

Cholera: ancient disease, growing threat

Cholera is a growing public health concern around the world. Cases are increasing at an alarming rate and outbreaks re-emerging in many countries in epidemic proportions. Official reports grossly underestimate the burden. Researchers estimate that globally there are between 1.3 and 4 million cases every year, and between 21,000 and 143,000 annual deaths.¹ Frequent and protracted outbreaks, emerging drug-resistant strains, climate change and insufficient progress in improving access to water and sanitation all add to the cholera threat.

An acute diarrhoeal disease, cholera is transmitted through the faecal-oral route by food or water contaminated with the bacterium *Vibrio cholerae*. Populations most at risk of contracting the disease are those living in peri-urban slums and refugee camps, and those experiencing humanitarian emergencies or natural disasters, where water, sanitation and hygiene (WASH) services are inadequate or have been destroyed.²

Growing evidence suggests that climate change is playing an ever-increasing role in the global resurgence and spread of cholera.³ Analysis of historical data over a 70-year period of progressively more intense El Niño events and increasing cholera cases provide some of the first evidence that long-term climate change is affecting infectious diseases.⁴ In particular, rising seawater temperatures have been linked to increasing cases of cholera.ⁱ National disease response is also threatened by climate change due to water scarcity caused by droughts, and the potential damage to WASH infrastructure from frequent and extreme weather events – all of which hinder access to safe water and sanitation, and the ability to practise good hygiene, essential to preventing the spread of disease.

Moving WASH up the cholera agenda

The prevention and control of cholera requires a coordinated multi-disciplinary approach, involving activities both within and outside the health sector.⁵ Despite good understanding of the critical role of WASH in preventing and controlling cholera, control efforts tend to focus primarily on medical interventions aimed at reducing mortality in response to outbreaks. Moving beyond a reactive response to strengthen prevention and preparedness measures must be a priority. WASH interventions play an important role, not only in the immediate response to outbreaks, but also in providing the long-term solution to preventing future outbreaks. Understanding how climate change impacts cholera prevalence further supports the need to build resilience by investing in universal access to WASH services.

ⁱ In the Bay of Bengal an analysis of satellite data on seasonal peaks in sea surface temperature was shown to correlate to seasonal peaks in cholera (Lobitz et al, 2000 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC26452/>).

Recommendations

Short-term WASH priorities for cholera response

1. **Hygiene:** Ensure hygiene promotion, including handwashing, safe water management and food hygiene, are central components of the cholera response. Develop opportunities to integrate hygiene promotion within the delivery of oral cholera vaccines in both emergency and endemic settings.
2. **Research:** Undertake robust studies evaluating the impact of a broad range of WASH interventions in cholera outbreaks.

Medium-term WASH priorities for cholera preparedness

1. **Health systems:** National plans to strengthen health systems must urgently include the construction and improvement of WASH in healthcare facilities, and enhance surveillance systems, including through use of WASH data and data related to climate change. This will require mechanisms in place to ensure coordination and collaboration between health and WASH agencies, allowing for joint planning and the sharing of information.
2. **Climate change:** Governments and international agencies should identify priority areas in the WASH and health sectors to build resilience to the cholera risks posed by climate change and strengthen coordination. Ensure WASH and health considerations related to cholera are integrated into national climate policy responses (such as Nationally Determined Contributions under the UNFCCC) and identify opportunities to mobilise climate financing for cholera control.

Long-term WASH priorities for cholera control

1. **WASH infrastructure and urban planning:** All urban planning and renewal efforts in areas vulnerable to the adverse impacts of climate change should include assessments of cholera risks, to inform the design of necessary WASH infrastructural and behaviour change adaptations.
2. **Universal Health Coverage (UHC):** Strengthen the six building blocksⁱⁱ of health systems in pursuit of Universal Health Coverage (UHC) in order to more effectively prevent, predict and respond to health threats such as cholera.

References

¹ Ali M, Nelson AR, Lopez AL, Sack DA (2015). *Updated Global Burden of Cholera in Endemic Countries*. PLoS Negl Trop Dis 9(6): e0003832. doi:10.1371/journal.pntd.0003832

² Ali M et al (2012). *The global burden of cholera*. Bulletin of the World Health Organization. 2012; 90:209-218A. doi: 10.2471/BLT.11.093427

³ De Magny G and Colewell R (2009). *Cholera and Climate: A Demonstrated Relationship*. Transactions of the American Clinical and Climatological Association. Vol 120

⁴ Rodo et al (2002). www.ncbi.nlm.nih.gov/pmc/articles/PMC130557/pdf/pg2002012901.pdf

ⁱⁱ WHO's health system building blocks include service delivery; health workforce; information; medical products, vaccines and technologies; financing; and leadership and governance.

⁵ WHO Global Task Force on Cholera Control (2010). *Cholera Outbreak: Assessing the Outbreak Response and Improving Preparedness*. World Health Organization.