

Post-earthquake Nepal: the way forward



Published Online
October 14, 2015
[http://dx.doi.org/10.1016/S2214-109X\(15\)00211-9](http://dx.doi.org/10.1016/S2214-109X(15)00211-9)

On April 25, 2015, an earthquake measuring 7.8 on the Richter scale shook Nepal. This (together with strong aftershocks) resulted in about 9000 deaths, more than 23 000 injured, and about 2 million displaced people. To find the way forward for Nepal it might be useful to examine aspects of the 2010 earthquake and its aftermath in Haiti—a similarly impoverished country. That earthquake killed at least 230 000 people and displaced about 1.5 million. Reconstruction has been a very slow process in Haiti.

No major infectious disease outbreaks have been reported 6 months since the earthquake in Nepal. But after an earthquake of this magnitude, there will continue to be an elevated risk of epidemics of infectious diseases already endemic in Nepal, which include cholera, hepatitis E, typhoid, and typhus. Typhoid and paratyphoid organisms, which cause enteric fever, are the most common cause of undifferentiated febrile illness in Nepal.¹ Furthermore, resistant strains (H58 salmonella) are known to occur here, which might make this common organism difficult to treat with the most commonly used fluoroquinolones. Sustained disease surveillance is crucial.

The Haitian cholera outbreak—like Ebola's recent west African march—reminds us that these are rapidly changing situations; cholera has always been transnational, and outbreaks in Nepal brought on during the pre-earthquake period by plummeting access to clean water and sanitation unfortunately did not remain confined to “the roof of the world” for long. The Haitian epidemic, which inextricably bound these two nations together, could likely have been prevented if precautions had been taken and a nimble response, linking prevention and treatment to new investments in water and sanitation systems, mounted early on. More attention to hand washing and water treatment might need to be emphasised in Nepal, but—as in Haiti—will not alone suffice to prevent waterborne illness where modern sanitation is lacking. Vaccinations may be essential. An oral vaccine against cholera, recently proven effective in rural Haiti and stockpiled by WHO,² a highly effective intramuscular vaccine against hepatitis E,^{3,4} and typhoid vaccine^{5,6} should be stockpiled and delivered in Nepal through campaigns targeting those living in the areas most affected by the earthquake.

WHO, working with the Nepali Ministry of Health, should play a leadership role in such efforts.

In addition, mental health issues as evidenced by a sharp increase in post-earthquake hospital admissions for organophosphate poisoning have to be effectively dealt with. Finally, with the winter approaching in many high-altitude earthquake-ravaged villages, strategies to counter cold and hypothermia need to be taken seriously.

As in Haiti, “building back better” will necessitate the construction of more earthquake-resistant housing. But the definition of building back better should be expanded to include sustained improvements in overall health-care services, education systems, and good governance. The good news is that even before the earthquake, Nepal's Ministry of Health had acknowledged inadequate access to curative health services in rural areas as a major problem. The focus had consequently been on preventive medicine and primary health care, which produced good results in terms of reducing maternal and child mortality, certain forms of malnutrition, and communicable diseases. As a result, Nepal was on track to achieve many of the Millennium Development Goals for health.

In rebuilding Nepal, the Government, with the help of the international community, should focus on districts such as Gorkha, Nuwakot, Dhading, Kavre, and Sindupalchowk—the hardest hit rural areas. In several of these districts, up to 90% of health facilities were destroyed or seriously compromised.⁷ Retrofitting and rebuilding of these damaged and destroyed health posts and hospitals will be carried out. But these districts could also be the testing grounds for an innovative Nepali answer to the challenge of universal health coverage (in keeping with the emerging UN Sustainable Development Goals) by rebuilds that are capable of offering both protection from disease or injury and high quality care for those who do fall ill or get hurt.

Finally, in Haiti, more than US\$2.4 billion in humanitarian relief funding was rapidly mobilised in the weeks after the earthquake. But less than 1% was channeled through the government. Most of the money was funnelled through foreign contractors and middlemen.⁸ Locally owned and led programmes were generally shunned. This clearly did not help build capacity for responding to disasters.

In conclusion, the Nepali people, as the main stakeholders and with the help of the international community, must seize upon this post-earthquake period as a golden opportunity to make the necessary investments in innovative health care in all its aspects. Crucially, these investments should include not only proper sanitation, disease surveillance, and relevant vaccination campaigns but also an exemplary way forward for Nepal towards universal health care, starting with the most earthquake-ravaged districts.

**Buddha Basnyat, Cliff Tabin, Cameron Nutt, Paul Farmer*
 Nepal International Clinic, Lal Durbar, GPO Box 3596, Kathmandu, Nepal (BB); Oxford University Clinical Research Unit—Patan Academy of Health Sciences, Kathmandu, Nepal (BB); Banner University Medical Center, Phoenix, AZ, USA (BB); Department of Genetics, Harvard Medical School, Boston, MA, USA (CT); Partners In Health, Boston, MA, USA (CN, PF); Department of Global Health and Social Medicine, Harvard Medical School, Boston, MA, USA (CN, PF); and Division of Global Health Equity, Brigham and Women's Hospital, Boston, MA, USA (PF)
 buddha.basnyat@ndm.ox.ac.uk

We thank Kul Chandra Gautam, former Deputy Executive Director of UNICEF, and Robert Woollard from the University of British Columbia, Canada, for their valuable suggestions. We declare no competing interests.

Copyright © Basnyat et al. Open Access article distributed under the terms of CC BY.

- 1 Thompson CN, Blacksell SD, Paris DH, et al. Undifferentiated febrile illness in Kathmandu, Nepal. *Am J Trop Med Hyg* 2015; **92**: 875–78.
- 2 Ivers LC, Hilaire JJ, Teng JE, et al. Effectiveness of reactive oral cholera vaccination in rural Haiti: a case-control study and bias-indicator analysis. *Lancet Glob Health* 2015; **3**: e162–68.
- 3 Zhu FC, Zhang J, Zhang XF, et al. Efficacy and safety of a recombinant hepatitis E vaccine in healthy adults: a large-scale, randomised, double-blind placebo-controlled, phase 3 trial. *Lancet* 2010; **376**: 895–902.
- 4 Basnyat B, Dalton HR, Kamar N, et al. Nepali earthquakes and the risk of an epidemic of hepatitis E. *Lancet* 2015; **385**: 2572–73.
- 5 World Health Organization. Typhoid vaccines: WHO position paper. *Wkly Epidemiol Rec* 2008; **83**: 49–59.
- 6 Basnyat B. Tackle Nepal's typhoid problem now. *Nature* 2015; **524**: 267.
- 7 Khanal V, Khanal P, Lee AH. Sustaining progress in maternal and child health in Nepal. *Lancet* 2015; **385**: 2573.
- 8 UN Office of the Special Envoy for Haiti. Can more aid stay in Haiti and other fragile settings? How local investments can strengthen governments and economies. New York: United Nations, 2012. http://lessonsfromhaiti.org/download/Report_Center/osereport2012.pdf (accessed Oct 5, 2015).