

Children exposed to arsenic may face greater risk of infection, respiratory symptoms

November 9 2015



Credit: Robert Kraft/public domain

Children born to women who were exposed to higher arsenic during pregnancy have a greater risk of infections and respiratory symptoms within their first year of life, a Dartmouth College-led study shows.

The [findings](#) appear in the journal *Environmental Health Perspectives*.

The study included researchers at Dartmouth, Harvard and Stanford.

In a study of private well users in New Hampshire, researchers measured arsenic levels in the urine of 412 pregnant women to estimate the amount of arsenic that each child was exposed to in the womb. After the child was born, they performed a telephone survey every four months to assess the number and severity of infections and symptoms that the child experienced in the first year of life. Findings indicate that infants who were exposed to arsenic in utero had greater numbers of infections that resulted in a doctor visit or treatment with prescription medication. Infants exposed to [higher levels](#) of arsenic in utero tended to have more upper and lower [respiratory tract infections](#) as well as [respiratory symptoms](#), such as wheezing, that warranted treatment, says lead author Shohreh Farzan, a research scientist at the Geisel School of Medicine at Dartmouth.

"These results suggest that [arsenic exposure](#) may increase the risk and severity of certain types of infections," says senior author Margaret Karagas, a professor and chair of epidemiology at Geisel. "Respiratory infections and symptoms during infancy could signal a greater risk of later life atopy (the genetic tendency to develop allergic diseases) or respiratory impairment."

The findings parallel observations of arsenic-related increases in respiratory infections among children in Bangladesh, where children tend to be exposed to much higher levels of arsenic. Arsenic has been linked to disrupted immune function and greater infection susceptibility in highly exposed populations. Well water is the primary source of arsenic for most people and nearly 10-15 percent of private wells in New Hampshire contain [arsenic levels](#) above the EPA limit. Private wells are not regulated, so some households may not be aware they have high arsenic in their water. Foods, such as rice and rice products, can also contain arsenic. The researchers recommend that all households using a

private well test their water for [arsenic](#).

More information: Shohreh F. Farzan et al. Infant Infections and Respiratory Symptoms in Relation to in Utero Arsenic Exposure in a U.S. Cohort, *Environmental Health Perspectives* (2015). [DOI: 10.1289/ehp.1409282](#)

Provided by Dartmouth College

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