



REFUGEES AND DISPLACED COMMUNITIES

Diarrhoeal disease is one of the major causes of illness and death among refugees. In this insert, *Dialogue on Diarrhoea* assesses the special needs of communities in refugee camps; provides practical guidelines for protecting water sources, improving sanitation and ensuring good hygiene to prevent outbreaks of disease; and describes measures to control cholera.

There are more than 30 million refugees or displaced people in the world. Death rates in refugees and those displaced by natural disasters are often extremely high, especially in the early phase of displacement. In Ethiopia in 1985 and in the Sudan in 1988, mortality rates in camps for displaced people were 60 times greater than in non-refugee communities, particularly among



The danger of diarrhoea in refugee camps – a Kurdish child drinks dirty water from a makeshift container.

children. In Bangladesh, a diarrhoea epidemic with 12,000 acute cases quickly developed amongst people who had been made homeless by the cyclone 'Urirchar'¹.

People who remain in areas affected by war or other disasters face problems similar to those forced to leave their homes: there is no sanitation infrastructure, and water supplies are often contaminated.

In these situations immediate steps must be taken to protect people from the spread of disease, including diarrhoea. Lives can be saved by effective treatment of diarrhoea and dehydration. Adequate supplies of clean water and improvised sanitation

facilities can help to improve the health status of the community, and prevent diarrhoea.

The refugee community

A refugee community needs special attention because:

- people may have escaped from very difficult and traumatic situations;
- they may be in a weak physical state and under stress;
- over half the population may be under 15 years old, and women and the elderly may make up most of the adult population, particularly during a war;
- the camp is often established on poor, previously unused land (because, for example, there is poor water supply);
- the social structure of the community is damaged or destroyed;
- people are waiting for the time when they can return home and may be reluctant to put time and effort into projects to improve their new 'home'.

Assessing the situation

Refugee camps are usually crowded and may be very large. Some camps in Ethiopia and Sudan have up to 150,000 residents – the size of a large town.

Early on, when a refugee camp is being established, public health problems such as rubbish control, sanitation and hygiene may seem less important than immediate day-to-day needs – for food, water supplies and curative health services. However, the longer a camp is in existence, the



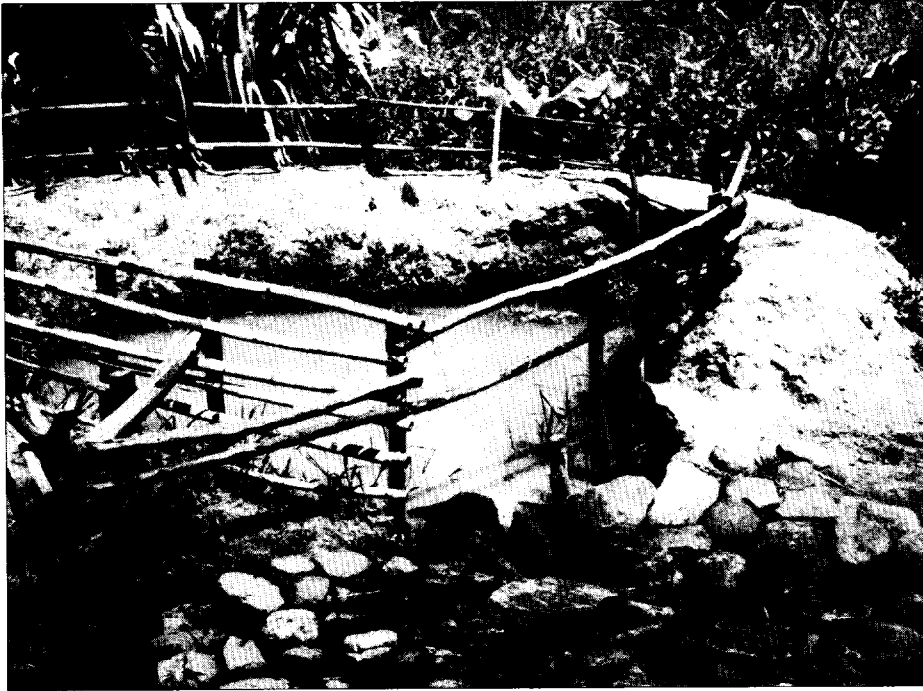
In this refugee camp in Malawi, clean water is piped to the community from large, temporary storage tanks.

greater the risk that the environment will become polluted, unless prompt action is taken. Once a refugee camp is established, it is important to find out about the local water supply, and sanitation and hygiene needs, before deciding on any action.

Water

The community needs as plentiful a supply of water as possible. To start with, each person needs a minimum of 5 litres per day. After a few days, at least 15 to 20 litres per day should be provided, and preferably

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Yves Charrier

In a newly established camp, wells and springs need to be protected.

more. Clinics may require up to 60 litres a day for each person served by the facility. Camp authorities need to know:

- what the existing water sources are;
- their distance from the camp;
- the quantities available;
- if water is available all year round;
- whether families have their own water storage containers.

Water sources should be assessed for possible faecal pollution and to find out

Making water safe for household use by chlorination

This recipe makes a concentrated (stock) solution of the chemical, which can be used to treat larger quantities of water. Do NOT drink or use this solution undiluted and keep it out of the reach of children.

To make up the concentrated solution, add 4 teaspoons (16 grams) of sodium hypochlorite, OR 10 teaspoons of bleaching powder (40 grams) to one litre of water.

Always add this concentrated solution to water, to ensure proper mixing, as follows:

- 1 litre water: 3 drops stock solution
- 30 litres water: 1 teaspoon stock solution
- 4550 litres water: 1 litre stock solution

Treated water should be allowed to stand for half an hour before using.

whether they are protected from contamination. The ways in which people store and use water should also be noted, especially practices that could cause contamination at the water collecting point, or within the household.

Sanitation and hygiene

Camp authorities need to find out about:

- community defecation habits, noticing in particular what children do;
- the type of latrines people are used to;
- the location of defecation areas, their distance from water sources, tents or houses, and which people use them;
- where people wash themselves, their clothes and utensils;
- whether soap is available;
- customs regarding burial of the dead;
- where and how rubbish is disposed of;
- the type of soil in the area.

Priorities for action

Providing water

Access to water should be increased to the maximum possible. Using filtered water from a well or spring is better than using surface water. It can be useful to appoint an individual to take charge of keeping water sources well maintained.

Drainage ditches should be dug throughout the camp, and kept free from rubbish to ensure that storm water does not pollute water sources or stagnate in pools.

Protecting water sources:

Wells

- Fence off to keep animals away.
- Avoid use of household containers to take water from the well itself.
- Install a hand winch with an attached bucket; do not allow the bucket to touch the ground.
- Assess drainage patterns for surface water and soil permeability to estimate the extent of protection needed around the well.
- Make sure that potential sources of pollution (latrines, refuse pits) are located at least 20 metres away and downhill (not uphill) from the well.
- Ensure good drainage around the well by installing a cement apron or digging surface drainage canals.

Springs

- Build protective fences at least 30 metres up the slope to avoid contamination.
- Provide drainage for run-off (to the side)



Source: WHO

This multi-purpose water source has been divided in and washing water.

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Carlos Guarita

Eventually, a 'spring box' can be built over the water source to prevent pollution.

of the spring to prevent erosion).

- Upgrade the spring with a small pipe (bamboo or plastic) to make collection of water easier and to avoid contamination of spring water with soil.
- Use waste water that has drained downhill for washing, animals and irrigation.
- Build a 'spring box'. A small reservoir is dug at the spring source, and protected

from



Washing and bathing zone

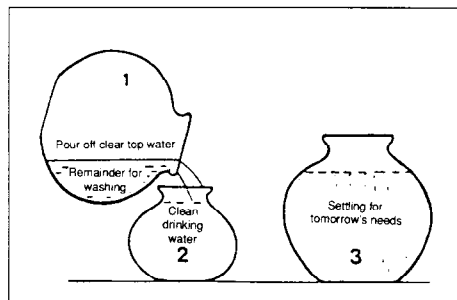
Animal access downstream only

to 'use zones' to reduce contamination of drinking

from pollution with a box-like construction. Water is piped out of the reservoir for domestic use.

Surface water (river or lake)

- Stop people from using the bank or shore for defecation by cutting down vegetation cover, appointing 'water guards' and displaying picture signs.



Contamination of dirty water can be reduced at home using this simple method.

- Create distinct use zones: upstream for the collection of drinking water; downstream for bathing, washing, laundering; and further downstream for watering animals.
- Locate defecation 'fields' at least 50 metres away and downstream from use zones.
- Install a securely protected pipe in the drinking water zone to carry the water into the community.

Water storage and purification

- Encourage families to collect and store water in clean, covered containers and to use a special dipper, kept only for taking water from the container.
- If possible supply families with covered narrow necked vessels for water storage.
- Heat water to boiling point. Boil for several minutes (if fuel is available) if there is any doubt about its quality, at least before it is given to young children to drink.
- Chlorinate domestic water if the chemicals are available and if water is not from a centrally chlorinated, piped supply. There are two simple ways in which contamination levels of polluted water can be reduced (in the home) if purified drinking water is not available.
- If water cannot be chlorinated, leave for four to five hours in a transparent closed container in sunlight. Ultra-violet radiation (in sunlight) will destroy the germs².
- Store water for 48 hours in a covered container. Dirt will settle in the bottom



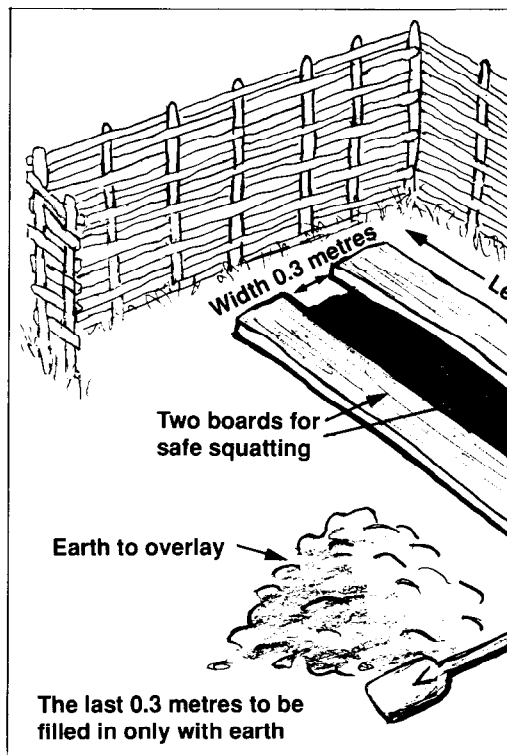
Médecins Sans Frontières

Defecation fields can be used, either before latrines are built, or where it is not possible to build latrines.

few centimetres of water. Pour off the rest of the water into another vessel and use for drinking. Use two large water storage pots in rotation, to provide a constant supply of clean water³.

Sanitation and hygienic waste disposal

Sanitation is hard to provide when there is overcrowding. Many refugees may be from rural areas and be unused to latrines, or may not be familiar with the problems of living in a crowded environment. Alternatively they may be from urban centres and used to better, less basic sanitation facilities. A



Communal trench latrines cater for short term camp latrines are built.

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large and unsettled population can create great waste problems and sanitation facilities need to be set up as early as possible. Older children can play a valuable role in helping their younger brothers and sisters to understand the need for camp hygiene.

Research from the International Centre for Diarrhoeal Disease Research in Bangladesh emphasises the difference made by effective sanitation: refugee camps with piped water and covered latrines had a cholera incidence rate of only 1.6 per 1,000 whereas in those lacking facilities the rate increased to over four per 1,000⁴.

Strategies for waste disposal

Setting aside defecation areas

In hot and dry climates, defecation fields may be preferable to badly used and poorly maintained pit latrines. Defecation fields should be at least 50 metres away from water sources or houses, but near enough to be easily reached. Shovels should be available for burying the faeces.

Building latrines

One latrine should serve a maximum of 20 people. All latrines should be at least 20 metres from any water source, and at least ten metres from living areas. They must be easy and pleasant to use, and safe for children.



Young children should be encouraged to use the latrine.

- When the camp is first set up, trench latrines will cope with immediate needs.
- Pit latrines should eventually be built, especially in wet climates. Family latrines are usually more acceptable than community latrines. However, camps are not usually planned to take account of this, and there may not be enough space for each household to have its own latrine.
- Communal latrines must be designed with people's beliefs and behaviours in mind. They should be available in public places such as health centres or markets, and be easy to clean and maintain. They should set an example for the camp. They need daily maintenance as they can quickly become dirty.

Properly disposing of children's faeces

The stools of children are potentially the most dangerous source of infection.

- Small children should be encouraged to use latrines, accompanied perhaps by older brothers or sisters, until they are familiar with how to use them.
- Where children defecate on the ground, it is important to ensure that the faeces are disposed of in latrines, or buried. In some camps, mothers have made small scoops which they use to carry children's faeces away from living areas and clinics.

Disposing of solid waste

Rubbish control is important in refugee camps. Flies and rats spread infection from rotting and contaminated waste.

- A communal collecting system can solve

the problems of waste disposal.

- The market place should be located on the edge of the camp, so waste can be buried in fenced landfill sites or burnt.
- Health centres produce dangerous wastes, which may attract children. These wastes must be handled carefully and destroyed daily using an incinerator. The residue should be buried in a deep, covered pit.
- Family waste can be disposed of in household refuse pits. These should be covered over each day with a layer of soil to prevent infestation with vermin or attracting flies.



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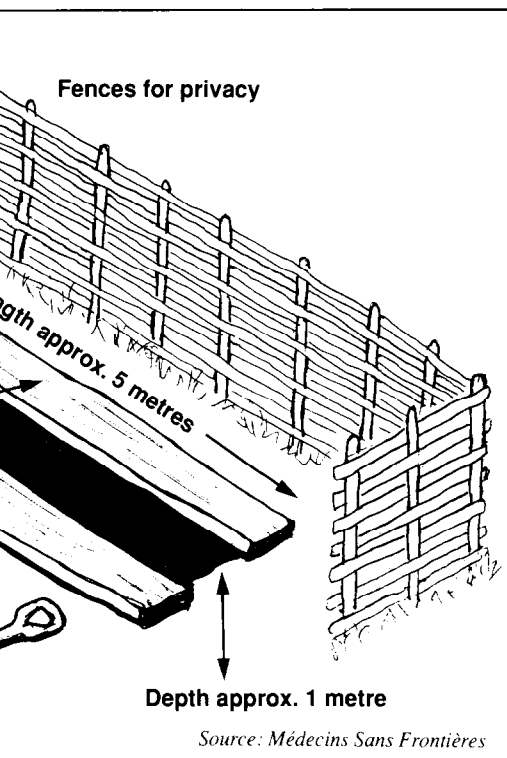
Children's stools, in particular, can be a source of diarrhoea infection and need to be buried or put into a latrine.

- Land covered in refuse, or used in the past as an uncontrolled defecation area could be cleaned and converted into an area for other use, with a hard surface of, for example, beaten earth. This gets rid of a source of infection and mobilises a group of people who are then ready for future development activities.



Victoria Francis

Household rubbish can be buried in communal refuse pits, and covered over with a layer of soil after each deposit.



Source: Médecins Sans Frontières

community requirements, before family or communal

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Epidemic cholera in refugee camps

Cholera can spread very quickly in overcrowded living areas. If an epidemic breaks out:

Control

- An emergency treatment facility should be established (see diagram).
- Apart from patients, people visiting the facility should be limited to those giving care.
- Stored water for drinking should be purified with at least 0.2mg per litre of residual chlorine.
- Sodium hypochlorite should be added to water at the following rates:
500mg per litre for washing;
2,000mg per litre for cleaning walls and floors;
10,000mg per litre for disinfecting contaminated bedding and clothes and for cleaning latrines.

Public health measures

- Treat wells in the affected area; close them if possible. Appoint someone to treat each collected bucket of water

with sodium hypochlorite; ideally this should be done at every well when the water is collected.

- Health workers should regularly visit households in order to detect cases.
- Gatherings of people should be restricted.
- Carry out precautionary measures to reduce contamination of food sold in markets.
- Test samples of water for the presence of *E. coli*. This indicates faecal pollution, and the possible presence of bacteria that cause diarrhoea. Send stool samples for laboratory testing, if possible, to confirm the presence of cholera.
- Good record keeping (number of cases and deaths) at clinics and the treatment centre will help in assessing whether the epidemic is getting worse, or whether public health measures are having a positive effect.
- Use patient records to plot outbreaks on a map of the camp.
- Disinfect homes of patients if resources are available.

Disposing of waste water

Household washing areas as well as water sources need safe drainage, because stagnant and contaminated water presents a health risk, encouraging mosquitoes to breed, for example. Waste water can be used in household and communal gardens.

Hygiene

Many diarrhoeal diseases are directly related to poor hygiene. If plenty of water is available, people are able to keep themselves and their surroundings clean, and the risk of diarrhoeal transmission is substantially decreased.

- Latrines should be cleaned regularly to keep flies away.
- Food should always be prepared with clean utensils, kept covered and stored in a cool place. Stored food should be thoroughly reheated before it is eaten.
- Handwashing, especially after defecation and before eating or preparing food, is essential to prevent transmission of diarrhoea germs. Soap should be available if possible.

Community education

Health education plays a key role in refugee camps. In Somalia a few years ago, a health worker responsible for cleaning in one camp agreed with the school teachers to give a small prize to the child who killed most flies in a week. This was linked to a general health promotion campaign which showed the links between faeces and transmission of infection. As well as killing flies, the children were actively involved in helping to collect rubbish, clean the camp and remind their families about the defecation areas and handwashing before eating. The campaign successfully raised awareness about health issues amongst the people in the camp.

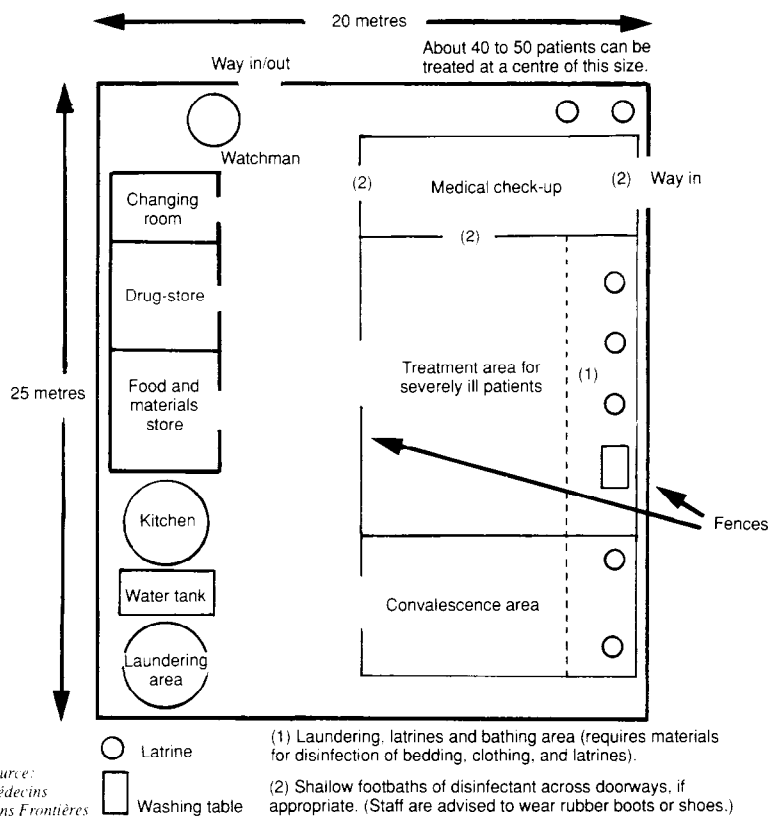
Home visits and local meetings are important for discussing behaviours that improve health. Health centres provide a forum for communicating health education messages to women and children. Community leaders also play an important role.

Monitoring and evaluation

Camp procedures should be monitored at regular intervals. It is important to check on the following:

- general cleanliness of the camp;
- safety of water points (watch for faeces in the area, infiltration of surface water, pools of stagnant water);
- latrine use (check that latrines are being

Groundplan of an emergency cholera treatment camp



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used, and are clean and well maintained);

- record keeping of diarrhoeal disease incidence at the health centres (to facilitate early recognition of epidemics).

These important public health measures to control the spread of diarrhoeal disease will only be effective if people are able to take responsibility for their own living conditions. Health workers and refugees should work together to find the most effective approach in their situation. The main aim is to prevent outbreaks occurring by giving a high priority to the public health measures mentioned above.

This insert was compiled using information from Yves Chartier (Médecins Sans Frontières), Patricia Diskett (Liverpool School of Tropical Medicine and ex-Oxfam health advisor) and UNHCR.

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2. UNICEF. 1984. *Solar disinfection of drinking water and oral rehydration solution.*

3. *International Disasters Institute (now Relief and Disasters Policy Programme, ODI). 1981. Disasters, vol 5. Practical supplements.*

4. Khan M U. et al. 1982. *Role of water and sanitation in the incidence of cholera in refugee camps.* *Trans. R. Soc. Trop. Med. Hyg.* 76:373-7.

Resources

Sources of information

- International Committee of the Red Cross (ICRC), 17 Avenue de la Paix, 1202 Geneva, Switzerland.
- Liverpool School of Tropical Medicine, Pembroke Place, Liverpool L3 5QA, UK.
- London School of Hygiene and Tropical Medicine (LSHTM), Keppel Street, London WC1E 7HT, UK.
- Médecins Sans Frontières (MSF), 8 Rue Saint-Sabin, 75011 Paris, France.
- Oxfam UK, 274 Banbury Rd, Oxford, OX2 7DZ, UK.
- Panafrican Centre for Emergency Preparedness and Response (WHO/EPR), PO Box 3050, Addis Ababa, Ethiopia.
- Save the Children, Mary Datchelor House, 17 Grove Lane, London SE5 8RD, UK.
- United Nations High Commissioner for Refugees (UNHCR), Palais des Nations, 1211 Geneva 10, Switzerland.
- United Nations Children's Fund (UNICEF), 3 United Nations Plaza, New



WHO/DRC

Health education campaigns help people to be aware of the need for hygiene.

York, NY10017, USA.

- World Health Organization, 1211 Geneva 27, Switzerland.

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