GUIDELINES FOR OPERATING

MAKESHIFT TREATMENT CENTRES
IN CHOLERA EPIDEMICS

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INTRODUCTION

Cholera is a highly endemic disease in Bangladesh. Two seasonal increases in the incidence of the disease nearly in every region of the country affect thousands of people every year. Despite the advances made in treatment that can prevent deaths from cholera, a large number of patients still die each year, particularly during epidemics. Unlike any other diarrhoeal disease, the rate and volume of fluid loss in cholera can threaten life within hours of onset. Cholera deaths can only occur either due to lack of treatment or inadequate treatment and can be easily averted by prompt and effective rehydration therapy. In Bangladesh, epidemics of the disease are common in rural areas. Deaths are always highest at the beginning of epidemics and are usually associated with areas that have communication difficulties. Access to treatment facilities is often the major problem for cholera patients requiring medical care, particularly in such rural areas. It was demonstrated that temporary field treatment centres can be effective in averting deaths during cholera epidemics in Bangladesh. The overall aim of makeshift treatment centre, therefore, is to provide quick access to treatment and thus to ensure prevention of deaths.

The expected effectiveness of a makeshift treatment centre will depend on sound planning and on efficient running of the centre. In emergencies, it could be difficult to address these issues thoroughly. It is felt that pre-designed guidelines could be extremely useful. Planners can adapt it according to the need.

MAKESHIFT HOSPITAL

BANGLADESH

rning didn't reach

Death toll ri

Over 25,000 missing : Relief inadeq

Death toll now 5

situation worsens further

A	**Planning for Setting Up** **Makeshift Treatment Centre**

Whenever the possibility of operating a makeshift treatment centre arises, the health administrators and health care providers are faced with some decision-making questions, such as:

- ❑ When is a temporary treatment centre needed
- ❑ What would be the best location
- ❑ Who should be involved
- ❑ What resources will be required

There are no rigid rules to follow in deciding when to set up a makeshift treatment centre and what the ideal location for such a centre would be. However, experience suggests that a temporary treatment centre is usually needed when: (a) a large number of patients with acute watery diarrhoea accompanied with deaths are reported from an area from where transportation to the nearest health facilities is difficult (b) an epidemic of acute watery diarrhoea involves a large area and is spreading (c) natural disasters and diarrhoea outbreak occur simultaneously in many areas, such as in post-cyclone epidemics.

When and where to set up a treatment center

WHEN ⇒
- affected people have difficulty in access to health facilities
- epidemic spreads over large areas
- post-disaster epidemics occur

WHERE ⇒
- **Health Posts**: union sub-centres, family welfare centres, and rural dispensaries
- **Community Level:** schools, madrasas, other suitable places
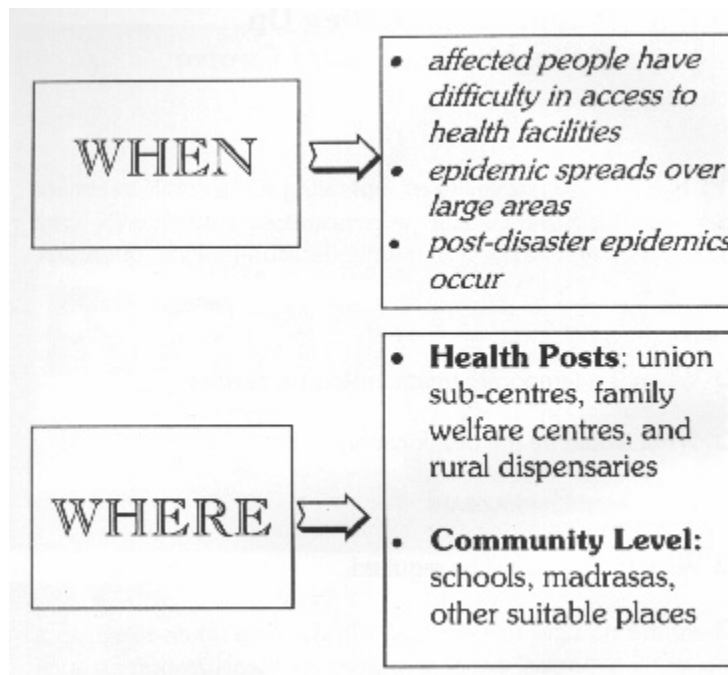
Selection of a physical facility for treatment centre

The specific objective of operating a makeshift treatment centre is to take the emergency health care services to the doorsteps of patients who otherwise would be at risk of death during cholera epidemics. Given the limited resources available, providing door-to-door health care services in such emergencies will be difficult. The optimum benefit of a temporary treatment centre, therefore, can be derived if the treatment centre is set up at a point which is within easy reach of patients from the affected areas. In rural and remote areas, this, sometimes, is not an easy task. Although health posts are ideal for the purpose, these may not be within easy access to the affected areas. Therefore, alternatives such as schools or any other available spaces which would facilitate access to the centre should be selected.

Who should be involved

The success of a temporary treatment centre would depend on using the treatment facilities. Efforts should be made to inform the local population about the physical presence of the treatment centre and its location. Community leaders, village practitioners, and union council members should be involved. The local community leaders and the union council officials are the key persons and should be consulted for providing space for the treatment centre, for informing

Govt. staff	Community members
Thana Health Admin.	Family members
Medical Officer	UC members
Medical Assistant	Local leaders
Family Welfare Visitor	Village practitioners
Health Inspector	School teachers
Health Assistant	Ansar and VDP
Family Welfare Asstt.	NGO workers

the population and for organizing community members for running the treatment centre. The other important persons are the government employed Health Assistants and the Palli-chikitshaks (unqualified village practitioners) who are the providers of day-to-day health care at the village level. Family members of the patients are to provide nursing care and food for the patient.

Resources needed for a temporary treatment centre

Once the local health care administrators have decided to set up a treatment centre, the next stage would be planning for mobilization of resources. While planning to set up a makeshift treatment centre it is important to keep in mind that the effectiveness of a makeshift treatment centre will depend on establishing the centre quickly and moving the logistics easily . One should plan for requirements that are basic and minimum. Due to difficulty of access, transportation of large quantity of supplies to the temporary treatment centre is difficult. Therefore, arrangements should be made to receive required supplies at regular intervals from the permanent source. The basis for estimating resources will depend on the expected patient-load for the treatment centre and the duration of the epidemic. To do this, one should consider these important points:

- at what stage of the local epidemic the treatment centre is to be set up;
- what the magnitude of the epidemic is, in terms of area and the population affected.

This can be assessed by analyzing the information available locally. In a cholera endemic area such as Bangladesh, seasonal outbreaks usually last for 6-8 weeks. However, in newly- infected areas, in refugee camps or in disaster-induced epidemics the period may be longer. The basic and important resources needed are: (a) manpower, (b) rehydration fluids, (c) antibiotics, and (d) a few other essential items such as butterfly needles, etc.

Plane for Mobilizing
❖ **Personnel** ❖ **Rehydration fluids** ❖ **Antibiotics** ❖ **Other essential items**

Personnel, drugs, and supplies needed for a temporary treatment center

Experience has shown that during diarrhoea epidemics in rural areas of Bangladesh, 10-20 persons per 1000 population may complain of diarrhoea and most of them may have cholera infection. Many patients with less severe diarrhoea remain at home. Usually 10% to 20% of the patients who seek treatment at the health facilities during epidemics may have severe dehydration. Between 150 and 200 patients may seek treatment in a temporary treatment centre that covers up to two unions (approx. pop. 40,000). Nearly half of the diarrhoea cases seeking treatment may not have any signs of dehydration. Between 25% and 30% of the cases, however, may have signs of some dehydration and can be, to a large extent, treated with ORS. Approximately, 15% to 20% cases may need treatment for severe dehydration. They will be needing initial rehydration therapy with IV fluids.

Estimate for resources needed has been calculated on the basis of a temporary treatment centre expecting to handle at least 100 diarrhoea patients during an epidemic.

Health Staff		Community members
Medical Officer	1	Union council members
Med. Assistant	1	Local leaders
Family Welfare Visitor	1	Village practitioners
Assist. Health Ins.	1	School teachers
Health Assistant	1	Ansar and VDP
Family Welfare Asstt.	1	NGO workers
Ward Boy	1	
Sweeper	1	

Rehydration fluids		Antibiotics	
ORS pkts	1300 (1/2 L) pkts	Tetracycline capsule	2500 (250 mg) capsules
IV fluids	100 (1 L) bags	Erythromycin tablet	1000 (250 mg) tablets
Giving sets	50 pieces (19G and 25G)	Erythromycin syrup	100 (100 mL) bottles
Butterfly needles	20 pieces (19G and 25G)		

Other supplies	
Tumblers for ORS solution	25 (200 mL) tumblers
Cups to drink ORS	25 pieces
Spoons to drink ORS	25 pieces
Plastic sheets	50 pieces
Cotton wool	5 Kg
Adhesive tape	3 reels
Savlon	5 L
Bleaching powder	5 Kg

Assessment of the magnitude and spread of epidemic

Assessment of the magnitude of epidemic, particularly relating to the number of persons affected and the geographic distribution of the epidemic is important for planning and for operating the temporary treatment centre. A temporary treatment centre will be less useful if patients fail to use it and when the epidemic moves away from the catchment area. It has been seen that many cholera patients during epidemics remain at home because of difficulty in access to health facilities or due to milder forms of disease which escape attention. Many of these patients are not treated or inadequately treated. Organizing a local surveillance to identify cholera patients and to monitor the course of the epidemic is, therefore, essential.

Objectives of the epidemic surveillance

- ❑ identify the cholera patients
- ❑ provide quick treatment
- ❑ assess the magnitude of an epidemic
- ❑ assess the adequacy of available stock of essential supplies
- ❑ identify the pathogen involved and its drug sensitivity patterns
- ❑ set up control measures and monitor the progress

One common problem with cholera surveillance is the case definition. The clinical manifestations of cholera cases vary widely. Nevertheless, use of a uniform case definition can facilitate detection of the suspected cases.

Use Uniform case definition to identify a cholera case during an epidemic

The following definition will assist the field workers to identify cases:

A patient who is above 2 years of age, suffering from acute watery diarrhoea with rice watery stool, with or without vomiting and with signs of dehydration, should be suspected as a case of cholera during a cholera outbreak.

Cholera is a highly endemic disease in Bangladesh, and seasonal outbreaks of the disease are common and widespread. However, it is still difficult to predict an epidemic and to detect it early in its course because epidemics usually start abruptly, and within days affect many persons. Furthermore, inadequacy of laboratory diagnostic facilities and information systems contributes to delay in detection and response. Useful indicators for suspecting an outbreak of cholera in Bangladesh are the following:

- Incidence of adult death due to watery diarrhoeal illness of short duration

  or

- If there is an increase in hospitalization rates due to acute watery diarrhoea with or without vomiting, particularly of persons over 2 years of age.

Type of information needed

The basic questions about the epidemic that need answers are:

- Who are affected and where are they
- What are the organisms causing the epidemic
- What is the drug sensitivity patterns of the organisms

Source of information

- local public health establishments
- permanent treatment facilities
- local field health staff
- private health care providers
- available records of laboratory investigations
- community leaders

Collecting illness information

Information, such as on age, gender, location of the patient, onset of diarrhoea, dehydration status, diagnosis, and treatment given, should be collected and recorded on a simple form (Annex 1).

Information relating to other cases and deaths in the family or in the neighbourhood should also be collected. Mapping of the location of cases is important for identifying the affected areas, for investigating the source of infection and for monitoring the course and spread of the epidemic.

B Operating a Makeshift Treatment Centre

Cholera epidemics are frequently associated with quick deaths that create panic among the affected population. As a result many of the patients who seek advice at the treatment centre may not be suffering from the disease causing the epidemic. The severity of dehydration produced by cholera also varies from mild to severe, which determines the level and intensity of care needed by the patient. Providing prompt treatment to cholera patients, particularly to severely ill patients, contributes to prevention of deaths.

Organizing the space of a makeshift treatment centre

For quick identification of cases, screening for clinical status of the patient and efficient rehydration therapy, the space of the treatment centre needs to be organized into:

Registration and initial assessment section

All patients seeking treatment are to be registered and information, such as on age, sex, and address, should be recorded. Initial assessment of hydration status of the patient will be extremely useful in deciding the level of care needed.

Treatment Section

- Observation and treatment with oral rehydration therapy
- Rapid rehydration with intravenous rehydration fluids

Quick identification of cholera cases using standard case definition

A patient who is suffering from acute watery or rice watery diarrhoea with or without vomiting and with signs of dehydration and is above two years of age should be suspected as a case of cholera during an outbreak.

Table 1: Screening the clinical status of patients by assessing the dehydration

1.**Look** at:	A	B	C
Condition	well/alert	*restless/irritable*	*lethargic/unconsicious floppy*
EYES	normal	sunken	very sunken & dry
TEARS	present	absent	absent
MOUTH AND TONGUE	moist	dry	very dry
THIRST	drinks normally not thirsty	*thirsty drinks eagerly*	*drinks poorly not able to drink*
2.**Feel:**			
SKIN PINCH	goes back quickly	*goes back slowly*	*goes back very slowly*
3.**Decide:**	no signs of dehydration	has 2 or more signs,including at least 1 *sign*	has 2 or more signs,including at least 1 *sign*
4.**Dehydration Status**	none	some	severe

In adults and children older than 5 years, other *signs* for severe dehydration are *absent radial pulse* and *low blood pressure*. The skin pinch may be less useful in patients with marasmus (severe wasting) or Kwashiorkor (severe malnutrition with oedema), or obese patients. Tears are a relevant sign only for infants and young children.

Planning treatment for patients

The plan for treatment will depend on the dehydration status of the patient when first examined. The following guidelines would be useful:

Rehydration therapy

No signs of dehydration

Patients having no dehydration should be asked to drink plenty of water and other liquids and be provided with two packets of ORS with advice to use them and to report back to the centre if frequency of purging increases.

Patient with Some dehydration

Patient with some dehydration should be kept under observation and be given oral rehydration therapy. The fluid requirements for patients having some dehydration should be estimated by the following guidelines:

Table 2: Rehydration therapy in cases with some (moderate) dehydration

Age	Less than 4 months	4-11 months	12-23 months	2-4 years	5-14 years	15 years or older
Weight	< 5 kg	5-7.9kg	8-10.9kg	11-15.9kg	16-29.9kg	30kg or more
*in mL	200-400	400-600	600-800	800-1200	1200-2200	2200-2400

- Quantity of fluid to be given within 4 hours.
- The approximate volume of ORS required (in mL) can also be calculated by multiplying the patient's weight (in kg) times 75.

Once the required volume of oral fluid for a particular patient has been estimated, the patient or attendants should be advised to institute the fluid therapy immediately. Reassessment of the hydration status of the patient should be done frequently during the first few hours. In most cases, oral therapy corrects the dehydration; however, in some cases intravenous rehydration may be needed. Attendants of the patient should also be advised to continue feeding the patient. After 4 hours, reassess the patient using the assessment chart. If signs of severe dehydration have appeared, shift to rehydration for severe dehydration.

Severe dehydration

Approximately, 15-20% of the patients seeking medical care during cholera epidemics need intravenous rehydration therapy because of severe dehydration. Patients with uncontrollable vomiting may also need intravenous fluid administration.

Patients failing to improve even after intravenous rehydration or those showing signs of complications, such as paralytic ileus, renal failure, etc., should be referred to higher health facilities.

Intravenous rehydration

Start IV fluids immediately if the patient is in severe dehydration**.** If the patient can drink, give ORS by mouth while the drip is set up. The intravenous fluid requirements of patients are to be estimated by using the following guidelines:

Table 3: Rehydration therapy in cases with severe dehydration

Age/ge	Type of fluid	Volume of fluid (per kg body wt.)	Time of edministration
Infants (<! Year)	Cholera saline or Ringer's lactate	30mL/kg*	within 1 hr
		70mL/kg	next 5 hr
Children & adults	Cholera saline or Ringer's lactate	30mL/kg*	within 30 min
		70 mL/kg	next 2.5 hr

*At initial stage

Maintenance therapy

Rehydration with ORS is to continue until diarrhoea stops. The mother or attendant is to give the following volume of oral fluid after each loose stool:

- For children less than 2 years of age:
  50-100 mL (1/4 -1/2 cup) ORS solution
- For older children:
  100-200mL (1/2-1 cup) ORS solution
- Adults should drink as much as they want.

If a child is still vomiting, mothers should be advised to wait for 10 minutes and then continue to give oral fluid in small quantities. Food should not be withheld, and indeed encouraged specially to children.

Antibiotic therapy

Antibiotics are often prescribed in cases of clinically diagnosed cholera. Tetracycline and other commonly used drug in cholera may became ineffective against *Vibrio cholerae* because of resistance. In these situations, the other recommended drugs should be used. Knowledge of drug sensitivity patterns of local strains of pathogens is, therefore, useful for antibiotic therapy. The information may be available with the local health institutions. Otherwise, laboratory investigation needs to be conducted. However, one should take note that severe dehydration leads to death in cholera, and only rehydration will prevent death. Therefore, antibiotics are useful but not a life-saving therapeutic measure, particularly, in cholera.

Table 4: Doses of antibiotics in the treatment of cholera

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Antibiotic	Age of patient	Recommended does
Tetracycline cap. (250 mg)	Adult	2 caps 4 times a day for 3 days
	Children	12.5 mg/kg body weight 4 times a day for 3 days
Erythromycin tab. (250 mg)	Adult	2 tabs 4 times a day for 3 days
Erythromycine syr.	Children	12.5 mg/kg body weight 4 times a day for 3 days

Laboratory identification of organisms causing an outbreak

The identification of *Vibrio cholerae* and their drug sensitivity patterns can only be established by laboratory methods. Laboratory analysis of specimens from suspected cases are, therefore, essential for establishing the cause of an outbreak. However, laboratory methods are expensive. During a suspected cholera epidemic, isolation of *V. cholerae* from a sample of patients' specimens can contribute in establishing the cause of the epidemic. Therefore, a sample of specimens (Rectal swabs) collected in Carry-Blair medium should be sent to the nearest reference laboratory for culture and determining antibiotic sensitivity patterns. Furthermore, results of antibiotic sensitivity and resistance patterns from different regions of the country will be useful in formulating uniform drug use. Before collecting rectal swabs one should make sure that the patient did not receive any antibiotics.

Disposal of wastes and disinfecting contaminated material in a treatment centre

It would be rarely possible to provide patients with regular hospital beds in a temporary treatment centre. Contamination of a cholera patient's surroundings is therefore, unavoidable. Bedding materials, including the mats can be disinfected by thorough drying in the sun. All soiled and contaminated materials after drying should, preferably, be washed with detergents. A pit-hole in the ground for draining the water used for washing can minimize chances of further contamination. Bleaching powder should be used for disinfecting the pit. The pit can also be used for disposing of cholera stool.

The floor of the treatment centre can be disinfected by washing, swabbing or sprinkling with bleaching powder solution. Attendants with the patients should be advised to wash their hands and clothes thoroughly with detergents.

Control and prevention of local spread of an epidemic

Water

Drinking safe water is a basic requirement. Tubewell water for drinking and for domestic use, if available, should be encouraged. Boiling of water makes it safer. Stored water can also be easily contaminated. Use of narrow-necked pitchers for water storage greatly reduces the risk of contamination. Use of bleaching powder solution can disinfect contaminated water. Risk of

infection can be further reduced by washing hands with soap and water after defecation and before handling or eating food. Ponds having drainage from latrines should not be used for washing utensils and bathing. Washing stool-contaminated clothes and bedding materials of diarrhoea patients may contaminate the surface water (ponds) used for domestic purpose. Drying these materials in the sun before washing can make it safer.

Food

Many raw foods, such as fish and vegetables, are contaminated with cholera bacteria. Raw food should not be eaten. All foods should be well-cooked and kept covered. Left-over food should be thoroughly re-heated and stale food should be discarded. Food should be eaten as soon as it is cooked or while hot.

Washing hands

Washing hands with water and soap after defecation, before preparing or serving and eating food will reduce the chances of getting infected by cholera bacteria.

Health Education
Simple health education messages

- Eat freshly cooked food
- Reheat left over food and eat while it is hot
- Drink tubewell water or boiled water
- Wash utensils in clean water and dry them in the sun
- Wash hands before handling or eating food and defecation

NB: To disinfect water suspected of contamination, 6 mL of bleaching powder solution can be used for disinfecting 10 L of water (33 g of bleaching powder dissolved in one litre of water makes the stock solution). Treated water should be kept for at least 30 min before use.

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Line List of Diarrhoea Cases

Thana...District...

Sl#	Name	Age	Sex	Village	Union	Date of onset	Dehydr status	Diagnosis	Recovery date	Date of death	Remarks