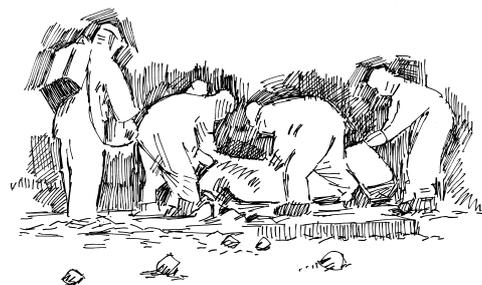


# Disposal of dead bodies in emergency conditions



**World Health Organization**

This technical note provides guidance on the disposal of dead bodies in emergency situations. Where there are many fatalities, the collection and disposal of bodies becomes an urgent need. This is not usually due to any health-related risks, which are likely to be negligible, but is important because of the possible social and political impact and trauma. So emergency relief teams should primarily be concerned with the mental health of the community and its need to carry out the cultural obligations and traditions to take care of the dead, rather than potential disease transmission.

## Physical health risks

The widespread belief that corpses pose a risk of communicable disease is wrong. Especially if death resulted from trauma, bodies are quite unlikely to cause outbreaks of diseases such as typhoid fever, cholera, or plague, though they may transmit gastroenteritis or food poisoning syndrome to survivors if they contaminate streams, wells, or other water sources.



**A mass grave**

## Mental health risks

The psychological trauma of losing loved ones and witnessing death on a large scale is the greatest cause for concern. It is therefore, important to collect corpses as quickly as possible to minimise this distress. It is, however, not necessary to rush their burial or cremation. This does not allow for the correct identification and record taking of the details of the dead. Nor does it give the time for the bereaved to carry out the ceremonial and cultural practices, which would normally occur after a death.

### Cultural and religious practice

Relief workers should respect the wishes of the families and communities of the dead to observe whatever cultural and religious events are usually practised on death. This is important in helping people deal with the psychological impact of such disasters. Encouraging stricken communities to carry out traditional ceremonies and grieving processes sets in motion the process of disaster recovery.

## Recovery of bodies

To minimise the distress caused by the sight of dead bodies and the odours produced by their decomposition, it is important to collect and remove corpses to a collection point as quickly as possible. Anyone in charge of a body recovery team should be aware of the stress and trauma that team members might feel, and provide support for this where possible.

## Mortuary services

It is important to provide secure morgue facilities where there are casualties following an emergency, where there is an epidemic, or if burial or cremation are likely to be delayed. A temporary mortuary site should consist of a reception, a viewing room, a storage chamber for bodies not suitable for viewing and a room to store personal possessions and records. The recommended capacity for a field morgue is 10 bodies per 10,000 population. Bodies should be stored at 4°C,

# Disposal of dead bodies

although this is rarely possible. Mortuary staff should wear gloves and protective clothing and should wash with disinfectant soap. A complete list of mortuary requirements is given below. Where this is not possible, the minimum facilities are stretchers, leather gloves, rubber gloves, overalls, boots, caps, soap, disinfectants and cotton cloth. Following an emergency, when the decision is made to close a temporary mortuary, appropriate cleansing of the site should take place.

## Equipment for mortuary services in major disasters

- Stainless steel postmortem tables or heavy duty trestle tables covered with plastic sheeting.
- Wheeled trolleys for transporting bodies within the mortuary.
- Tarpaulin or plastic sheeting for the floor, if it is not made of concrete.
- Heavy-duty black plastic sheeting for temporary screens.
- Refuse bins and bags.
- Cleaning materials – mops, buckets, cloths, soap, towels.
- Disinfectant and deodorizer.
- Protective clothing and heavy-duty rubber gloves.
- Translucent plastic body bags 0.1 mm thick and labels (if epidemic circumstances).
- Wall charts to record progress or large poster boards if there are no walls.

Revised list taken from Clark, Nicholls and Gillespie (1992), cited in Wisner and Adams (2002).

## Identification of bodies

One of the major challenges of effective management of dead bodies is their early identification and tagging. Records of deaths and funerals need to be kept to monitor mortality rates and the incidence of disease and to be able to provide timely, understandable and accurate information to relatives of the dead.

Displaying bodies for identification needs space; 1000 bodies require over 2000m<sup>2</sup>. Identification can be a lengthy process, especially where no personal documentation is carried. When relatives and friends of the dead are involved, it must be remembered that visual identification is not scientific. In emergency situations, this process is even more difficult as it may be necessary for relatives to view numerous bodies in the hope that they will make an identification. This would normally be avoided. Where possible, it is important to differentiate viewing a body for identification from viewing a body for grieving purposes and separate locations should be provided.

Once identified, a death certificate should be issued, an official record of death prepared and the body tagged. With violent deaths, it is also important to record the cause of death for possible future investigation.

## Body disposal

**Burials in common graves and mass cremations are rarely warranted and should be avoided.**

### Burial

Burial is the preferred method of body disposal in emergency situations unless there are cultural and religious observances which prohibit it. The location of graveyards should be agreed with the community and attention should be given to ground conditions, proximity to groundwater drinking sources (which should be at least 50m) and to the nearest habitat (500m). An area of at least 1500m<sup>2</sup> per 10,000 population is required. The burial site can be divided to accommodate different religious groups if necessary. Burial depth should be at least 1.5m above the groundwater table, with at least a 1m covering of soil. Burial in individual graves is preferred and can be dug manually. If coffins are not available, corpses should be wrapped in plastic sheeting to keep the remains separate from the soil. Burial procedures should be consistent with the usual practices of the community concerned.

### Cremation

There are no health advantages of cremation over burial but some communities may prefer it for religious or cultural reasons. Factors against it are the amount of fuel required by a single cremation (approx 300kg. wood) and the smoke pollution caused. For this reason,

# Disposal of dead bodies

cremation sites should be located at least 500m downwind of dwellings. The resultant ashes should be disposed of according to the cultural and religious practice of the community.

## Action in medical epidemics

Where possible, in the case of a medical epidemic, body handling should be left to specialist medical staff. Rather than using lime for disinfection purposes, which has a limited effect on infectious pathogens, it is better to use chlorine solution or other medical disinfectants. Any vehicles used to transport bodies to burial or cremation sites during epidemics should also be disinfected after use. It is important to make communities aware of the risks of contagion from practices such as traditional washing of the dead. Also, any large gathering, including a funeral, can be a way of spreading an epidemic. Consequently, burial or cremation should take place soon after death at a site near the place of death with limits placed on the size of any gathering.

## Cholera

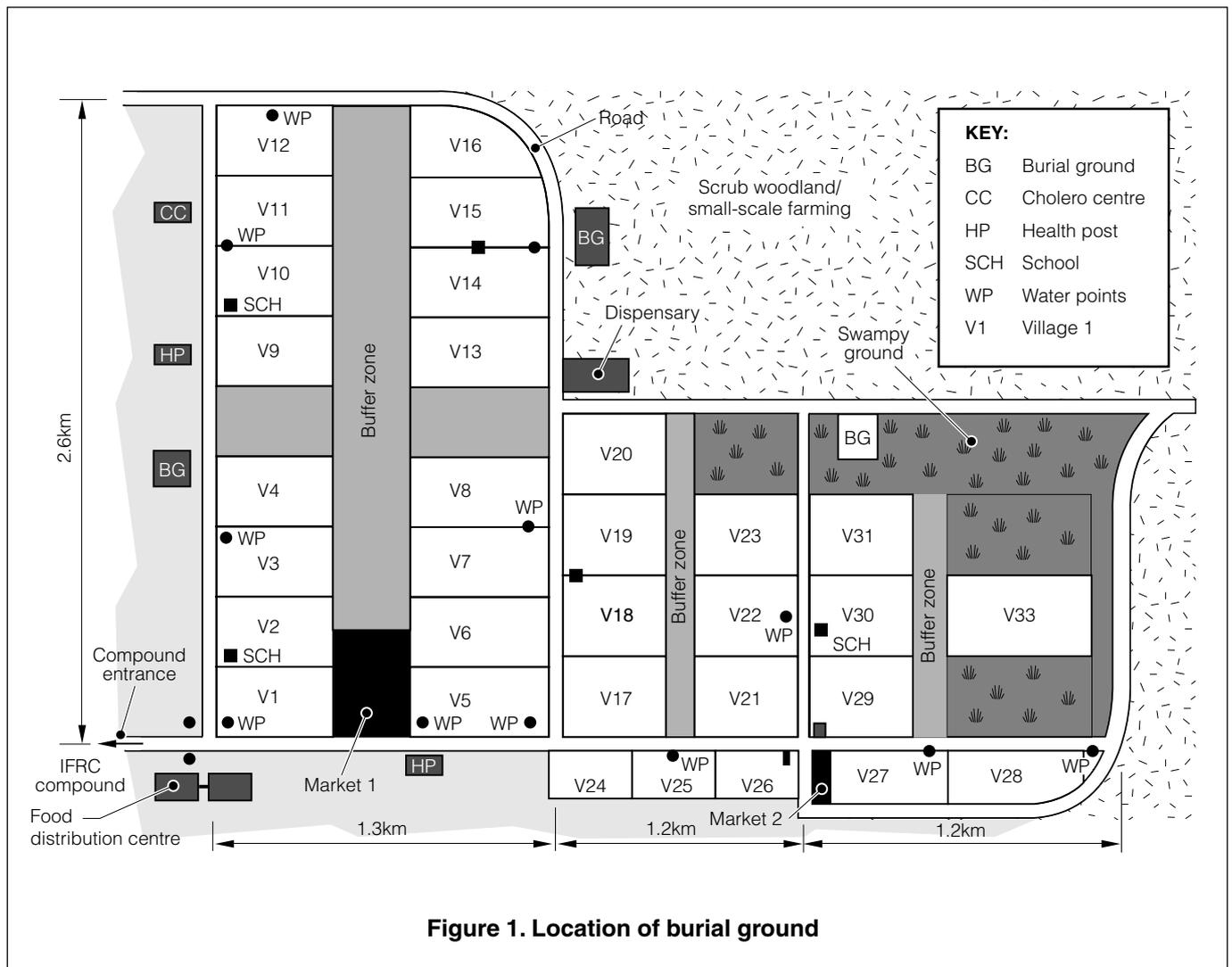
Contact with the body leads to exposure to cholera vibrios and requires careful washing using soap and water.

## Ebola

Ebola is spread through bodily secretions such as blood, saliva, vomit, urine and stools, but can easily be killed with soap and water. Those dealing with the disposal of bodies require high levels of protection.

## Typhus and plague

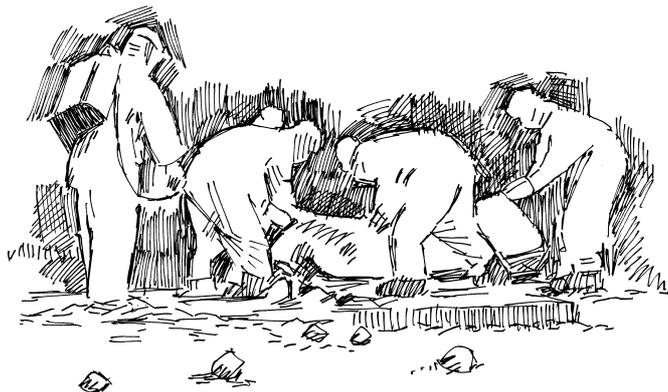
To avoid infestation with the fleas and lice that spread these diseases, protective clothing should be worn. Body bags should be used to store the bodies prior to burial or cremation.



# Disposal of dead bodies

## Important principles

- Give priority to the living over the dead.
- Dispel myths about health risks posed by corpses.
- Identify and tag corpses.
- Provide appropriate mortuary services.
- Reject unceremonious and mass disposal of unidentified corpses.
- Respond to the wishes of the family.
- Respect cultural and religious observances.
- Protect communities from the transmission of medical epidemics.



**Volunteers remove bodies with extreme caution**

## Further information

Harvey, P., Baghri, S. and Reed, R.A. (2002) *Emergency Sanitation, Assessment and Programme Design*. WEDC, Loughborough, UK.

Davis, J. and Lambert, R. (2002) *Engineering in Emergencies: a Practical Guide for Relief Workers*, (2<sup>nd</sup>. Edn.) ITDG Publishing, London.

Wisner, B. and Adams, J. (eds.) (2002) *Environmental Health in Emergencies and Disasters*. WHO, Geneva.

Pan American Health Organization (PAHO) (2003) 'Unseating the Myths Surrounding the Management of Cadavers', *Disaster newsletter*, No. 93, October 2003. PAHO, USA.

## World Health Organization

WHO Headquarters  
Avenue Appia 20  
1211 Geneva 27  
Switzerland

Telephone: (+ 41 22) 791 21 11  
Facsimile: (+ 41 22) 791 3111  
Telex: 415 416  
Telegraph: UNISANTE GENEVA



This information has been prepared by WEDC

**Author:** Julie Fisher **Series Editor:** Bob Reed **Design:** Glenda McMahon **Illustrations:** Rod Shaw **Graphics:** Ken Chatterton  
Water, Engineering and Development Centre, Loughborough University, Leicestershire, UK.  
Phone: +44 1509 222885 Fax: +44 1509 211079 E-mail: WEDC@lboro.ac.uk Website: www.lboro.ac.uk/wedc