

## Exposure to arsenic could double risk of pneumonia in children under 5 years of age, finds new icddr,b study

**Dhaka, November 05, 2015** – In the first study of its kind, icddr,b scientists and international collaborators have found that children under 5 years of age exposed to arsenic had a two-times higher odds of developing pneumonia than children not exposed.

The scientists looked at arsenic concentration in urine samples of 153 children aged between 1 month to 5 years with severe and very severe pneumonia. For comparison, they also looked at 296 healthy children in the same age group. The association of arsenic with pneumonia was present even after the researchers accounted for other risk factors, like weight for height and age.

The case control study was conducted during January 2012 to September 2013 in icddr,b's rural field site Matlab with colleagues from Mailman School of Public Health at Columbia University, USA, and Johns Hopkins Bloomberg School of Public Health, USA.

Pneumonia is the leading infectious cause of death in children worldwide, accounting for 15% of all deaths of children under 5 years of age. In 2013 alone, an estimated 935,000 children under the age of five died of pneumonia globally. In Bangladesh, the biggest cause of death for children under 5 years of age is pneumonia, accounting for 27% of all deaths.

Worse, it is estimated that more than 35 million people in Bangladesh are at risk of being exposed to arsenic concentrations that are greater than the national standard and the World Health Organization guidelines.

Dr. Christine Marie George, lead author and assistant professor in the department of international health at Johns Hopkins Bloomberg School of Public Health, told [Sci Dev Net](#) that the findings suggest that “even low to moderate arsenic exposure may make children more vulnerable to pneumonia. This is likely because the arsenic in their drinking water is weakening their immune systems, making them more vulnerable to infections.”

Senior consultant on the study and former head of [icddr,b's Matlab Hospital](#) Dr Mohammad Yunus states that, “Chronic arsenic exposure reduces CD4 T cell numbers, which are vital for mediating adaptive immunity to a variety of pathogens, affecting the overall immune functions of the human body. This could increase risk of pneumonia in children.”

The study, which was recently published in [Environmental Health](#), offers a different perspective on the disease burden of pneumonia in countries that have high concentrations of arsenic in the groundwater. Future research in this area could help address the global mortality burden of childhood pneumonia, say the researchers.

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**Notes to editors**

***About icddr,b***

*icddr,b is an international public health research institution based in Bangladesh. Established in 1960, icddr,b has been at the forefront of discovering low cost solutions to key health challenges facing people living in poverty and provides robust evidence of their effectiveness at a large scale. Dedicated to saving lives through research and treatment, icddr,b addresses some of the most critical health concerns facing the world today.*