight, gestational age, which are more likely in a high lead situation, actually *revealed a 13.4 percent decrease* in abnormal birth conditions. That makes more epidemiological sense in context. In the 1970s, [88 percent of pre-school kids had lead levels over twice](#) ^[5] what is the level of concern today. In 2005, [26% of kids](#) ^[6] in Michigan tested had blood lead levels that would be a concern today. But at the height of the Flint crisis, [only 10.6% of](#) ^[7][kids](#) ^[7] were at those levels. So if lead levels caused infertility or infant death, humans would have been extinct long ago.

Before being promoted in a major newspaper, the working paper should have gone through a peer review process. I do not feel that anyone would deny that concern about Flint's water supply is warranted, but responsible reporting is also needed as a check and balance to hysteria. *Washington Post* ought not contribute to hysteria and pandemonium by unnecessarily conflating massaged data with advocacy.

COPYRIGHT © 1978-2016 BY THE AMERICAN COUNCIL ON SCIENCE AND HEALTH

Source URL: <https://www.acsh.org/news/2017/09/22/flints-flopping-fertility-possibly-conflated-11862>

Links

[1] https://upload.wikimedia.org/wikipedia/commons/1/1a/Cyanobacterial_Scum.JPG

[2] <https://www.washingtonpost.com/news/wonk/wp/2017/09/21/flints-lead-poisoned-water-had-a-horrifyingly-large-effect-on-fetal-deaths-study-finds/?source=acsh.org>

[3] <http://www2.ku.edu/~kuwpaper/2017Papers/201703.pdf>

[4] <https://www.census.gov/quickfacts/fact/table/flintcitymichigan/PST045216>

[5] <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6213a3.htm>

[6] <https://www.usatoday.com/story/opinion/2016/01/22/flint-water-lead-poison-michigan-health-column/79019134/?source=acsh.org>

[7] <http://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2015.303003>