

Health Emergency and Disaster Risk Management

COMMUNICABLE DISEASES

- Communicable diseases have potential to cause world-wide emergencies such as influenza pandemics.
- Natural hazard events and disasters such as droughts and earthquakes can contribute to the initiation of outbreaks of endemic diseases.
- The main causes of morbidity and mortality from communicable diseases in emergencies are:
 - Diarrheal diseases including cholera
 - Acute respiratory infections
 - Measles
 - Vector-borne diseases, including malaria
- Attention to weaknesses in vaccine coverage (especially for dangerous infections such as measles) is important in disasters.
- Provision of safe drinking water and a functional sanitation infrastructure is crucial in management of infectious diseases in disasters.¹
- Surveillance for rapid detection of outbreaks is essential.
- 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.²

Communicable diseases can cause epidemics and pandemics which have the potential to overwhelm the capacity of communities; with serious health and socio-economic consequences.³

'New' pathogens with potential to cause pandemic continue to emerge. Severe Acute Respiratory Syndrome (SARS) caused fewer than 10,000 cases with 774 deaths because of a global concerted effort to contain the outbreak. Nonetheless, it had a major impact upon national economies especially upon travel and trade.⁴

The 2014-2016 West African Ebola outbreak resulted in 11,310 deaths.⁵ It overwhelmed health systems, compromising the delivery of other essential health care leading to a rise in mortality due to other diseases.

The 194 Member States of WHO have agreed the International Health Regulations (IHR) (2005)⁶ 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 potential public health events of international concern (PHEICs) within their territories. Following the review of the response to the Ebola outbreak, countries have instituted voluntary Joint External Evaluations and strengthened capacities for IHR implementation.

What are the health risks?

Increased mortality and morbidity from communicable diseases in disasters are strongly associated with:

- population displacement⁷
- crowding
- collapsing health services
- poor access to health care
- breakdown of long term treatment programmes (e.g. TB, HIV/AIDS)
- exposure to novel infections
- malnutrition
- lack of, or breakdown of, disease control programmes including immunisation, vector control and WASH programmes
- damage to infrastructure (e.g. water purification, sewage treatment, waste disposal)
- contamination of water and food
- interrupted supplies and logistics
- poor coordination among agencies

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

Water and food-borne diseases

- Bacteria, viruses, parasites and toxic chemicals can enter the body via contaminated food or water
- Lack of access to safe water and inadequate sanitation facilities aid transmission of water-borne and food-borne pathogens. Diarrheal diseases (e.g. cholera and shigellosis) can cause epidemics with high rates of morbidity and mortality.⁸ Hepatitis E has resulted in increased mortality in pregnant women.⁹
- Leptospirosis is associated with flooding and the increased proximity of rodents to humans.

Vector-borne diseases¹⁰

- Malaria is endemic in over 80% of areas which are affected by emergencies from natural hazards.
- Other vector-borne diseases include dengue, yellow fever, Zika, and Rift Valley fever (mosquito borne), tularaemia, and Crimean-Congo haemorrhagic fever.

Vaccine-preventable diseases

- Increased risk of measles, polio, tetanus, pertussis and diphtheria is evident when levels of baseline immunization coverage are low.
- Measles spreads easily in unvaccinated populations and outbreaks are common when emergencies lead to crowding in these populations.

Acute respiratory infections and infections spread by the respiratory route

(Transmission of such infections is greatly facilitated by crowding)

- influenza, pneumonia
- meningococcal disease, measles, diphtheria
- TB

Sexually transmitted infections (STIs)

- STIs (including HIV/AIDS) readily spread in disasters especially when sexual violence occurs.

Risk management considerations

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

Safe water, sanitation, site planning

- Effective water, sanitation and hygiene (WASH) can prevent or mitigate the risk of severe diarrheal diseases.
- 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 most important waterborne pathogens.

Primary care

- The provision of primary care in epidemic, natural disaster and post-conflict situations 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 to detect outbreaks should be quickly established and cases reported through national systems, when appropriate, to WHO

Immunization

- Mass measles immunization and vitamin A supplementation are immediate health priorities in areas with inadequate coverage.
- Establishment/re-establishment of a cold chain

Prevention of vector-borne diseases

- Base specific preventive interventions for malaria and other vector-borne diseases on an assessment of the local situation. Attention should be paid to identifying disease-specific strategies that could include bed nets, improving drainage to reduce vector breeding sites, or insecticide spraying.

Food safety

- Building and maintaining adequate food testing systems and infrastructures (e.g. laboratories) to respond to and manage food safety risks along the entire food chain, including during emergencies.

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