

# Acute diarrhoeal diseases in complex emergencies: CRITICAL STEPS

Decision-making for  
preparedness and response

## THE PURPOSE

**This leaflet is designed to help:**

- Identify key issues relevant to diarrhoeal disease control in complex emergencies
- Prepare and guide the response to an outbreak



## THE PROBLEM

A complex emergency is a situation affecting large civilian populations facing war or civil strife, food shortages, and population displacement resulting in excess mortality and morbidity.

In endemic areas, all disasters, natural and man-made, that adversely affect water supply and sanitation can result in outbreaks of acute diarrhoeal disease. The disease is usually transmitted by faecally contaminated water or food. Outbreaks may be of two kinds:

- acute watery diarrhoea: **cholera**
- acute bloody diarrhoea: **Shigella dysentery**.

## KEY MESSAGES

### GENERAL

- Follow the development of the situation closely so that the plan of action can be adapted regularly.
- Use data to guide prevention, preparedness, and response.
- Early warning and preparedness for outbreaks results in better and faster containment of cholera and Shigella dysentery.
- In complex emergencies, good coordination among the various operational partners is paramount.
- A good communications network is a valuable tool for surveillance.

### CASE MANAGEMENT

- Proper case management saves lives.
- Oral rehydration salts must be available at village level.
- Early rehydration using ORS is critical.

### PREVENTION

- Find and treat the source of transmission as soon as possible.
- Reinforce the use of safe drinking-water during outbreaks.
- To maintain health and reduce the risk of diarrhoeal disease outbreaks in refugee camps, water supply will be the first objective.
- A proper sanitary environment prevents the spread of diarrhoeal diseases.
- Personal hygiene behaviour will change only with strong community involvement.
- Cook it, peel it, or leave it.
- Disinfection and hygiene measures are essential during funerals.

# 1. Critical steps relating to diarrhoeal disease risk factors

## 1.1 Lack of water

- Use health education to reinforce use of safe drinking-water during outbreaks.
- To maintain health and reduce the risk of diarrhoeal disease outbreaks in refugee camps, water supply will be the first objective.
- Find and treat the source of transmission as soon as possible.

| ASSESSMENT                                                                                                                                     | SOURCE OF INFORMATION                      | REQUIRED MINIMUM                                                                                                                       | PREPAREDNESS PHASE                                                                                                                                                                                                                                                                                                                                                                                                                              | RESPONSE                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Quantity and quality of water</b>                                                                                                           | Concerned population, aid agencies         | At least 20 litres per person per day of drinkable water                                                                               | <ul style="list-style-type: none"> <li>• In collaboration with water authority, increase access to safe water, at least in areas of high risk.</li> </ul>                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• <b>In refugee camps</b>, ensure:               <ul style="list-style-type: none"> <li>— at least 20 litres per person per day</li> <li>— good water storage conditions in households (narrow-mouthed plastic containers).</li> </ul> </li> </ul> <p>In the initial phases, and when conditions are very difficult, organize chlorination at water sources, treating water directly in the individual (non-metallic) containers.</p> |
| <b>Source of water</b><br>— piped system<br>— well<br>— other                                                                                  | Water authority, aid agencies, site visits | One protected well for every 200 people                                                                                                | <ul style="list-style-type: none"> <li>• <b>General distribution in towns:</b> <ul style="list-style-type: none"> <li>— implement new safe water system and sanitation facilities</li> <li>— monitor and improve drinking-water quality.</li> </ul> </li> <li>• <b>In villages:</b> <ul style="list-style-type: none"> <li>— increase the number of protected wells</li> <li>— introduce chlorine disinfection of wells.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• <b>In open situations and during an outbreak:</b> <ul style="list-style-type: none"> <li>— strengthen the control of chlorination in general water system from catchment to consumer</li> <li>— ensure chlorination of drinking-water in the home (or at least, the use of boiled water)</li> <li>— increase control of quality of water storage.</li> </ul> </li> </ul>                                                            |
| <b>Contamination of water</b><br>At source<br>— locally, by human excreta<br>— by floods<br>— other<br>During transport<br>During home storage | Site visit, aid agencies, household visits | Latrines built $\geq 30$ m from water source<br>No defecation in the open near water sources<br>Clean, closed, non-metallic containers | <ul style="list-style-type: none"> <li>• Develop knowledge of chlorine use at household level.</li> <li>• Provide chlorinated water during important outbreaks.</li> <li>• Inform the population about the importance of cleaning water containers properly.</li> </ul>                                                                                                                                                                         | <ul style="list-style-type: none"> <li>• Water could be supplied by tanker until new wells can be dug.</li> </ul>                                                                                                                                                                                                                                                                                                                                                            |
| <b>Sudden rise in population</b>                                                                                                               | Local authorities, aid agencies            |                                                                                                                                        | <ul style="list-style-type: none"> <li>• Look for additional water sources to cope with new influx.</li> </ul>                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## 1.2 Inappropriate sanitation

- A proper sanitary environment prevents the spread of diarrhoeal diseases.

| ASSESSMENT                                         | SOURCE OF INFORMATION               | REQUIRED MINIMUM | PREPAREDNESS PHASE                                                                                                                     | RESPONSE                                                                                                                                              |
|----------------------------------------------------|-------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Latrines not used</b><br>(for cultural reasons) | Local population, local authorities |                  | <ul style="list-style-type: none"> <li>• Increase the number of culturally appropriate facilities for human waste disposal.</li> </ul> | <ul style="list-style-type: none"> <li>• During the very early stages of a serious emergency, physically isolated defecation fields can be</li> </ul> |

|                          |                                                                                  |
|--------------------------|----------------------------------------------------------------------------------|
| <b>Lack of latrines:</b> | Site visit, population interviews, aid agencies                                  |
| — no space               | At least one latrine for every 20 people in refugee camps and crowded situations |
| — soil type              |                                                                                  |
| — cost                   |                                                                                  |

designated, but pit latrines should be dug as soon as possible.

- Try to find a type of latrine that is culturally acceptable, appropriate for the soil type, and affordable.

### 1.3 Inadequate hygiene

#### ■ Personal hygiene behaviour will change only with strong community involvement.

| ASSESSMENT                                                                                | SOURCE OF INFORMATION                                                   | REQUIRED MINIMUM                                                                                                   | PREPAREDNESS PHASE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | RESPONSE                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Lack of water</b>                                                                      | Site visit; check all possible sources of water                         | 20 litres per person per day (for drinking and hygiene purposes)                                                   | <ul style="list-style-type: none"> <li>• Improve awareness of the population about cholera and other diarrhoeal diseases and their prevention:               <ul style="list-style-type: none"> <li>— improve personal hygiene behaviour</li> <li>— advocate use of soap or ash for hand-washing , particularly after having passed stool.</li> <li>— create specific messages for cholera and diarrhoeal disease prevention, include correct care or a patient at home.</li> </ul> </li> <li>• Train health personnel and other staff responsible for public information to disseminate messages on specific cholera prevention methods.</li> </ul> | <ul style="list-style-type: none"> <li>• During the outbreak, strengthen use of sanitary facilities.</li> <li>• Use all available media (radio, television, newspapers) to diffuse outbreak information and key prevention messages.</li> <li>• Use all available channels (local civic schools, community health workers) to spread hygiene messages.</li> <li>• Distribute soap where it is not available.</li> </ul> |
| <b>Poor hygiene behaviour</b>                                                             | Population interviews                                                   | Regular hand-washing with soap before eating and preparing food                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Inadequate knowledge of risk in caring for cholera and diarrhoeal disease patients</b> | Interviews with population and staff responsible for public information | Isolation of patient at home<br>Careful hand-washing with soap after care of patients or handling their belongings |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                         |

### 1.4 Inadequate food safety

#### ■ Cook it, peel it, or leave it.

| ASSESSMENT                                                                                                                                                          | SOURCE OF INFORMATION                                  | REQUIRED MINIMUM                                                                                                          | PREPAREDNESS PHASE                                                                                                                                                                                                                                                                                                                                                         | RESPONSE                                                                                                                                                                                                                                                                                                                                                        |
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| <b>At home</b><br>Cultural influences on food preparation and storage<br>Traditional dishes containing raw foods<br>Poor food safety during preparation and storage | Local authorities, population interviews, aid agencies | During outbreak, eat only freshly cooked food or food thoroughly reheated before serving<br>Eat fruits that can be peeled | <ul style="list-style-type: none"> <li>• Strengthen health education on:               <ul style="list-style-type: none"> <li>— eating only cooked food during outbreaks</li> <li>— always washing vegetables with safe water</li> <li>— eating only fruits that can be peeled.</li> </ul> </li> <li>• Ensure adequate control of food stalls in public places.</li> </ul> | <ul style="list-style-type: none"> <li>• Health education activities should stress the importance of specific messages concerning food preparation, storage, and consumption.</li> <li>• National programme on food safety should be strengthened.</li> <li>• Environmental health workers should be vigilant in inspecting food handling practices.</li> </ul> |
| <b>Entire food chain</b><br>Lack of food safety in markets and restaurants and by street vendors                                                                    | Sites visits, food safety authority                    |                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                 |

## 1.5 Funeral practices for cholera victims

### ■ Disinfection and hygiene measures are essential during funerals.

| ASSESSMENT                                                                                                                                  | SOURCE OF INFORMATION               | REQUIRED MINIMUM                                                                                                                               | PREPAREDNESS PHASE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | RESPONSE                                                                                                                                                                                                                                                                                      |
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| <b>Keeping corpse at home</b> <ul style="list-style-type: none"> <li>— for how long?</li> <li>— under what conditions?</li> </ul>           | Population interviews, aid agencies | Funeral should be held within hours of death if possible. Corpse should be enclosed in plastic bag to prevent spread of <i>Vibrio cholerae</i> | <ul style="list-style-type: none"> <li>• Inform people of the high risk of contamination through handling the corpse and keeping it at home.</li> <li>• Explain necessary precautions:               <ul style="list-style-type: none"> <li>— disinfect corpse with 2% chlorine solution</li> <li>— fill mouth and anus of corpse with cotton soaked in chlorine solution</li> <li>— carefully wash hands after handling the corpse</li> <li>— disinfected the dead person's bedding by stirring it in boiling water for 5 minutes.</li> </ul> </li> <li>• Try to keep the funeral ceremony to an acceptable minimum of attendance and duration.</li> <li>• Reinforce all hygiene measures during preparation for the funeral and the ceremony itself.</li> <li>• Identify and train a burial team to ensure implementation of safe burial practices.</li> </ul> | <ul style="list-style-type: none"> <li>• Ensure that all precautions are well understood and fully observed.</li> <li>• If possible, a trained village health worker should check that preventive measures are properly applied during funeral ceremony and associated activities.</li> </ul> |
| <b>Funeral ceremony</b> <ul style="list-style-type: none"> <li>— attendance?</li> <li>— special ritual?</li> <li>— funeral meal?</li> </ul> | Population interviews               | Application of hygiene rules as described under preparedness.                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                               |

## 2. Critical steps relating to other risk factors

### 2.1 Inadequacy of health services

| ASSESSMENT                                                                                                                                                                                                                           | SOURCE OF INFORMATION                                                                       | REQUIRED MINIMUM                                                                | PREPAREDNESS PHASE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | RESPONSE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Communicable diseases surveillance system</b> <ul style="list-style-type: none"> <li>— data collection</li> <li>— laboratory confirmation</li> <li>— data analysis</li> <li>— feedback</li> <li>— early warning system</li> </ul> | Public health department at different levels (national, provincial, district), aid agencies | Number of cases and deaths on weekly basis<br>Laboratory confirmation available | <ul style="list-style-type: none"> <li>• <b>Strengthen the surveillance system:</b> <ul style="list-style-type: none"> <li>— use clear and standardized case definitions</li> <li>— develop standardized methods for data collection and analysis at all levels (localisation, seasonality)</li> <li>— ensure weekly reporting and regular data analysis</li> <li>— introduce standardized "rumour form" for non-medical personnel</li> <li>— train public health staff and village health workers on early warning system and surveillance</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• <b>Activate the early warning system:</b> <ul style="list-style-type: none"> <li>— distribute "rumour form" (alert form, warning form)</li> <li>— activate case detection through home visiting in refugee camps</li> <li>— move to daily reporting if possible</li> <li>— send investigation teams for confirmation of outbreak and to find source of transmission (water, food)</li> </ul> </li> <li>• <b>Open cholera treatment centres and ORS corners</b></li> </ul> |
| <b>Health care</b>                                                                                                                                                                                                                   | Ministry of                                                                                 | Creation of ORS                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| facilities                             | Health, visits to health facilities, visit reports                 | Creation of cholera treatment centres               | corners                                                                                                                                                                                  | — ensure regular water supply to cholera treatment centres and ORS corners                                                      |
|----------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Few health structures                  | Reports of previous outbreaks                                      | Availability of treatment guidelines                | • <b>Case management:</b>                                                                                                                                                                | — ensure availability of drug supplies and renewal of emergency stocks                                                          |
| Number of health units/population      |                                                                    |                                                     | — identify appropriate sites for cholera treatment centres and ORS corners, and check and improve, if necessary, their water and sanitation facilities                                   | — refresh staff in proper cholera case management                                                                               |
| Distance                               |                                                                    |                                                     | — identify health staff in charge of cholera treatment centres or ORS corners and train them in case management and disinfection measures (including corpse disinfection).               | — increase hygiene and disinfection talks using all medical activities (outreach, immunization programmes, consultations, etc.) |
| Overloaded facilities                  |                                                                    |                                                     | • Provide emergency stocks (ORS, IV fluids, chlorine, transport medium, laboratory reagents).                                                                                            | — distribute national guidelines if available, or WHO guidelines.                                                               |
|                                        |                                                                    |                                                     | • Adapt surveillance and case management guidelines to the local situation.                                                                                                              | • Ensure regular supplies during the outbreak and renewal of emergency stocks.                                                  |
| <b>Lack of trained staff</b>           | Ministry of Health                                                 | 3 trained health staff per cholera treatment centre | • <b>Coordination:</b>                                                                                                                                                                   | • Ensure good coordination among the various operational partners.                                                              |
|                                        |                                                                    | 1 trained health worker per ORS corner              | — create an epidemic diseases task force, including all relevant sectors (health, water and sanitation, information, education) political decision-makers, NGOs, United Nations agencies | • Hold regular meetings to share information on the epidemic, inventory of stocks, planning of interventions.                   |
| <b>Lack of drugs</b>                   | Staff interviews, register books for drugs, supplies and donations | Emergency stock available                           | — agree on a standardized surveillance system and case management and ensure monitoring                                                                                                  |                                                                                                                                 |
|                                        |                                                                    | Interagency diarrhoeal disease kits                 | — encourage a coordinated multisectoral approach to disease prevention and control, and linkages with existing programmes                                                                |                                                                                                                                 |
| <b>Poor coordination of activities</b> | Interview with key partners and NGOs                               | Regular meetings during an outbreak                 | — assign tasks and responsibilities.                                                                                                                                                     |                                                                                                                                 |

## 2.2 Inaccessibility of health facilities

| ASSESSMENT               | SOURCE OF INFORMATION | REQUIRED MINIMUM                  | PREPAREDNESS PHASE                                                               | RESPONSE                                                    |
|--------------------------|-----------------------|-----------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------|
| <b>Natural disasters</b> | Local population      | Emergency stocks in at-risk areas | In anticipation of areas being isolated by war, floods, etc. it is essential to: | • Activate communication networks for support and feedback. |
| <b>Insecurity</b>        |                       |                                   | — train village health workers and health staff                                  | • Monitor the outbreak through this communication network.  |
|                          |                       |                                   | — provide emergency stocks                                                       |                                                             |
|                          |                       |                                   | — install a good communications network for surveillance.                        |                                                             |

## THE PLAN OF ACTION – CRITICAL STEPS

### ASSESSMENT

Assessment of the situation is the basis for any plan of action. Its objectives are to:

- assess the extent of the emergency, the communicable disease threat to the population, and the size of population at risk<sup>1</sup>
- define the nature and extent of interventions needed.

Assessment is also critical for the preparation of an adequate response. The following information is needed and may be obtained from local authorities, relief organizations, and United Nations agencies:

- description of the disaster (local conflict, war, natural disaster) and its probable evolution
- geographical description of the affected area (climate, whether terrain is mountainous or not, whether water sources are available)
- accessibility of the area (road quality, especially in the rainy season, local harbour or airport, security problems)
- population size (permanent population, displaced/refugee population, distribution by age and sex, estimated number and expected date of new arrivals).

### PREPAREDNESS

The preparedness phase is the period of development and implementation of preventive action and of definition of needs for responding to an outbreak. Preparedness activities will be based on the results of the assessment.

### RESPONSE

The response to an outbreak is the implementation of all planned activities. If the outbreak of disease happens very rapidly, there may be no time for a preparedness phase. However:

- an assessment remains essential; initial data must be collected rapidly and analysed before completion of the assessment;
- the response must be started quickly; it may need to be adapted as the situation evolves and once data collection and analysis is complete.

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<sup>1</sup> The population at risk for diarrhoeal diseases, including cholera, is based on:

- the attack rate (AR) in previous years, if known
  - an AR of 0.2% in endemic areas
  - an AR of 0.6% in endemic areas with very poor sanitary conditions
- where  $AR = [(total\ no.\ of\ cases)/(population)] \times 100$ . In the context of an emergency, the at-risk population must be regularly reassessed.

**cholera website**  
**<http://www.who.int/cholera>**

**For more information contact:**

**Global Task Force on Cholera Control**  
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