

# Emergency Risk Management for Health COMMUNICABLE DISEASES

## Key points

- Communicable diseases have potential to cause society-wide emergencies such as influenza pandemics.
- Risks of outbreaks arising from natural hazard events and disasters are frequently over-estimated.<sup>1,2</sup>
- Outbreak potential is related primarily to population displacement and the consequent living conditions.
- Outbreaks are less frequent in disaster-affected populations than those affected by conflict.<sup>3</sup>
- The main communicable disease causes of morbidity and mortality in disasters are:
  - diarrhoeal diseases, including cholera
  - acute respiratory infections
  - measles
  - vector-borne diseases
- High vaccine coverage reduces the incidence of vaccine preventable diseases (e.g. measles)
- Provision of safe drinking water is the most important preventive measure.
- Rapid detection of cases of epidemic-prone diseases through surveillance systems is essential to ensure rapid control.
- Management of disease vectors in endemic areas is required to reduce vector borne diseases.

## Why is this important?

There are two major areas of focus: 1) where the risks of outbreaks are associated with other events, such as emergencies due to natural hazards and conflicts; and 2) where the emergency is caused by an infectious disease.

The past two decades have seen at least 1 billion people affected by natural disasters with millions suffering infection with communicable diseases.<sup>4</sup>

Communicable diseases can cause epidemics and pandemics which have the potential to overwhelm the capacity of communities; with serious health and socio-economic consequences. In the past century four influenza pandemics resulted in an estimated 22 to 58 million deaths.<sup>5</sup>

'New' pathogens with potential to cause pandemic continue to emerge. Severe Acute Respiratory Syndrome (SARS) caused fewer than 10,000 cases with 774 deaths but had a major impact upon national economies especially upon trade and tourism.<sup>6</sup>

The 194 Member States of WHO have agreed the International Health Regulations (2005)<sup>7</sup> with the purpose of preventing and controlling the international spread of adverse public health events, including epidemics. One of the key obligations of States Parties to the IHR is to develop and maintain national core capacities for the detection, investigation, response and reporting of public health events within their territories.

## What are the health risks?

In disaster situations, increased mortality and morbidity from communicable diseases is associated with:

- population displacement
- collapsing health services
- lack of disease control programmes
- poor access to health care in urban and rural areas
- malnutrition
- interrupted supplies and logistics
- poor coordination among agencies

The risk of communicable diseases is associated primarily with the size and characteristics of the affected population,<sup>8</sup> including the following factors:

- amount and availability of safe water
- functioning latrines
- nutritional status of the displaced population
- levels of immunity and vaccination coverage
- level of access to health care services

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Communicable diseases, and the associated risk factors, can be grouped as follows:

### Water-borne diseases

Lack of access to safe water and inadequate sanitation facilities transmission of water-borne and food-borne pathogens. Diarrhoeal diseases such as cholera, typhoid fever and shigellosis can cause epidemics with high rates of mortality.<sup>9</sup> Hepatitis E has resulted in increased mortality in pregnant women.<sup>10</sup>

Leptospirosis is associated with flooding and the increased proximity of rodents to humans.

### Vector-borne diseases<sup>11</sup>

Malaria is endemic in over 80% of areas which are affected by emergencies from natural hazards.

Increased risk of death from malaria arises from weakened immunity due to:

- malnutrition
- co-infection
- inadequate shelter, thus increasing exposure to vectors
- collapse of health services

Other vector-borne diseases in risk areas include dengue, yellow fever, Japanese encephalitis and Rift Valley fever, and tick-borne illnesses including Crimean-Congo haemorrhagic fever and typhus.

### Diseases associated with overcrowding

Measles spreads easily in unvaccinated populations and outbreaks are common when emergencies lead to crowding in these populations. Crowding also facilitates the transmission of:

- meningococcal disease
- acute respiratory infections
- tuberculosis infection
- diarrheal diseases.

### Vaccine-preventable diseases

Increased risk of polio, tetanus, pertussis and diphtheria is evident when levels of baseline immunization coverage are low.

## Risk management considerations

Governments and communities can manage the risks of communicable diseases by:

### Safe water, sanitation, site planning:

- Provision of safe drinking water is the most important preventive measure.
  - Planners and engineers are key to ensuring safe water and sanitation infrastructure.
  - Chlorine is widely available, inexpensive, easily used, and effective against nearly all waterborne pathogens.

### Primary care:

- Access to primary care at community level is critical for prevention, early diagnosis, and treatment of a wide range of diseases.

### Surveillance/early warning system:

- Rapid detection of cases of epidemic-prone diseases is essential to ensure rapid control.
- Surveillance and early warning systems should be quickly established to detect outbreaks and monitor priority endemic diseases.
- Country and sub-national reporting for IHR (2005) implementation provides an early warning of new and re-emerging epidemic prone diseases.

### Immunization:

- Mass measles immunization and vitamin A supplementation are immediate health priorities in areas with inadequate coverage.

### Prevention of malaria and dengue:

- Specific preventive interventions for malaria are based on an assessment of the local situation and could include bed nets, immunization and improving water drainage to reduce vector breeding sites.

## References and further reading

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