



Malawi Cholera Response Manual for Health Workers 2018



- **Background and epidemiology**
- **Detection and confirmation of a cholera outbreak**
- **Field investigation of a suspected outbreak of cholera**
- **Response to an epidemic of cholera**
- **Clinical management of cholera**
- **Health promotion**
- **Chlorine preparation and uses**

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Preface

The first documented cholera outbreak in Malawi occurred in 1973, at Ndamera Refugee Camp in Nsanje district. In recent years cholera outbreaks have become more common, more widespread and severe. This trend culminated in the 2001 – 2002 cholera outbreak that reported over 33,000 cases and 1,000 deaths.

To address what is now recognized as a major public health concern, the National Cholera Task Force (NCTF) in Malawi embarked on a project to design and implement a nation-wide training program on cholera management and control for all cadres of health workers. This **Cholera Response Manual for Health Workers** is one of the outcomes.

This manual is adapted from the Technical Guidelines on the Detection and Control of Cholera Epidemics developed by the Centres for Disease Control and Prevention (CDC).

It is intended for all health workers that have attended the cholera training workshops as a reminder of the messages. These health workers, each at his/her own level, with the help of the training workshop and this manual should be able to:

- Detect and investigate an outbreak of cholera
- Arrange for confirmation of suspected cholera outbreak
- Collect, report and analyse data
- Manage cholera patients adequately and efficiently
- Advise communities on the most effective ways of preventing cholera

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Acronyms and Abbreviations

AR	Attack Rate
BP	Blood Pressure
CFR	Case Fatality Rate
CTC	Cholera Treatment Centre
DC	District Commissioner
DCT	District Coordination Team
DEHO	District Environmental Health Officer
DHMT	District Health Management Team
DHO	District Health Officer
DHSS	Director of Health and Social Services
DMO	District Medical Officer
DNO	District Nursing Officer
EMC	Epidemic Management Committee
HSA	Health Surveillance Assistant
HTH	High Test Hypochlorite
IDSR	Integrated Disease Surveillance and Response
IR	Incidence Rate
IV	Intravenous
NCTF	National Cholera Task Force
OCV	Oral Cholera Vaccine
ORS	Oral Rehydration Salts
PCR	Polymerase Chain Reaction
PHEMC	Public Health Emergency Management Committee
PPE	Personal Protective Equipment
RDT	Rapid Diagnostic Test
SOPs	Standard Operating Procedures
TA	Traditional Authority
TCBS	Thiosulfate-Citrate-Bile salts
VH	Village Headman
WASH	Water and Sanitation Hygiene
WHO	World Health Organization

I. Background and Epidemiology

Historical Background

- Cholera is a diarrheal disease caused by a bacterium called *Vibrio cholerae*
- Since 1800, cholera has spread through the world in 7 large waves (pandemics)
- The 7th pandemic began in Indonesia in 1961, reached Africa in 1970
- The wave reached Malawi in 1973 and caused a big epidemic
- Since then outbreaks of different sizes have occurred
 - The highest number of cases were reported in 1998/99 and 2001/2002 rainy seasons
- There are an estimated 3-5 million cases and over 100,000 deaths each year around the world and can affect both children and adults.

Etiologic Agent

- Cholera is caused by a highly mobile, gram-negative bacterium called *Vibrio cholerae*. There are over 200 serogroups identified but only 2 (*Vibrio cholerae* O1 and O139) have been identified to cause cholera epidemics, with *V. cholerae* O1 as the main cause of cholera globally, Malawi inclusive.
- The incubation period is very short, 2 hours to 5 days; however, infected people can carry and transmit the bacteria for 4 weeks.
- A small number of infected individuals can remain healthy as carriers for several months.

How *Vibrio* Causes Diarrhoea

- *Vibrio cholerae* is ingested through water or food contaminated with feces
- The organisms are normally destroyed by acid produced by a normal functioning stomach
- The organisms that escape the stomach produce toxins that attach to the intestinal walls
- The intestines release a lot of water in response to the irritation caused by the toxins
- Acute watery diarrhoea ensues

Clinical Presentation of Cholera

Symptomatic cholera

- Acute watery diarrhea
- Profuse vomiting
- Profuse, 'rice water' stools (common)
- No fever
- No abdominal cramps
- Leg cramps (common)

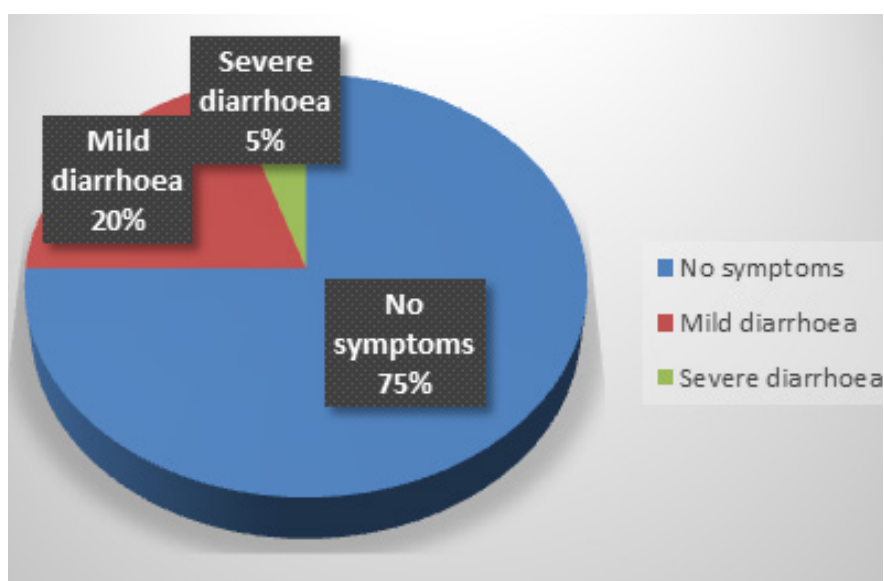
Dehydration

- Can lose up to 10% body weight
- Can lose fluid up to 1 litre per hour
- Can lead to loss of electrolytes, hypovolemic shock, renal failure and death

Clinical Spectrum of Cholera

Of people who are infected;

- 75% have no symptoms
- 20% have a mild diarrhoea without dehydration
- Only 2% to 5% have severe diarrhoea, vomiting and dehydration.



Mode of Transmission (1)

- There are two reservoirs of *V. cholerae*: humans and water. Humans can be asymptomatic carriers.
- Cholera is transmitted via fecal-oral route as follows:

1. Through contaminated water;

- At its source like unprotected shallow wells, surface water. (*Vibrio cholera* can live for years in some aquatic environments)
- In the home/after storage when inadequately washed contaminated hands come in contact with stored water
- When washing utensils or swallowing water while bathing using contaminated water (in the home, along streets or rivers) which can increase the potential to transmit the disease.

Mode of Transmission (2)

2. Through contaminated food during and after preparation;

- Moist grains served at room temperature or slightly heated e.g. rice, millet, maize or sorghum.
- Cooked food left standing and moist at room temperature is an excellent medium for *Vibrio*.

3. Through contaminated fruits and vegetables when grown at or near ground level and;

- Fertilized with human waste
- Irrigated with water containing human waste
- Freshened with contaminated water
- Eaten raw, not thoroughly washed.

Factors Favoring Cholera in a Person

The risk of cholera is higher in persons who:

- Lack food for more than 1 day.
- Lack proper hand washing practices at critical times with soap.

Environmental Factors Favoring Cholera Outbreak

Higher Risk in:

- Over-populated/crowded communities e.g. internally displaced people, refugee camps, funeral gatherings and informal settlements/slums in urban areas etc, which are characterized by poor sanitation, unsafe drinking water and increased person to person contact, are at greatest risk.
- Areas without safe water source (unprotected shallow wells, rivers, lakes, springs and shallow wells or boreholes within less than 30 meters from a pit latrine)
- Areas with poor sanitation (poor liquid and solid waste management)
- Rainy season
- Mobile fishermen communities without toilets e.g. Lake Chilwa
- Bordering communities
- Public feasting (weddings, funerals and other social events)
- Uncontrolled food vending in streets
- Rapid uncontrolled urbanization, uncontrolled waste dumping and scavenging in urban centers.
- Burial practices of cholera victims by relatives especially community deaths.

2. Detection and Confirmation of a Cholera Outbreak

Detection and Confirmation of a Cholera Outbreak

Done through surveillance which denotes:

- Being alert for a single case or a rumor
- Using laboratory confirmation
- Employing active and comprehensive investigation of suspected outbreak.

Purpose of Surveillance

- Detect outbreaks early
- Estimate number of cases and deaths
- Assess size and geographic extent of outbreaks
- Identify risk factors in affected communities
- Plan prevention and control measures
- Determine whether control measures are working
- Assess capacity of the community to respond to an outbreak.

Surveillance before an Outbreak

Case Definition:

- Surveillance is based on reporting cases of acute watery diarrhoea causing severe dehydration or death in persons aged 5 years and older
- This case definition will miss some initial mild cases of cholera, but will avoid “false alarms”
- Suspected case of cholera is, therefore, any person aged 5 years or older who develops acute watery diarrhea or severe dehydration or dies of these

Confirmed Case of Cholera:

- Any person with diarrhoea who has *V. cholerae* O1 or O139 isolated from their stool sample through PCR or stool culture.

Surveillance during an Outbreak

- Based on detecting cases of acute watery diarrhoea in persons aged 2 years and older
- A suspected case of Cholera is, therefore, any person aged 2 years or more who develops acute watery diarrhoea or severe dehydration or dies of these.
- During an epidemic, a large proportion of cases of acute watery diarrhoea in persons aged 2 years and older will be due to Cholera.
- Any suspected person aged below 2 years should be confirmed through laboratory and epidemiological link (history of contact).

Cross border surveillance:

- Establish cross border committees with neighboring countries at all levels

Collection and Transportation of Stool Specimen (I)

Collection

- Should be done from fresh stool or rectum with a swab from a tube of Cary-Blair transport medium
- Insert swab back into the tube break stick and seal the tube
- Label the tube with specimen's number, patient's name and date of collection
- Minimum number of samples in a point source outbreak is 5

Transport

- Send Cary-Blair within 3 days (72 hrs) of collection to lab, refrigerate if possible
- Send fresh stool sample within 2 hours

General Safety

- Wear Personal Protective Equipment (PPE)
- Wash hands with soap after collecting or handling a cholera specimen.

Note: Specimen should be accompanied with a complete filled case – based investigation form.

Collect Information about Cases

- Record basic information in case-based investigation form, Cholera admission form, Inpatient register and line listing register which include;
 - Date, name, age, sex, address
 - Diagnosis and method of confirmation of diagnosis – RDT and stool culture or PCR (specimen collected and result)
 - Status of oral cholera vaccine (OCV)
 - Treatment
 - Outcome (alive, dead).

Reporting Cases – Community to District

- Community through HSAs, CHAG or VHCs report suspected cholera cases and deaths immediately (24hrs) to Health Facility
- Health facilities report suspected cholera cases and deaths daily to districts - there is no need to wait for confirmation
- Districts summarize and forward reports daily and weekly to national level
- Send reports through fastest and appropriate means possible e.g. Whatsapp, SMS, phone call and email
- Reports of suspected cases should be investigated. Once cholera outbreak is declared, investigation of individual cases is not necessary.

Reports to National Level

- Reports to national level should include:
 - A line list
 - The time period for the report
 - The number of health facilities reporting (include those that reported zero cases)
 - Total number of health facilities in the district
 - Total number of Cholera Treatment Centers (CTCs)
 - Total number of cases and deaths
 - Progress of community control measures on WASH risk factors in affected communities
 - Logistics
 - Partners and stakeholders supporting.

Zero Reporting

- “Zero reporting” = send a report even if no cases or deaths occurred
- Zero reporting distinguishes between areas;
 - That really had no cases
 - That did not send a report
 - From which the report did not arrive

3. Field Investigation of a suspected Outbreak of Cholera

Community Investigation (1)

Objectives

- To define the magnitude of the cholera outbreak or involvements in terms of time, place and person.
- To find out particular conditions and factors responsible for occurrence of cholera.
- To find out the causes, sources of cholera infection, mode of transmission.
- To determine control and preventive measures.
- To make recommendations to prevent future occurrences of cholera

Community Investigation (2)

- Community investigation should be done whenever a single suspect meets the case definition
- Send an investigation team to the field after suspecting cholera
- Include a question of whether people received OCV
- Cholera is likely to be more widespread than the single reported case, since:
 - People with mild illness do not meet the case definition
 - Some ill people may not seek medical care at the health facilities
- Review reports of cases if they meet the case definition and calculate attack rate.
- Alert nearby health facilities
- Send specimens for laboratory confirmation

Community Investigation (3)

- Procedures for community investigation:
 - Establishing terms of reference/guidelines for the investigation
 - Checklist
 - Constitute the team
 - Investigate within 48 hours
 - Mobilize for sensitization of community leaders through the HSAs and brief community leaders on purpose of the mission
 - Use the IDSR reporting format
 - Share findings with PHEMC and the community

Members of the Investigation Team & their duties (Rapid Response Team)

- Clinician and/or nurse
- Environmental Health Officer (IDSR coordinator)
- Health Education Officer
- Laboratory Technician
- HSAs from the affected community
- Epidemiologist

- To assess patients' clinical symptoms and train health care workers in good case management
- To investigate the possible sources of contamination and provide appropriate treatment of potentially contaminated sources
- To assess how the community reacts to cholera and define and disseminate key health education messages
- To take stool samples (and environmental samples such as water samples) for laboratory confirmation of cholera and train health workers in correct sampling procedures
- To lead the team around their catchment areas
- To initiate data collection and assess surveillance procedures

Investigation Team – Other Duties

- Verify reported cases
- Investigate new cases to establish diagnosis
- Obtain laboratory specimens
- Get and analyze information about cases;
 - Determine size, risk factors and other characteristics of the outbreak
 - Use investigation register which contains line-listing of ill persons
- Identify high risk groups and possible contamination
- Assess local ability to respond e.g. availability of supplies, staff and space.
- Implement simple, on site control measures
- Provide emergency treatment supplies and onsite training
- Make recommendations and report findings to decision makers (DHMT and central level)

Line Listing

- Record all patient's particulars on the line list
 - Get information from interviews, in-patient register and case-based investigation form
- Include in the line list, particulars of patients suspected to have died of cholera in the community
- List (see annex 10)
 - Identifying information;
 - Name (start with first name then last name),
 - Age
 - Address (village/location and TA)
 - Oral cholera vaccine (OCV) status
 - Outcome
 - Tests performed: RDTs +/- culture
 - Treatment plan + treatment
 - Potential risk factors.

Line Listing – Potential Risk Factors

- For each ill person, ask:
 - Recent travel history
 - Contact with persons with diarrhoea
 - Recent attendance/eating at a funeral (note cause of death of deceased) and other traditional gatherings
 - Water sources for bathing, drinking and cleaning kitchen utensils
 - Food history
 - Occupation
 - Status of household sanitation and hygiene.

Line Listing – Food History

- For each ill person, ask and if relevant, record::
 - Eating raw fruits or vegetables
 - Drinking fruit juices or sweet beer (thobwa)
 - Eating room-temperature food and cooked foods containing grains (rice, millet, sorghum, maize, etc)
 - Eating under cooked vegetables, fish and sea foods.

Line Listing – Interpretation

- Review each variable on line list to identify characteristics that many cases share (e.g. source of water, traditional gatherings, occupation etc)
- Review the line list to establish epidemiological link between new cases and the other previous cases.
- Characteristics that are more common among cases, than among persons who are well, may identify high risk groups or sources of infection.

N.B: A characteristic that is common;

a) may be associated with risk of illness OR

b) may simply be common in the community.

Analyze Data from Investigation

- Analyze data while still in the field, so that control measures can be directed toward any high risk groups or sources of infection.
- Analyze data from the line list
- Analyze data by:
 - Person (Age, Sex, Occupation)
 - Place
 - Time

Analyze Data by Person

- How many cases and deaths? (by age and sex)
- What is the attack rate?
- What is the incidence rate?
- What is the case fatality rate?
- Are there groups at high risk of becoming ill?
- Analyze line listing for significant risk factors

Analyze Data by Place

- Where are the cases occurring? (by village/location, health facility, rural/urban etc)
- Are the areas accessible by the health workers?
- Are there accessible health facilities in the affected areas?
- Sources of water, use of chlorine, presence and correct use of toilets and hand washing practices.
- Is the outbreak spreading?
 - Show location of cases on maps
- Indicate incidence rates in different areas
 - Helps monitor progress of disease
 - Helps plan control measures

Analyze by Time

- When did cases and deaths occur? (by day, week, time of death, months etc)
- Is the number of cases and deaths increasing or decreasing?
- Develop epi-curve showing the number of cases and deaths over time (by date of onset, date of death).

Assess Local ability to respond

Case Management

- Are cases being managed properly?
- Are there adequate supplies? (See Annex 9)
- Is there adequate staff?
- Is there space for treatment/isolation?
- Are there adequate infection control measures at CTCs? (Chlorine for foot baths and hand washing, cleanable floors etc)
- Is there adequate safe water for patient management? (approx. 30-60 litres of treated water per patient per day for drinking, cleaning, bathing and washing clothes)

Community Control Measures

- Is safe water available?
- Are purification methods used e.g. boiling, chlorination?
- Knowledge and practice of hand washing with soap?
- Is food prepared and handled properly?
- Are human excreta disposed of safely?
- Are health promotion messages reaching everyone?
- Have ineffective practices been avoided?
- Is the CTC properly set up?

Case Fatality Rate (CFR)

- It is a proportion of cases that resulted in death.
- WHO recommends that CFR should remain below 1%, when treatment is optimal.
- Facility Case Fatality Rate (CFR) measures quality of case management
- Community Case Fatality Rate (CFR) indicates access and community risk factors including cultural values and delay in seeking care.
- If the CFR is >1%;
 - Review treatment routines (death audits)
 - Ensure adequate supplies
 - Increase community's access to care (consider temporary treatment centers)
 - Intensify health promotion coverage.

Calculation of Case Fatality Rate

Number of Deaths x 100

Number of Cases

Example:

100 cases in one week, 2 patients died

$002 = 0.02$

100

$0.02 \times 100 = 2$

CFR is 2%

Attack Rate

- It is the cumulative incidence of cholera over a defined period of time (e.g. one year, the whole duration of the outbreak) in a defined area and population
- It is a proportion (expressed in percentage (%)) of cumulative number of new cases in an at-risk-population
- Attack Rate is used for calculating minimum required supplies for preparedness
- Districts should calculate their own attack rates for preparedness planning; if none available, the national AR of 0.02% for preparedness should be used.
- It also measures the impact of disease/outbreak in the concerned community/population and it is a measure of the effectiveness of prevention and controls measures.

Calculation of Case Attack Rate

Attack rate = $\frac{\text{number of cases}}{\text{Population at risk}} \times 100$

Example: Village of 3,000 persons, 15 people develop cholera

$$= \frac{15 \times 100}{3,000}$$

$$= 0.005 \times 100 = 0.5\%$$

Attack rate is 0.5%

Incidence Rate

- It is the number of new cases that occur within a given period of time (usually per week) in a given area per at-risk population
- Can be expressed as per 100 (%), per 1,000 or per 10,000 persons at risk
- It indicates the evolution of the epidemic and the rapidity of the spread
- Incidence rates can be compared between groups and with other areas

Calculation of Incidence Rate

Incidence rate = $\frac{\text{Number of cases in one week}}{\text{Population at risk}} \times 100$

Example:

Village of 3,000 persons,
3 people develop cholera during week 5

$$\text{IR} = \frac{3}{3,000}$$

$$\text{IR} = 1 \text{ case per } 1,000 = 0.1 \text{ per } 100$$

Example: Area A, 3,000 inhabitants

Week	Number of Cases	Weekly Incidence rate (cases per 1,000 at risk)	Cumulative number of cases	Attack rate (%)
Week 1	5	$5/3000 = 1.67$	5	$5/3000 = 0.17$
Week 2	2	$2/3000 = 0.67$	7	$7/3000 = 0.23$
Week 3	1	$1/3000 = 0.33$	8	$8/3000 = 0.27$
Week 4	3	$3/3000 = 1$	11	$11/3000 = 0.37$

Example: Areas A, B and C, cholera season 2017/18

Area	Population	Cumulative number of Cases	Attack rate (%)
Area A	2500	54	2.2
Area B	1000	20	2.0
Area C	3700	160	4.3
Total	7200	234	3.3

4. Response to an Epidemic of Cholera

Goals of Response Activities

Prevent new cases;

- Intensive health promotion activities
- Environmental sanitation and hygiene campaigns
- Ensuring safe water
- Promoting food hygiene
- Promotion of hand washing with soap
- Oral cholera vaccine (OCV)
- Immediate follow up of cases, deaths and contacts.
-

Prevent and reduce deaths;

- Quality case management
- Mobilizing adequate staff and supplies
- Build capacity in health workers in case management
- Increasing access to care.

Response Steps

- Convene RRT meeting
- Convene PHEMC meetings
- Inform other stakeholders
- Inform the public about the epidemic (follow the protocol)
- Mobilize resources
- Establish treatment centers
- Treat patients
- Implement community control measures
- Collect and report data/document epidemic and share regularly with stakeholders
- Evaluate response
 - Plan for improvements.

Responsibilities – Central Level

- Notify WHO on epidemics
- Convene National Epidemic Committee meetings (MSF, Ministry of Water, Department of Disaster Management Affairs, UNICEF, REDCROSS, MDF, Ministry of Information, CDC, World Vision, Media, Local Government, WHO, private partners, civil societies, donors, other development partners etc)
- Collect and analyze data from districts
- Provide feedback to districts and stakeholders
- Provide technical advice and assistance e.g. lab support

- Monitor the epidemics and control measures (conduct review meetings)
- Acquire supplies and equipment
- Conduct epidemiological studies
- Support districts in investigating and confirming the epidemic
- Mobilize resources
- Coordinate cross border surveillance
- Develop, implement and evaluate national epidemic preparedness plan.

Responsibilities – District Level (1)

- Convene epidemic committee meeting
- Inform the public
- Cholera treatment centre (CTC) management (erection, management and decommissioning)
- Mobilization and prepositioning of supplies

Responsibilities – District Level (2)

- Treat patients:
 - Support health facilities
 - Train health workers
 - Inventory/ order supplies
- Continue reporting to national level daily and weekly (Monday to Sunday) and share reports with stakeholders
- Monitor epidemic & control measures (conduct review meetings)
- Monitor:
 - Number of cases and deaths
 - CFR and attack rates
 - Geographical location
 - Inventory of supplies
 - Quality of water
 - Quality and safety of foods
 - Sanitation and hygiene practices.

Responsibilities – District Level (3)

- Determine need for assistance
- Administer OCV if available
- Coordinate and assess progress of community control measures
- Collaborate with neighboring districts on cross border surveillance
- Investigate and confirm the epidemic
- Develop, implement and evaluate district epidemic preparedness plan
- Conduct mapping of cases
- Ensure that all support during the outbreak come to the district through the PHEMC
- Conduct health promotion activities

Responsibilities – Health Facility Level

- Investigate outbreaks including rumors
- Collect information on patients
- Report daily cases during epidemics to district
- Manage cholera treatment centers (CTC) (erection, management and decommissioning)
- Treat patients
- Administer OCV if available
- Conduct patient follow ups and contact tracing
- Manage the inventory of treatment supplies
- Conduct community social mobilization
- Conduct Health promotion
- Facilitate community control measures e.g. sanitation improvement, hygiene practices and water treatment e.g. water chlorination (pot to pot).

Public Health Emergency Management Committees

- These committees are needed at all levels and they are a must at national, district and health facility Level.
- At district level the membership should include:
 - Key district decision makers with DC or Chief Executive as chair.
 - Political authorities
 - Members of the investigation team
 - Key DHMT members (DHSS, DEHO, DMO, DNO)
 - Hospital directors, Nursing directors and hospital administrator (for districts that have central hospitals)
 - NGOs
 - MDF

Specific Duties of Public Health Emergency Management Committees (PHEMC)

- Plan preparedness and control strategies
- Identify financing and resources for preparedness and response
- Establish procedures to access funds
- Assign specific tasks for epidemic detection and response (Rapid Response Team)
- Establish procedures for rapid control measures at community level
- Identify resources needed for rapid epidemic response e.g. Identification of lab support
- Estimate/stockpile supplies needed
- Coordinate and monitor implementation of control measures
- Evaluate impact of control measures, adjust strategy, review performance
- Report on the epidemic.

Effective Control Measures to Prevent the Spread of an Epidemic (1)

- Health Education on:
 - Safe drinking water
 - Hand washing / personal hygiene
 - Food safety
 - Seeking treatment early
- Provision of safe water
- Safe disposal of excreta
- Safe disposal of bodies and disinfection.

Effective Control Measures to Prevent the Spread of an Epidemic (2)

- OCV Campaign
 - Malawi started using OCV in 2015
 - Studies have shown that OCV is effective
 - To support Malawi government's effort in prevention and control of cholera, WHO recommends the use of Oral Cholera Vaccine (OCV) in selected cholera hotspot.
 - The target population for OCV is one year and above.
 - Approaches used are;
 - Reactive: during an outbreak, as a control measure
 - Pre-emptive: before an outbreak, as a preventive measure.

Effective Control Measures to Prevent the Spread of an Epidemic (3)

- The OCV
 - It is a killed whole cell vaccine
 - Brands used in Malawi are; Shanchol, Euvichol and Euvichol-plus.
 - Should be kept and transported at 2-8 degrees Celsius
 - Vaccine efficacy of 65% sustained at 5 years.
 - The vaccine is safe and no serious adverse effects.

Effective Control Measures to Prevent the Spread of an Epidemic (4)

- OCV Administration
 - Cholera vaccine is administered orally.
 - The vaccine is given in 2 doses at an interval of 2 to 6 weeks.

NOTE:

- Administration of OCV is just a backup measure in the control and prevention of cholera.
- The key strategies in the control and prevention of cholera remains improvement in access to safe water, sanitation and hygiene and intensified community social and behavior change communication.

Ineffective Control Measures – A Dangerous Waste of Resources

- Mass chemoprophylaxis:
 - Effect of the drug lasts only 1-2 days
 - Does not prevent re-infection
 - Worsens resistance of organisms to antibiotic
- International travel and trade Restrictions:
 - Do not prevent spread of disease
 - Costly and difficult to implement
 - Most infected travelers have no signs of illness

5. Clinical Management of Cholera

Principles of Cholera Case Management (1)

Good history taking;

- This is critical for diagnosis during the first contact with the patient by use of cholera case definition.
- Fill the admission form (see annex 5)

Proper Patient Examination;

- Very vital for determining and ascertaining the weight and level of dehydration of the cholera patient.

Timely Assessment of Patient Progress;

- Assessment during treatment especially for those on Plan B and Plan C is very critical
- Cholera cases have sometimes been in the cholera ward for up to three or more days thereby wasting a lot of resources because of poor assessment of the progress of treatment and response of the patient to the treatment.

Principles of Cholera Case Management (2)

Good Medical Practice;

- It requires that clinicians and nurses examine and read instructions and labels of all the tools and medicines being used to determine for instance number of drops per milliliter passing through the giving set and the cannula in use.
- Monitoring and recording of fluid intake and output (vomitus and stool) is also critical.

Goal of Clinical Management

- Goal is to rehydrate and replace electrolytes. In order to achieve this goal, the following should be considered:
 - 80-90% of cholera patients can be rehydrated with oral Rehydration salts (ORS)
 - Zinc should be given to children under five years old to reduce duration and severity of diarrhoea regardless of hydration status
 - Severe dehydration requires IV therapy
 - Ringers Lactate is the best IV solution. If out of stock, use other options e.g. normal saline
 - For severe dehydration, give antibiotics within 4 hours to reduce stool volume, duration of diarrhoea and infectivity
 - Treatment procedures adopted should be explained to the patient or/and guardian
 - The patient will require feeding.

Steps in Management of Cholera

- Assess for level of dehydration (*assessment chart see below & annex 1*)
- Rehydrate the patient and maintain hydration (*treatment plans see annex 2*)
 - Monitor frequently and reassess
 - Replace ongoing fluid losses
- Give antibiotics only to severely dehydrated patients within 4 hours. Antibiotic therapy is not necessary for acute diarrhea in children.
- Feed the patient
- Teach the patient and guardian about treatment and prevention of cholera
- Maintain infection prevention measures

Assessment of Dehydration

ASSESSMENT OF DEHYDRATION			
LOOK AT/OBSERVE			
Level of consciousness	Well/Alert	Restless/Irritable	Lethargic/Coma
Eyes	Normal	Sunken	Very Sunken
Tears	Present	Absent	Absent
Mouth and tongue (<i>mucous membrane</i>)	Moist	Dry	Very dry
Thirst	Normal	Drinks eagerly	Unable to drink
FEEL			
Skin pinch	Goes back quickly	Goes back slowly (*)	Goes back very slowly (**)
DECIDE	Patient has no sign of dehydration	At least 2 signs including (*) = moderate dehydration	At least 2 signs including (**) = severe dehydration
TREATMENT PLAN	PLAN A	PLAN B	PLAN C
WHAT TO GIVE?	ORS Zinc (if <5 yrs old)	ORS Zinc (if <5 yrs old)	IV Ringers Lactate, Antibiotics, ORS (if able to drink) and Zinc (if <5 yrs old)

Treatment of Severe Dehydration – Plan C

- Start IV fluids immediately; (see annex 3 and 4)
 - Ringers Lactate is the first choice
 - Give ORS if patient can drink (5 ml/kg/hour)
- Zinc (<6 months - 10mg once per day, >6 months - 20mg once per day) for 10 days
- Monitor very frequently (at least every hour, see annex 6)
- Completely reassess adults 3 hourly and completely reassess infants 6 hourly.

Estimation of Ringers Lactate IV – Plan C

Age	First give 30ml/kg in	Then give 70ml/kg in
Infant (<12months)	1 hour	5 hours
1 year and over	30 minutes	2.5 hours

Monitor Severe Dehydration Very Frequently

- Reassess patient's hydration status every 1 to 2 hours, if it's improving.
- Check that the IV is running well
- After the first 30ml/kg have been given;
 - Radial pulse should be strong
 - Blood pressure should be normal
- Monitor urine output
- If urine output and vital signs (BP, pulse) not improving, continue IV therapy.
 - Give the fluids more rapidly.

Reassessment of Patients on Plan C

- Completely reassess adults after 3 hours and infants after 6 hours
- Use the "Assessment" chart
- If you find:
 - Severe dehydration, repeat Plan C
 - Some dehydration - start Plan B
 - Remove the IV line
 - Give ORS, as per table below
- Add Zinc for children
- No signs of dehydration - start Plan A
 - Remove the IV line
 - Replace ongoing lost fluids.

Estimation of Ringers Lactate IV – Plan C

Age	<4 months	4-11 months	12-23 months	2-4 years	4-14 years	15 years and over
Weight in KG	<5	5-7.9	8-10.9	11-15.9	16-29.9	30 and over
MLs of ORS/4 hours	200-400	400-600	600-800	800-1200	1200-2200	2200-4000

Maintain Hydration of Patients on Plan B (ORS)

Age	Amount of ORS after each loose stool
<24 months	100 mls
2-9 years	200 mls
10 years and over	As much as wanted

Treatment of Patients with No Sign of Dehydration – Plan A

Age	Amount of ORS after each loose stool	Give enough ORS packets for
<24 months	50 – 100 ml	500ml/day
2-9 years	100 -200 ml	1 Litres/day
10 years and over	As much as wanted	2 Litres/day

Use of Medicine in Cholera

- Give an antibiotic to the patient who has severe dehydration:
 - Doxycycline 300 mg stat for adults
 - Erythromycin 10 mg/kg, 3 times a day for 3 days for children (<12 years), pregnant women and those with hypersensitivity to Doxycycline
- Do not use any other medicines like;
 - Anti-emetics e.g. Promethazine
 - Anti-motility drugs e.g. Loperamide
 - Anti-diarrheal drugs e.g. Loperamide

Discharge of Patients (1)

- Patients should remain at health facility until diarrhoea and vomiting have stopped
- Even after dehydration is corrected, monitor closely to replace ongoing losses of fluids
- Consider discharge if patient:
 - Has no signs of dehydration
 - Is able to take ORS without vomiting
 - Has no watery stools for 4 hours
 - Is able to walk without assistance
 - Is passing urine.

Discharge of Patients (2)

- Discharge of Patients (2)
- Tell the patient to return if:
 - Increased number of stools
 - Eating or drinking poorly
 - Marked thirst
 - Repeated vomiting
 - Fever
 - Blood in stools

NB: patients should only be discharged after proper assessment

6. Health Promotion

Health Promotion (1)

- It is the foundation of cholera prevention and control.
- Cholera epidemic is a public health concern; therefore, inform the public and media as early as possible to avoid panic.
- Use all channels of communication e.g. Community radios, National radios, newspapers, door to door
- Conduct situation analysis, e.g. exploring local beliefs and misconceptions
- Key messages on:
 - Cholera definition, symptoms, risk factors
 - Health seeking behavior
 - Seeking care quickly
 - Resuscitation of patient with ORS or any other safe fluids on the way to the healthy facility

Health Promotion (2)

Key messages continued:

- Prevention and control
 - Water hygiene - boiling and chlorination
 - Food hygiene - proper food preparation and storage
 - Environmental sanitation safety procedures (esp. in the home) e.g. excreta disposal (latrine/toilet)
 - Hand washing with soap at the critical times
 - Safe burial of the dead
 - Disinfection of patient's clothes and bed linen with 0.05% chlorine solution.

Health Promotion (3)

- Majority of cases and deaths occur in the first few days of outbreak
- Deaths are more likely to occur if there is delay to seek medical care, delay to initiate treatment and inadequate resuscitation
- To decrease the case fatality rate,

BEGIN HEALTH EDUCATION IMMEDIATELY TO THE COMMUNITY;

- Hygiene messages in the community and CTCs through HSAs, leaflets, posters etc.
- Location of CTC's, oral rehydration points and safe water points.
- Inform neighboring health facilities and communities in high risk areas.

Safe Food Handling

- Cooking kills cholera germs
 - Thoroughly cook all meat, fish and vegetables
 - Eat them when they are hot
- Washing protects from cholera
 - Wash your hands with soap before preparing, serving or eating food, after cleaning child's bottom and after using the toilet.
 - Wash your dishes and utensils with soap and water
 - Wash cutting boards or surfaces very well with soap
- Peeling protects from cholera
 - Eat only fruits that have been freshly peeled, such as oranges and mangoes.
- Cover all food to prevent flies from contaminating it.

How to Make Water Safe for Drinking

- Even if it looks clean, water can contain cholera germs
- Water for drinking can be safe in two ways
 - Boiling for one minute when it attains a vigorous boil and storing safely
 - Chlorinating water using 1% stock solution by;
 - Adding 20 Litres of water (one standard pail) to 2 teaspoons
 - Wait for 30 minutes (contact time)
 - Note: If the water is dirty (turbid), double the dosage of stock solution.
- Storing water in a clean container:
 - With a small opening
 - With a cover
- Using stored water within 24 hours

How to Store Stock Solution

- Store the solution in air-tight container
- Store the solution at dark places
- Keep the solution away from children
- Use the stock solution for 14 days only (2weeks)

Hand Washing with Soap

- Always wash hands with soap:
 - After using the toilet or pit latrine
 - After contact with faeces
 - Before preparing food
 - Before eating food
 - Before feeding children including breastfeeding

Use of a Latrine or a Toilet

- Cholera germs live in faeces. Even a person who is healthy might have the germs in the faeces.
- Always use a toilet or pit latrine.
- Keep the toilet or latrine clean
- Always properly cover the drop hole or toilet after using it.
- Dispose of babies' faeces in the toilet or latrine (or bury them)
- Wash your hands with soap and clean water after using the toilet or latrine

NB: Always have a toilet or pit latrine and use it correctly.

7. Chlorine Preparation and Uses

Chlorine preparation and use

	0.05% Chlorine solution	0.2% Chlorine Solution	1% Chlorine Solution	2% Chlorine solution
Preparation (HTH 70%)	1 Table spoon in 20 liters of water	4 Table spoons in 20 liters of water	22 Table spoons in 20 liters of water	44 Table spoons in 20 liters of water
Use (see for further explanation the boxes on page 31)	Hands disinfection	Disinfection of: Beds, Floors, Utensils, Latrines, Walls, Plastic buckets, etc	Use as stock-solution for safe drinking water; add 20 litres of water to 2 teaspoons.	Vomitus & stools Dead Bodies - clean or spray the corpse with this solution
To be used for how long after preparation	Within 24 hours	Within 3 days	Can be kept for 14 days	Can be kept for 7 days

Note: Always have a toilet or pit latrine and use it correctly.

Preparation:

- Add the number of spoons of HTH to 20 liters of water
- Mix them thoroughly by stirring
- Wait for 30 minutes for the sediments to settle and for the powder to dissolve well
- Decant the solution to separate it from the sediments.
- Dispose of the sediments properly by burying
- Use the solution within to people for pot chlorination.

To Make Stock Solution of Chlorine (1% Chlorine Solution) - Alternative

Using **chlorine of lime (35%)**:

- Add 11 table spoons of Chloride of Lime to 5 litres of water
- Mix them thoroughly by stirring
- Wait for 30 minutes for the sediments to settle and for the powder to dissolve well
- Decant the solution to separate it from the sediments.
- Dispose off the sediments properly by burying
- Distribute the solution to people for pot chlorination.

Dilution to obtain 1% stock solution

Brand or bleach % chlorine	To obtain a 1% chlorine solution
Jik 3.5% chlorine	2 parts jik to 6 parts water
Household bleach 5% chlorine	2 parts household bleach to 9 parts water
Eau de Javel 5% chlorine	2 parts Eau de Javel bleach to 9 parts water
Chloros 10% chlorine	2 parts chloros bleach to 19 parts
Chloros 15% chlorine	2 parts chloros bleach to 29 parts water

Decontaminating Gloves, Linen and Instruments

- Soak in 0.05% chlorine solution for 15 minutes (Remember to dip your gloved hands in the chlorine solution before removing the gloves. Remove gloves by inverting them)
- Soak used instruments in 0.2% chlorine solution for 15 minutes
- After 15 minutes, remove and immediately place them in soapy water for cleaning.

Decontaminating Large Surfaces

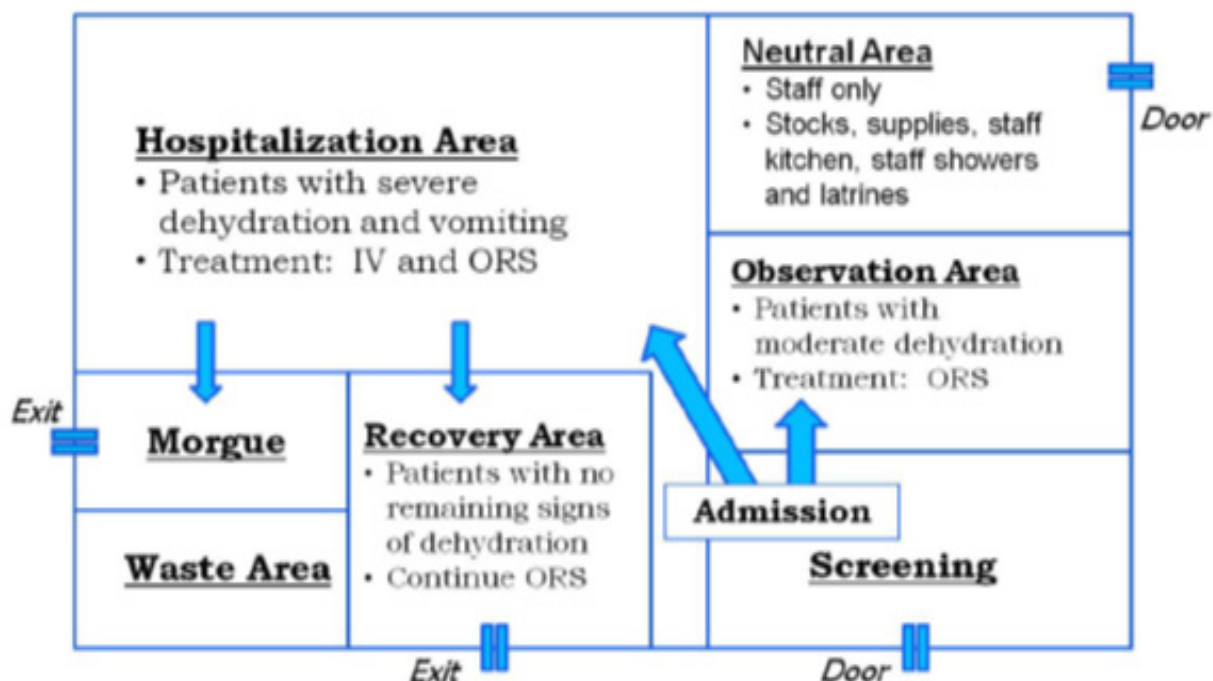
- Decontaminate large surfaces such examination tables, floors etc by wiping them down with a cloth that has been wet with 0.2% chlorine solution.
- Blood spills, vomitus and faeces should be flooded immediately with 2% chlorine solution and mopped up after 15 minutes.

Cholera Burial

- Prepare 2% stock solution
- Wear gloves, an apron and a mask
- Limit number of people handling the dead body
- Close all necessary orifices with cotton wool soaked in 2% chlorine solution
- Decontaminate the dead body using 2% stock solution.

How to set up a CTC [See annex 8]

- Site cholera camps where they can be accessible by as many villages as possible i.e. outskirts of villages. Where possible avoid schools, churches and mosques.



Estimation of 1% stock solution per household for 2 weeks

- An average household has 5 members
- Each member require 20 litres (1 pail) of water per day (100 Litres (5 pails)/household)
- 100 Litres for 14 days = 1400L (70 pails)
- 1 teaspoon of 1% stock solution = 5mls
- 1 teaspoon for 20L of water in one day the family requires 25mls of 1% stock solution for 5 pails
- In 14 days, the family requires 350 mls (a bottle of Fanta) of 1% stock solution.

Management of a Cholera Camp (1)

- Observe strict barrier nursing techniques:
 - Restriction of visitors - use barrier fence to prevent unauthorized entry into CTC area.
 - Use of Personal Protective Equipment (PPE) by health workers and guardians
 - Hand washing observed every time a patient is attended to using chlorinated water.
 - Disinfect soiled linen, utensils and CTC floors by use of recommended chlorine strengths
- At the entrance put a rag soaked in 0.2% Chlorine solution and ensure that it is wet all the time.
- Display cholera prevention messages in the CTC.

Management of a Cholera Camp (2)

- Every camp should be supervised daily by the officer in charge of the nearest health facility
- Mop the floor at least every 6 hours or disinfect contaminated floors using 0.2% chlorine solution. In the absence of a cemented floor, use tarpaulin to allow for easy cleaning of surfaces.
- Ensure availability of safe and adequate water
- Provide emergency latrines and bath shelters (preferably for male and female) separate from those of caretakers and staff, and waste disposal facilities.
- Ensure adequate light both during the day and night
- At any one time, a camp should have at least two health workers during an outbreak
- Ensure that every patient is recorded adequately
- Ensure availability of drugs and supplies all the time

What to do when you get Cholera

- Cholera can be easily treated. The biggest danger of cholera is the loss of water from the body.
- Do not panic, but act quickly:
 - Drink ORS mixed with safe water (boiled or treated)
 - Go immediately to the health centers; continue drinking as you go
- Now, before you or your family get cholera – find out where you can get ORS, and how to mix it.

8. Annexes

1. Assessment of dehydration table
2. Treatment plans: A, B and C
3. Treatment of Severe Dehydration – Adult
4. Treatment of Severe Dehydration - Children
5. Cholera admission chart
6. Cholera case management
7. Chlorine Preparation and Uses
8. How to set up a CTC
9. List of CTC supplies
10. Line list

ASSESSMENT OF DEHYDRATION			
LOOK AT/OBSERVE			
Level of consciousness	Well/Alert	Restless/Irritable	Lethargic/Coma
Eyes	Normal	Sunken	Very Sunken
Tears	Present	Absent	Absent
Mouth and tongue (<i>mucous membrane</i>)	Moist	Dry	Very dry
Thirst	Normal	Drinks eagerly	Unable to drink
FEEL			
Skin pinch	Goes back quickly	Goes back slowly (*)	Goes back very slowly (**)
DECIDE	Patient has no sign of dehydration	At least 2 signs including (*) = moderate dehydration	At least 2 signs including (**) = severe dehydration
TREATMENT PLAN	PLAN A	PLAN B	PLAN C
WHAT TO GIVE?	ORS Zinc (if <5 yrs old)	ORS Zinc (if <5 yrs old)	IV Ringers Lactate, Antibiotics, ORS (if able to drink) and Zinc (if <5 yrs old)

PLAN A – TREATMENT OF PATIENTS WITH NO SIGN OF DEHYDRATION		
AGE	AMOUNT OF ORS AFTER EACH LOOSE STOOL	GIVE ENOUGH ORS PACKETS FOR
< 24 Months	50 – 100 mls	500 mls/day
2-9 Years	100 – 200 mls	1 litre/day
10 Years and over	As much as wanted	2 litres/day

PLAN B – TREATMENT OF PATIENTS WITH MODERATE DEHYDRATION			
AGE	Weight (Kg)	Mls of ORS / 4 Hours	Amount of ORS after each loose stool
< 4 Months	< 5	200-400 mls	100 mls
4-11 Months	5-7.9	400-600 mls	100 mls
12-23 Months	8-10.9	600-800 mls	100 mls
2-4 Years	11-15.9	800-1200 mls	200 mls
5-14 Years	16-29.9	1200-2200 mls	400 mls
15 Years and over	30 and over	2200-4000 mls	As much as wanted

PLAN C – TREATMENT OF PATIENTS WITH SEVERE DEHYDRATION		
AGE	First give 30mls/kg in	Then give 70mls/kg in
Infants (< 12 Months)	1 hour	5 hours
12 Months and over	30 Minutes	1.5 Hour

SEE THE TABLE FOR THE TREATMENT OF SEVERE DEHYDRATION –PLAN C
CALCULATION OF DROPS PER MINUTE

TREATMENT OF SEVERE DEHYDRATION ADULT - PLAN C 'CALCULATION OF DROPS PER MINUTE'		
Calculation of drops per minute during the first 30 minutes		
Weight (kg)	Total mls	Number of drops per minute
10	300	200
15	450	300
20	600	400
25	750	500
30	900	600
35	1050	700
40	1200	800
45	1350	900
50	1500	1000
55	1650	1100
60	1800	1200
65	1950	1300
70	2100	1400
75	2250	1500

Calculation of drops per minute during the next 2.5 hrs (150min)		
Weight (kg)	Total mls	Number of drops per minute
10	700	93
15	1050	140
20	1400	187
25	1750	233
30	2100	280
35	2450	327
40	2800	373
45	3150	420
50	3500	467
55	3850	513
60	4200	560
65	4550	607
70	4900	653
75	5250	700
80	5600	747

TREATMENT OF SEVERE DEHYDRATION INFANT - PLAN C 'CALCULATION OF DROPS PER MINUTE'		
Calculation of drops/minute during the first 60 minutes		
Weight (kg)	Total mls	Number of drops per minute
4	120	40
5	150	50
6	180	60
7	210	70
8	240	80
9	270	90
10	300	100
11	330	110
12	360	120
13	390	130
14	420	140
15	450	150

Calculation of drops/minute during the next 5 hrs		
Weight (kg)	Total mls	Number of drops per minute
4	280	19
5	350	23
6	420	28
7	490	33
8	560	37
9	630	42
10	700	47
11	770	51
12	840	56
13	910	61
14	980	65
15	1050	70

CHOLERA ADMISSION CHART		DATE AND TIME: DD / MM / YYYY		HH:MM
PATIENT NAME:				
PHYSICAL ADDRESS:				
AGE:		Sex:		Weight:
PRESENTING COMPLAINTS AND DURATION:				
HISTORY OF PRESENTING COMPLAINT:(how it started, how often, type of stool/vomitus)				
MEDICATION HISTORY: (any treatment given since onset)				
PHYSICAL EXAMINATION:				
Temperature:				
Pulse rate:				
Blood pressure:				
Pallor:				
Chest:				
Abdomen:				
Hydration status:(use assessment of dehydration chart) and tick boxes				
Look at Condition:	Well/alert		Restless/irritable	
	Eyes: Normal		Sunken	
	Tears: Present		Absent	
	Mouth: Moist		Dry	
	Thirst: Normal		Drinks eagerly	
Feel	Skin Pinch: Normal		Goes back slowly	
			Goes back very slowly	
Conclusion(circle the appropriate plan)	Plan A /		Plan B / Plan C	
Time treatment started	HH:MM			
If Plan B: ml ORS / 4 hours		If Plan C:ml ringers lactate in first 30 / 60 minml ringers lactate in following 2.5 / 5 hrs Doxycycline /Erythromycin Zinc ORS (if able to drink)		
DIFFERENTIAL DIAGNOSIS:				
INVESTIGATIONS:				
ADMITTING OFFICER: (Name and signature)				

CHOLERA CASE MONITORING CHART

Date: DD / MM / YYYY

PATIENT NAME:	
ADDRESS:	
AGE:	
SEX:	

WEIGHT ON ADMISSION:

TIME	EVALUATION		MANAGEMENT/INPUT	OUTPUT		
	Hydration Status (Use assessment of dehydration chart)	Treatment Plan (A, B or C)		Urine (Number of times)	Stool (Number of times)	Vomit (Number of times)
00:00 to 04:00 am	Time					
	Condition					
	Eyes					
	Tears					
	Mouth					
	Thirst					
04:00 to 8:00 am	Time					
	Condition					
	Eyes					
	Tears					
	Mouth					
	Thirst					
08:00 to 12:00 noon	Time					
	Condition					
	Eyes					
	Tears					
	Mouth					
	Thirst					
12:00 to 16:00 pm	Time					
	Condition					
	Eyes					
	Tears					
	Mouth					
	Thirst					
16:00 to 20:00 pm	Time					
	Condition					
	Eyes					
	Tears					
	Mouth					
	Thirst					
20:00 to 24:00 am	Time					
	Condition					
	Eyes					
	Tears					
	Mouth					
	Thirst					
24:00 to 00:00 am	Time					
	Condition					
	Eyes					
	Tears					
	Mouth					
	Thirst					

Please note that a form needs to be filled out for every calendar day

Notes:

Chlorine Preparation and Uses

	0.05% Chlorine solution	0.2% Chlorine Solution	1% Chlorine Solution	2% Chlorine solution
Preparation (HTH 70%)	1 Table spoon in 20 liters of water	4 Table spoons in 20 liters of water	22 Table spoons in 20 liters of water	44 Table spoons in 20 liters of water
Use	Hands disinfection Clothes disinfection (Soak for 15 minutes) Skin disinfection	Disinfection of: Beds, Floors, Utensils, Latrines, Walls, Plastic Buckets, etc	Use as stock-solution for safe drinking water	<ul style="list-style-type: none"> • Vomitus & stools • Dead Bodies Clean or spray the corpse with this solution

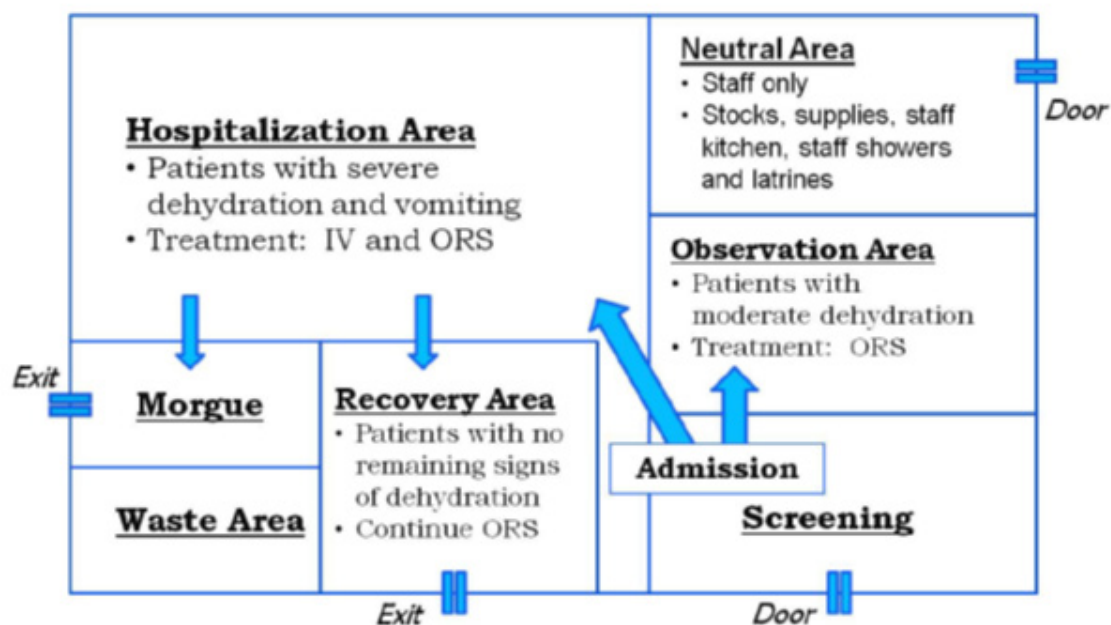
0.05% solution - Should be used within 24 hours after preparation

0.2% solution - Should be used within 3 days after preparation

1% solution (so-called stock solution) - Can be kept for 14 days after preparation

2% solution – Can be kept for 7 days after preparation.

How to set up a CTC



- Site CTC where patients can easily access it
- Locate CTC separate from other patients' wards and away from water sources and functioning facilities e.g. schools and markets
- There should be one entry and exit to and from the CTC
- A rag soaked in 0.2% chlorine solution should be placed at the entrance/exit door for disinfecting feet.
- Restrict admission and care to one care taker per patient
- Change into protective clothing when entering the CTC (Heavy duty aprons, gloves, gumboots, masks and goggles for cleaning staff, and disposable aprons, gloves, masks, gumboots and goggles for clinical staff. When leaving, protective clothing should not be taken home.
- Erect separate male and female toilets for the CTC
- Provide adequate and safe water, and waste disposal bins
- Provide adequate lighting both during day and night.
- Ensure availability of drugs and supplies all the time.
- Once the outbreak is declared over, clean, disinfect and store all reusable cholera equipment (tents, beds, buckets and PPE) for next season.

Estimated Minimum List of Supplies needed to treat 100 persons during a cholera outbreak

Rehydration supplies;

650 packets oral rehydration salts (ORS), for 1 litre each
120 bags Ringer's lactate solution, 1 litre
50 giving sets
50 IV Cannulas of different sizes
3 nasogastric tubes, 5.3 mm OD, 3.5 ID (16 French), 50 cm long for adults
3 nasogastric tubes, 2.7 mm OD, 1.5 ID (8 French), 38 cm long for children

Antibiotics;

For adults: 60 capsules doxycycline, 100 mg
For pregnant women and adults allergic to Doxycycline: 50 tablets Erythromycin, 250 mg
For children: 50 tablets Erythromycin, 250 mg and
100 tablets Zinc sulphate, 20 mg

PPE;

Heavy Duty Gloves
Disposable Gloves
Heavy Duty Aprons
Disposable Aprons
Masks
Goggles
Gumboots

Disinfectants;

Chlorine

Other supplies;

Adhesive tape
Cotton wool swabs
Alcohol/spirit for hand rubbing and disinfection
2 large water dispensers with a tap (marked at 5- and 10- litre levels) for making ORS solution
20 bottles (1 litre) for oral rehydration solution
20 bottles (0.5 litre) for oral rehydration solution
40 tumblers, 200 ml
20 teaspoons
Mesh Barrier
Tents
Cholera Beds
Plastic Sheets for Bath Shelters
Separate Toilets
Tarpaulin for the non-cemented CTC floor
Waste Disposal Bins: For stool, vomitus, medical and other CTC wastes
Labeled taped buckets and basins for hand washing
Sprayer for disinfection of gumboots
Stationary: Pens, Admission charts, case management charts
SOPs
Blankets
Mosquito repellent
Foot bath

Line list for reporting from Health Facility to District and for use during outbreaks

Health Facility:		District:		Date Received at District:		Disease/condition:			
Serial No.	(C)ommunity (O)ut patient (I)n -patient	Name (First, Surname)	Physical Address			Sex (M/F)	Age	Date of Onset (DD/MM/YYYY)	Date Seen at Health Facility
			Village/ Location	T/A	District				

Vaccination status		Confirmatory Tests			Treatment	Outcome (A)live (D)ead	Outcome Date (DD/MM/YYYY) If Alive → date of discharge If Dead → date of death	Risk factors
Number of doses of vaccine	Date of last vaccine does (DD/MM/YYYY)	Specimen Taken (Y/N). If Y Date Collected (DD/MM/YYYY)	Type of test	Results				

Instructions for filling up the line list

- For each new outbreak, start on a new page. Don't list on the same page patients with different conditions.
- No empty cell. If the data is not available, write 'UK' (unknown, don't know). If the data is not applicable, write 'NA'.
- Name: start with First Name then Surname.
- Physical address: Mention the village OR the location if the patients resides in urban area.
- Age: for people aged one year and above, mention the completed years; for children aged less than 1 year, mention the age in months with the letter "m" for months. eg: 9 years → "9" eg: 9 months → "9 m"
- All the dates should be given in the same format DD/MM/YYYY
- - Vaccination status: mention the vaccination status for the disease in question.
 - Number of doses of vaccine: 0=not vaccinated; 1= 1 dose; 2= 2 doses ...; UK=don't know; NA=not applicable
 - Date of last vaccine dose (DD/MM/YYYY): If the exact date is unknow, try to mention at least the year; UK=don't know; NA=not applicable
- Risk factors: mention the risk factor(s) for this patient for the disease in question.

Specific instructions for CHOLERA:

FIELD	INSTRUCTIONS
Confirmatory tests – Type of test	Mention if a "RDT" and/or "culture" and/or "PCR" test was performed
Confirmatory tests – Results	Mention if the result was "negative" or "O1" or "O139" or "positive" if you don't know the serogroup. If several tests were done, indicate the results for specific test.
Treatment	<ul style="list-style-type: none"> • Mention the treatment plan: Plan A / Plan B / Plan C • Mention the medication(s) the patient was given: "IV" (Ringers lactate), "ORS", "zinc", "DCN" (doxycycline), "Ery" (erythromycin)
Risk factors	<p>Multiple answers allowed. Indicate the number(s) from the list below or write in full if you don't find a risk factor in the list</p> <ol style="list-style-type: none"> 1- Using unsafe water 2- Lack or inadequate sanitary facilities 3- Contact with a patient (guardian...) or his beddings, soiled, utensils 4- Eating unsafe food 5- Swimming in rivers, lakes 6- Lack or inadequate hand washing at critical times 7- High risk occupation like fisherman

For more information, please contact:

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