Cholera vaccine could protect affected communities

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A vaccine used to protect travelers from cholera, an infection characterized by diarrhea and severe dehydration, could also be used effectively among those living in cholera-prone (endemic) areas, according to a research study by Ira Longini and colleagues published in *PLoS Medicine*. The study lends support to the idea that public-health officials should consider mass vaccination in their efforts to control endemic cholera.

Using a mathematical model for cholera transmission based on information from the Matlab region of Bangladesh, the researchers predicted that cholera outbreaks could be controlled by vaccinating as few as half of the population in an affected region.

Because of "herd immunity" – protection of unvaccinated individuals due to the inability of cholera bacteria (Vibrio cholerae) to reach them via their vaccinated neighbors – the model indicated that vaccinating only 50% of the population could reduce the number of cholera cases among unvaccinated people by 89% and among the entire population by 93%. With only a third of the population vaccinated, the number of cases of cholera would still be predicted to fall by three-quarters.

In areas where there is less natural immunity to cholera—many people in Matlab are constantly exposed to V. cholerae, so they develop some immunity even without vaccination—70% of the population would probably need to be vaccinated to control cholera, according to the model.

The best way to prevent cholera, which is believed to cause about 100,000 deaths per year in developing countries, is to ensure that everyone has access to safe water and good sanitation, but these remain unavailable in many countries, and in situations of population displacement such as refugee camps and disasters such as floods.

Citation: Longini IM, Nizam A, Ali M, Yunus M, Shenvi N (2007) Controlling endemic cholera with oral vaccines. PLoS Med 4(11): e336. medicine.plosjournals.org/perl … journal.pmed.0040336

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