

Consumption of lead contaminated water may increase risk of miscarriages and fetal death

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(Medical Xpress)—New research by Virginia Tech College of Engineering Professor Marc Edwards shows that fetal death rates in Washington, D.C., increased during two separate lead-in-water contamination events during 2000-2003 and 2007-2009.

Also part of Edward's findings: Birth rates significantly increased during the 2004-2006 period when consumers were given [lead](#) filters for their home water taps, as well as educational tips on how to avoid water [lead exposure](#). This latter information was consistent with expectations based on prior research that avoiding lead exposure, be it water or in other environments, can decrease miscarriage rates.

The research has been published in the latest journal issue of *Environmental Science and Technology* and echoes earlier work by Edwards, the Charles P. Lunsford Professor of Civil and Environmental Engineering at Virginia Tech.

Edwards was the first researcher to document a higher incidence of [childhood lead poisoning](#) due to lead [contaminated drinking water](#) in the nation's capital from 2000 to 2003.

"Extrapolations of prior research, predicted there would be several hundred miscarriages caused by lead per year in the District of Columbia from 2001 to 2003—the data analysis was consistent with that

expectation," said Edwards, a former McArthur Fellow and researcher once dubbed "The Plumbing Professor" by Time magazine.

"Pregnant women consuming tap water in cities with lead service pipes and in older buildings with lead-bearing plumbing, should take health warnings of water lead exposure seriously, and consider strategies to avoid water lead by flushing, using lead filters or even bottled water," Edwards added.

The new research in Environmental Science and Technology by Edwards also revisits a 1987-1988 miscarriage cluster at the former headquarters of the newspaper USA Today, which was then located in Arlington, Va.

In this case, a 100 percent miscarriage rate had been documented for women on certain floors that were undergoing construction renovations. A simulation experiment was conducted by Edwards in the new study, which indicated that hazardous levels of lead contamination in water could have affected water during the renovations.

Lead contamination in the water had been ruled out as a possible cause at the USA Today offices by a 16-month National Institute for Occupational Safety and Health investigation that never considered the effect of the renovations on the levels of lead in the water when the miscarriages occurred, Edwards said.

In the new study, Edwards recommends that all consumers be protected from high lead in water when plumbing is disturbed because of construction.

Edwards' [prior research into lead contamination](#) in Washington, D.C., led to multiple congressional investigations, including hearings he testified at in 2004 and in 2010, and was covered extensively by The Washington Post.

In addition to the McArthur Fellow honor, Edwards has since been honored with numerous awards for his investigative work into [lead contamination](#) in [water](#), including receiving the Carl Barus Award for Outstanding Service in the Public Interest by the Institute of Electrical and Electronics Engineers' Society on Social Implications of Technology.

More information: Edwards, Marc A. "Fetal Death and Reduced Birth Rates Associated with Exposure to Lead-Contaminated Drinking Water." *Environ. Sci. Technol.*, Just Accepted Manuscript. [DOI: 10.1021/es4034952](#)

Provided by Virginia Tech

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