

**Occurrence of disease after natural disasters
does not follow a set pattern**

I read with interest in the *Journal* a paper on large-scale community chemoprophylaxis of leptospirosis.¹ Supe *et al.* report data from

screening of nearly 6.7 million residents of nearly 1.5 million households in flood-affected areas after 2 incidents of deluge following heavy rains in Mumbai during 2017, with the administration of antimicrobial drug prophylaxis to nearly 165 000 people. They found that the number of confirmed cases with leptospirosis following these incidents was much fewer than that following a similar deluge in 2005. From this, the authors surmise that 'selective, time-bound chemoprophylaxis following floods is likely to reduce the incidence of leptospirosis, as well as associated morbidity and mortality'.¹

However, the authors' conclusion appears flawed, and based on the data provided, it may not be possible to draw any conclusion whatsoever. Disease outbreaks following natural disasters, such as floods, earthquakes and cyclones, or large-scale migration (e.g. refugee camps) are stochastic events.² Their occurrence has a large random element, which makes them highly unpredictable. For instance, following the massive flooding of Indus River in Pakistan in 2010, a large outbreak of hepatitis E was considered as highly likely. This was based on the observation of several cases of this disease following much less intense floods in 2005. This prediction proved to be untrue. Although this flood was followed by cases of diarrhoea, skin and soft-tissue infection, conjunctivitis, respiratory tract infection and suspected malaria, no increase in cases of hepatitis E was observed.³ Similar fears were expressed following a massive earthquake in Nepal in 2015,⁴ which again proved unfounded.

The fewer cases of leptospirosis following the floods in Mumbai in 2017 than those in 2005 could have occurred 'due to', 'irrespective

of' or even 'in spite of' the chemoprophylaxis intervention. Besides the unpredictability in the occurrence of outbreaks referred to above, several other factors could have been responsible for this change. For instance, a close reading of the paper suggests that the diagnosis of leptospirosis in 2017 was based on 'polymerase chain reaction', whereas that in 2005 was based on 'various diagnostic kits/methods'.

Although it may be fine to intervene in anticipation of a perceived public health emergency, one must avoid drawing messages from such interventions lest one perpetuate a myth for future similar situations.

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