

## Control of the Outbreak of Disease Aftermath Earthquake: an Overview

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The aftermath of the Nepal earthquake brought substantial population displacements and change in environmental situation exposing the vulnerability to the existing pathogens for the transmission. There was huge panic at the individual level and media towards the possible epidemic aftermath the recent disaster. Meanwhile, Nepal has faced this sort of problem after eighty two years (last biggest earthquake in 1990 BS) and the lack of the knowledge transfer was evident to cope up with the situation. There are documented evidences that injuries and deaths during shortly after natural disaster are associated with injuries and high risk of infectious disease transmission with possible outbreak shortly after the disaster. In Nepal, the aftermath of earthquake resulted complete destruction of 392 health facilities and 531 were partially damaged. The functioning of these facilities was severely compromised. The disruption of the health programs (diseases prevention and control activities, immunization, vector control) further pose the threats towards increase risk of infectious diseases transmission and outbreaks following the earthquake. The risk of the disease outbreak was associated with the prolonged after effect of the disaster. These after effect included displaced populations, environmental changes, increasing the breeding sites of the vectors, high exposure to and proliferations of disease vectors (rodents, mosquitoes and flies), unplanned and overcrowded temporary shelters, polluted water and poor sanitation, poor nutritional status and

poor personal hygiene, low level of immunity to vaccine preventable diseases.

There was prediction of possible disease outbreak aftermath the present earthquake in Nepal however prompt health action accompanied with sound disease surveillance measures carried out by Epidemiology and Disease Control Division (EDCD) with the technical guidance of Chinese Medical Team took the situation under control. The collaboration between the national health system, international experts and academic institutions played vital to prevent the outbreak of disease after the recent disaster.

The main causes of communicable diseases aftermath the disaster include: presence of pathogens, displacement of population, change in environment, disruption of basic public utilities, lack of basic health services and food shortage etc.

The following protocol was devised to prevent the outbreak of disease after the recent earthquake:

1. Assessment of the diseases in the disaster area
2. Collection and analysis of the health and disease burden in the disaster area
3. Communication of information about disease
4. Early investigation
5. Reporting of disease

6. Report analysis and evaluation
7. Monitoring of disease

The following preventive and control measures were taken on an immediate basis to avoid the spread of communicable diseases following the recent earthquake: water safety, medical services, early warning system, vector control and health promotion measures.

Under the leadership of EDCD and National Health Research Council the Chinese Medical Team supported the epidemic investigation and rapid response activities. The team conducted the rapid assessment of the temporary settlements in the affected areas and collected the necessary health and disease related information. Meanwhile the hospital based disease surveillance was carried out to monitor the disease situation. There was high risk of the water contamination aftermath the epidemic hence the water surveillance was done. The water purification and health promotion activities were simultaneously carried out in the hard hit areas. Environmental disinfection was carried out in the areas where human corpse, chicken and cattle decayed and polluted the environment. The multidisciplinary teams incorporating the medical doctors, epidemiologists, public health workers, environmentalist, health educators, medical laboratory professionals and social workers were deputed. The epidemic investigation and rapid response activities were continued soon after the earthquake till the end of the May 2015. The activities were carried out considering the post-impact phase (4 days to 4 weeks) when the first waves of infectious diseases (water-borne infections, food-borne or air-borne) epidemic might occur.

Infectious disease transmission or outbreaks may be seen days, weeks or even months after the onset of the disaster. Hence the disease outbreak control activities need to be carried out continually to prevent the future epidemic. It's hard to predict the disaster. Not only in Nepal, natural disasters can result at any time in any part of the world causing heavy loss of human life and damage infrastructure and human assets. Usually natural disasters cannot be stopped. The magnitude of disasters can be reduced if preventive measures be taken in due time for which pragmatic government policies with immediate response and public awareness are of utmost importance. The speed of action is vital in responding to emergencies. It is very important that immediate action is taken to control outbreaks, treat the people who are affected as well as raise awareness about the disease.

**Conflict of interest:**

The author hereby declare that he has no financial or non-financial potential conflicts of interest.

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