Mass bathing in Ganga aggravates anti-microbial resistance woes

Mass-bathing in the Ganga during pilgrimages may be contributing to anti-microbial resistance (AMR), says a government-commissioned report on the threat from AMR. Such resistance —previously acknowledged to be widespread in India — is said to be the reason for certain key antibiotics becoming ineffective against diseases, including tuberculosis.

Some years ago, researchers from the Newcastle University in the United Kingdom and the Indian Institute of Technology-Delhi sampled water and sediments at seven sites along the Ganga in different seasons.

In 2014, they reported in the peer-reviewed *Environmental Science and Technology* that levels of resistance genes that lead to "superbugs" were found to be about 60 times greater during the pilgrimage months of May and June than at other times of the year. The researchers had then said preventing the spread of resistance-genes that promote life-threatening bacteria could be achieved by improving waste management at key pilgrimage sites. The report of the Ganga as a reservoir for AMR genes sits alongside a 2016 study by the Council of Scientific and Industrial Research — still not made public — that portions of the the river had "anti-bacterial" properties.

The government report —— Scoping Report on Antimicrobial Resistance in India — made public on Wednesday cites this study too along with a compilation of all scientific studies done in India on the threat from AMR, causes and sources that aggravate it.

The report was commissioned by the Department of Biotechnology and the UK Research Council and prepared by the Centre for Disease Dynamics and Economic Policy. It notes, like previous studies, that India has some of the highest antibiotic resistance rates among bacteria that commonly cause infections in the community and healthcare facilities.

Resistance to the broad-spectrum antibiotics fluoroquinolones and third generation cephalosporin was more than 70% in Acinetobacter baumannii, Escherichia coli, and Klebsiella pneumoniae, and more than 50% in Pseudomonas aeruginosa.

In 2014, India was the highest consumer of antibiotics, followed by China and the United States. However, the per-capita consumption of antibiotics in India was much lower than in several other high-income countries.

Other than 'cultural factors' such as bathing in the Ganga, the drivers of AMR included excessive use of antibiotics in the livestock industry and unchecked discharge of effluents by the pharmaceutical industry. However, in spite of the challenge, too little work had been done so far to understand it. "This mapping exercise indicates that AMR research studies in India were of limited scope in all areas," the researchers noted.

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