

# Emergency Risk Management for Health

## MASS FATALITIES/DEAD BODIES

### Key Points

- The health risk to the general public from large numbers of dead bodies following emergencies arising from natural hazards is negligible.<sup>1,2</sup>
- Capacity is needed to recover, identify, store and dispose of the large number of dead bodies that may arise in an emergency<sup>1</sup>.
- It is important for the psychosocial wellbeing of the living: survivors, relatives and the wider community that the dead are managed with dignity and respect.<sup>1,2</sup>
- Good communication on the management arrangements for the dead and the missing is critical for relatives.<sup>1</sup>
- Awareness of ethical, religious and cultural sensitivity are important for those managing fatalities.<sup>1</sup>
- Exposure of civilian populations to chemical, biological and radiological agents is an increasing hazard, and fatalities as a result of such hazards may pose an ongoing threat.<sup>3</sup>

Please also see factsheets on chemical safety, radiation, communicable diseases, and mental health and psychosocial support.

#### Example: South Asia

##### Earthquake and Tsunami (2004)

The Sumatra-Andaman earthquake and tsunami of 26<sup>th</sup> December 2004 led to an estimated 226,408 deaths across South Asia.<sup>1</sup>

Lack of co-ordination between different organizations, communities and family members resulted initially in a lack of clear process for body recovery across three countries: Sri Lanka, Indonesia, and Thailand that were studied in post-event analysis<sup>1</sup>.

Bodies were taken to multiple locations and surviving relatives suffered greatly in not knowing where family members had been taken.<sup>1</sup>

### Why is this important?

Larger-scale natural disasters may result in many tens of thousands of fatalities<sup>4</sup>, while smaller-scale disasters involving multiple deaths often exceed the local capacities for mass fatality management.

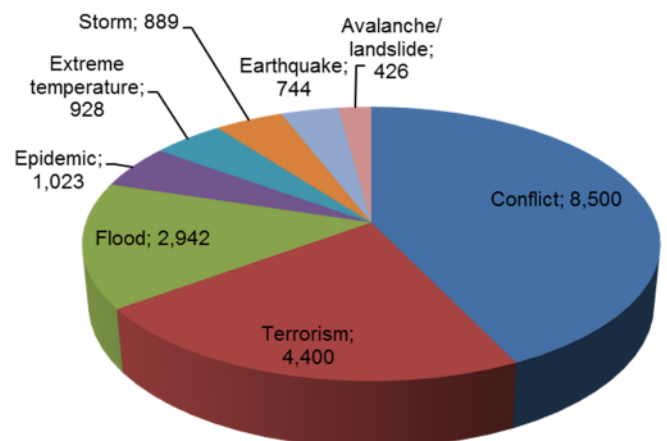
In 2010, the earthquake in Haiti recorded estimates of over 200,000 deaths, the heat-wave in Russia over 55,000 and the floods in Pakistan almost 2000<sup>5</sup>. Other disasters including epidemics, bombings and chemical hazards (e.g. Bhopal, India) may also result in large numbers of dead bodies.

Since 2011, the internal conflict in Syria recorded estimates of over 60,000 deaths, the earthquake in Japan over 15,000 and the typhoon in the Philippines almost 1000 deaths.

While local arrangements may be able to manage small numbers, they are rarely able to cope with hundreds or thousands of fatalities which may occur in an emergency. When the number of bodies exceeds normal local mortuary arrangements, mass fatality management plans may be activated to provide the additional capacities.<sup>6</sup>

Typically the events that result in the highest numbers of fatalities are located in regions with increased risk and vulnerable populations; this is often compounded by limited infrastructure and integration of the health system into disaster preparedness, response and recovery.

Mass fatality incidents: number of deaths by event type (2012)



Data Source: EM-DAT<sup>5</sup>

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## What are the health risks?

### General risks<sup>1</sup>

The major risk is inadequate capacity to deal with dead bodies, which may result in:

- Distress to families and the community.
- Diversion of vital community, health and disaster responders away from priority life-saving measures for survivors to the management of dead bodies.
- Inappropriate practices may also cause community distress.

The health risk to the general public from large numbers of dead bodies arising from natural hazards is negligible<sup>1</sup>. However there is a risk of infection arising from consumption of water that is contaminated with feces from a dead person.

There may also be health risks through secondary contamination from fatalities as a result of exposure to chemical or radiological agents.<sup>3</sup>

Psychological distress amongst the bereaved is aggravated if unable to perform funereal rites in accordance with local custom.<sup>2</sup>

### Occupational health related risks<sup>1</sup>

There are no reports of infection arising from contact with a dead body following natural disasters, though long term follow up of personnel is yet to be undertaken.

The majority of health effects following a natural disaster include injury/strain from lifting bodies, and injury from debris during body recovery.

Risk assessments need to be made where fatalities arise following epidemics of infectious disease or exposure to chemical or radiological agents to prevent infection and/or secondary contamination.<sup>3</sup>

It is vital in all cases that universal precautions are adhered to when handling dead bodies, including wearing gloves and washing hands. Additional personal protective equipment may be needed when handling fatalities occurring as a result of chemical, biological and radiological incidents and specialist advice should be sought.

## Risk management considerations

Governments and communities can ensure that mass fatalities are appropriately managed by:

- Taking coordinated multi-agency planning and preparedness measures for the management and recording of fatalities specifically addressing each of the following four stages involved in management of dead bodies: <sup>1</sup>

- Body recovery
- Storage of bodies: as local custom permits, in refrigeration, cold storage or by other means until identification and handing over to family members.
- Victim identification: using fingerprints, dental records, DNA records, photo identification depending on local resources and baseline identification records.
- Disposal which should reflect ethnic and religious sensitivities where possible and appropriate.

Additionally, following chemical, biological and radiological events, taking steps to identify and contain the causative agent.

Effectively communicating risk to survivors and responders including health workers, emergency responders and those living in risk prone areas about the adverse health effects from a dead person. <sup>1</sup>

Provide access to support mechanisms for survivors, relatives and those dealing with fatalities.

## References and further reading

1. Morgan OW, Sribanditmongkol P, Perera C, Sulamsi Y, Van Alphen D, Sondorp E. Mass Fatality Management following the South Asian Tsunami Disaster: Case Studies in Thailand, Indonesia and Sri Lanka. *PLoS Med* 2006;3(6): e195. doi:10.1371/journal.pmed.0030195
2. Eberwine D. Disaster Myths That Just Wont Die. *Perspectives in Health* 2005;10(1):2-7
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4. CRED (Center for Research on the Epidemiology of Disasters). *Thirty Years of Natural Disasters 1974-2003: The Numbers*, 2004; Belgium: Presses universitaires de Louvain.
5. EM-DAT <http://www.emdat.be/>, Refugees International <http://refugeesinternational.org/>
6. CRED (Center for Research in Epidemiology of Disasters) (2011). 2010 disasters in numbers. <http://cred.be/sites/default/files/PressConference2010.pdf>



*Tsunami fatalities (2004), Indonesia (WHO)*