

Running rings around cholera outbreaks

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Targeting vaccine and other interventions to those in the vicinity of people with

cholera could be an effective way to control cholera outbreaks. Credit: CDC Global, Flickr

Targeting vaccine and other interventions to those in the vicinity of people with cholera could be an effective way to control cholera outbreaks, which can have devastating effects after disasters and in other emergency settings, according to a research study by Flavio Finger, of the École Polytechnique Fédérale Lausanne, Lausanne, Switzerland and Andrew Azman, of the Johns Hopkins Bloomberg School of Public Health, Baltimore, USA and colleagues, published in *PLOS Medicine*.

Basing their study on a [cholera outbreak](#) in Chad in 2011, Finger, Azman and colleagues modelled the effects of different case-area targeted interventions—including oral [cholera vaccine](#), prophylactic antibiotic administration, and water treatment—on simulated [cholera](#) epidemics. The results indicate that cholera vaccine is expected to be the most effective intervention, with 70-100 metres being the optimum radius around existing cholera cases for vaccine administration. Azman and colleagues estimate that targeted cholera vaccine could reduce the number of cholera cases by 81% as compared with an uncontrolled epidemic, and shorten an epidemic by 68%. Targeted campaigns are also expected to require much smaller quantities of vaccine and other interventions as compared with mass campaigns aiming to protect whole populations.

Regardless of whether vaccine, antibiotics or water treatment are used individually or in combinations, targeting interventions to areas around cases may provide a critical solution for stopping cholera outbreaks from expanding, and, where outbreaks have already grown into large-scale epidemics, targeted interventions may bring them to a quicker end. Further research will now be needed to test the predictions in actual

disease outbreaks.

In an accompanying Perspective article discussing the research, Lorenz von Seidlein and Jacqueline Deen emphasize the importance of prompt action to achieve control of cholera outbreaks in emergency situations.

More information: Flavio Finger et al, The potential impact of case-area targeted interventions in response to cholera outbreaks: A modeling study, *PLOS Medicine* (2018). [DOI: 10.1371/journal.pmed.1002509](https://doi.org/10.1371/journal.pmed.1002509)

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