



PRESS RELEASE

Exposure to arsenic through drinking water is possibly linked to an increased risk for gallbladder cancer in known arsenic-contaminated regions in India

Understanding the link between arsenic levels in groundwater and gallbladder cancer in two arsenic-impacted and high gallbladder cancer states of India: Assam & Bihar

January 2023: A new paper been published in the Cancer Epidemiology, Biomarkers & Prevention Journal of the American Association for Cancer Research (Link to the final paper: <https://aacrjournals.org/cebpa/article-abstract/doi/10.1158/1055-9965.EPI-22-0926/712828/Chronic-Exposure-to-Drinking-Water-Arsenic-and?redirectedFrom=fulltext>) on the relationship between arsenic in Drinking Water and gallbladder cancer. This study investigated exposure to arsenic in drinking water, with gallbladder cancer risk among participants for residency durations of 15-70 years in two arsenic affected states of India: Assam & Bihar. The study was conducted by Indian scientists at the Centre for Environmental Health (CEH), Public Health Foundation of India (PHFI), Centre for Chronic Disease Control (CCDC), Dr. Bhubaneshwar Borooah Cancer Institute (BBCI), Mahavir Cancer Sansthan and Research Centre (MCSRC), Indian Institute of Technology- Kharagpur, in collaboration with the London School of Hygiene and Tropical Medicine (LSHTM) in regions where both gallbladder cancer and arsenic contamination in drinking water are significant public health problems. The study was carried out in large tertiary care hospitals that catered to patients across different parts of Assam and Bihar.

In the study areas, researchers observed that participants exposed to arsenic concentrations averaging 1.38-8.97 µg/L in groundwater had a 2-times greater risk of GBC, while those exposed to even higher arsenic levels (9.14-448.39 µg/L) experienced a 2.4 times increased risk of gallbladder cancer. The findings of the study suggest that chronic arsenic exposure in drinking water at low-moderate levels may be a potential risk factor for gallbladder cancer. Dr. Manigreeva Krishnatreya, Medical Officer of BBCI and a Co-Investigator of the study said, “long-term exposure to low levels of arsenic in drinking water can lead to discoloration of the skin, high blood pressure, heart disease, nerve conditions like numbness, etc. Now that arsenic as a possible risk factor for gallbladder cancer has been shown, it is imperative that public health intervention in the form of removing arsenic from drinking water is the need of the hour in endemic regions of Assam and Bihar. Tackling ‘arsenic pollution’ may help reduce the burden of several health outcomes”.

The study assessed arsenic exposure of the study participants based on their residential history since childhood and the average concentration of groundwater arsenic at district-level. “Obtaining long-term residential history since childhood with information on potential sources of drinking water, is an important contribution of this study to the existing evidence base. Preliminary insights from this study can also be useful for similar country contexts that experience a high burden of gallbladder cancers and arsenic contamination in drinking water”, said Dr. Krithiga Shridhar, CEH, PHFI, the lead author of the study.

Dr. Poornima Prabhakaran, Head- Environmental Health, Additional Professor, Director, Centre for Environmental Health, Public Health Foundation of India, said “This study is aligned with the Jal Jeevan Mission-2024 and the Sustainable Development Goals of equitable clean and safe drinking water.”

Over a third of study participants were exposed to levels more than WHO guideline limit of 10 µg/L, and 6% were exposed to levels more than or equal to 50 µg/L. More participants in regions with the highest levels of arsenic reported to be consuming tube-well water with sediments and with unsatisfactory colour, odour, and taste than those in regions with the lowest levels of arsenic. Prof. Ashok Kumar Ghosh, HoD, Research Centre, Mahavir Cancer Sansthan and Research Centre, Patna, reiterated, “Based on recent surveys of household water levels approximately 18-30 million people in rural and urban India are estimated to be consuming arsenic above 10 µg /L in 2020. This study calls for monitoring high-risk populations for early signs of arsenic poisoning.”

Link to paper: <https://aacrjournals.org/cebpa/article-abstract/doi/10.1158/1055-9965.EPI-22-0926/712828/Chronic-Exposure-to-Drinking-Water-Arsenic-and?redirectedFrom=fulltext>

Link to Summary of paper: <https://www.ceh.org.in/publication/chronic-exposure-to-drinking-water-arsenic-and-gallbladder-cancer-risk-preliminary-evidence-from-endemic-regions-of-india/>

For further details, please contact:

Dr. Krithiga Shridhar (Corresponding author for this publication)

Senior Research Scientist & Associate Professor (adjunct)
Public Health Foundation of India
6th Floor, Plot 47, Sector 44
Gurgaon, Haryana: 122002
Email: g.krithiga@phfi.org
Mobile: +91 9968844458

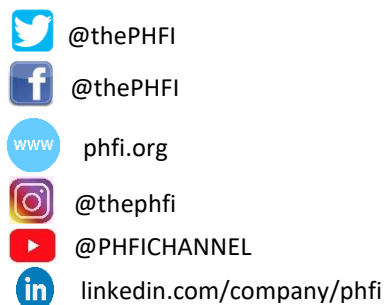
Dr. Manigreeva Krishnatreya

Medical Officer, Cancer Epidemiology Biostatistics & Cr
Dr. B Borooah Cancer Institute
Gopinath Nagar, A K Azad Road, Guwahati-781016,
Assam, India
Email: manigreeva@gmail.com
Mobile: 9954480612

Prof. Ashok Kumar Ghosh

HoD, Research Centre
Mahavir Cancer Sansthan and Research Centre
Phulwarisharif, Patna, India – 801505
Email: ashok.ghosh51@gmail.com
Mobile: 9334205809

ABOUT THE ORGANISATIONS



The Public Health Foundation of India (PHFI) is a not for profit public - private initiative, which represents a "Partnership for Public Purpose". PHFI is a response to the limited public health institutional capacity and was established to strengthen training, research and policy through interdisciplinary health system connected education and training, policy and programme relevant research, evidence based & equity promoting policy development, affordable health technologies, people empowering health promotion & advocacy for prioritised health causes in the area of Public Health in India. The setting up of PHFI was enabled by the Government of India in 2006 (registered as a Society). The Foundation is headquartered in New Delhi and its constituent Indian Institutes of Public Health (IIPH) established by PHFI have a presence in Hyderabad (Andhra Pradesh and Telangana), Delhi NCR, Gandhinagar (Gujarat), Bhubaneswar (Odisha), Shillong (Meghalaya) and Bengaluru (Karnataka). The Foundation is managed by an empowered governing board comprising senior government officials, eminent Indian and international academic and scientific leaders, civil society representatives and corporate leaders.



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The Centre for Environmental Health (CEH) was established in 2016 to understand and address the environmental health burden of disease in India. Based at the Public Health Foundation of India (PHFI), the aim of the Centre is to build capacity in India in environmental health research and training, and to provide evidence-informed policy guidance based on research in several thematic areas including air pollution; water; sanitation and hygiene; chemical exposures; climate change, and other environmental issues of concern.



Centre for Chronic Disease Control





WHO Collaborating Centre for
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Centre for Chronic Disease Control (CCDC) is, an independent and not-for-profit biomedical research organization, based in New Delhi, India. It is an academic health science research organization driven by a passion to promote and protect human health in India and the world at large.




-  @BorooahDr
-  bbcionline.org

Dr. Bhubaneswar Borooah Cancer Institute (BBCI) was set up by a voluntary organization called 'Dr. B. Borooah Cancer Society Trust'. Dr. Bhubaneswar Borooah (4th September 1893 - 25th September 1956) was a great physician, freedom fighter and philanthropist of Assam. In 1958 at a public meeting in Guwahati, a decision was taken to set up a cancer hospital at Guwahati to commemorate the memory of Dr. Bhubaneswar Borooah.



MAHAVIR
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-  mahavircancersansthan.com

Realising the huge burden of the cancer patients and lack of adequate treatment facilities in this part of India, the famous Mahavir Mandir Trust started the Mahavir Cancer Institute & Research Centre (MCSRC), at Patna for the first time. It is a comprehensive state-of-the art charitable cancer institute with all the treatment facilities under one roof.




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Indian Institute of Technology Kharagpur (IITKGP), fondly referred to as IITKGP by its kin, right from its inception formed the bridge between India's ancient wisdom and modern technology. Staring its journey in the old Hijli Detention Camp in Eastern India, IITKGP today is a confluence of world class multidisciplinary courses, a cauldron of academic and corporate research, a thriving hub of entrepreneurship and an enabler of best-in-class placement.