MINISTRY OF HEALTH

NATIONAL INTEGRATED CHOLERA SURVEILLANCE, LABORATORY AND CASE MANAGEMENT GUIDELINES 2024

Ministry of Health

ZAMBIA HEALTH PARTNERS GROUP

ZNPHI
ZAMBIA NATIONAL PUBLIC HEALTH INSTITUTE

FORWARD

Cholera remains a poignant marker of inadequate access to safe drinking water and sanitation, reflecting a fundamental challenge to public health. The unnecessary loss of lives due to severe illness and dehydration is a stark reminder of the imperative to ensure access to simple yet life-saving interventions. In this updated edition of the Cholera Case Management Guidelines, we renew our commitment to preventing the progression of cholera from mild to severe stages and to averting avoidable deaths through the widespread adoption of effective interventions such as Oral Rehydration Salts (ORS) and Salt and Sugar Solution (SSS).

Building upon the foundations laid by previous editions and informed by experiences from past outbreaks, these guidelines serve as a crucial tool for healthcare workers at all levels. As we've discussed, the timely reporting and surveillance of diarrheal cases are vital components of the Rapid Disease Notification System, enabling early detection and response to outbreaks. Moreover, the inclusion of cholera in Zambia's Integrated Diseases Surveillance & Response Technical guidelines underscores the urgency of daily monitoring to mitigate the spread of this virulent disease.

The success in reducing cholera morbidity and mortality hinges upon the expertise of healthcare workers, the availability of essential supplies, effective communication, and targeted health promotion efforts. This document not only offers technical guidance but also embodies our collective commitment to improving health outcomes and saving lives.

I extend my gratitude to all who contributed their expertise and resources to the development of these updated guidelines. Let us draw upon the lessons learned from past outbreaks as we strive to control and ultimately eliminate cholera, ensuring a healthier future for all Zambians.

Dr Kennedy Lishimpi
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I am also profoundly thankful to the governmental health departments, international health agencies, and non-governmental organizations for their unwavering support and collaboration. Their insights and resources have been crucial in addressing the complexities of cholera management.

A special acknowledgement goes to the community health workers and volunteers whose on-ground experiences have provided invaluable perspectives, making these guidelines not only comprehensive but also practical.

Lastly, I am deeply appreciative of the reviewers and editors who meticulously scrutinized and refined this document. Their suggestions have greatly enhanced the quality and clarity of these guidelines.

This document stands as a testament to our collective resolve to combat cholera in Zambia and improve the health and well-being of our communities.

I thank you all.

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LIST OF ABBREVIATIONS/ACRONYMS

AWD	Acute Water Diarrhoea
CBV	Community Based Volunteer
CFR	Case Fatality Rate
CIWA-Ar	Clinical Institute Withdrawal Assessment for Alcohol
COVID	Coronary Virus Disease
CRT	Capillary Refill Time
CTC	Cholera Treatment Centre
CTU	Cholera Treatment Unit
DBP	Diastolic Blood Pressure
DM	Diabetes Mellitus
eiders	electronic Integrated Disease Surveillance and Response
FBC	Full Blood Count
HIV	Human Immunodeficiency Virus
IM	Intramuscular
IO	Intraosseous
IV	Intravascular
MPS	Malaria Parasite Slide
OCV	Oral Cholera Vaccine
ORP	Oral Rehydration Point
ORS	Oral Rehydration Salt
PCR	Polymerase Chain Reaction
PO	Per oral
PPE	Personal Protective Equipment
RBS	Random Blood Sugar
RDT	Rapid Diagnostic Test
SAM	Severe Acute Malnutrition
SBP	Systolic Blood Pressure
SCD	Sickle Cell Disease
TB	Tuberculosis

CHOLERA SURVEILLANCE GUIDELINES

PURPOSE AND OBJECTIVE OF CHOLERA SURVEILLANCE GUIDELINES

This guideline is prepared to give technical guidance to all actors in cholera case detection, notification, investigation and response activities. Consequently, the primary purpose and objective is described as follows:

PURPOSE OF THE CHOLERA SURVEILLANCE GUIDELINES

To serve as practical tools to assist healthcare professionals, field workers, and other relevant personnel in effectively conducting cholera surveillance activities in Zambia.

OBJECTIVES OF CHOLERA SURVEILLANCE

General Objective of Cholera Surveillance

- To minimize the impact of outbreaks on public health by enabling early detection, effective response, and prevention of further transmission.

Specific Objectives

Pre-outbreak phase	**Outbreak Phase**
▪ To identify and monitor any unusual increase in diarrhoea cases, particularly those consistent with cholera symptoms, in order to detect potential outbreaks early. ▪ To detect suspected cholera cases using a standard case definition ▪ To confirm outbreak through laboratory testing ▪ To ensure timely reporting of all suspected cases within 24 hours of detection	▪ To detect and confirm cholera cases, trigger rapid response mechanisms, and implement control measures to contain the outbreak. ▪ To monitor the cholera outbreak and share situation reports ▪ To conduct field investigations to support the cholera response

HOW TO IDENTIFY CHOLERA CASE

Broadly, there are three main streams used in identifying cholera: Event-based Surveillance through cholera alerts, Community surveillance by CHWs/CBVs including cholera active search by the Rapid Response Teams (RRTs) and HF Cholera Surveillance by HCWs.

CHOLERA CASE DEFINITIONS

Suspected Cholera Case	
In a district/sub-district were there is no confirmed cholera outbreak	In a district/Sub-district were there is a confirmed cholera outbreak
• Any person 2 years of age or older presenting with acute watery diarrhoea and severe dehydration or dying from acute watery diarrhoea with no other specific cause attributed to this death.	▪ Any person presenting with or dying from acute watery diarrhoea

Acute Watery Diarrhoea (AWD)
Acute is defined as lasting less than seven days
Watery is defined as non-bloody liquid stools that may contain mucus
Diarrhoea is defined as three or more loose stools with in a 24-hour period

Confirmed Cholera Case
Any suspected cholera case in which Vibrio cholerae O1 or O139 identified by presumptive identification (culture/sero agglutination) or PCR.

Cholera Deaths[1]
Community cholera death: is defined as a person suspected or confirmed with cholera who died in the community or on the way to a healthcare facility but before admission to the health facility or CTC.

Facility cholera death: is defined as a person suspected or confirmed with cholera who died in a health care facility after admission regardless of the time of admission.

CHOLERA ALERT AND THRESHOLDS

Cholera Alert
A cholera alert is defined by the detection of at least one of the following:
a) two or more people aged 2 years or older with acute watery diarrhoea and severe dehydration, or dying from acute watery diarrhoea, from the same area, within 1 week of one another;
b) one death from severe acute watery diarrhoea in a person aged 5 years or older.

Cholera Alert Threshold:
A single suspected case meets the threshold for notification, investigation and confirmation and action.

Cholera Action Threshold
A single confirmed case meets the threshold for response actions.

OUTBREAK DEFINITION AND CLASSIFICATION

A cholera outbreak is defined by the occurrence of cholera cases and deaths with regard to place and time and classified as follows:

Suspected cholera outbreak	Probable cholera outbreak	Confirmed cholera outbreak
• Two or more suspected cholera cases reported in the same sub district/districts within one week of each other, or	The number of suspected cholera cases with a positive rapid diagnostic test (RDT+) within a two-week period in a sub-district/district achieving	At least one confirmed cholera case locally acquired.

[1] Note: The term brought in dead (BID) will not be used in cholera surveillance in Zambia.

• One person aged two years or older dying from acute watery diarrhoea with no other specific cause attributed to this death, or • One confirmed cholera case pending case classification by origin of infection (i.e., locally acquired or imported cholera case)	or surpassing one of the thresholds (see ***annex 3***) taking into account the number of suspected cholera cases tested by RDT. Example: Among 3-7 suspected cases, at least 3 test positive by RDT.	

Imported and locally acquired cholera case

Imported cholera case: An imported cholera case is a suspected or confirmed cholera case infected outside of the sub-district/district where the case was detected as supported by epidemiological or microbiological evidence, or both.

Locally acquired cholera case: A locally acquired cholera case is a suspected or confirmed cholera case infected in the sub-district/district where the case was detected.

Import-related cholera case: a locally acquired cholera case with epidemiological or microbiological evidence, or both, linking it directly to an imported cholera case or to an imported source of contamination (i.e., first-generation of local transmission).

Indigenous cholera case: a locally acquired cholera case with no epidemiological or microbiological evidence of a direct link to an imported cholera case or to an imported source of contamination (i.e., second or higher generation of local transmission)

Starting and End timing of Cholera outbreak

Start date of a cholera outbreak: The starting date of cholera outbreak is the date of onset of symptoms of the first locally acquired cholera case in the sub- district/district

Ending time of cholera outbreak: For a minimum period of 4 consecutive weeks in which all suspected cholera cases (if any) had a negative test result by culture or PCR

Cholera hotspot or Priority Area for Multisectoral Interventions (PAMI)

A geographically limited area such as a ward or district where environmental, cultural and/or socioeconomic conditions facilitate the transmission of the disease and where cholera persists or reappears regularly. Hotspots play a central role in the spread of the disease to other areas.

CASE VERIFICATION AND INVESTIGATION

Cholera Case verification

- Verify that the cases meet the suspect case definition.
- At the health facility, review the registers to identify any additional AWD cases that may meet the suspect case definition (identify if >2 yr or <2yr). Collect data from at least 1 month prior.

Cholera Case investigation

- Collect data on where patients live, water sources used and other potential exposures, sanitation used in the home, risk factors using ***cholera case investigation form (Annex 2)***.
- Ensure a laboratory specimen was collected.

- If possible, test treated water sources for free residual chlorine.
- If this represents a new outbreak in a new geographical area, follow the Case Area Targeted Interventions (CATI) approach (see section below)

CASES NOTIFICATION, REPORTING and TOOLS

Cholera Case Notification:

- In the circumstance when there is no cholera outbreak, cholera case should be notified immediately (within 24 hour) to the next level up on detection using the notifiable diseases form (ND1) through the eIDSR

Cholera cases report

- All cases of cholera should be reported using Cholera Case Investigation form on eIDSR that contains case specific details information
- In addition, summary values should be reported using ND2 form on eIDSR

The reporting mechanisms and tools are summarized as follows:

Data	Pre-outbreak	During outbreak
Individual data	• Report individual level data for **<u>ALL SUSPECT and CONFIRMED CASES</u>** using ND1 and the Cholera Case-Investigation form on eIDSR. (also, on paper – see annex 1 &2) • The case will be given auto-generated unique identifier from the eIDSR • **Cholera cases Linelist:** Linelist of cholera cases can be generated from the eIDSR for further analysis *If the Health Facility is trained in eIDSR, the health facility will enter directly into eIDSR. Otherwise, the health facility sends a form to the District and DSO or designee enters into eIDSR.*	• Report individual level data for **<u>ALL SUSPECT and CONFIRMED CASES</u>** using the Cholera Case Investigation form on eIDSR; and also, on paper – see annex 2) • The case will be given auto-generated unique identifier from the eIDSR • **Cholera cases Linelist:** Linelist of cholera cases can be generated from the eIDSR for further analysis *If the Health Facility is trained in eIDSR, the health facility will enter directly into eIDSR. Otherwise, the health facility sends a form to the District and DSO or designee enters into eIDSR.*
Aggregate data	Report the following summary data elements using the ***ND2 form on eIDSR*** : • number of suspected cholera cases • Number of specimens sent to the lab, • Number of confirmed cases ***Case should also be reported as non-bloody diarrhoea cases in eIDSR.***	Report the following aggregated data elements using the **eIDSR** to the province and ZNPHI Surveillance and EOC • Number of suspected cases, • Number of RDTs conducted, • Number of RDT positive, • Number of specimens sent to the lab, • Number of confirmed cases Propose to have a daily aggregate report in eIDSR

Note:

- Ensure **all suspected and confirmed** cases are entered into eIDSR.
- Case information should be updated with laboratory information when available.

OUTBREAK INVESTIGATION

In a pre-outbreak context, once a suspect cholera case is identified a rapid response team (RRT) will undertake a field outbreak investigation.

If there is suspicion of a new outbreak in a previously unaffected area (via one or more suspected cases testing positive by RDT, or multiple suspected cases and/or deaths, etc.), the RRT will trigger CATI via the District Health Office (see below). Note that the RRT may overlap with the members of the District Health Office responsible for CATI.

Cholera outbreak investigation proposed team composition

- Epidemiologist/FETP or Surveillance Officer
- Environmental/Public Health Officers (WASH, IPC, Health Promotion, and risk communication)
- Laboratory officer
- Clinician

Field Investigation[2]

When suspected cholera cases are detected or reported in a previously unaffected area, a cholera alert should be triggered, and immediate field investigation including a rapid diagnostic test should be conducted to verify the alert and confirm or rule out the outbreak. This investigation should also assess the risk of spread, identify priority actions, conduct an initial needs assessment, and implement initial control measures. This should be done preferably within 24 hours.

Members of the team should be aware of the procedures to confirm or rule out the outbreak and the elements to investigate and should adopt a multidisciplinary approach. The team should work quickly and report findings, including risks and assessed needs, to decision makers to provide a rapid and focused response.

Teams should carry enough supplies to collect and transport stool samples, supplies to treat any patients present on site, ensure basic infection prevention and control (IPC) measures in the treatment center, and conduct community water, sanitation, and hygiene (WaSH) investigations. Guidelines, protocols and information, education, and communication (IEC) materials should also be taken and left in the field.

Investigation tools are provided at the technical guidelines for Integrated Disease Surveillance and Response in Zambia and eIDSR platform.

[2] *See Annex 4: Field Investigation and Initial Response checklist for additional details*

CASE-AREA TARGETED INTERVENTION (CATI)

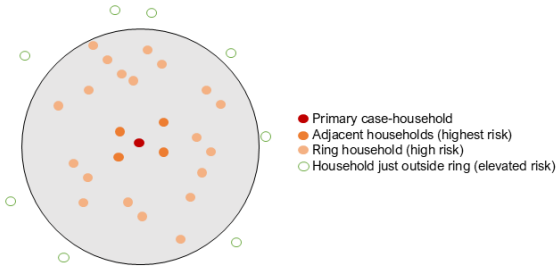
PURPOSE OF THE CATI GUIDELINES

This section offers technical guidance on the preparedness and implementation of case-area targeted interventions (CATI). It is directed at District Health Offices, who are most often the first point of detection and response for a cholera outbreak. CATI relies on the detection of new outbreaks using surveillance signals from patients seeking care at health facilities, community-based volunteers (CBVs) in the community, and rapid response teams (RRT).

OBJECTIVES OF CATI

CATI is based on the principle that the early detection of cholera cases can trigger a rapid, localized response in a 150m high-risk radius around one or more case-households where people at the highest risk of infection live (see Figure 1). This can reduce transmission sufficiently to contain the outbreak or to reduce its spread.

CATI is part of the larger cholera preparedness and response strategy. It should be used as the first response option for a new outbreak at the district scale, when caseloads are small and geographically concentrated. CATI is most often used to reduce transmission and geographical spread before more resource-intensive water, sanitation and hygiene (WASH) and mass vaccination using oral cholera vaccines (OCV) interventions are implemented at scale, or as they are being scaled-up (to keep the caseload low). They are also used at the end of mass campaigns to suppress remaining transmission. However, if caseloads continue to rise, CATI cannot be used as the main response strategy otherwise teams may become overwhelmed.



Case household(s)	Adjacent households	Ring households
▪ Point of use water treatment with safe water storage and soap ▪ Intensive hygiene promotion	▪ Point of use water treatment with safe water storage and soap ▪ Community hygiene promotion	▪ Single-dose oral cholera vaccine (OCV) for ring households ▪ Hygiene promotion facilitated by community-based volunteers (CBV)
Higher logistical burden and resources needed		
Intensive hygiene promotion (more days)	Hygiene kit (point of use water treatment, safe water storage, soap) for adjacent households	Hygiene kit delivered with OCV (point of use water treatment, safe water storage, soap) and facilitated by CBV follow-up

Figure 1. Example of CATI delivered within a radius around a case-household(s) (Adapted from the publication in The Lancet Infectious Diseases, http://dx.doi.org/10.1016/S1473-3099(20)30479-5)

CATI BY OUTBREAK PHASE

CATI is most effective and efficient when caseloads are small, and geographically concentrated. The following Figure 2 and table shows the optimal uses of CATI at the different phases of an outbreak.

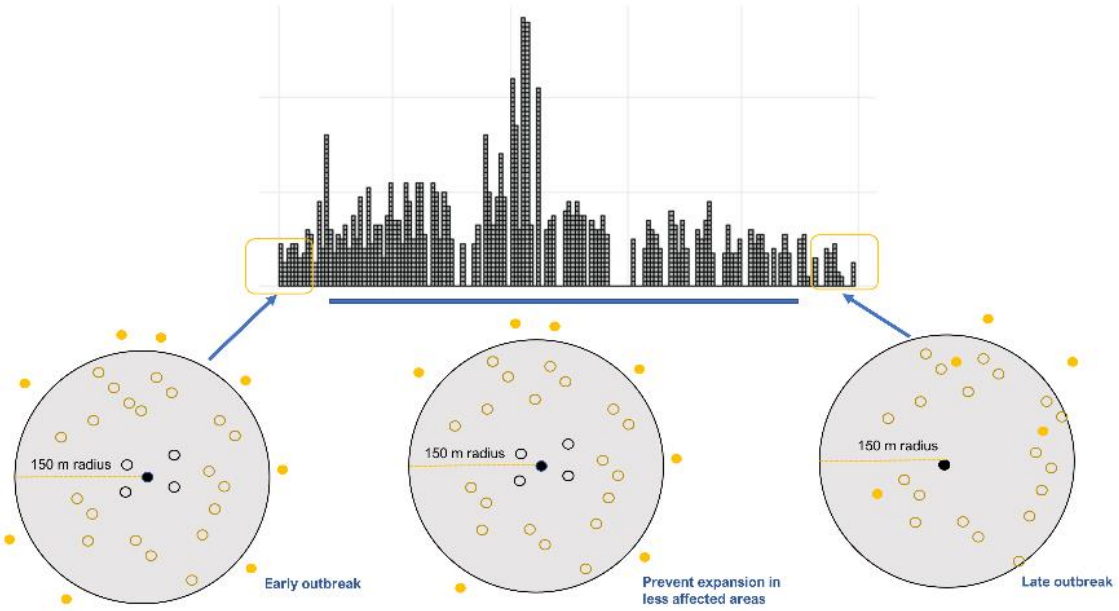


Figure 2. Comparisons of CATI by outbreak phase

Outbreak phase	Best use of CATI
Pre-outbreak to early outbreak Sporadic cases or small outbreaks (i.e., a small number of cases)	▪ Containment of small outbreaks ▪ Reduce and/or contain transmission from sporadic cases reported in the dry season or early in the rainy season ▪ Avoid spread and proliferation of *V.cholerae* geographically
Outbreak expansion In newly affected areas which have a small number of cases (and are adjacent to the main outbreak)	▪ Prevent geographic expansion of outbreak to new geographic areas outside of outbreak foci and at border areas ▪ Works alongside mass WASH and vaccination campaigns during the main outbreak
Outbreak reduction Tail of outbreak or after the implementation of a mass vaccination campaign (i.e., a small number of sporadic cases)	▪ Containment of small outbreaks ▪ Reduce and/or contain transmission from sporadic cases ▪ Works alongside mass WASH and vaccination campaigns during the main outbreak

DECISION CRITERIA TO START CATI

The decision to implement CATI involves identification of a scenario described above which results from detection of a case(s) by a health facility, CBV, or RRT, i.e.:

- Early outbreak (small number of cases detected in a confined geographic area)
- Outbreak expansion (to prevent expansion to a new geographic area)
- Outbreak reduction (small number of sporadic cases at the end of outbreak)

Index cases in new areas may be residents of those districts, or **travellers** from other districts, provinces or countries who are therefore imported cases. For travellers, when determining the community at-risk of infection, the place where the median incubation period was spent (i.e, last 1 to 5 days) should be considered for the site for CATI. This may involve communicating with other district/province/country authorities.

Once a scenario is identified, verification of the suspected index case(s) with a rapid diagnostic test (RDT, preferably with an enrichment step) is undertaken immediately (i.e., within 24 hours) to verify that the pathogen is likely *V. cholerae* (see surveillance section above).

The process for triggering and launching a single CATI includes:

- Detection and notification of a suspected case from a health facility, CBV, and/or RRT. Note that the RRT may start the field investigation and pass the responsibility of CATI to the District Health Office (DHO).
- **Within 12 to 24 hours:** Following notification of a suspected case, the District Surveillance Officer (DSO, laboratory personnel or a Public Health Nurse trained in RDT administration) will administer an enriched RDT at the health facility (a process taking 6 to 8 hours; see laboratory section below). **A decision can also be taken to intervene with CATI based on a suspected case(s) if RDT testing is not available.**
- **Within 12 to 24 hours:** If the enriched RDT is positive, it will be checked by the DSO or District Incident Management System (IMS) Manager (if the IMS has been activated) to assess whether the patient is residing within an existing CATI ring (i.e., a CATI intervention was completed in the past month, or is in progress), or whether the patient lives outside the existing CATI rings
- **Within 24 hours:** If the case is not residing in an existing ring, the patient will be defined as an index case, and CATI can be implemented in the radius around his or her home

PREPAREDNESS FOR CATI

CATI is a reactive intervention that requires preparedness and coordination activities to identify and prepare high-risk districts for interventions, resources, logistics, personnel and training required. It is critical to organize these elements when the cholera season begins (from November to April in Zambia). This process is similar to risk assessment and preparedness for a potential mass vaccination campaign.

Note that in newly affected districts that were not foreseen as part of the risk assessment, it is possible to deploy a technical team to rapidly train the District Health Office, CBVs and health workers (as long as resources, supplemental funding, and logistics are provided as rapidly).

Timeline for preparedness

CATI requires ideally one to two months of lead time to establish partnerships with key actors to support, procurement of materials, pre-positioning supplies, hiring and training the District Health Office staff and CBVs, and improving surveillance. An accelerated timeline (i.e., one week) can be undertaken to prioritize local procurement, rapid training and improved surveillance.

Selection of hotspot districts

Districts that are at high risk of outbreak expansion are identified and prioritized for sites where CATI can be prepared. The updated list of Prioritized Areas for Multisector Intervention (PAMIs) should be reviewed. CATI should prioritize:

- Districts with historically high incidence of cholera where cholera tends to originate (i.e., Chipata, peri-urban areas in Lusaka Province, Kitwe, Ndola, etc.)
- Districts that historically have poor reporting of cholera
- Districts that have not received mass vaccination in past two years
- Districts that have not received other key interventions (i.e., no WASH campaigns or improvements) in the past two years

Other key factors include:

- High risk of expansion of the main outbreak
- Populations are vulnerable to infection (i.e., fishing camps, and with inadequate safe water, poor sanitation, unvaccinated during past 5 years, high density, etc.)
- Populations are susceptible to death (i.e. poor access to care, isolated/rural)
- Adequate district health team capacity to do CATI (with or without partner support)

Teams and roles

Three to four District Teams working simultaneously to respond to six to eight sites per week should be planned for. The following roles are envisaged for each District Team; the DHO should fill these roles with the staff available. The Public Health Nurse is associated with the local health post or health facility and the CBVs are from the affected area. When CATI is implemented, the CBVs require on-site training for their activities on awareness of CATI, community engagement and mobilization, delivery of interventions (as appropriate), and surveillance and referral. The DHO and/or District Incident Manager or their nominated pillar lead (e.g. operations pillar) takes the lead in organizing a team with the following profiles.

Role	**Responsibility**
Team Lead (Public Health/Environmental Health speciality)	▪ Inform and seek approval from leader ▪ Define the ring boundary ▪ Record monitoring data ▪ Train CBVs on surveillance ▪ Supervise door-to-door delivery of interventions
Public Health Nurse (if available)	▪ Delivery and observation of OCV (if used) ▪ Lead health promotion activities ▪ Training CBVs on health promotion
Hygiene Promoter Community Health Assistant	▪ Carry out hygiene promotion campaign and demonstrations ▪ Carry out environmental health assessment ▪ Train CBVs on hygiene promotion
CBV	▪ Provide local knowledge on community ▪ Support hygiene and health promotion

	▪ Delivery of interventions ▪ Support community-based surveillance during and following CATI

If resources allow, an additional Supervision Team should be set up, including an Epidemiologist, WASH Specialist, and Hygiene Promotion Manager. This team can observe, monitoring, and course correcting the District Teams over a small geographical area (i.e., multiple wards or a district).

Team capacity by week

If each CATI site takes three to four days to complete, a District Team can complete a maximum of two CATIs per week.

Role of partner agencies

Potential roles of partner agencies are discussed as the district-level planning is done. An operational WASH partner who can support increasing water quantity and quality is key to supporting District Teams.

Partner agency	Potential support roles
Zambia Red Cross Society (ZRCS)	Surveillance, community engagement/RCCE
Médecins Sans Frontières (MSF)	Case management, general support
UNICEF	WASH, surveillance, general support
WHO	Vaccination, surveillance, general support
WaterAid	WASH
Save the Children	WASH, coordination, general support
World Vision	WASH, coordination, general support
NGO WASH Forum	WASH, coordination, general support

Coordination of CATI

If there are no cases as yet in the district and the IMS is not yet activated, the District Health Office coordinates CATI. If the IMS is activated, the IMS (operations section) will be responsible for coordination. The main actions are to coordinate logistics, training, and human resources for CATI, District Team operations, verification of suspected cases by enriched RDT, geolocation of CATI rings (to avoid overlap with previous responses), and go/no-go decisions.

CATI requires the following coordination roles:

Role	Responsibilities
CATI Coordinator (i.e., IMS Manager)	▪ Coordinates and monitors team deployments ▪ Organizes enriched RDTs ▪ Initiates stop criteria
Health Information Manager	▪ Collates data on location, coverage, data on rings ▪ Supports GIS functions to map rings and any field GIS needed (if used)

Training

Three levels of training are undertaken:

Training of Supervisors in the setup of CATI, quality control, monitoring of interventions, and monitoring of the strategy (i.e., two days with a hands-on simulation of activities, ideally one to two months before implementation is planned)

The **main training on CATI implementation** focuses on Team Leads, Public Health Nurses, and Hygiene Promoters and covers (two to three days, ideally one to two months before implementation is planned):

- Seeking approval to carry out CATI locally
- Identifying the ring and enumerating households to target
- Delivery techniques for WASH and vaccination (if used, and including monitoring of adverse events following immunization)
- Community hygiene promotion and health promotion
- Rapid environmental health assessment
- Training CBVs on health and hygiene promotion, delivery of interventions, surveillance and referral
- Implementation standards, quality control, and collecting monitoring data
- Role playing and piloting of the approach

On-site training for CBVs (on the same day as implementation)

- Community health and hygiene promotion
- Distributing WASH and/or vaccination (if used, and as appropriate)
- Sustaining community-based surveillance and referring patients to care

Surveillance requirements

Early detection and verification of signals is critical for initiating and maintaining CATI in the prioritized hotspot districts. This is done through three types of surveillance:

- Routine/health facility-based cholera surveillance by health workers
- Event-based surveillance (EBS) through cholera alerts in the community
- Community-based surveillance by CBVs
- Active case finding by rapid response teams (RRTs)

Within hotspot districts, the following surveillance activities are reinforced and linked to the triggering of CATI:

Routine/health facility surveillance

The DSO will provide refresher trainings to ad-hoc cholera treatment units, primary care facilities, and health posts to enable diagnosis and detection of suspected cholera cases, clusters, and hospitalizations, and suspected cholera deaths. Information on the CATI strategy, case definitions, event-based surveillance, and line-listing will also be shared. The sites include health posts, primary health facilities (including public, faith-based, and private), second level hospitals, cholera treatment units/centres (CTU/CTC), and oral rehydration points (ORP).

Event-based surveillance (cholera alerts) and community-based surveillance

Refresher training for CBVs in rural areas and at ORPs to signal and refer suspected cases and clusters, on case definitions, and awareness of the CATI strategy will be facilitated by the DSO, accompanied by CBV Supervisors. This could be as simple as cascading messages on the community case definition and reporting channels and providing a job aid to help to identify

suspected cases for CBVs. Providing mobile credit to speed up reporting is useful but would have to be done on a large scale and given throughout the cholera season.

Notification of suspected case to surveillance and to CATI

Suspected (including RDT-positive) and confirmed cases are reported immediately using the case investigation form in eIDSR. This is usually done at the health facility (therefore CBVs report and refer cases to the health facility). If the health facility is not equipped with eIDSR, they can contact the DSO and/or District Health Office. The DSO will review new suspected cases reported to eIDSR on a daily basis. The DSO will contact the CATI Coordinator (IMS) immediately after the reporting of a new suspected case, and to initiate verification.

Ongoing surveillance during CATI

It is critical to remain vigilant for new cases during and after implementation, using the following approaches:

- DSO checks weekly or daily surveillance data in primary health facilities, among CBVs and in CTU/CTC/ORP
- District Team (and CBV Supervisors) systematically train CBVs in surveillance, referral, and notification
- Data is inputted into the main line list of suspected cases in eIDSR, including RDT completion/result, demographics, and place of residence (this variable is important for locating the site for CATI)

Material requirements for a single CATI response

The checklist in Annex 5 indicates the materials needed for a single CATI response for approximately 200 households. It is checked against current stocks to identify gaps well before implementation.

PREPAREDNESS CHECKLISTS

CATI preparedness can be split into **macroplanning** at the provincial level to ensure that the strategy is ready to be applied to the highest-risk districts where new cases may appear, and **microplanning,** to prepare the district level for potential CATI deployment.
Use these checklists to ensure the necessary steps are in place:

MACROPLANNING CHECKLIST (AT THE PROVINCIAL LEVEL)

☐ Coordinate with DHO and IMS at the Provincial level
☐ If planning to use vaccination, coordinate with the Vaccination Pillar at the National level to determine potential for obtaining doses
☐ Review current surveillance data and historical epidemiology to determine target districts and wards
☐ Determine target districts and wards
☐ Review criteria for expanding past CATI (to cluster approach, mass vaccination campaigns)
For targeted districts and wards:
☐ Estimate population sizes
☐ Determine budget for running X number of CATIs, for X number of weeks, in X number of districts
☐ Determine local roles and leadership for CATIs in districts
☐ Identify IMS and District Teams and define their responsibilities
☐ Assess training requirements for District Teams and CBVs
☐ Identify local partner agencies who could potentially support community WASH, vaccination, etc.
☐ Develop and field-test social mobilization materials
☐ If using vaccination, determine cold-chain and waste disposal capacity at district level
☐ Determine gaps at the district level
☐ Finalize budget and social mobilization materials and address gaps identified
☐ Pre-position supplies

MICROPLANNING CHECKLIST (AT THE DISTRICT LEVEL)

☐ Determine local roles and leadership for CATIs in districts, and coordination roles at DHO and IMS
☐ Identify additional local partner agencies who could potentially support community WASH, vaccination, etc.
☐ Identify operational gaps (i.e. in human resources, coordination, transport and logistics, case management, etc.) and resolve
☐ Revise and maintain budget
☐ Pre-position supplies
☐ Inform local health facilities of potential for CATI
☐ Assess local training needs (i.e. is basic cholera training needed in addition to CATI training)
☐ Assess accessibility to targeted districts and wards in rainy season
☐ Verify availability of vehicles for District Teams and materials
☐ Print social mobilization materials, obtain registers, and other tally sheets
☐ If using tablets instead of registers, prepare forms for survey software
☐ Hold trainings for District Team(s) and CBVs
☐ Link with existing (or prepare new) Supervision Team
If using vaccination:
☐ Assess local cold chain and waste disposal
☐ Send vaccines to districts
☐ Preposition vaccines in local cold chain

KEY INTERVENTIONS

The District Team and CBVs support: (1) delivery of key interventions using a door-to-door approach (not a fixed site approach), (2) delivery of hygiene and health promotion at the community level, and (3) setup of community surveillance. The following section gives details on the interventions and their mode of delivery.

Cholera surveillance and referral

While at the site, District Teams actively search for people with suspected cholera who require immediate referral to care. This can be done by asking the CBV and asking respondents at each household visit for people who are currently ill and meet the community case definition. These people are immediately referred to the nearest health facility and/or ORP, in accordance with the severity of their symptoms.

Improving community-based surveillance is important for verifying the effect of the interventions and the need for additional interventions. District Teams train CBVs to carry out community-based surveillance using the community case definition to identify suspect cases (and refer them to care).

Household water, sanitation and hygiene (WASH) interventions

Household WASH interventions should be packaged as a hygiene kit for ease of delivery to the household. The hygiene kit consists of a two-month supply of Aquatabs and a jerrycan for the storage of drinking water to enable the treatment and protection of 15—20 L of safe drinking water a day for drinking, cooking and hygiene. Sufficient soap and a handwashing station (if resources allow) are also included to enable handwashing at critical times.

Note that the hygiene kits when assembled are bulky, and a vehicle will be required to shuttle the hygiene kits from the base to the site on multiple trips.

Contents of the hygiene kit (sufficient for one household for 2 months)

- 240 Aquatabs (67 mg) to treat 20 L of water from protected sources per day for 2 months (or equivalent of granular chlorine)
- For cloudy or unprotected spring water (surface water, wells, streams, etc.), two tablets are required to treat 20 L of water. Flocculant-disinfectant is considered for turbid water from open sources (ex. P&G Purifier of Water combined flocculant/disinfectant).
- 20 L jerry can for drinking water storage
- 1000 g of soap
- Handwashing station with a 10 L bucket with a tap and lid (if using)

* CBVs give instructions and demonstrations on how the hygiene kit components are to be used several times during the days of CATI implementation. This can be combined with community hygiene promotion (see below).

See the *Intervention description* in a publication in BMJ Open, http://dx.doi.org/10.1136/bmjopen-2021-050943)

Several additional water treatment methods at the source can be applied (i.e., bucket chlorination) together with the household WASH interventions, but the point-of-use water treatment at the household level is the minimum standard.

During the CATI intervention, a rapid environmental assessment is carried out by the Hygiene Promoter, with the aid of the CBVs consisting of:

- **A water assessment** examining the quantity, source and quality of water in households within the radius, i.e., evaluation of the source and capacity of the water supply. This is followed by a qualitative assessment (pH, turbidity, residual chlorine, etc.) at source and household levels to determine treatment methods.

- A **sanitation assessment** will be carried out to determine the risk of contamination of households and water sources by examining the presence or absence of latrines, their type and condition, and the risk of contamination of water supply points.

CATI Is meant to address household water treatment and hygiene promotion and the team will not have the resources to improve water availability or sanitation infrastructure. Other WASH partners (i.e., DMMU, UNICEF, WaterAid) should be pre-identified in the preparedness phase who can support water availability, water treatment, and/or improvement of sanitation.

Hygiene promotion, risk communication, and health promotion

The CBVs, under the direction of the Hygiene Promoter and the Public Health Nurse, deliver hygiene and health messages using job aids and talking points in the table below. This is done door to door and at the community level during implementation.

Hygiene promotion

- Instructions and importance of the protection of drinking water using the supplied Aquatabs and drinking water container
- Safe food handling
- Handwashing at key times using the soap provided (i.e., before eating, before food preparation, after toilet, after changing a baby, after caring for ill persons)
- Safe disposal of excreta and risks of open defecation

Health promotion

- Cholera transmission and prevention
- Recognizing symptoms
- Importance of early rehydration and immediate care-seeking
- Free care at health facilities
- Safety of vaccination (if using)
- Practical information on locations of health facilities, ORPs, distribution points for prevention resources

Other critical messages

- Full instructions and demonstrations on daily use of hygiene kit items (i.e., Aquatabs, jerry can, handwashing station, soap)
- Vaccination (if using) does not completely prevent infection, and therefore water treatment and other hygiene measures are still critical
- Encourage use for the next 60 days where infection is most likely

Critical notes for risk communication:

- Aquatabs may be disliked because of taste, odour, and difficulty in achieving the correct concentration. The CBV gives instructions and encouragement for use.
- After CATI with WASH, vaccine, and antibiotics was delivered in Eastern DRC, investigators found low availability of Aquatabs, jerry cans and other materials delivered, and potentially lower-than-anticipated adherence to hygiene measures.
- If delivering vaccines, risk communication should emphasize that vaccination is not guaranteed protection and hygiene measures should still be undertaken.

These points highlight the need for the CBV to deliver robust hygiene and health promotion messages to households and the community, and for high adherence throughout the high-risk period of the next 60 days when infection is most likely.

Oral cholera vaccines (OCV) (if using)

If vaccines are available, in accordance with current global guidance on single-dose vaccination, OCVs can be used in a single-dose approach administered to all persons ≥1 year of age in households located in the ring. A single dose can be used strategically during an outbreak to achieve rapid protection and prevent further generations of disease in the ring, reducing community transmission.

Obtaining vaccine doses in the future

Note that currently, there is no policy for procuring OCV for CATI from the Global OCV Stockpile (see https://www.who.int/groups/icg/cholera/stockpiles). OCVs are also extremely scarce due to manufacturing gaps, and this situation will likely extend into 2026. OCV use as part of CATI should be kept under review as supply issues are addressed, and global policy develops for procurement specifically for CATI.

Vaccine specifications

Euvichol-Plus©, one of three killed OCV formulations, is most likely to be used given its storage in a plastic tube and its lack of requirement for a buffer. WHO SAGE has recommended that given its public health benefits, Euvichol-Plus© can be kept under a controlled temperature chain ≤10 days at ambient temperatures not exceeding 40°.

Administration of Euvichol-Plus©

Doses are pre-positioned in the cold chain at the district level, as much as possible. Some doses are kept at central EPI to move quickly doses to other provinces/districts according to need. The Team Lead and Public Health Nurse lead vaccination, using the following steps:

- Prepare doses as per the population of the site, with a 10% reserve
- Prepare vaccination equipment for 3 vaccinators: gloves, tweezers (to open vials), and vaccination cards
- Team Leader prepares paper or electronic household registry to record household members and doses administered, gives out vaccination cards, and fills in adverse events reporting form
- Administer door-to-door (not at fixed site) to all persons ≥1 years including pregnant women
- Assure proper waste disposal of vials using rubbish bags

Intervention roles for CBVs

CBVs have a key role in introducing CATI to their communities, encouraging community members to use materials delivered and hygiene behaviours, and delivering trustworthy hygiene and health promotion messages. They may also be authorized to support delivery of WASH interventions and OCV (if using) to implement CATI as quickly as possible.

Key roles for CBVs in delivering interventions

During CATI implementation:

- Door-to-door delivery of interventions
- Door-to-door hygiene and health promotion
- Communication of health education at households and community
- Support to active case search in the community

After CATI implementation:

- Maintenance of community-based surveillance and referral of patients to care
- Communication of health education at households and community
- After CATI, support to any ORP opened at the site

DEPLOYMENT OF CATI

After the decision is taken to carry out CATI in a specific site, **within 24 hours**, the following steps are undertaken on day 1 of implementation.

Deployment daily checklist

1 day before implementation	☐ Pre-position materials (i.e., hygiene kits, vaccine doses in cold chain) close to site (i.e. nearest health facility)
Implementation	
Day 1 (within 24 hours of case detection)	☐ District Team visits site and introduction to local authority ☐ Identification of the case-household and household visit ☐ Outline boundary of the ring (see below for procedure) ☐ Rapidly enumerate households in ring (count the number of households and estimate number of persons per household) ☐ Train CBVs in active case search and community-based surveillance ☐ Conduct environmental assessment ☐ Begin door-to-door visits (including explanation of CATI, census of household, delivery of interventions and vaccination (if using) ☐ Record monitoring data ☐ Conduct community engagement, hygiene and health promotion ☐ Check on AEFI ☐ Daily meeting to review progress and identify gaps
Days 2 to 4	☐ Complete household visits in 3—4 days ☐ Record monitoring data ☐ Calculate administrative coverage for each intervention ☐ Check on waste management ☐ Review monitoring data daily for improvement purposes ☐ Daily meeting to review progress and identify gaps ☐ Give feedback to community on progress and outcomes ☐ Meet district authorities (and partners) on progress and outcomes
Post-implementation	

Weeks 2 to 8	☐ CBVs continue active surveillance for suspected cases (and referral) ☐ Monitor cholera activity and consider scale-up of interventions ☐ Check AEFI reports ☐ Conduct follow-up visits to rings to check on uptake of WASH interventions (and investigate and resolve low uptake)

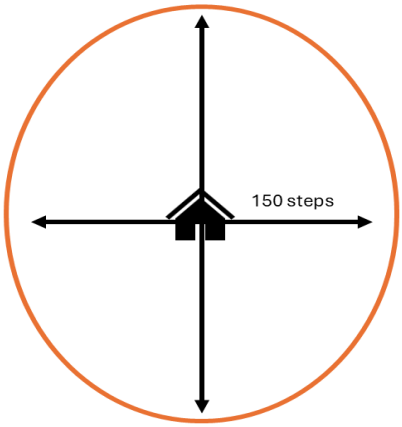
Outlining the CATI ring (radius)

The Team Lead will outline the CATI radius around the index case-household by either:

- Using a GIS tool (i.e. Touch GIS) on a phone or a tablet equipped with cellular data to measure a circular 150m radius around the case household (in orange below) and then matching the ring to a realistic boundary according to streets, clusters of households, etc. (in blue below)

Figure 3. Example of GIS-produced radius (in orange) and realistic area for implementation that is chosen by the District Team (in blue) (mapped via Touch GIS)

- Approximating a 150m radius by walking 150 steps in each direction from the front door of the index case household to four points, which connect the radius.



Critically, deciding on the appropriate ring radius involves common sense and decision making around fairness over who receives CATI. **Some rules of thumb:**

- Use streets and other natural markers to outline a ring that covers the 150m radius.
- In a small village, it would not be fair to exclude a small set of households from the 'ideal' radius (and causes community tensions). Include more households as needed.

- In a city, a 150m radius may be too densely populated to cover within the critical 1-week high-risk period. Therefore, a 50m radius was used in Goma, DRC, to complete CATI as rapidly as possible.

Enumerating the households

Within the radius, the mapping and listing of households is undertaken to first ensure the team knows which households fall inside the CATI radius and to rapidly enumerate the number of households and the population size. If possible, mark the households with chalk to delineate households included in the radius.

CRITERIA FOR STOPPING THE CATI STRATEGY AND/OR CHANGING TO ANOTHER STRATEGY

The CATI strategy is continued as long as:

- There are multiple, non-overlapping CATI rings that require CATI response
- The District Teams can manage multiple CATI rings at once
- Transmission continues at the district or ward level, and does not spread geographically

Once started, the CATI strategy should be stopped when:

- **End of outbreak** where,
  - Transmission in the selected ward or district slows to a very low attack rate
  - The outbreak is declared over
- **Persistent inability to respond consistently to cases within 4 days of alert** where,
  - Populations with significant influx and/or urban areas become too dense to carry out CATI efficiently within three to four days
  - Insufficient human and material resources needed to continue operations.
- **Transmission spreads to multiple wards and/or districts and overwhelms the capacity to carry out CATI**

In reality, CATI may not be able to contain the outbreak at the ward or district level. In this scenario, a change to a more scaled-up approach may be necessary, including:

- **Neighbourhood/ward-targeted intervention (sometimes called a blanket approach):** In this scenario, interventions are scaled to the street or neighbourhood level in areas with many cases and are no longer 'mapped' to radii around case-households. Effectively, there are too many cases to do a case-by-case response, and resources are directed toward visiting all households at the larger scale.

- **Mass vaccination:** vaccines may be preserved to organize a mass vaccination campaign, complemented by WASH and other sectors.

STOP!

An example of a change of strategy came when implementing CATI with vaccination in Eastern DRC in 2023. Given an influx of internally displaced people into Goma, a large city, and a growing outbreak, alert and response to new suspected cases became overwhelming. It was clear that resources would be needed to scale-up case management and community WASH activities instead, which was the decision point to pause CATI.

MONITORING IMPLEMENTATION

To ensure that CATI is implemented rapidly and effectively, a set of key indicators are monitored on a weekly basis. Data is collected by way of a line list and a community data tool. These data can be merged in a digital survey tool (i.e., in KoboToolbox) where each line represents a single CATI and this is paired with a line list. The tools are linked with two common identification (ID) numbers: (a) Index case ID: the number of the case that triggers a new CATI, and (b) Ring ID: the number associated with a new CATI.

Tool	Objective	Structure
Outbreak line list (the national line list)	Line list of suspected cases in the overall outbreak	Each line represents a case
CATI implementation and coverage tools	▪ Data recorded to monitor the progress of a CATI intervention ▪ Data recorded to monitor the coverage against population numbers of a CATI intervention	Each line represents a single CATI

Key indicators for weekly analysis include:

Outbreak line list	
1. Number of suspect and RDT-positive cases 2. Number of index cases 3. Number (%) of eligible index cases responded to with a CATI	Weekly analysis will demonstrate the scale and evolution of the outbreak (compared to the resources available for CATI; indicators 1 and 2) and the progress of the CATI strategy in keeping up with new index cases (indicator 3).
CATI implementation and coverage	
4. Number (%) households refusing CATI 5. Number (%) communities completing CATI 6. Mean delay to response (= start-date – index case's date of consultation) 7. Mean duration of CATI (= end-start date) 8. Mean number of households per ring 9. Mean population per ring 10. Mean number of suspect cases at start 11. Mean proportion of referrals to care 12. Administrative coverage of interventions	Weekly analysis of these operational indicators will indicate any issues with community acceptance (indicators 4 and 5), how rapidly CATI is implemented (indicator 6), how long the implementation takes (relative to the size of the population covered; indicators 7—9), the size of the local outbreaks (indicator 10), and the referral rate for suspected cases in the community (indicator 11).

Following implementation, it is useful to monitor, via the CBV:

- The number of suspected cases within the first 60 days to understand whether transmission is still occurring in the ring (and there is a need for additional intervention), or whether there are cases being re-introduced to the area

- Maintenance and uptake of WASH interventions over time at the household level (spot checks and interviews can be done by the CBV)

CHOLERA LABORATORY TESTING

Role of Laboratory in cholera surveillance: Timely, accurate, and reliable laboratory results are essential to detect probable cholera outbreaks and to confirm or discard suspected or probable cholera outbreaks, to monitor incidence of true cholera and identify the end of an outbreak, to monitor antibiotic susceptibility and to characterize circulating strains.
Laboratory testing should rely on:

- Testing strategies adapted to the prevailing cholera situation at the sub district/district level and to available resources,
- Expanded RDT use to support the early detection of (probable) outbreaks and incidence monitoring,
- Increased capacities for laboratory confirmation.

Reference laboratory in country:
The Zambia National Public Health Reference Laboratory (ZNPHRL) and the University Teaching Hospital (Adult) have the capacity to perform quality assurance and provide training. ZNPHRL can also conduct PCR testing for toxigenicity and further molecular testing for characterization and genotyping of circulating Vibrio cholera strains.

LABORATORY TESTING METHODS

The testing algorithm most commonly used for laboratory confirmation of *Vibrio cholerae* O1/O139 is as follows: presumptive identification of *Vibrio cholerae* O1/O139 using culture and seroagglutination, and, if warranted, PCR for confirmation of toxigenicity.
Laboratories may also opt to use PCR for species identification (Vibrio cholerae) and serogroup identification (O1/O139) and confirmation of toxigenicity.

Rapid Diagnostic Test (RDT)
RDTs are intended to be used primarily at primary health care level for surveillance purposes: as a tool for triaging samples to be further tested in the laboratories for outbreak detection in sub districts/districts with absence of a confirmed cholera outbreak, and to help monitor incidence trends of true cholera in sub districts/districts with a confirmed cholera outbreak. RDTs may also be performed within laboratories.

Testing with RDT should be performed as described in the GTFCC– Job Aid Rapid Diagnostic Test (RDT) for Cholera Detection and in accordance with manufacturer instructions.
False negatives using RDT can occur if specimens are collected after initiating antibiotic therapy, in cases of poor specimen collection or handling practices (e.g., sample collected in receptacles containing chlorine residue, extended delays between collection and testing) and when low numbers of bacteria are present in the sample (e.g., samples from patients that have been ill for longer than 4 days, or mild cases or suspected asymptomatic carriers).

Culture of Vibrio cholerae
Culture methods, including use of the chemical oxidase test and seroagglutination test with specific antisera are a quick and simple way of obtaining a presumptive identification of Vibrio cholerae. Recommendations for applying these methods are described in the Ministry of Health Microbiology Standard Operating Procedure for Clinical Laboratories (Stool culture and Susceptibility Testing-Micro 03) and the MoH Sample Processing Algorithm for isolating & confirming cholera Job Aid.

Polymerase Chain Reaction (PCR): PCR based on DNA-specific sequences unique to the pathogen provides an alternative to culture and biochemical analysis for the identification of

Vibrio cholerae strains. Specific PCR targets for confirmation of Vibrio cholerae species include: ompW, toxR, ISR. Specific targets for confirmation of serogroup include: rfbO1, rfbO139. PCR for toxigenicity confirmation targets ctxA. PCR may be performed after extraction of DNA directly from stool samples, from wet or dry filter paper or cultured isolates. Refer to the Molecular Biology SOPs for more information.

Antimicrobial Susceptibility Testing (AST): AST is to be performed on confirmed *Vibrio cholerae* O1/O139, for minimal burden on the laboratory. AST requires the capacity to culture *Vibrio cholerae*. It is recommended to test at minimum for susceptibility to Azithromycin (AZ), Ciprofloxacin (CIP) and Nalidixic acid (NA), Tetracycline (TE), and Trimethoprim/Sulfamethoxazole, as per the Ministry of Health Microbiology Standard Operating Procedure for Clinical Laboratories (Disc Diffusion Susceptibility Test - Micro 15).

Whole Genome Sequencing (WGS): WGS, as well as other advanced genotyping methods, can provide important additional information including but not limited to establishing a relationship between ongoing and previous outbreaks, tracking the genetic evolution of Vibrio cholerae strains and detecting the emergence of new clones, conducting phylogenetic analyses to enable the visualization of world-wide circulation and evolution of strains. It can also be used to confirm that the strains belong to the seventh pandemic El Tor lineage (7PET) if needed.

SPECIMEN COLLECTION, PACKAGING, TRANSPORT AND STORAGE

Accurate and reliable test results rely upon having a sample that has been adequately collected, stored, and transported. Methods for collection and transport of stool samples should be standardized by the reference laboratory. They should be written and available to staff or healthcare providers that collect, package, and transport samples. Results for testing for VC O1/O139 should be available within a maximum of 4 days after specimen receipt at the laboratory.

Specimens and time of collection:

Faecal specimens (liquid stool or rectal swabs) should be collected in the early stage of the illness, when pathogens are usually present in the stool in highest numbers, i.e., within the first four days of illness, and before antibiotic therapy has been initiated. However, if antimicrobial therapy has been initiated prior to sample collection, information regarding which antibiotic, dosage and duration of treatment have been prescribed should be clearly documented in the request form for laboratory testing. Antibiotic therapy may impact laboratory results, and more so culture results than RDT and PCR.

Rehydration treatment of patients should not be delayed for specimen collection. Specimens may be collected after rehydration protocols have been initiated.

How to collect, prepare, package, store, and transport specimens

Patient stool should be collected in a clean container. The container must be clean yet free of disinfectant or detergent residue. Specimens should not be collected from bedpans as they may contain residual disinfectant or other contaminants.

If a stool specimen cannot be produced, rectal swabs may be collected.

Additional information on the procedure for sample collection may be found in the CDC Job Aid

Recommended methods for preparation, storage, packaging and transport of specimens are described in the GTFCC - Job Aid for Specimen Packaging and Domestic Transportation. The selection of the method to be used will depend on the availability of needed supplies, expected delay between sample collection and arrival at the testing laboratory, and the testing method that is to be applied to the sample in the receiving laboratory:

A. A freshly collected specimen (stool or rectal swab) may be placed in a clean, well-marked (name, coordinates, type of sample, date), leak proof container and directly transported to the laboratory within 2 hours at room temperature (ideally 22-25°C). If the container must be cleaned prior to placing the sample, avoid the use of any chlorine-containing solution or disinfectant.
B. If a longer than 2-hour delay is expected between collection and testing, place a stool-soaked swab into Cary-Blair transport medium. Cary-Blair transport medium is stable for long storage periods up to several months and does not require refrigeration (before use or once inoculated) if kept sterile and properly sealed.
C. If Cary-Blair transport medium is not available and the specimen will not reach the laboratory within 2 hours, preservation and transport of liquid stool samples on a filter paper kept in a moist environment may be an alternative. To do so, a blotting paper disc is dipped into the liquid stool and placed in a screw-cap microtube with 2 or 3 drops of normal saline solution to stop the sample from drying out. Dry filter paper can also be used for transport of faecal specimens but only for downstream DNA detection by PCR. Neither culture nor testing with RDT will be possible from a specimen on dry filter paper.
D. A sample of stool may also be transferred into an enrichment media called Alkaline Peptone Water (APW). APW will improve the chances of isolating V. cholerae when only few organisms are present in the initial sample (e.g., convalescent patients, patients that have been ill for longer than 4 days, mild cases or suspected asymptomatic carriers), or when high numbers of competing organisms are present (coinfections) or after particularly difficult transport conditions. The specimen should not exceed a volume greater than 10% of that of the volume of APW.

In any case:

- cold storage of the samples should be avoided, as this can greatly decrease the populations of *Vibrios* present in the sample and affect the quality of the laboratory results potentially leading to false negative reports. Ideally preserve samples at 22-25°C
- do not allow the specimens to dry. Add a small quantity of sterile normal saline if necessary.
- specimens should be transported in a well-marked, leak proof container appropriately packaged following local requirements and regulations for category B biological substances

All specimens should be accompanied by a laboratory request/referral form containing at minimum the following type of information: referring facility and contact information, unique patient identifier, patient name, date of collection and conditioning of sample, type of sample, date of onset of symptoms, symptoms, geographic information about where the patient developed the first symptoms or contracted the disease, if antibiotic therapy has been initiated, RDT results if performed and type of testing requested.

Recommendations of Laboratory Testing with and without cholera outbreak scenarios

Laboratory testing of cholera in both pre-outbreak and during confirmed cholera outbreak scenarios is outlined as follows[3]:

When there is no confirmed cholera outbreak in sub-district/district	When there is confirmed cholera outbreak in sub-district/district
• It's recommended that RDT be used in all suspected cholera cases for the early detection of a probable cholera outbreak as well as to triage RDT+ samples for further laboratory testing. • Samples for laboratory testing should be sent immediately/as soon as possible to the reference laboratory for culture or PCR confirmation, determination of serotype/biotype and antibiotic susceptibility • *Collect a stool specimen (see Cholera Lab SOP) for laboratory testing and complete the laboratory request form (paper) (See annex 5) and ensure that eIDSR NMC Case ID and NMC Order IDs (unique identifiers) are both entered on the paper form. The paper forms should accompany the specimen to the laboratory. Complete the 2A Laboratory Request Stage on eIDSR for the specimen.* • *If RDTs are available at the health facility, conduct an RDT (see RDT SOP). Report the result of the RDT on the Cholera Case Investigation Form (paper) and in eIDSR under Laboratory Result Stage.*	• The number of samples collected and tested at the laboratory shall depend on the laboratory capacity as well as the outbreak dynamics in the considered sub districts/districts. • Ideally, on a routine basis, a minimum of 3 samples (from suspected cases and, when available, preselected by a positive RDT) per week per health facility should be sent for laboratory confirmation and antimicrobial susceptibility testing. • Towards the end of an outbreak, testing all suspected cases by culture/PCR is recommended to confirm the end of the outbreak. • *Collect a stool specimen (see Cholera Lab SOP) for laboratory testing and complete the laboratory request form (paper) (See annex 5) and ensure that eIDSR NMC Case ID and NMC Order IDs (unique identifiers) are both entered on the paper form. The paper forms should accompany the specimen to the laboratory. Complete the 2A Laboratory Request Stage on eIDSR for the specimen.* • *If RDTs are available at the health facility, conduct an RDT (see RDT SOP). Report the result of the RDT on the Cholera Case Investigation Form (paper) and in eIDSR under Laboratory Result Stage.*

CHOLERA OUTBREAK MONITORING

- Periodically train healthcare workers in surveillance (case definitions, data collection and reporting) even when there is no outbreak. This should be part of training that includes case management.
- Conduct regular analysis of baseline data (time, place, person) before the cholera season to be able to compare data between years.
- During the outbreak, the following are some of the basic indicators to be used to monitor outbreak; of suspected

[3] ***Refer to Annex 6 for the summary of recommendations.***

- Number of suspected cases tested by RDT/culture/PCR;
- Number of cases tested positive by of RDT/culture/PCR;
- Number of cholera deaths that occurred in health facilities;
- Number of cholera deaths reported in the community and arrival at health facilities;
- Number of cholera cases stratified by age groups, sex, RDT result, culture and PCR result (the following age groups can be considered: <2, 2-4, 5-14, 15-44, 45-59, ≥60 years);
- Number of cholera deaths that occurred at health facility stratified by age groups, sex, RDT result, culture and PCR result (the following age groups can be considered: <2, 2-4,5-14, 15-44, 45-59, ≥60 years);
- Proportion of cases hospitalized;
- Proportion of cases by level of dehydration/treatment plan.

- Conduct epidemiological studies to identify high-risk activities or practices and to develop programmes to modify them in order to prevent cholera transmission.
- Identify and map "hotspots" (areas where outbreaks regularly occur).
- Ensure that surveillance indicators are met and data quality audits are done as the outbreak is going on. Details in annex 7

CASE MANAGEMENT

- Without treatment, cholera can kill up to 50% of patients with severe disease. Timely and appropriate treatment significantly reduces death.
- Although the benchmark for cholera treatment is a CFR of less than 1%, deaths from dehydration from cholera should not occur.
- Approximately 80% of people infected with cholera do not develop symptoms of the disease; these individuals can still transmit the disease by shedding V. cholerae bacteria in the environment. Bacteria are present in their faeces for up to 14 days after infection.

Case Definition

Suspected case

- In areas where a cholera outbreak has not yet been declared
  - any person aged 2 years or older presenting with acute watery diarrhoea and severe dehydration or dying from acute watery diarrhoea.
- In areas where a cholera outbreak has been declared
  - any person presenting with or dying from acute watery diarrhoea.

Confirmed Case:

- A suspected case with V. cholerae O1 or O139 infection confirmed by culture or PCR and in countries where cholera is not present or has been eliminated, the V. cholerae O1 or O139 strain is demonstrated to be toxigenic.

NB: When an outbreak of cholera has been declared in an area and a high percentage of diarrhoea cases are testing positive for cholera, suspected cases of Cholera will be managed as Cholera patients without waiting for confirmation.

CLINICAL PRESENTATION

- the incubation period(time from exposure to onset of symptoms) is 12-48 hours

- Among people infected with Cholera, approximately 20% will be symptomatic (of the symptomatic at least 25% will develop profuse watery diarrhoea that leads to severe dehydration and death if not treated).
- Severity of illness correlates with the number of V. cholerae bacteria ingested, lack of immunity acquired by prior exposure to the infection or vaccination, lack of breastfeeding and consequent lack of passive immunity for infants, malnutrition, immunocompromised state, reduced ability to produce gastric acid (which neutralizes the pathogen) and having blood group O.

Patient symptoms include the following:

- Painless, profuse, rice watery diarrhoea
- Vomiting
- Abdominal cramps
- Loss of skin elasticity
- Dry mucous membranes
- Feeling of thirst
- Increase heart rate.
- Muscle cramps
- Restlessness or irritability
- Reduced level of conscious
- Generalised body weakness

If untreated 50% of severe cases are fatal while proper treatment and fluid replacement reduce mortality to less than 1%.

Other symptoms and signs might be due to underlying conditions such as alcohol, HIV, Tuberculosis , Diabetes Mellitus, etc.

ASSESSMENT AND TRIAGE OF THE PATIENT

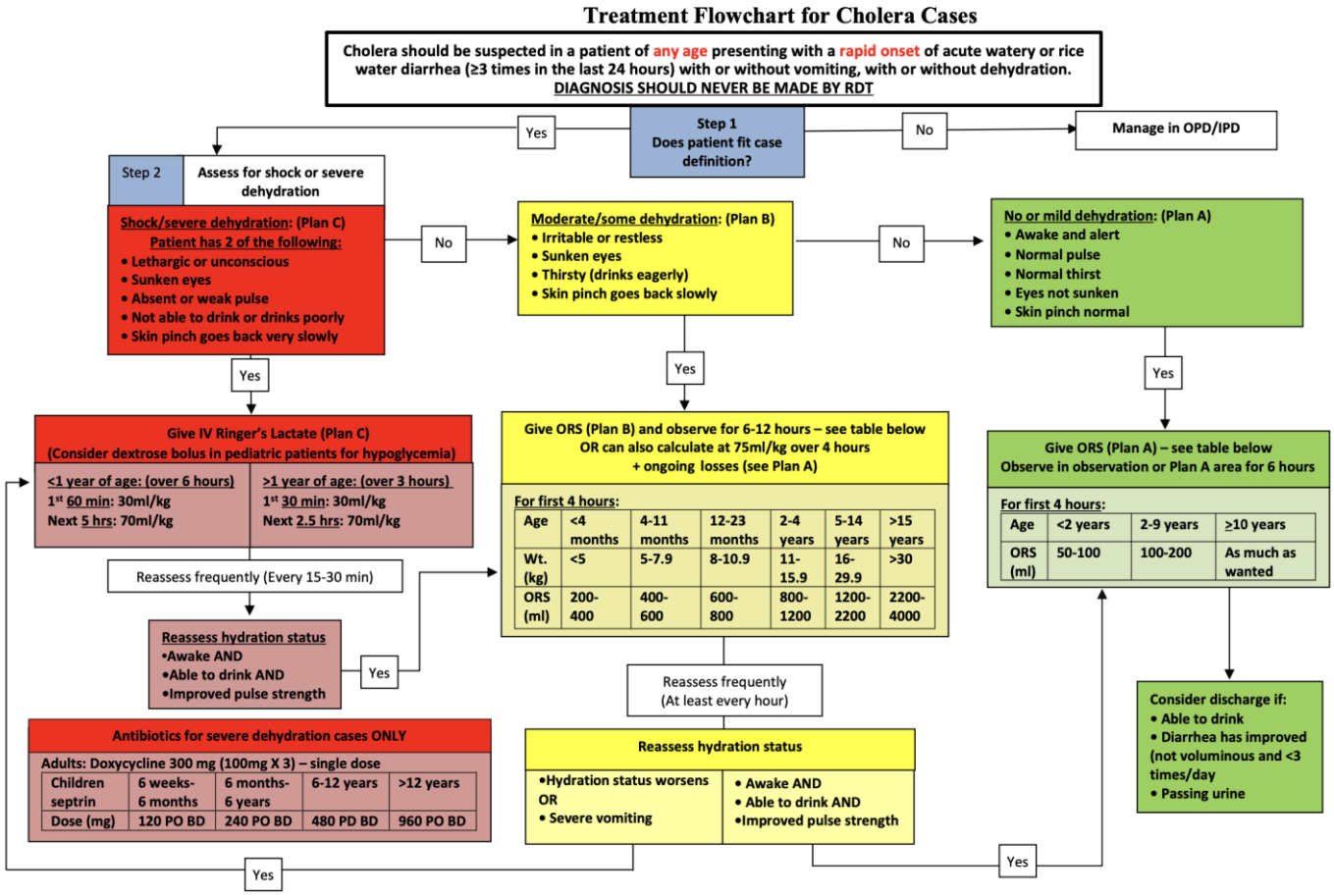
- Assessing the degree of dehydration of the patient using the early warning score to determine the treatment plan (algorithm below)
- Severe dehydration is a medical emergency. Rapid diagnosis and treatment can save lives.
- Patients with no signs or some signs of dehydration can be treated successfully by prompt administration of ORS.
- Patients with some dehydration or severe dehydration should be admitted to CTU/CTC. Patients with no dehydration can be treated at home, in the community or at an ORP.

Suspected Cholera (case definition)
Acute watery diarrhoea (≥ 3 times in the last 24hours)
SIGNS OF HYPOVOLEMIC SHOCK
• **Low blood pressure (< 90/60mmHg)** • **Rapid, weak or undetectable peripheral pulse** • **Minimal or no urine**
ASSESS LEVEL OF DEHYDRATION

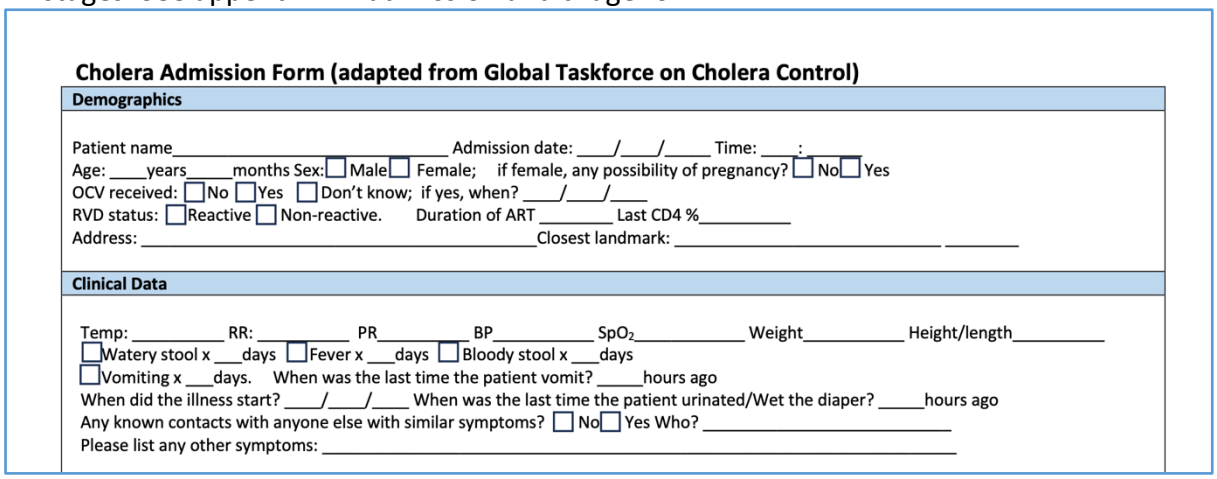
• **Examine Condition, eyes, thirst and skin turgor.** • **Check pulse for Pulse strength** • **Rapid, thready or absent pulse indicates hypovolemic shock**		
NO DEHYDRATION	**SOME DEHYDRATION**	**SEVERE DEHYDRATION**
• Awake and alert • Normal pulse • Normal thirst • Eyes not sunken • Skin pinch normal	**In patients with At least 2 of the following:** • Irritable or restless • Absent tears • Sunken eyes • Rapid pulse • Thirsty (drinks eagerly) • Skin pinch goes back slowly **Loss of 5-10% of body weight**	**At least 2 of the following:** • Lethargic or unconscious • Absent tears • Very sunken eyes and dry • Absent or weak pulse • Not able to drink or drinks poorly • Skin pinch goes back very slowly **Loss of ≥ 10% body weight (can lose 1 litre of fluid per hour in 1st 24hours)**
TREAT ACCORDING TO LEVEL OF DEHYDRATION		
NO SIGNS OF DEHYDRATION - PLAN A	**SOME SIGNS OF DEHYDRATION - PLAN B**	**SIGNS OF SEVERE DEHYDRATION - PLAN C**

PATIENT REGISTRATION AND ADMISSION

- Record the patient in the line list/register used at the CTU/CTC or ORP.



- For each patient, complete the admission and triage form with personal information, clinical data, physical exam and diagnosis, treatment and laboratory data (RDT results, specimens taken and sent for culture).
- **All patients should have an identification tag.**
- The outcome (discharged, dead, self-discharged, referred) should be completed at later stages. See appendix 2 – admission and triage form.



Cholera Admission Form (adapted from Global Taskforce on Cholera Control)

Demographics

Patient name_____ Admission date: ____/____/_____ Time: ____:_____
Age: ____years_____months Sex: ☐ Male ☐ Female; if female, any possibility of pregnancy? ☐ No ☐ Yes
OCV received: ☐ No ☐ Yes ☐ Don't know; if yes, when? ____/____/____
RVD status: ☐ Reactive ☐ Non-reactive. Duration of ART _____ Last CD4 %_____
Address: _____Closest landmark: _____ _____

Clinical Data

Temp: _____ RR: _____ PR_____ BP_____ SpO_2_____ Weight_____ Height/length_____
☐ Watery stool x ___days ☐ Fever x ___days ☐ Bloody stool x ___days
☐ Vomiting x ___days. When was the last time the patient vomit? _____hours ago
When did the illness start? ____/____/____ When was the last time the patient urinated/Wet the diaper? _____hours ago
Any known contacts with anyone else with similar symptoms? ☐ No ☐ Yes Who? _____
Please list any other symptoms: _____

Figure 2: Cholera Admission form showing demographic and clinical data to be filled in during patient admission.

MAINTAINING CONTACT WITH FAMILIES

- It is important to collect information on next of kin (at least 2 phone numbers) and have a system to communicate daily with families on the patient's progress.
- Where possible, a phone can be made available on wards to allow for communication with families.

TREATMENT PLANS

- Treatment is based on the degree of dehydration of the patient: no dehydration, some dehydration or severe dehydration. Patients with no signs or some signs of dehydration are treated with ORS (plan A and plan B, respectively). Patients with severe dehydration require IV rehydration (Plan C).
- Part of the treatment of the treatment plan should include repeated monitoring and assessment of the patient.

Treatment plan A

- Requires rehydration with ORS. It can take place at home, at an ORP or in the outpatient area at the CTU/CTC. Plan A does not require admission to the inpatient area of the CTU/CTC; however, all patients should be included in the patient line list/register.
- Patients on Plan A should be kept under observation for 4 hours to ensure the person is tolerating ORS;
- During observation and before sending patients home, provide clear instructions for care. Advise the patient or caregiver to continue giving ORS after each loose stool and to return immediately if the patient's condition deteriorates (repeated vomiting, number of stools increased, or the patient is drinking or eating poorly).
- Patients should receive ORS after each loose stool to maintain hydration until diarrhoea stops.

Treatment Plan B

- Patients presenting with signs of some dehydration must be admitted to the CTU/CTC.
- For initial treatment, give ORS according to the weight of the patient (75 ml/kg) in the first 4 hours.
- Add the specified quantity of ORS to replace on-going diarrhoeal losses (per table 3). Table 3. Quantity of ORS to be given after **Each Loose Stool** by Age Group
- Cholera patients with some signs of dehydration do not need IV fluid replacement, but they need to be monitored closely during the first 4 hours.
    - If the patient has severe vomiting or is not able to drink, or if during monitoring, signs of severe dehydration appear, then shift immediately to Treatment Plan C.
    - If there are still signs of some dehydration after the first 4 hours, repeat treatment plan B for another 4 hours and reassess.

Treatment Plan C

- Only patients with severe dehydration require treatment plan C; administration of IV fluids.
- Severe dehydration is a medical emergency and patients must be treated urgently. Seconds can make a difference.
- As soon as the patient can drink, give ORS solution (as much as the patient can tolerate) in addition to IV fluids.
- Ringer's lactate is the first choice of IV fluid. If Ringer's lactate is not available, the following IV solutions can be used:
    - normal saline
    - 5% glucose in normal saline
    - cholera saline
- **Plain 5% or 10% glucose (dextrose) solution is not recommended for rehydration.**
- Give a total of 100 ml/kg Ringer's lactate solution divided in two periods. The rate of infusion in each period is slower for children younger than 1 year (see table 4).
- Patients rehydrated with plan C (severe dehydration) and recovering should be monitored as recovering plan C on the plan C ward or convalescent ward and should not be discharged before a 24-36 hour period has elapsed.

PREPARING AND ADMINISTERING ORS

- ORS must be prepared with safe water treated with appropriate methods.
- ORS should be made fresh daily. It should not be stored for more than 12 hours, or 24 hours if refrigerated. Ready-made sachets containing salts and minerals are available for preparing ORS.
- ORS should be given regularly, in small amounts. If a patient vomits the ORS, slow the administration of ORS and then slowly increase again when vomiting stops.
- In addition to amounts of ORS specified in the treatment plan, patients must receive additional ORS to compensate for ongoing losses from continuing diarrhoea and vomiting.

RECOMMENDATION ON BEDSIDERS

For paediatric patients, physically challenged, mentally challenged, elderly patients (>55years), pregnant women (second and third trimester), it is recommended that they have a bedsider to help with their care. These need to be oriented on IPC precautions on admission and every day. These do not need PPE.

Medications

Antibiotics therapy

Antibiotics can reduce the volume and duration of diarrhoea and the period of *V. cholerae* shedding.

Antibiotics are indicated for:

a. cholera patients hospitalized with severe dehydration.
b. patients with high purging (at least one stool per hour during the first 4 hours of treatment) or treatment failure (the patient is still dehydrated after completing the initial 4 hours of rehydration therapy), regardless of the degree of dehydration; and
c. patients with coexisting conditions (including pregnancy) or comorbidities (such as SAM, HIV), regardless of the degree of dehydration.
d. Elderly patients ≥60 years

Antibiotics are given as soon as the patient is able to take oral medication (once vomiting has stopped).

a. **Doxycycline** — single dose (300 mg for adults) is the antibiotic of choice for all patients, including pregnant women.
b. If resistance to doxycycline is documented, give **Azithromycin 1g** or **Ciprofloxacin 1g** orally as a single dose for adults.

- **Avoid mass drug administration of antibiotics except an outbreak in closed settings such as prisons where this can be considered.**
- **AVOID USE OF DIURETICS SUCH AS FRUSEMIDE IN PATIENTS WITH DEHYDRATION.**

Patient monitoring

Use the standardized form for documenting and recording patient's details. The patient needs to be reviewed every 30 minutes for patients on PLAN C and at the most every 2 hours for patients on plan B and A depending on available manpower.

Prevention and treatment of other dangers and complications

Hypothermia – by ensuring that warm fluid is used for infusion and the patient is kept warm at all times.

Hypoglycaemia: low blood sugar levels (usually less than 3.9 mmol/L) requiring assistance when walking

- Treatment options:
- 25 g of carbohydrate which can be administered as
  - 50ml of 50% dextrose OR
  - 250 mls of 10% dextrose OR
  - 500 mls of 5% dextrose

- Monitoring: rebound states of hypoglycaemia likely to occur so monitor clinical status and hypoglycaemia within 15 mins
- Children with severe acute malnutrition (SAM), elderly people and those with uncontrolled chronic conditions (such as congestive heart failure, diabetes, hypertension) are especially vulnerable to complications.

- Pulmonary oedema can occur if excessive IV fluid is given and renal failure can occur if too little fluid is given; hypoglycaemia and hypokalaemia can occur, especially in children with malnutrition who are rehydrated with Ringer's lactate alone.

LABORATORY TESTING

Supportive testing

Test	**Indication**
Full blood Count/Differential Count	Suspected anaemia, febrile patient
Kidney function tests,	Reduced urine output after rehydration or oedema
Random Blood Sugar (RBS)	On admission and when indicated for hypo- or hyperglycaemia
Electrolytes	patients with complications
HIV testing(when stabilised and upon discharge)	All patients (as per guidelines on HIV testing)
Malaria testing	in endemic setting and those with fever.
COVID/TB testing	Patient with unexplained fever, patient with respiratory symptoms (as per Zambian Guidelines)
Blood gas analysis with point of care iSTAT machine	To monitor electrolyte imbalances especially K+ and Mg+

Cholera in Special Populations

TREATMENT OF CHOLERA IN PREGNANCY

Considerations

- Pregnant women with cholera are at much higher risk of losing their foetuses, compared to the general population of pregnant women. There is no evidence to show that the risk of infection or the severity of a cholera episode is higher among pregnant women.
- The risk of foetal loss depends on the degree of dehydration and vomiting, with more severe dehydration and the occurrence of vomiting increasing the risk of foetal loss.
- Antibiotic treatment should be given to all pregnant women with cholera, regardless of the degree of dehydration. See antibiotic treatment above.
- Dehydration can be difficult to assess in the later stages of pregnancy, resulting in an underestimate of the severity of dehydration.
- The degree of dehydration and treatment of pregnant women should be closely monitored to maintain dehydration and adequate systolic blood pressure to ensure appropriate uterine blood flow.
- The use of OCV as a preventive measure is safe and is recommended in pregnancy (see section 9 – oral cholera vaccine).

Case Management

- Pregnant patients in the second and third trimester should be managed in a centre that is able to anticipate or perform delivery. CTCs are encouraged to have a contingency in case of labour or refer patients to CTCs with access to maternity services.
- In large outbreaks, organize the CTCs/CTUs to ensure privacy for pregnant women, especially during labour and delivery, and ensure access to reproductive health services.
- Ensure there is monitoring of foetal heart rate.
- In the first trimester, rehydration and clinical surveillance are standard.
- In the second or third trimester treatment is as shown below.
- Avoid positioning the patient on their back but nurse them on their side.
- Antibiotics for cholera are indicated in pregnancy for all trimesters.
- Fluid management remains the same with 30ml/kg bolus in the first 30 mins for plan C with close monitoring of systolic blood pressure (SBP should not be ≤ 90 (regardless of the degree of dehydration)

- If the patient cannot be weighed on admission, administer a bolus as for a 60 kg adult (2 litres in 30 minutes). Once stable, measure the patient's weight, if possible, to adjust the fluid volume for the remainder of the IV infusion.
- If the patient is vomiting frequently or is otherwise unable to retain ORS, on-going fluid losses can be replaced via the IV route (add at least 250 ml of RL for each stool).

Transferring A Pregnant Woman With Cholera To A Maternity Ward

If any signs or symptoms appear that threaten the life of the mother, including eclampsia, post-partum haemorrhage or pre-term labour (less than 34 weeks) transfer to a maternity ward. Try to stabilize the patient haemodynamically with Ringer's Lactate infusion, to get the systolic blood pressure > 90mmHg, before transfer.

For other complications including spontaneous abortion (if there is no significant, persistent bleeding) or intra-uterine death, try to complete treatment for cholera in the CTC and transfer to a maternity ward on discharge from the CTC.

If the woman goes into pre-term labour and the cervix is closed, the contractions will likely stop as cholera resolves. If contractions persist after rehydration is completed, transfer to a maternity unit for possible treatment of premature labour. **Tocolytics are not part of the basic cholera pharmacy but should be considered if available and in discussion with obstetrician.**

Births in a treatment centre

If transfer of the woman is not possible or delivery happens too quickly for transfer, follow local obstetric recommendations.
Provide as much privacy as possible for the woman during delivery and ensure respectful maternity care is provided.

If the baby is delivered before 32 weeks gestation or weight is less than 1500g at birth, transfer immediately to hospital. Keep the baby warm during transfer and encourage breast feeding.

Following delivery, assess both mother and baby.

If any danger signs are present, refer as quickly as possible to hospital. The hospital should be made aware that the mother was being treated for cholera so that they can ensure adequate IPC measures.

Danger signs for the baby include:

- Fast breathing (more than 60 breaths per minute)
- Slow breathing (less than 30 breaths per minute) or gasping or grunting.
- Severe chest in-drawing
- Heart rate constantly above 180 beats per minute
- Fits or convulsions
- Floppy or stiff or no spontaneous movement
- Jaundice or cyanosis
- Temperature below 35.5°C (and unable to warm) or above 37. 5°C
- Bleeding from umbilical stump or umbilicus draining pus or swelling.
- Danger signs for the mother include:
- Heavy vaginal bleeding (more than 1 pad soaked in 5 minutes)
- Uterus not hard and round
- Temperature greater than 38°C and any of the following: chills, foul-smelling vaginal discharge, low
- abdominal pains
- Perineal tear extending to anus or rectum.

Refer to national guidelines on neonatal care for management of neonates with danger signs.

Care for a neonate in a Cholera Treatment Centre

If a baby is born in the Cholera Treatment Centre (CTC) and at any time the neonate comes into contact with faeces, wash with soap and water. Do not use a chlorine solution or other antiseptic solution.

Mothers should be encouraged to breastfeed. The mother should be encouraged to wash her hands with soap and water before putting the neonate to breast.

Administration of antibiotic prophylaxis to the neonate for prevention of cholera is not necessary.

Note: *If there is a reason to believe that the mother's breast has been in contact with stool or vomit, consider asking the mother to clean her breast with soap and water and expressing some small amount of breast milk on her nipple and areola before putting the neonate to feed. Do not use chlorine or other antiseptic solutions. There is insufficient available evidence to make a strong recommendation, however breastfeeding should always be encouraged. Institution of any barriers to breastfeeding should be evidence based and, on a case-by-case basis.*

Referral For Care Following Discharge From The Cholera Treatment Centre

If a baby is born in the CTC, at discharge from the CTC, refer the mother and neonate for post-natal consultation.

All pregnant women and any women who have had a stillbirth/spontaneous abortion or who have delivered a baby in the CTC should be referred to postnatal care or to continue ante-natal care if they were already enrolled, when discharged from treatment in the CTC.

TREATMENT OF CHOLERA IN CHILDREN

CLINICAL FEATURES IN CHILDREN

Children tend to have significant deterioration from fluid losses within a very short time and from few loose motions and so early recognition of symptoms and signs is important for speedy management of patients. The doses of Cholera vibrio that cause disease may be far less than those among adults, particularly among children less than 5 years. Therefore, children tend to present earlier with shorter incubation periods. That being said there are still a significant number that remain asymptomatic.

***NOTE**: Children under 2 can be affected by cholera and must be immediately treated. When a cholera outbreak is confirmed, children under 2 that meet case definition must be reported to the unit surveillance, registered, and included in epidemiological analysis.*

Symptoms

- 24 – 48 hour incubation
- Painless, profuse, rice watery diarrhoea
- Vomiting
- Abdominal cramps
- Associated weakness

Cholera Sicca

- Rare, severe form of Cholera that occurs in Cholera epidemic.
- Abdomen distention.
- Mortality is high due to toxaemia, which occurs BEFORE the onset of diarrhoea and vomiting.

ASSESSMENT AND MANAGEMENT

Step 1: Assess For Danger Signs

A. Assess For Severe Acute Malnutrition

Children with cholera may have underlying severe acute malnutrition. SAM patients present a unique challenge in the management of dehydration due to cholera. All patients should be assessed to see if they meet any ONE of the criteria for SAM.

- **WHO weight for height/length z-score ≤ -3SD**
- **MUAC of < 11.5cm (children 6 months to 6 years)**
- **Bilateral pitting oedema of nutritional origin**

Management of patients with SAM and cholera is discussed in a separate section.

B. Shock

Children with cholera have a high risk of hypovolemic shock. The following should be assessed for and are signs of shock. All 3 signs should be present to meet the criteria of shock.

- **Fast and weak pulse/feeble pulse**
- **Cold peripheries (temperature gradient with warm core but cold peripheries)**
- **Capillary refill time > 3 seconds**

Children with all 3 signs present should be managed for shock as shown in the box below.

SHOCK TREATMENT IN WELL NOURISHED CHILD

- 20ml/kg iv bolus up to 60ml/kg until well perfused
- **Reassess** after each bolus **Management of shock**
- Give oxygen
- Keep warm
- Within 5 minutes, insert 2 peripheral IVs (large bore) or intraossessous access if IV access cannot be established within 15 minutes
- RBS (< 3.0 mmol/l = hypoglycemia) give 10% dextrose 5 ml/kg bolus
- Give Ringers Lactate at 20 ml/kg over 5 - 10 minutes
- Re-evaluate after first bolus - are peripheries warm? Is capillary refill < 2 seconds, are distal pulses stronger?
- If out of shock, re-assess hydration status and manage as below
- If signs of shock still present after first bolus, repeat 20 ml/kg Ringers lactate; maximum 60 ml/kg
- **Reassess! Reassess! Reassess!**
- **Shock that persists in the absence of fluid loss should be managed as septic shock**

IMPROVEMENT SHOWN BY

- Capillary refill time ≤ 3 seconds
- Good volume pulses
- Peripheries start to feel warm

Children that are unwell tend to have poor feeding and some may be vomiting. It is important to check for hypoglycaemia with a glucometer on admission. Blood sugar ≤ 3.0mmol/L needs to be corrected immediately. **Give 5ml/kg bolus of 10% dextrose Intravenously or through intraosseous line. When no IV/IO line, give 10% dextrose via NGT in 50ml volumes until sugar corrects or until access obtained.**

D. CONSCIOUS LEVEL

In children with cholera, conscious level may deteriorate because of dehydration or shock. Patients who are lethargic or unconscious but with no signs of shock and with normal blood sugar should be managed for severe dehydration as shown in the sections below.

E. ANAEMIA

It is important to assess for anaemia in patients with cholera as patients with severe pallor or severe anaemia will need special consideration when rehydrating with IV fluids and may require blood transfusion. Where possible, a quick haemoglobin test should be run to help guide treatment. An HB of less than 7g/dL is regarded as severe anaemia and requires transfusion. **Patients with severe anaemia requiring IV rehydration will be given maintenance fluids (at maintenance rate) while awaiting transfusion with whole blood. Whole blood will be given as 20ml/Kg.** All subsequent losses will be corrected ORS per loose stool while correcting severe anaemia and severe dehydration.

F. HYPOTHERMIA

Children are easily prone to hypothermia particularly on cholera wards. All patients admitted should be assessed for hypothermia regularly and should be adequately covered ensuring the beddings do not get soaked. Patients with hypothermia (Temp < 35.5 degrees Celsius) need

to be provided extra blankets and actively warmed. They should also be assessed for SHOCK and for HYPOGLYCEMIA as these may be the cause of the hypothermia.

Step 2: Assess Patient For Dehydration And Manage Accordingly

1. ASSESS LEVEL OF DEHYDRATION		
NO DEHYDRATION	**SOME DEHYDRATION**	**SEVERE DEHYDRATION**
• Awake and alert • Normal pulse • Normal thirst • Eyes not sunken • Skin pinch normal	**In patients with At least 2 of the following:** • Irritable or restless • Absent tears • Sunken eyes • Rapid pulse • Thirsty (drinks eagerly) • Skin pinch goes back slowly	**At least 2 of the following:** • Lethargic or unconscious • Absent tears • Very sunken eyes and dry • Absent or weak pulse • Not able to drink or drinks poorly • Skin pinch goes back very slowly
2. TREAT ACCORDING TO LEVEL OF DEHYDRATION		
NO SIGNS OF DEHYDRATION - PLAN A	**SOME SIGNS OF DEHYDRATION - PLAN B**	**SIGNS OF SEVERE DEHYDRATION - PLAN C**
• Replace fluid losses with standard ORS: ≤2 years old: 50 ml per loose stool | >2years old: 100 mls per loose stool. • **FEED PATIENTS TO PREVENT MALNUTRITION**	• **ORS 75ml/kg over 4 hours** • **Reassess after ORS as above.** • SEVERE: Give IV fluids (PLAN C) • SOME: Repeat ORS amount • NO DEHYDRATION: Discharge with ORS after observation for at least 6 hours and meets discharge criteria. • Breastfeeding continues throughout rehydration.	• IV fluids: Ringer's lactate bolus <1 yr: 30ml/kg in 60 min >1 yr: 30ml/kg in 30 min • Reassess after bolus. If absent/weak pulse→repeat bolus THEN • IV fluids: Ringer's Lactate bolus <1 year: 70ml/kg in 5 hours >1 year: 70ml/kg in 2.5 hours • Reassess hydration after IV fluids. • Severe: Repeat IV fluids • Some: ORS (see 'Some' box) • Give antibiotics.

PLAN B Volumes

Age*	<4 months	4-11 months	12-23 months	2-4 years	5-14 years	≥15 years
Weight	<5 kg	5-7.9 kg	8-10.9 kg	11-15.9 kg	16-29.9 kg	≥ 30 kgs
ORS solution in mLs	200-400	400-600	600-800	800-1200	1200-2200	2200-4000

Figure 4: PLAN A estimated volumes based on weight and age.

Step 3: Reassessing And Maintaining Fluid Hydration Status

The aim of rehydration is to get the child to a state of no dehydration and start feeding the child as soon as possible. The following patients require frequent reassessment.

- Patients with co-morbidities such as SAM, SCD, Heart disease,
- Those with severe and some dehydration
- Those with frequent loose motions or vomiting require frequent reassessment to ensure they are not becoming dehydrated.

These should be reassessed every 30 mins to an hour or more frequently depending on available manpower. Those with no dehydration and no frequent stooling require less frequent monitoring and can be reassessed every 2 hours. Reviews should be recorded in the review tools available with clear instructions of the planned time for the next review (appendix).

Ensure patients continue to receive adequate fluids for their level of dehydration. Patients may shift back and forth between levels of dehydration and should be managed accordingly after each assessment.

Infants and toddlers may have a challenge taking plan B fluids and sometimes plan A fluids in one go and may require small frequent volumes using a cup and spoon or may require and NGT to adequately give ORS.

Step 4: Lab Testing

- Testing of cholera patients will be guided by the prevailing situation and guidance from the laboratory SOPs.
- When the outbreak has not been declared, all patients suspected to have cholera will be screened using RDTs and confirmed with cultures.
- During an active outbreak, 3-5 samples will be collected on the first 5 patients admitted that day for testing (both children and adults) or as guided by Lab SOPs
- All patients with SAM will have samples collected to test for cholera as well as stool samples for:
    - microscopy,
    - Modified ZN staining,
    - culture for bacteria causing diarrhoea.
- Auxillary testing as described earlier

Step 5: Antibiotics, Zinc And Other Medications

Antibiotics for cholera are only indicated for patients with severe disease and those with comorbidities. Local sensitivity to tetracyclines remains good in this outbreak as does sensitivity to azithromycin and ciprofloxacin. The following are the recommended regimens:

First-line drug choice and dose:	**Alternative drug choices:**
Doxycycline 2-4mg/kg, P.O., single dose *Short course Doxycycline has been shown to have no side effects	**Azithromycin 20 mg/kg (max 1g) P.O., single dose** **or** **Ciprofloxacin 20 mg/kg (max 1g) P.O., single dose**

Zinc supplementation is indicated for all children less than 6years with diarrhoea except those with malnutrition who receive zinc in the therapeutic feeds. A 10day course is given according to age as follows:

- **10mg/day for children <6months**
- **20mg/day for children ≥6months**

Additional medication as required for comorbidities should continue to be given unless contraindicated.

Step 6: Feeding Patients

Patients with cholera should be fed as soon as they are able to tolerate oral intake. Patients are encouraged to take foods high in potassium such as ripe bananas and fermented products while slowly introducing semi-solid and low fibre diets. Children that are breastfeeding are encouraged to continue breastfeeding. Children may require small but frequent meals to avoid feed intolerance/vomiting. Feeding of SAM patients is discussed in the SAM section.
Food to avoid include.

- Fatty foods,
- highly spiced foods,
- citrus fruits ,
- sugary sweet items,
- coffee and other caffeinated drinks and carbonated beverages.

Step 7: Referral Of Patients

Referral of patients is guided by prevailing situation and guidance from referral SOPs.

- All cholera stabilization centres are to refer patients to the cholera treatment centres once stabilized.
- Cholera Treatment Centres to refer paediatric patients after stabilization to the main CTC with the following comorbidities such as:
    - SAM
    - SCD
    - Heart disease
    - Renal disease
- cholera treatment centres to refer all paediatric patients after stabilization in a situation where guidance has been given to refer all patients.

Patients being referred should always be stabilized and communicated to the receiving CTC and referral form filled in including latest vitals, treatment given and what time fluids were commenced.

Step 8: Discharging Patients

Criteria for Discharge

Patient has been observed in observation or recovery area for 6 hours and:

- Has no signs of dehydration?
- Is able to take ORS without vomiting.
- Has no watery stools for 6 hours
- Is ambulant.
- Is passing urine.
- Has been advised when to return to hospital/CTC.

- Contact tracing and health promotion has been completed.
- Discharge instructions as described earlier

SEVERE ACUTE MALNUTRITION (SAM) WITH CHOLERA PATIENT

SAM patients present a unique challenge in the management of dehydration due to cholera. All patients should be assessed to see if they meet any ONE of the criteria for SAM.

- **WHO weight for height/length z-score ≤ -3SD**
- **MUAC of < 11.5cm (children 6months to 6years)**
- **Bilateral pitting oedema of nutritional origin**

Malnourished children with cholera should be given WHO standard low-osmolarity ORS **(NOT ReSoMal).** Malnourished children are particularly susceptible to certain conditions including hypoglycaemia and hypothermia. Look out for these and manage them promptly and correctly.

TREATMENT OF HYPOGLYCAEMIA

Estimate Blood Glucose levels. If blood glucose is below 3 mmol/L or hypoglycaemia is suspected,

- Immediately give the child a 50 ml bolus of 10% glucose. If the child can drink, give the 50 ml bolus orally.
- If the child is alert but not drinking, give the 50 ml by NG tube.
- If the child is lethargic, unconscious, or convulsing, give 5 ml/kg body weight of sterile 10% glucose by IV, followed by 50 ml of 10% glucose. If the IV dose cannot be given immediately, give the NG dose first.
- If the child will be given IV fluids for shock, there is no need to follow the 10% IV glucoses with an NG bolus, as the child will continue to receive glucose in the IV fluids.)
- Start feeding immediately (F75) and give it every half-hour during the first 2 hours.
- Keep child warm as hypoglycaemia and hypothermia usually coexist. Administer antibiotics as hypoglycaemia may be a feature of underlying infection.

TREATMENT OF HYPOTHERMIA

If axillary temperature is below 35°C

- Remove wet clothing/bedding.
- Actively warm the child. Clothe the child including the head, cover with a warmed blanket and if possible, place a heater nearby.
- Start feeding immediately (or start rehydration if needed) /Treat hypoglycaemia.
- Give 1st dose of antibiotics monitor during re-warming.
- Take temperature every 30 minutes.

TREATMENT OF ANAEMIA

Check for signs of anaemia.
Collect blood for FBC.
If HB < 4g/dl transfuse 7ml/kg packed cell

TREATMENT OF DEHYDRATION

The clinical assessment of dehydration in severely malnourished children may be difficult. In particular, skin pinch and recently sunken eyes should be interpreted with caution as they may occur with malnutrition even if no dehydration is present.

There is a serious risk of over-hydration among children with SAM, therefore, they need close monitoring.
Oral rehydration therapy for SAM with cholera is ORS.
The only indication for IV therapy is circulatory collapse where the child is lethargic or unconscious.

Assess level of dehydration			
Dehydration Signs	☐ **Absent or weak pulse** ☐ **Not able to drink or drinks poorly** ☐ **Lethargic or unconscious** ☐ **Reduced urine output** ☐ **Capillary Refill Time > 3 seconds** ☐ Skin pinch goes back slowly (unreliable) ☐ Sunken eyes (unreliable) The only indication for IV therapy in SAM IS circulatory collapse	☐ **Thirsty, drinks eagerly** ☐ **Rapid pulse** ☐ **Dry mucous membranes** ☐ Sunken eyes ☐ Irritable or restless ☐ Skin pinch goes back slowly	☐ Awake and alert ☐ Normal pulse ☐ Normal thirst ☐ Eyes not sunken ☐ Skin pinch normal
Treatment Plan	If one or more danger signs AND >2 above are checked→SIGNS OF SHOCK	If no danger signs AND >2 above are checked→Some dehydration (Plan B)	No dehydration (Plan A)
Treat according to level of dehydration			
SHOCK	**Some dehydration**		**No dehydration (Plan A)**
☐ IV fluids: Ringer's lactate or ½ Strength darrows 15ml/kg Quantity:_____ml over 60 min **MONITOR PR AND RR ON PROGRESS CHART EVERY 5-10MINS** **AFTER 1HOUR** ☐ Signs of fluid overload (increased oedema, increase of both RR and PR, engorged neck veins) → STOP IV FLUIDS (discuss with senior) ☐ NO IMPROVEMENT (Danger signs present) →SEPTIC SHOCK (use guidelines on septic shock) ☐ IMPROVING (RR and PR slower) → REPEAT SAME AMOUNT OF FLUID FOR ANOTHER 60MINS WITH MONITORING. PLUS Alternate 5-10ml/kg ORS with F75	Rehydrate slowly with ORS, orally or via nasogastric tube. ☐ ORS 5ml/kg every 30mins for 2hours (4 total doses) **MONITOR PR AND RR ON PROGRESS CHART EVERY 30MINS** **REASSESS AFTER 2HOURS.** ☐ Signs of fluid overload (increased oedema, increase of both RR by 5/min and PR by 25/min, engorged neck veins) → STOP ORS if signs of overhydration appear ☐ WORSENING (Danger signs present with RED signs of dehydration) → SHOCK ☐ NO IMPROVEMENT (remains the same but no danger signs) → Alternate 5-10ml/kg ORS with F75 ☐ IMPROVING (RR and PR slower) Replace fluid losses with ORS: ☐ ≤2 years old: 50 ml per loose stool		Replace fluid losses with standard ORS: ≤2 years old: 50 ml per loose stool | >2years old: 100 mls per loose stool. **initiate F-75 feeding.**

	☐>2years old: 100 mls per loose stool NOTE: For PATIENTS WITH OEDEMA 2+ OR 3+ Assume dehydrated if > 3 episodes of profuse diarrhoea	

ANTIBIOTICS, ZINC AND OTHER MEDICATIONS

Severe acute malnutrition is associated with high mortality and children often present with infections. Therefore, all children with SAM should be put on broad-spectrum antibiotics as per WHO recommendations. Additionally, antibiotics for cholera should be given. Local sensitivity to tetracyclines remains good in this outbreak as does sensitivity to azithromycin and ciprofloxacin. The recommended regimens remain the same as in well-nourished children Zinc supplementation is not required as zinc is present in the therapeutic feeds.

Additional medication e.g. ART as required for comorbidities should continue to be given unless contraindicated.

FEEDING

Feeding should begin as soon as possible after admission with F75 until the child is stabilized. Use the F75 reference charts to calculate how much feeds are required.

When the child shows readiness to transition, initiate ready to use therapeutic feeds RUTF or F100
If the child is taking feeds poorly use a nasogastric tube.

Keep a 24-hour intake chart and Measure feeds carefully. If the child is breastfed, encourage continued breastfeeding. Weigh daily and plot weight.

TRANSOUT TO THE MALNUTRITION WARD

Once a patient has met criteria for discharge from the CTC, transfer to a malnutrition unit or ward for continued care of malnutrition and enhanced IPC measures for at least a week.

CHOLERA AND OTHER EMERGING OUTBREAKS COVID 19

- Early screening for COVID 19 should be considered in all patients with respiratory symptoms suggest of COVID 19
- COVID 19 testing should be done.
- Bi-directional screening for COVID 19 and TB should be done.
- Communicate with senior regarding such a patient for definite plan.
- Ensure that infection prevention is done for COVID 19 (Respiratory measures)

TREATMENT OF CHOLERA WITH ALCOHOL WITHDRAWAL SYNDROME.

Addressing alcohol withdrawal in conjunction with cholera treatment requires a tailored approach considering the unique challenges posed by both conditions.
Risk Assessment: Conduct a thorough risk assessment for alcohol withdrawal, considering the patient's history, severity of withdrawal symptoms, and concurrent medical conditions. Use

the CIWA-Ar Clinical Institute Withdrawal Assessment for Alcohol scale (Annex 21). The Assessment for Alcohol Scale outlines signs and symptoms of Alcohol Withdrawal Symptoms to monitor for.

Fluid and Electrolyte Management: Coordinate cholera treatment and alcohol withdrawal care to optimize fluid and electrolyte balance. Collect bloods for U and Es to monitor electrolytes. Monitor closely for signs of dehydration and adjust IV fluids accordingly.

Pharmacological Intervention: Give benzodiazepines (Diazepam) as indicated for alcohol withdrawal symptoms. Dosages should be carefully titrated based on the patient's response and clinical status. Note: There is no role of antipsychotics in alcohol withdrawal.

Monitoring and Follow-Up: Regularly assess vital signs, withdrawal symptoms, and dehydration status. Adjust treatment plans as needed and ensure appropriate follow-up care for both conditions.

Psychosocial Support: Provide psychological support to address the emotional and mental health aspects associated with both cholera and alcohol withdrawal. Engage the patient in counselling and support services post discharge at community level.

This integrated approach acknowledges the complexity of managing cholera and alcohol withdrawal simultaneously, promoting a holistic care model.

Treatment Algorithm. Make sure to document all that is implemented.

- 1- **Thiamine** should be given before intravenous administration of glucose. Thiamine (100 mg IV or IM) should be administered prior to any glucose-containing solutions. This will decrease the risk of precipitating Wernicke encephalopathy or Korsakoff syndrome. But in all people with severe alcohol withdrawal, people with poor diet and signs of malnutrition, thiamine should be administered intramuscularly in doses of 250 mg per day for 3—5 consecutive days.
- 2- **Monitor Glucose**, patients with alcohol withdrawal present with a change in mental status; this can be commonly due to alcohol intoxication, alcoholic ketoacidosis, or thiamine deficiency, as well as other non-alcohol-related causes of acute mental status change. Alcoholic ketoacidosis frequently presents with low blood glucose, and low blood glucose itself could be the cause of an acute change in mental status as the brain is starved of its main source of fuel. After administration of Thiamine, give a stat dose of 20mls 50% dextrose IV. Maintain 50% dextrose 20 mls in 24 hours. Monitor glucose levels 4 to 6 hourly.
- 3- **Benzodiazepine.** All patients with alcohol withdrawal require IV therapy with benzodiazepines. IV therapy is appropriate for the initial management of most patients with tremulousness from alcohol withdrawal because of guaranteed absorption and rapidity of onset. It is important to have IV access in all patients at risk of severe withdrawal.
- Intramuscular administration of diazepam should be avoided because of variable drug absorption. Oral formulations are preferred in most outpatient settings, for the prevention of withdrawal in asymptomatic patients known to be at risk, and for those with mild and minimal symptoms.
- **Benzodiazepine Choice**: Choose a benzodiazepine for alcohol withdrawal management. In this case, diazepam is commonly used due to its longer half-life.
- Initiation of Diazepam: Start with a loading dose of diazepam for immediate symptom relief. A common starting dose might be 10-20 mg IV.
- **Titration of Diazepam**: Titrate the diazepam dose based on the patient's response and withdrawal symptoms. Use a validated tool like the Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) to guide titration. Maintain 10 mg IV QID (four times

a day) for the first day, followed by reducing to 10 mg IV TDS (Three times a day) on the second day and titrate down to 10 IV mg morning and 20 IV mg at night on 3rd day. Monitor vital signs, sedation levels, and CIWA-Ar scores regularly (**Appendix)**

- **Maintenance Dosing**: Once withdrawal symptoms are stabilized, transition to a maintenance dose of diazepam given at regular intervals. Common maintenance doses range from 5-10 mg every 4-6 hours which can be administered orally. The maintenance dose should follow the tapper down titration doses. If the patient is on 10 mg IV morning and 20 mg IV in the evening upon stabilization. Transition to 10 mg orally TDS or BD depending on signs and symptoms for 3 to 5 days. At this point if the patient is oriented to person, place and time, they can be discharged to be reviewed by the mental health unit in one week.

- **4**- **Fluids**. Monitor fluid intake and output as per cholera dehydration algorithm.
- **5- Monitoring**: Monitor for hypothermia. In severe cases of alcohol withdrawal, patients' symptoms can vary from autonomic hyperactivity and agitation. It's important to observe for low body temperature which can be lethal. Continuously monitor the patient's vital signs, sedation levels, and fluid balance. Adjust fluid rates and benzodiazepine doses as needed. Consult should there be a need with an internal medicine physician or psychiatrist.

6- Follow-Up Plan: Outpatient Follow-Up: For patients managed in the community clinic, establish a clear outpatient follow-up plan. Schedule regular follow-up appointments for monitoring and adjustment of the treatment plan by the mental health unit at the sub-district level.

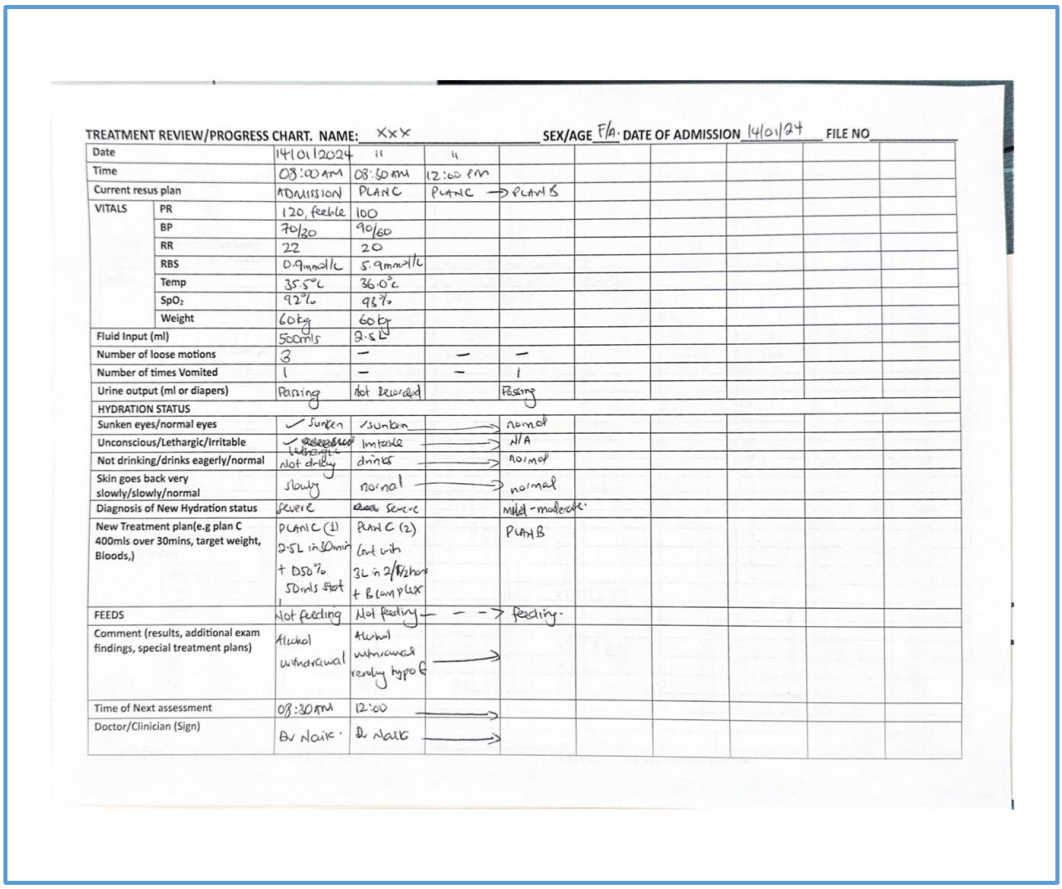
Detailed Recordkeeping:

- Throughout the assessment and treatment, it is important to document the assessment findings, severity scores, and reasons for referral or decision for outpatient management.
- As highlighted in the treatment algorithm, it is important to note what has been prescribed and administered to prevent overdosing patients and tipping patients into complications.

TREATMENT REVIEW/PROGRESS CHART. NAME:_____ SEX/AGE___ DATE OF ADMISSION_____ FILE NO_____

Date										
Time										
Current resus plan										
VITALS	PR									
	BP									
	RR									
	RBS									
	Temp									
	SpO_2									
	Weight									
Fluid Input (ml)										
Number of loose motions										
Number of times Vomited										
Urine output (ml or diapers)										
HYDRATION STATUS										
Sunken eyes/normal eyes										
Unconscious/Lethargic/Irritable										
Not drinking/drinks eagerly/normal										
Skin goes back very slowly/slowly/normal										
Diagnosis of New Hydration status										
New Treatment plan(e.g plan C 400mls over 30mins, target weight, Bloods,)										
FEEDS										
Comment (results, additional exam findings, special treatment plans)										
Time of Next assessment										
Doctor/Clinician (Sign)										

Figure 2: Patient Review and Monitoring form



TREATMENT REVIEW/PROGRESS CHART. NAME: XXX SEX/AGE F/A DATE OF ADMISSION 14/01/24 FILE NO

Date		14/01/2024	11	11						
Time		08:00 AM	08:50 AM	12:00 PM						
Current resus plan		ADMISSION	PLAN C	PLAN C →	PLAN B					
VITALS	PR	120, feeble	100							
	BP	70/30	90/60							
	RR	22	20							
	RBS	0.9mmol/L	5.9mmol/L							
	Temp	35.5°C	36.0°C							
	SpO2	92%	93%							
	Weight	60kg	60kg							
Fluid Input (ml)		500mls	9.5L							
Number of loose motions		3	–	–	–					
Number of times Vomited		1	–	–	1					
Urine output (ml or diapers)		Passing	Not Recorded		Passing					
HYDRATION STATUS										
Sunken eyes/normal eyes		✓Sunken	✓Sunken →		normal					
Unconscious/Lethargic/Irritable		✓ [illegible]	Intake →		N/A					
Not drinking/drinks eagerly/normal		Not drinking	drinks →		normal					
Skin goes back very slowly/slowly/normal		slowly	normal →		normal					
Diagnosis of New Hydration status		Severe	Severe		Mild-moderate					
New Treatment plan(e.g plan C 400mls over 30mins, target weight, Bloods,)		PLAN C (1) 2.5L in 30min + D50% 50mls stat	PLAN C (2) Cont with 3L in 2½hrs + B complex		PLAN B					
FEEDS		Not feeding	Not feeding →		feeding					
Comment (results, additional exam findings, special treatment plans)		Alcohol withdrawal	Alcohol withdrawal severely hypo G →							
Time of Next assessment		08:30 AM	12:00 →							
Doctor/Clinician (Sign)		Dr Naik	Dr Naik →							

Figure 3: Example of review and monitoring form completed.

Referral Systems

Referral to cholera treatment facilities

Refer all patients who fit the cholera case definition and who have “some dehydration” or “severe dehydration” for facility-based care. Initiate ORS treatment at the ORP before the patient leaves the ORP.

Consider referral for facility-based assessment and treatment at-risk patients regardless of their hydration status. Protocols for this should be agreed at the national or subnational level. At-risk patient groups may include:

- pregnant women,
- children with severe acute malnutrition (SAM),
- frail people (often related to age),
- people with heart failure, kidney failure, or diabetes,
- people with physical or cognitive impairment of any kind which might impact self-care or compliance with treatment
- anyone returning to the ORP on a second day with continuing symptoms.

Referrals to other treatment services

Direct people with persistent diarrhoea lasting more than 2 weeks, or bloody diarrhoea with/without mucous to a health centre for treatment of non-cholera causes of diarrhoea. They should not be sent to a CTC/CTU.

Referral pathway

Designate one cholera treatment facility as the referral destination for each ORP.

Wherever possible, provide transport to transfer patients between ORPs and treatment facilities to reduce time to access treatment. Consider either a system of ambulances (vehicle, motorbike, bicycle, or animal) or providing transport subsidies. Educate transport drivers about cholera prevention. Clean and disinfect any vehicle providing patient transport at the referral treatment facility.

Consider different transport needs:

- People able to self-refer during the day and use own or public transport
- Unconscious patients or patients who cannot sit/stand alone will need urgent transport at any time of day and usually need ambulance services
- Procedures for notifying a community-based death

Give thought to transport distances and time. In locations where times to referral CTU/CTC are long, severe dehydration cases not tolerating ORS may benefit from the administration of intravenous fluid before and during transfer. This may not always be possible, and it is not an expected competency of those working at ORPs. Thinking through the possible options before they occur will help clarify the best course of action in these emergencies.

Instruct all patients to continue drinking ORS during transport.
You will find relevant case management job aids and an example referral form in the resource package.

Recording referrals

Staff should complete a referral form for the patient to take with them to the treatment facility.

Record keeping in a designated register should include:

- Patient name
- Village, locality, section, commune
- Age
- Time travelled and by what mode of transportation
- Number of ORS packets and chorine tablets provided
- Action staff taken (for example: provided ORS sachets, provided prepared ORS solution)
- Outcome (for example: patient referred to cholera treatment facility, went home, or died at the ORP)

If your staffing expertise allows it, other information to consider exploring with patients and recording are contamination and cross infection risks both within the home and the community, such as

- time since onset of symptoms,
- any contacts with symptoms and
- sources of drinking water supply.

If ORP staff are illiterate, you will need picto tally sheets instead. The number of male and female adults and children and the number referred is sufficient to record.

Reporting referrals

Report case count, referrals, drug/chlorine consumption, and supply needs to the designated network cholera treatment facility or ORP network coordinator daily or weekly. Assign this task to the ORP supervisor. Remember that 'zero reporting' is required. No patients presenting to the ORP during the reporting period is vital information.

You will find an example register in the appendices

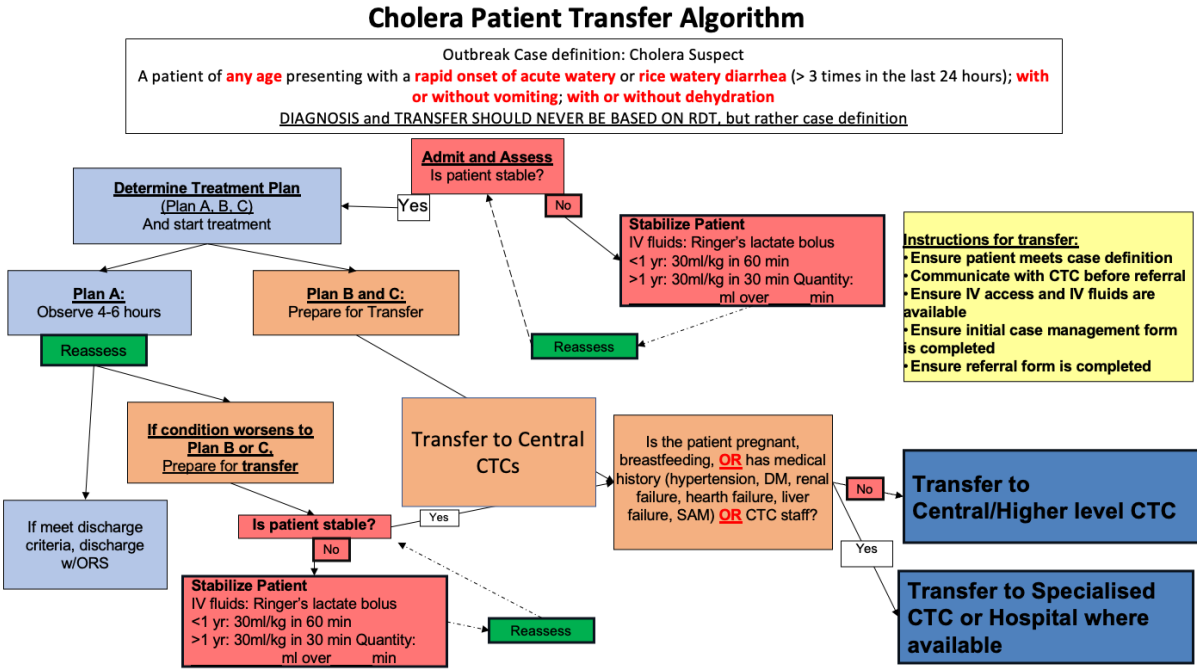


Figure 3: Cholera Referral/Transfer algorithm

COMMUNITY CASE MANAGEMENT

In cholera, providing rapid access to oral rehydration solution (ORS) saves lives. It is therefore critical to ensure initial access to ORS in the community as part of outbreak response.

Oral Rehydration Points (ORPs) provide first-line, community-level rehydration, as a highly decentralized element of case management services. For many patients, this is the first point of contact in a network of cholera treatment facilities during an outbreak:

- ORPs provide ambulatory oral treatment for patients with suspected cholera and refer all patients with some or severe dehydration, as well as all patients from select at-risk groups (regardless of hydration status), to cholera treatment facilities. One example of an at-risk group is pregnant women.
- Cholera Treatment Units (CTUs) and Cholera Treatment Centres (CTCs) provide standard oral and IV rehydration in an inpatient facility.

Site selection: ORPs are set up around a designated CTC/CTU to which they refer patients for facility-based care. Epidemiological data and community consultation should drive initial site selection. Largely, Epidemiology, RCCE and WASH colleagues, Ministry of Health Authorities, and Community Leaders and players and the representatives from the Health cooperating partners, in an end to end approach need to be included in the process.

Working closely with risk communication and community engagement (RCCE), water, sanitation and hygiene (WASH) and infection, prevention and control (IPC) colleagues, community leaders and community representatives ensures that ORPs are set up on sites that are acceptable, accessible and do not pose a risk of community transmission. Issues such as distance to walk, access to clean water and a latrine or toilet for patients and staff must also be taken into consideration. Optimal ORP location will change over time as an outbreak evolves. Ongoing assessment of epi-data and ORP-CTC/CTU patient flows is necessary to identify changing needs. ORPs should be set up in a way that it is possible move or expand the ORP network as required.

Structure: No specific structure is necessary for the delivery of ORS. ORPs can be fixed or mobile, using existing community structures, temporary structures (including tents) or integrated as part of a healthcare structure.

Hours of Operation: ORPs provide care during all daylight hours, 7 days per week. There is no provision for overnight care for patients.

Hygiene: ORPs must consistently implement infection prevention and control (IPC) measures. These include standard precautions during the care of all patients to prevent the transmission of healthcare associated infections. Other measures include a focus on water quality monitoring, and sanitation services available on site.

Staffing: Engage community health workers or community volunteers whenever possible. However a clinician, such as a clinical officer, nurse or Public health nurse should supervise the ORP. In the absence of such cadre, task-shifting can be done to other health cadres,, though specific training should be conducted to cover preparation and distribution of ORS in the community, assessment and treatment of patients with no dehydration, recognition of patients with some or severe dehydration to be referred, referral pathways and prevention of cholera in the community.

Messages on preventing Cholera: Any programme delivering community ORS via ORPs is also a good mechanism for delivering community health and hygiene education messages. RCCE is therefore an ORP core activity and is extremely important to ensure key messages are passed to and implemented by the community. This is a key element of outbreak control.

This document is designed to provide common guidance to set up an effective ORP network as quickly as possible and contains practical recommendations and links to reference documents. Some adaptation may be necessary in each context to suit individual areas, districts and Provinces.

ORP Objectives

The overall objective of ORPs is to reduce morbidity and mortality due to cholera by providing rapid access to oral rehydration solution in the community.

ORP staff or volunteers are expected to:

i. Assess dehydration, initiate early treatment with ORS, and refer patients to facility treatment as needed following local recommendations
ii. Provide patients and their families with information on how to prevent cholera, and inform them of any cholera related events such as information sessions or vaccination campaigns
iii. Share data on the number of suspected cholera patients seen and referred to another treatment site as part of a community-based disease surveillance system. This helps to ensure all cases are recorded and reported
iv. Distribute essential commodities such as ORS and household water treatment supplies

Key Planning Considerations

Site Selection

Site

Cholera outbreaks frequently occur in populations with poor access to healthcare for geographic, economic or social reasons. Organise ORP networks to improve equity of access and maximize rapid access to treatment.

Position ORPs where healthcare is most limited, especially in those areas without easy access to a health centre or cholera treatment facility. Cholera can evolve quickly and rapid access to ORS can save lives. Any reported community death can be an indicator of insufficient access to treatment.
ORPs can also play an important role to reduce strain on cholera treatment facilities. Ensuring access to ORS in the community can reduce both the severity of patients (because they received ORS from an ORP), and also reduce the number of patients going to a CTU / CTC because mild cases received treatment at an ORP.

Key considerations include:

- access to a nearby water source which can provide a minimum of 10L/patient/day
- a latrine or an area where a latrine could be constructed

Establish ORPs so that people can access cholera treatment within one hour approximately by foot.

Surveillance data

Epidemiological data helps identify areas where an ORP may be necessary. The need for an ORP might be suggested by:

1) a high number of patients from one area dying soon after arrival at the cholera treatment facility

2) A high proportion of patients arriving from one area with severe dehydration
3) Rumours of community deaths
4) an excess of patients from one area presenting to a treatment facility with no dehydration

Each of these situations might indicate inadequate local access to early treatment and health information. A multisectoral investigation to the area is necessary to identify reasons for late presentation for treatment and to discuss with the community the potential need to set up an ORP. Community engagement specialists should be part of the investigation team.

ORPs should be moved or newly established to provide better coverage. Do not forget that in addition to physical barriers, community behaviour will contribute to healthcare access. Additional support in the form of strengthening community engagement & education is often needed.

Security

Insecurity, whether real or perceived, is a barrier to care and negatively impacts health seeking behaviour. Staff and patients may all be affected.

Answers to key questions may help ORP location decisions. Work with RCCE colleagues to identify a site for an ORP that will be accessible and acceptable for the population. Multiple ORPs may be necessary to meet community needs (e.g. near the market, near a large work site, near the health care centre).

Structure

Choose the premises in consultation with community members. Consider repurposing existing facilities such as a dispensary (outpatient clinic), a local shop, religious facilities, or other community spaces. Commonly, homes for recognised Community Volunteers have also been used previously as sites in consultation with the concerned CBV. This may have an advantage in having pre-existing water and toilet facilities. Alternatively, use a tent on available land that is acceptable and accessible by the community.

Use a sign or a flag for the ministry or a partner supporting the ORP to clearly indicate that the place is an ORP. If outdoors, ensure shelter from the rain/sun. where possible a small tent would be ideal.

If the ORP is close to existing healthcare services (a dispensary, health centre etc.) ensure a good triage system so that cholera patients do not mix with those seeking healthcare for other reasons. Isolate the ORP with physical barriers such as reed fencing or barrier netting.

Screening

If ORPs and other healthcare facilities are co-located, screen patients to ensure that cholera patients are redirected to ORPs and cholera specific treatment facilities.

Why screen?

- To start oral rehydration of patients with suspected cholera as quickly as possible (they don't wait in a general waiting room)
- To prevent patients with suspected cholera mixing with other patients and potentially infecting them with cholera.

Where/when is screening put in place?

- Screening is placed at the entrance to the healthcare compound
- Before entering the healthcare structure

Who should be screened?

- Everyone must be screened every time they wish to enter the healthcare compound/ structure. This includes:
    a. All health workers
    b. All patients (including babies and children)
    c. All visitors (including the accompanying family and friends of patients)
    d. All cholera response teams and partners

How?

- Ask the simple question: "do you have diarrhoea?"
- If yes to the question, direct the individual to the ORP. If no, direct the individual towards the health facility.
- Train non-medical staff such as guards or crowd controllers to screen and direct patients correctly

Information, Education and communication Posters

- Ensure that the ORP has adequate SOPs stuck on the walls to guide staff:
    - on triggers questions to ask
    - Case definitions
    - Mixing of ORS
    - Assessment of Hydration status
    - Administration of ORS
    - Referral Protocols
    - Reporting channels

Staff

Staff type and number

Care at ORPs can be delivered without highly trained medical or specialist nursing staff. Thus, ORPs can be staffed by Community Health Workers (CHWs, or equivalent community-facing primary health care workers). Where possible, Public health Nurses, general nurses or auxiliary nurses may staff ORPs.

To increase acceptance, it is recommended to use mixed teams with volunteers from the community who are trusted.

Key considerations:

- Identify roles
    - case management
    - health messaging
    - water and chlorine preparation
    - cleaning and waste management
- Decide responsibilities based on the team composition.
    - For example, you may wish to have all of the volunteers capable of performing all the roles. This team could be supervised by a CHW.

    - If the ORP is within or adjacent to a health facility, another possibility might be to divide roles, for example: nursing assistants to perform health messaging and case management; cleaners for water, chlorine, cleaning and waste management; and a nurse in the supervisor role.
- Assign a supervisor to each ORP and be clear on their additional supervisory duties. These included assuring quality of care and education at the ORP, ensuring resupply, making the staff rota, and data reporting. If using CHWs as supervisors, they should aim to supervise all ORPs in their catchment area at least weekly.
- Sufficient staffing levels: have enough people in the team to work the ORP during daylight hours, 7 days/week. This is normally at least 4 people per site.
- Be clear whether you will be repurposing existing healthcare staff or recruiting new
- Be aware of culture and customs. Will you need single sex staffing?
- Be sure that volunteers have strong links with, and are trusted by, the local community. Willingness and a commitment to the community are the only essential requirements (at least a few hours every day over the course of the outbreak).
- Literacy is a benefit but not essential since reporting can be with simple tally sheets and picture-based tools,.

Training

All staff and volunteers who will be seeing patients within ORPs must be given cholera-specific training which includes as a minimum:

- Introduction to ORPs
- Assessing Dehydration, Treatment & Referral
- IPC Standard Precautions (with attention to hand hygiene, waste management, cleaning and disinfection)
- Preparing Safe Water
- Preparing ORS
- Safe Water Storage
- Safe Sanitation
- Food Safety (for prevention messaging, not because food is served in ORPs)

Individuals delivering patient education and community behaviour-change messaging will also need training or orientation on the key cholera messages and materials to be used.

The entire training package can be delivered in one to two days.

DISCHARGING PATIENTS

Criteria for Discharge

Patient has been in observation or recovery area for 6 hours and:

- Has no signs of dehydration.
- Is able to take ORS without vomiting.
- Has no watery stools for 6 hours
- Is ambulant.
- Is passing urine.
- Has been advised on sanitation practices and when to return to hospital/CTC.
- Contact tracing and health promotion has been completed.

Discharge Instructions

Advise patient to return to CTC if he/she:

- Has recurrence of acute watery diarrhoea (> 3 times in 24 hours)
- Is unable to drink ORS (due to vomiting or weakness)
- Has not passed urine for 6 hours.

Health Promotion messages prior to discharge

- Patients should be given instructions on when to return to CTU/CTC and on how to prevent cholera.
- Provide patients and their caregivers with ORS and confirm they can correctly prepare and give ORS at home without supervision.
- Inform the patient, family members and caregivers about precautions and instructions at the household level, as follows.
    - Drink and use safe water.
    - Wash your hands with safe water and soap or with ABHR at critical times, including after using a toilet or handling a child's faeces and before preparing and eating food. If caring for a patient, always wash your hands before and after providing care, after handling any soiled items (such as clothes, linens) or after touching any bodily fluids.
    - Cook food thoroughly and eat it while it is still hot.
    - Remove and wash any bedding or clothing that may have had contact with diarrhoeal stool with 0.2% chlorine solution. If chlorine is not available, patients' bedding and clothing can be disinfected by stirring for 5 minutes in boiling water and drying in direct sunlight, or by washing with soap and drying thoroughly in direct sunlight.
    - If a household member develops acute, watery diarrhoea, administer ORS and seek health care immediately.
    - While caring for persons who are ill with cholera, do not serve food or drink to persons who are not household members.
    - Visitors may be allowed if the ill person wants company; visitors should also observe hand hygiene recommendations.

Risk Communication, Community Engagement at the ORP/ORC

Risk Communication, Community Engagement (RCCE) is an ORP core activity and is extremely important to ensure key messages are passed to and implemented by the community.

Consider the community context and the population's resources, knowledge, attitudes and practices which are relevant for cholera and how it affects their ability, and willingness to implement preventative measures.

People's understanding and beliefs about cholera can be the biggest barrier to stopping the outbreak. Empower communities through education and practical support to adopt practices which improve the cholera response. Volunteers are well placed at community level as trusted sources of information to influence change.

Work with the RCCE colleagues to develop locally adapted messages on how to prevent cholera and train the ORP staff.

Passing the *right message*, to the *right audience* through the *right channel* is essential. However, if the community does not have the *right tools* with which to implement preventive measures, RCCE alone will not achieve its goals. If a community does not have access for whatever reason, consider distributions of essential materials which support RCCE messaging eg soap for handwashing or chlorine for water treatment. These decisions should by RCCE colleagues and shared in the community through ORPs.

Fear is a common response in individuals and in the wider community during cholera outbreaks. Stigma can be high. Both of these limit the effectiveness of a response because communities will be less likely to implement behaviour change, seek early treatment or work together on prevention activities. ORP staff are in a unique position to work with communities and help address fear, stigma and misinformation as they are a trusted source of information visible in the community.

Infection Prevention and Control at the ORP/ORC

Implement IPC standard precautions to prevent ORPs from being a source of infection.

Key considerations are:

- Suitable patient flow
- Separate spaces for water supply management, ORS preparation, a well-ventilated or outdoor area for preparation of chlorine solutions and good quality latrines
- Supplies and protocols for safe and effective
    - cleaning, disinfection and waste management
    - hand hygiene
    - PPE
- Adequate volume and quality of clean water for cleaning, hand hygiene, and decontamination
- Risk communication and health/hygiene education both within the ORP and surrounding community

Resupply

The designated cholera treatment referral facility or local health facility is responsible for ensuring the ORPs in its network have adequate supplies and are resupplied regularly. This requires additional procurement and logistics, which can be complicated in a rapidly changing epidemic.
Do not forget to ensure supplies are secured overnight when stored on site.

Re-assessing/Relocating

Frequently reassess the position of ORPs within the network as the outbreak evolves. This may involve opening, closing or moving ORPs based on epidemiological data, and from ORP and CTC/CTU records of patient numbers.

You want to be able to safely site ORPs in the right place and the right time. Coordination between Case Management, Epi, RCCE, Security and Protection colleagues is therefore essential. Undertake coordination meetings with a set agenda ensuring all information is captured.

ORP's should not be seeing more than 15-30 patients per day. If an ORP is seeing more than this number of patients, discuss the need for additional ORPs or additional capacity within the ORP.

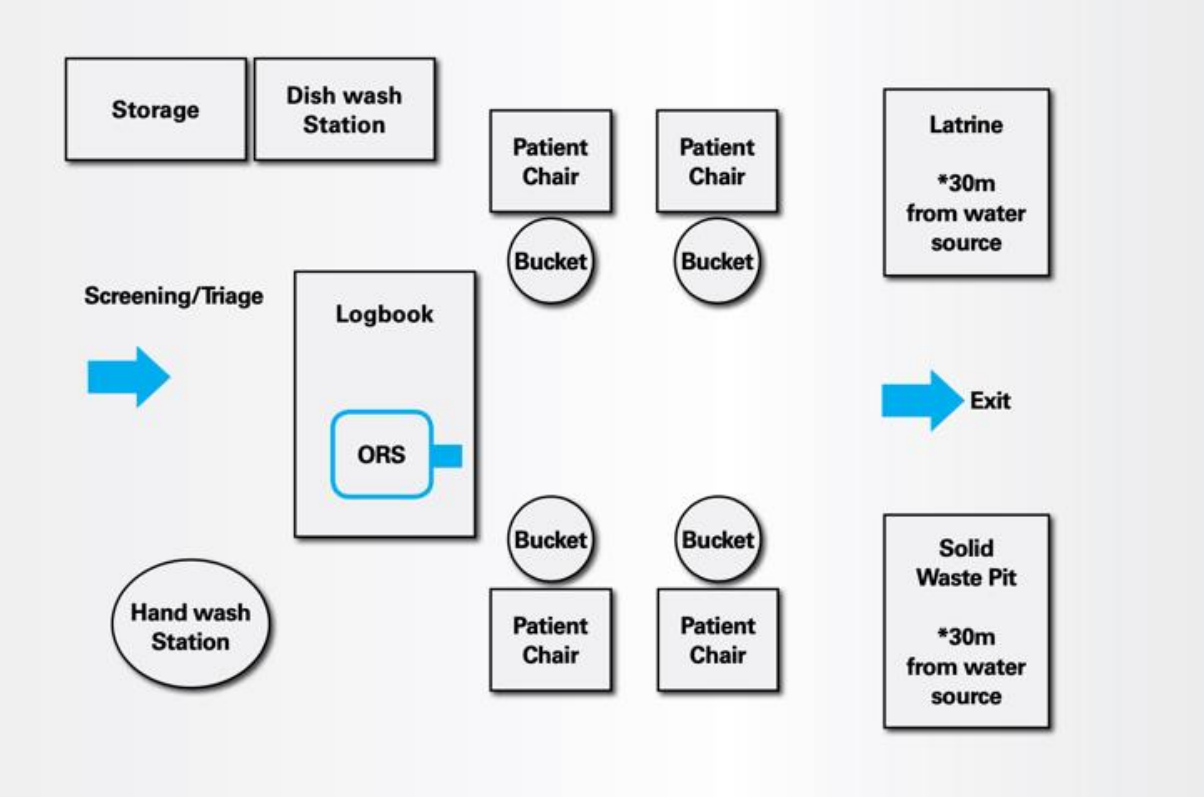
Ensure no patients are on the ground, either when waiting for treatment, or when ORS is administered or when waiting for referral transport. This will of course depend on the structure and staffing levels and also impact supply.

Set-Up

When deciding the layout of an ORP, create separate areas for water treatment, ORS preparation and patient observation with adequate sanitation, hygiene and waste disposal facilities. Take advice from your WASH and IPC colleagues.

Ensure that circulation of patients and staff is based on a floor plan adapted to the local context and accepted by the community. Think about patient privacy and dignity. Use the physical space to promote this by employing screens or similar visual barrier.

An example generic floor plan:



Clear signage is important.

Supply for initial set-up

The WHO community kit contains the necessary supply for the initial response to a cholera outbreak at community level. Its small volume allows for rapid deployment to ORPs to improve access to ORS closest to the affected population.

The community kit is subdivided into 2 modules which include medical and logistic material for the oral rehydration of 100 patients with mild/moderate dehydration. The medical and logistics modules can be ordered separately. Most of the content of the logistic module can be bought locally and an international order may not be necessary for these items.

You can find the full kit content list in appendices
In addition, you will need furniture and other items for:

- Patient Care & Handwashing: cholera chairs, 2 buckets per chair (for stool and for vomitus), reusable plastic cups for drinking, 2 buckets per handwashing point (1 for the water or 0.05% chlorine solution and 1 for wastewater)
- Staff: chairs, table & shelving for staff station; stationery, register, pens & clock for documenting, referring and reporting; standard and heavy PPE; phone credit for communication
- Solution Preparation & Covered Storage with Taps: 1 x 1 litre measuring jug, utensils, buckets, 1 x 120 litre container for potable water, 1 x 120 litre container for 0.05% chlorine solution, 1 jerrycan or bucket for 0.2% chlorine solution, 1 jerrycan or bucket for 2% chlorine solution, 1 jerrycan or bucket for detergent and water
- Cleaning, Washing Up & Waste: bucket and mop, absorbent material, basin, waste bin and bags
- Signage: ORP, entry/exit, handwashing, chlorine solutions & usage

For easier cleaning and better disinfection, plastic or metal items are preferred, rather than wooden or fabric.

Sample stationery and signage can be found in the appendices

Rolling out ORPs

ORPs can be rolled out in large numbers over a short space of time. It is important to involve Epi, RCCE and WASH colleagues, health authorities, and community leaders and representatives end to end throughout the process.

Remember agility is also key. After initial rollout, ORP locations are likely to need to change depending on the outbreak evolution.

1. In your interdisciplinary team, analyse outbreak surveillance data and decide on priority areas for investigation.
2. Meet with relevant area health authorities and community leaders to discuss the diarrhoea situation and the potential to set up an ORP. Discuss requirements and identify personnel. Include the local health facility data focal point. It may be appropriate to have community engagement specialist make initial contact with the community before medical teams arrive.
3. Train the ORP personnel. This can be done in 1 to 2 days.
4. Together with RCCE colleagues and ORP personnel, meet community leaders and representatives to decide exact premises of ORP. Remember need for water and latrines. Involve your WASH colleagues during discussions and once premises are decided.
5. When premises are decided, bring personnel to deliver the set-up kit and materials. Orientate personnel to the contents of the kit and help set up with good flow/IPC.

6. Collect the names of staff and supervisor per ORP. Collect coordinates for all the sites. Note which referral CTU/CTC is designated, and which health facility that the ORP 'belongs to'. Put all the information in a centralised database for easy sharing.
7. Ensure referral transport mechanisms are established and known
8. Ensure supply channels are established and known
9. Ensure data collection channels are established and known
10. Plan supportive supervision follow-up visits
11. Continuously assess and reassess ORP and outbreak data to assure most impactful location and number of ORPs

Closing ORPs

Review the epidemiological picture for each ORP regularly. If the number of suspected cases seen in the ORP reduce, and investigation (Active-case search) shows that cases are truly declining, consider closing it. To be involved in the decision making are the same cadre of people in the community who were involved in the decision to open an ORP it. These include Epidemiology, RCCE and WASH colleagues, Ministry of Health Authorities, and Community Leaders and players and the representatives from the Health cooperating partners, in an end to end approach throughout the process. Each stakeholder will ensure their corresponding responsibilities are adhered to and achieved.

The closure of an ORP could be because the initial area/location is no longer a hotspot or because the outbreak has been declared over. Whether it is the tail end of the overall outbreak or simply the geographical focus moving to another area will dictate whether that location closure represents shifting ORP locations or a reduction in the total overall number of ORPs.

The various indicators for ORP closure include:

- If an ORP sees no patients for two incubation periods, 14 days, it can be closed or moved elsewhere depending on outbreak evolution
- If an ORP sees no patients for one incubation period, 7 days, it can be closed or moved elsewhere depending on outbreak evolution
- If an ORP sees fewer than 2 patients daily on 7 consecutive days, consider Case Area Targeted Intervention as an approach.

INFECTION PREVENTION AND CONTROL

SETTING UP A CHOLERA TREATMENT CENTRE

SELECTION CRITERIA

When establishing a cholera treatment centre, the following should be considered when selecting a site:

- Proximity to the affected area.
- Easy accessibility for patients and supplies.
- Protected from winds (there should be windbreakers)
- Adequate space.
- Compatibility with adjacent existing structures and activities
- Availability of adequate potable/safe water supply within a minimum distance to avoid contamination.
- Good drainage from the site
- Provision of waste management facilities (clinical and general waste)
- Availability of sanitary facilities (temporary)
- Provision for expansion of CTC (basing on estimation given by epidemiologist)
- Easily accessible by road for water trucks, ambulances and other service vehicles
- There is access to on-site or nearby reliable and sufficient water source(s), which is located away from any potential sources of contamination (e.g. latrines, soak-away pits).
- The structure should be fenced, with one clearly defined entry and exit point, with personnel stationed to control traffic flow. Low fencing is recommended to allow people to see into the structure.
- There is access to electricity and lighting (24 hours per day), with potential for backup generators and fuel storage (as needed).

DECENTRALIZED VS CENTRALIZED CTC

In the cholera response, it is preferred to have decentralized CTCs and multiple ORPs. However, depending on the context and prevailing situation, a centralized CTC may be considered. The following are possible indicators for shift to centralized CTC:

- Admissions to CTCs beyond the bed capacity of CTCs with no room for expansion
- Not enough staff to run decentralized CTCs.
- Not enough supplies to distribute among decentralized CTCs.
- Robust transport system for referrals is available.

Indicators for shift back to decentralized CTC.

- Indicators for centralized CTC no longer prevail.

SETTING UP A TEMPORARY CHOLERA TREATMENT UNIT

In setting up a cholera camp, you can use an existing building or set up tents. It is important to consider safety of patients and ventilation as high temperatures contribute to dehydration of the patients.

The cholera camp should operate 24 hours a day independently of the other health facilities and therefore the necessary staff has to be mobilised. It should be supplied with the necessary medical material specifically for the centre. An enclosure or other form of acceptable screen should be provided around the cholera camp. The various workstations should be clearly labelled, and directions provided.

The CTC must be a "closed system" where contamination is introduced through patients and must be destroyed inside the structure. Under no circumstances should any contamination come out (through patients, water, material, solid and liquid waste etc.).

General rules for a good design:

- Restrict unnecessary movement for staff and patients.
- Each zone is a "closed box".
- Systematic disinfection between zones
- Discipline and mutual control for the patient, attendant and staff on hygiene

Good infection control means anything coming out is free of contamination.

Important Note:
If tents are used, they should be located under a safe, cool appropriate environment. High temperature in tents will encourage patients to come out of the tents and might even encourage them to go back home before treatment is finished, leading to relapse and potential contamination of the environment.

LAYOUT OF A CTC

The following points should be considered in the layout of the CTC:

- Patient flow should be in one direction only (described below).
- There should be one clearly defined common entry and exit point, with personnel stationed to control traffic flow, limit access and ensure that staff, patients and caregivers wash their hands with soap and safe water at the hand-washing station(s) when entering and exiting.
- Only one caregiver present per patient permitted at a time.
- Although there is currently no evidence that demonstrates the benefits of footbaths or foot spraying in terms of infection control, these can serve as a barrier to those entering and exiting the structure.

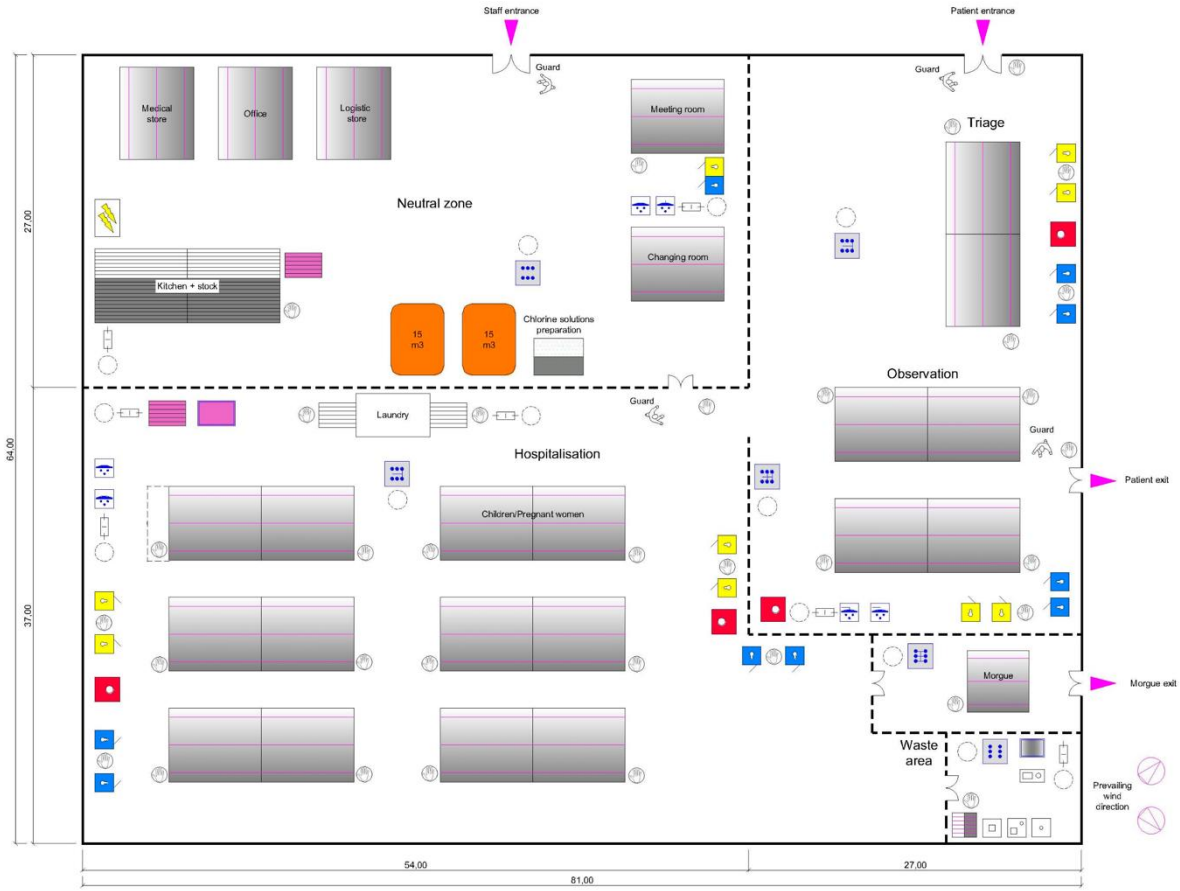


Figure 7: An example of a big cholera treatment centre. Source: Médecins Sans Frontières. Management of A CHOLERA EPIDEMIC. 2018 Edition

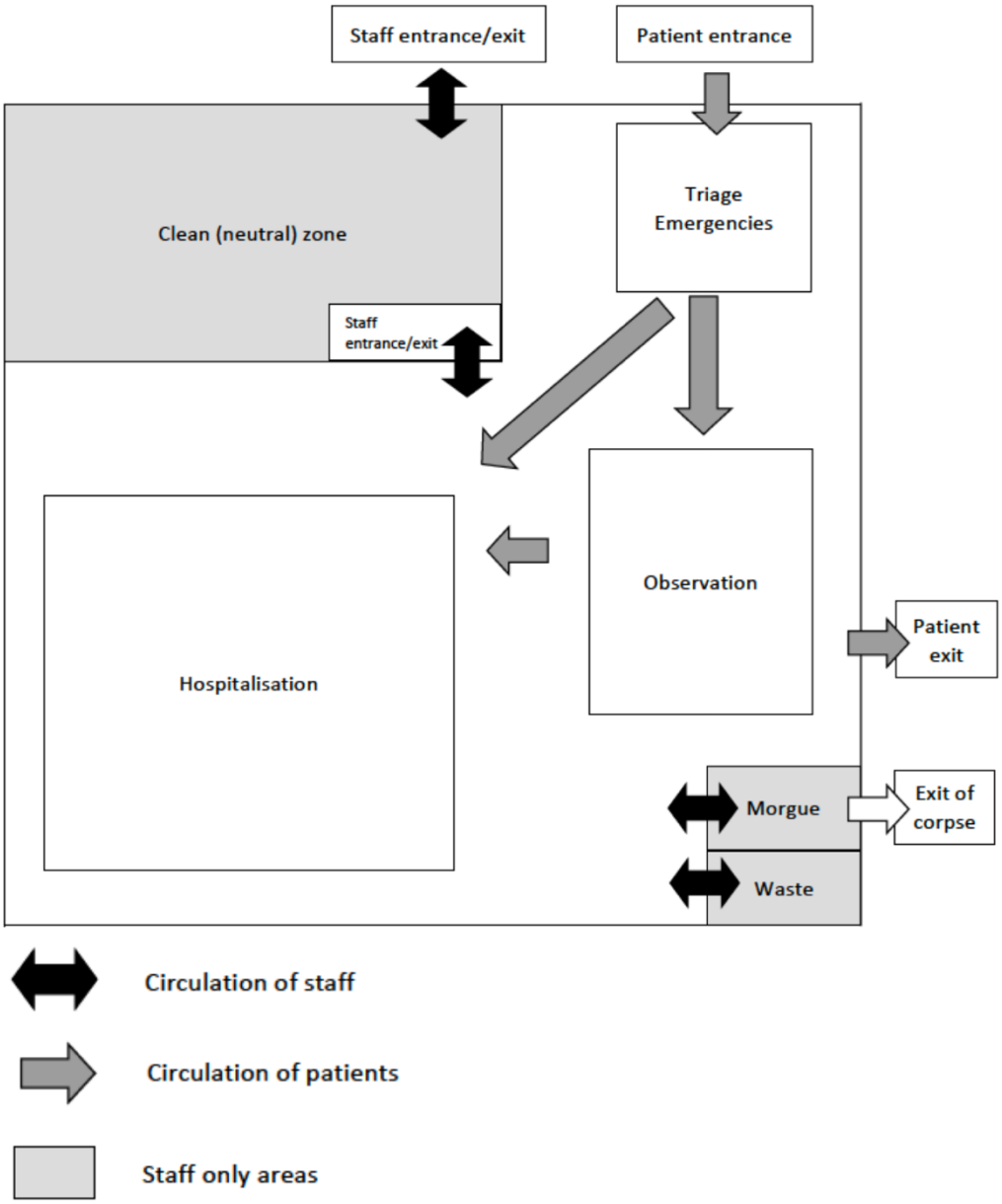


Figure 8: An example of patient and staff flow. Source: Médecins Sans Frontières. Management of A CHOLERA EPIDEMIC. 2018 Edition

Section 1: Triage And Observation

- Patients are screened by medical personnel. If cholera is suspected, admit; otherwise send to OPD.
- Patients who are in need (Disabled, elderly and children) are admitted with 1 attendant (caregiver) if necessary. Special provisions should be made for any child (under the age of 14) who presents without a guardian or adult caregiver.
- Patients who are admitted should be registered on the cholera line list.
- A foot bath should be provided at the entrance (disinfection).
- Triage and observation can share the same facility.
- Toilets and water should be easily accessible for patients.
- Shower facilities should be provided for the patients.
- A disinfection area should be provided for the transporting vehicles and contaminated articles for the patients.

- Tables, chairs, water containers fitted with taps, refuse receptacles should be provided in these areas.
- Provision of safe water
- Establish an ORT corner.
- Ensure sufficient lighting for care of patients.

Section 2: Admissions/Hospitalisation Area

Patients with severe dehydration and/or uncontrollable vomiting must be admitted for immediate rehydration.

Each patient lies on a Cholera bed with 1 bucket for stool collection underneath the hole in the bed and 1 bucket for vomitus besides the bed. The following should be put in place or provided in the admissions area.

- Separate rooms/tents for males and females where possible.
- Separate rooms for children under the age of 15, the old and pregnant women as risk of abortion increases with cholera.
- A foot bath and hand washing facilities (with disinfectant) at the entrance. Ensure footbath is kept topped up regularly.
- Provision for disinfection of soiled linen and clothing.
- Patients should have access to toilets and washing facilities (with disinfectant) or showers (should be provided where possible). Consider the needs of patients with physical disabilities.
- Cholera beds with receiving buckets, buckets for vomitus and water containers for patients should be provided. Modify a few cholera beds to accommodate any children who are admitted, by changing the size and location of the hole.
- Tables and chairs for staff
- Refuse receptacles.
- Patients should be screened by medical staff and categorised according to their status.
- Special provisions should be made for any child (under the age of 15) who is hospitalised without support from a guardian or adult caregiver e.g. Ministry of Community Development, Maternal and Child Health should be contacted to provide the necessary psycho-social support during the child's hospitalisation including family tracing if necessary.
- If any patient (e.g. adult or child caregiver) who is admitted indicates that he/she has left children at home (i.e. without any adult supervision), Ministry of Community Development, Maternal and Child Health should be contacted, to ensure that arrangements are made for the care and protection of the unaccompanied child (ren) during the absence of the parent/guardian.

Section 3: A Convalescence/Recovery Area

The convalescence or recovery area is meant for oral rehydration after hospitalisation when less surveillance is required.

The patients who are no longer vomiting or have diarrhoea and require less medical attention can be put in this ward.

- Separate rooms/tents should be provided for males and females and for children under the age of 15.
- A foot bath, hand washing facilities should be provided at the entrance and one for patients.
- Water containers with taps, chairs, tables and ORS bottles are provided in this area.
- Oral rehydration solutions are provided in this area.
- Food is also provided if the patient can start to eat. Ensure suitable food is available for infants and children under the age of 5; mothers are encouraged to continue breastfeeding. Consider dietary needs of immune-compromised patients. Note - to avoid re-infection and cross-contamination, family members should be discouraged from bringing food for patients.

Section 4: A Neutral Zone

The following sections must be located in a neutral zone free from any contamination; administration area, rest area, changing room for staff (including showers, toilets), pharmacy and logistics stores, water storage, preparation of chlorine solutions and kitchen.

Logistics stores and pharmacies must be organized to ensure at least 7 days of sufficient stock. In case of reduced access/security constraints, stocks should be increased to avoid any shortage.

Storerooms

Separate storerooms should be identified for food provisions, drugs and medical supplies.

Kitchen

- Should be located away from dirty areas.
- Hand washing facilities fitted with taps or other acceptable dispensing methods should be provided.
- Fly baits should be provided at strategic points.
- Tents should not be used as kitchens.
- Provide fire protection facilities.
- Provide safe water for use in the kitchen.
- Kitchen should be well stocked with utensils and cooking pots to avoid staff and patients using their own personal items.

SIGNAGE

Clear signage including signs, posters, pictures in local language are needed, both at the entrance of the CTC and inside the CTC to ensure proper flow and guide IPC practices. The signage should be replaced if the colours fade out and the message is no longer clear.

The signs include:

- Entrance of the CTC
- Patient Entrance
- Staff Entrance
- Suppliers Entrance
- Staff only (clean zone, morgue, waste area)

- Showers and latrines
- No Entry (any excreta pits)
- Medical waste
- Domestic waste
- Sharp waste
- Cardboard waste
- ORS containers
- Drinking water container
- Hand-washing container
- 0.05% chlorine solution
- 0.2% chlorine solution
- 0.5% chlorine solution
- 2.0% chlorine solution

PATIENT MEALS

Hospitalised patients

CTCs

- **A CTC provides 3 meals per day. Meals are usually prepared on-site. The number of meals to be prepared is calculated before each meal, by counting the number of patients and multiplying the number by two to take attendants into account. A margin should be added for example if a patient on oral treatment during the day stays in the end overnight. For children, consider providing 2 extra meals at midmorning and midafternoon.**
- **The calculation of quantities per person and per meal is based on 2100 kcal/person/day, whatever the age of the patient.**
- **While setting up CTC, provide meals that do not require preparation (e.g. tea and biscuits or dry rations, fruit) until the kitchen is set up.**
- **In certain contexts, meals can be are prepared and delivered from a site outside the CTCby an external service. In this event, ensure that preparation is follows proper infection prevention and control practices correct (hygiene) and that rations are sufficient.**
  For a specific list of food items that should be given to paitnets, refer to annex 16

CTUs

- A CTU is generally less well equipped than a CTC. Options include meals that do not require preparation, meal deliveries or food provided by the CTU but prepared by attendants in a dedicated area ("cooking area").
- Sometimes all meals are provided by patients' families that deliver them several times a day. This option should not be encouraged. It is too precarious, as it depends on the support and economic possibilities of families, particularly for children's diets. Treatment facilities should preferably guarantee patients' food.
- In all events, ensure that patients eat or that they are fed by attendants or auxiliary nurses if they cannot feed themselves.

- **Patients observed for a few hours.**
- A snack (e.g. dry ration, biscuits or fruit) should be offered to patients that stay over 4 hours under oral treatment in a CTC, CTU or ORP.
- **Note**: also provide a meal for staff that work 8 to 12 hours without a break, day or night

FACILITY INFECTION PREVENTION AND CONTROL

Adequate infection control practices are essential to prevent the spread of cholera in the CTC/CTU, and should be applied in all situations by patients, caregivers and staff. Common infection control practices include hand hygiene; use of personal protective equipment (PPE); safe food preparation and handling; laundering of soiled linens; management of liquid and solid waste; safe and dignified preparation of corpses and burials; and vector control.
All Medical and non-medical staff (cleaners, guards, etc.) must be trained in the IPC protocols relevant to their functions prior to working in the CTC/CTU. All protocols must be made readily available on-site at all times, as reference for staff working in the CTC/CTU (usually on laminated cards, posted clearly throughout the structure).

General considerations

- Recommended latrines should be provided. (1 squat hole to 25 clients) for male and female, including for staff.
- Consider safety needs for younger children and needs of people with disabilities.
- Maintenance schedules should be provided for latrine cleaning.
- Waste generated at the camp should be treated as infectious waste.
- The waste should be decontaminated before disposal and incinerated at the end of each day and when appropriate.
- Label and clearly differentiate each container (drinking water, ORS, chlorine solutions).
- 0.05% chlorine for hand washing, dish rinsing and bathing of soiled patients, 0.2% chlorine for decontaminating floors, beds, clothes and footbaths, and 2% for decontaminating of vomit, faeces and corpses (see further section on chlorination)
- Provisions for washing soiled linen should be put in place.

Portable Water Supply

Quantity

CTCs and CTUs

A large amount of water is required for:
The preparation of ORS and human consumption (drinking, cooking).

- Hand-washing and personal hygiene of patients and attendants.
- Cleaning and disinfection of objects, floors, surfaces and laundry.

60 litres per day per patient are needed to cover patient, attendant and staff needs as well as cleaning the facility. This volume is given as an indication. Re-evaluate real needs depending on the context (e.g. climate, culture) and the number of patients (the lower the number of patients in proportion to the facility's total capacity, the greater the quantity of water necessary per day per patient).

It is recommended to have a reserve supply on-site to cover at least 3 days of activity.
For example, for a CTC with 50 patients present:

60 (litres) x 50 (patients) = 3000 litres of water/day x 3 (days) = 9000 litres of water
The CTC needs to have at least 9000 litres of water available every day.

ORPs

Water is needed to prepare ORS and for human consumption (drinking), handwashing, cleaning and disinfection of objects, floors, surfaces.

Approximately 10 litres of water per patient are required. This volume is given as an indication; as for other facilities, needs must be re-evaluated depending on the context.

It is also recommended to have a 3-day reserve supply.

For example, for an ORP with 20 patients present:

10 (litres) x 20 (patients) = 200 litres of water/day x 3 (days) = 600 litres of water.
The ORP needs to have at least 600 litres of water available every day.

Water Quality

Water is chlorinated in all treatment facilities (including CTUs and ORPs).

Turbidity should be under 5 NTU. The FRC concentration at all distribution points should be 0.5 mg/litre for a contact time of 30 minutes if the pH is < 8 (and 1 mg/litre for a contact time of 60 minutes if the pH is > 8).

Box 3. Minimum levels of free residual chlorine necessary for safe water during outbreaks

- At all sampling points in a piped water system 0.2-0.5 mg/litre
- At standpipes in systems with standpipes. 1.0 mg/litre
- In tanker trucks, at filling 2.0 mg/litre

Note: Active monitoring is required to ensure that these minimum levels of chlorine are maintained.

Maintenance and monitoring

Distribution network

The distribution network should be inspected at least twice a month to check there are no leaks and that the valves and taps are working correctly.

Reservoirs (including safety reserve)

Reservoirs should be inspected at least twice a month to check there are no leaks, no deposits (calcium, sand, etc.), that the valves and taps work correctly, and the condition of protective coverings (shade net, roofs) and support frames (platforms, water tower).

For the safety reserve, preferably rotate between the different reservoirs so that the water in reserve is always used and quickly renewed. Before each use, check the FRC level, that tends to disappear within 24 hours. If necessary, re-chlorinate.

Water consumption, water quality control checks, and actions and consumption related to water production should all be recorded in a register of water and sanitation activities.

Cleaning and disinfection

Footwear

Shoe disinfection points are traditionally placed at the entrance and exits of CTCs, and sometimes at the passage between the different sectors within the CTC.

Foot baths (0.2% chlorine solution) are challenging to maintain (e.g. changing the solution in the baths) and their effectiveness is even more doubtful (rapid deterioration of chlorine due to various mechanisms such as: frequent deposit of mud and other organic matter; prolonged exposure to sun; dilution of chlorine solution with rainwater, etc. They will be bypassed by users if they are not acceptable (dirty, too deep or too small, slippery, etc.).

Note of caution: Shoe disinfection must not hinder the circulation of staff and patients/attendants. Urgent treatment must not be delayed because of a disinfection measure of limited interest.

Soiled materials

(i) Disposable materials

- Disposable materials should be eliminated after use.
- Sharps (i.e. needles, catheter guidewires, lancets, drug ampoules and other objects that may cause injury) must be discarded immediately after use into a sharps container.
- The container is replaced when it is three quarters full. The level of the container must be monitored daily.

(ii) Reusable materials

Decontamination is the first step in processing soiled (contaminated) surgical instruments and other items. For decontamination use a 0.5% chlorine solution:

- Soak contaminated items for 10 minutes
- Immersible material (e.g. tourniquet, tray) should be washed with soap and water, rinsed then disinfected with the chlorine solution.
- Non-immersible material should be wiped or sprayed with the chlorine solution.

Laundry

A CTC laundry room handles 3 categories of laundry:

Table 1. Type of laundry and frequency of changing

Type of laundry	**When to change**
Staff PPE	Every day and each time it is soiled
Sheets, blankets	When soiled and on patient discharge
Patient/caregiver laundry	When soiled

All types of laundry must be:

- Collected by staff wearing plastic aprons and rubber gloves;
- Transported in reusable containers, separated by category or if not available, in disposable plastic bags;

- Washed separately with soap and water or with detergent available on the local market, rinsed in clear water, soaked in 0.05% chlorine solution for 15 minutes, rinsed in clear water again and hung out in the sun until completely dry.

Each CTC/CTU must have:

- Laundry services with enough washing machines or laundry washing area with water, basin, soap (for smaller units)
- Drying machine for linen at bigger facilities
- Area for hanging the clothes

Note that during the first days while setting up the CTC, if the disinfection of laundry has not yet be organized, washing laundry with soap and water and leaving it to dry completely outside in the sun eliminates the *vibrio* as it cannot survive in dry environments.

Note of caution:
Linen should be decontaminated prior to transportation, in case there are no in-site washing facilities and the linen has to be transported elsewhere.

Environment

The cleaning of premises includes all patient zones, all areas of the "clean" zone (administration, changing rooms, stock rooms, etc.) and the outside areas of the CTC. Daily cleaning and disinfection of all areas of the CTC/CTU is crucial to ensuring proper IPC.

Table 2. Summary of chlorine solutions and use for disinfection

Chlorine solution	Uses	How to prepare	How often to prepare
2%	Disinfection of dead bodies, stool and vomit	30g /litre i.e. 40 tablespoons/20 litres	Stable for one week if stored properly
0.5%	Disinfection of surgical items	7g /litre i.e. 10 tablespoon/ 20 litres	Make daily
0.2%	Disinfection of the entire cholera ward(s), toilets and showers/bathing units; laundry; kitchen and morgue. This solution should be used on all cholera beds or cots, bedding and linens; clothing; PPE (i.e. gloves, apron, goggles); waste containers and covers; food utensils, containers and dishes; and vehicles used for transporting patients	3g/litre i.e. 4 tablespoons/20 litres	Make daily
0.05%	Disinfection of hands (when neither soap and safe water nor ABHR is available)	0.7g /litre i.e. 1 tablespoon/ 20 litres	Make daily

Area of CTC, frequency of cleaning and other comments

Type	**Frequency of cleaning**	**Instructions/comments**
Floors	Up to four times per day and following any spillage or splashing	Wash with detergent available on the local market, rinse, then disinfect with 0.2% chlorine solution. A bucket and a squeezer must be used when mopping (no hand squeezing)
Walls	When patients are not present	Disinfect with 0.2% chlorine solution, at least 1m
Latrines, showers and bathing units	Several times per day	Do not forget to clean the slabs, doors and door handles, and the walls s (up to one metre – or higher when necessary,
Cholera cots	As needed, and between each patient.	Ensure that there are 2 buckets for each bed with 1cm of 2% chlorine

Cholera beds or cots must:

- have holes in the support fabric
- have a 10- to 15-litre bucket placed under the hole
- be high enough for the bucket to be placed under the hole (with approximately 1cm of 2% chlorine)
- be low enough to prevent splashing out of the bucket
- have another bucket placed at the bedside for vomit (with approximately 1 cm of a 2% chlorine solution)

Note of caution:

- *Detergent and 0.2% chlorine solution must never be mixed.*
- *After applying 0.2% chlorine solution, there is no need to rinse (expect stainless steel surfaces that must imperatively be rinsed).*
- *0.2% chlorine solution for latrines/sanitation facilities is sufficient and no additional chlorine should be poured into the latrines*

Vehicles
Ambulances should be cleaned with detergent at least once a day and every time they are soiled (e.g. spilt stools or vomit), rinsed, then disinfected with 0.2% chlorine solution, then rinsed again to protect the metal surfaces.

Management of faeces and vomit
Stools and vomit are collected in buckets as patients cannot go to latrines due to the intensity of their often uncontrollable diarrhoea and vomiting. This is valid for all facilities (CTCs, CTUs and ORPs).

Usually, 1 cm of 2% chlorine solution is poured into each bucket (125 ml into a 10 to 15 litre bucket). This precautionary measure is recommended to reduce the risk of contamination while handling the buckets, despite the absence of data on the volume of chlorine required, the contact time and the necessary concentration of chlorine to effectively disinfect the contents. Do not pour more than 1 cm of chlorine into the bottom of buckets, especially those reserved for vomit (risk of chlorine splashing the patient's face).

Buckets need to be monitored and replaced when they are at most one third full. They must imperatively be replaced between each patient.

Stools and vomit are poured into excreta pits or latrines. The empty buckets are rinsed in clear water and disinfected with 0.2% chlorine solution.
Before returning the bucket to the patient, pour 1 cm of 2% chlorine solution again into the bucket.

If possible, use different coloured buckets for stools and vomit or label buckets indicating what they are to be used for. Do not use these buckets for clean activities (e.g. preparation of ORS, transport of potable water).

Management of waste
Waste should be evacuated every day, or as often as necessary, and destroyed on-site in a specifically designed and protected area.

Infectious waste
Infectious waste includes cottons, gauze, plastics, syringes, as well as stool and vomit from the patients. Cottons, gauze, plastics, syringes are incinerated.
Stool and vomit should be collected in specific buckets under the cholera bed or next to the bed. The cholera waste should be treated with a 2% chlorine solution. Buckets should be carefully transported and emptied into a dedicated pit latrine/ flushable toilet, avoiding splashes. The responsible staff should wear appropriate PPE (i.e. apron, gloves, goggles and boots).

All waste containers and bags must be clearly labeled and should be filled to a maximum of three-quarters of their capacities to avoid spillage. Waste containers should be emptied daily, or as needed throughout the day. Upon being emptied, containers and covers should be washed and disinfected with a 0.2% chlorine

Sharps
Sharps containers should be eliminated when they are three-quarters full. They should not be emptied or reused.

Soft waste
Each ward should have a covered 20 to 60 litre waste bins reserved for soft waste: empty ORS sachets, infusion bags, IV infusion set, used compresses, etc.
If possible, waste bins for soft waste should all be the same colour. They should be emptied when they are three-quarters full. Soft waste is burned. The waste bins are washed with a detergent available on the local market, rinsed, and disinfected with 0.2% solution.

Organic waste
In the event of a birth during hospitalisation, use a plastic bucket to transport the placenta to the organic waste pit. The bucket is washed with detergent, rinsed, and disinfected with 0.2% solution. Food waste should also be emptied into this pit. Do not discard plastic bags into this pit.

Mats
If patients are placed on mats, burn them on discharge of the patient. Do not reuse them. Staff responsible for the transport and elimination of waste must wear appropriate personal protective equipment.

Management of wastewater
As water from showers and bathing units, hand-washing stations, laundry, kitchen and the morgue may be contaminated, these areas should be connected to a soak-away pit that is contained inside the CTC/CTU compound.

Soak-away pits must be located at least 30 metres from any groundwater source. The bottom of any un-lined pit should be at least 1.5 metres above any water table. Grease traps should be considered where soap is used, or when the CTC/CTU is likely to remain open over a long period.

Drainage channels should be constructed at the outside of each of the structures, to canalize rainfall and avoid standing water and flooding. These should be cleaned regularly and be covered to avoid the risks of disease from vector breeding. Although rainwater run-off may contain some contamination, it is considered to be of low risk and requires no further pre-treatment prior to disposal.

If it is not possible to build a soak away pit (e.g. lack of space, nature of the soil), wastewater requires specific treatment before being discarded. Technical solutions must be discussed on a case-by-case basis with water and sanitation specialists.

Vector control
Flies or mosquitoes, which can be attracted by waste, food and stagnant water. Cleaning, disinfection and proper waste management reduce the risk of development or breeding of these vectors. Ash pits should have a lid to prevent flies/mosquitoes from entering. If these

measures are not sufficient, it may be necessary to consider specific vector-control measures (e.g. spraying insecticide, fly traps, mosquito repellents etc.).

Note of caution:
It is not recommended to use individual mosquito bed nets (to avoid limiting access to the patient by staff and caregivers).

MAINTAINING CONTACT WITH FAMILIES AND COMMUNITIES

- To help continue building trust among the communities in the facility-based interventions provided at the CTCs, CBVs shall be engaged to be stationed at each CTC and will provide at least twice daily updates to family members (next of kin) via phone calls regarding the status of care provided for their patients.
- These CBVs will also follow up on patients who have been discharged from CTC/CTU on their return to the community.

MORTUARY AND MANAGEMENT OF DEATH

A temporary mortuary within the CTC facilities, but outside treatment area should be provided. Removal of the corpse should be done through a separate exit.

Morgues set up requirements

While setting up a morgue, the following points should be taken into consideration:

- The morgue should have enough space for the storage of registration files and personal belongings of the deceased and for the preparation of the corpse.
- There should be no windows in the morgue building, only ventilation holes in the upper part of the walls covered with wire mesh.
- It should also include a door to allow for specific and discreet exit of dead bodies from the CTC/CTU.
- The floor should be made of concrete or covered with plastic sheets for ease of cleaning, with a slope of 1%, leading to a drainage channel.
- Use of tables with a gentle slope towards a channel in the centre is recommended because it serves multiple purposes.
- A hand-washing station with soap and safe water should be provided close to the morgue (within 20 metres).
- The morgue should be kept clean and disinfected regularly with a 0.2% chlorine solution.

Investigation of deaths

A death in a CTC or CTU must be recorded by the ward or on-call doctor or the facility coordinator as soon as possible.

All deaths must be investigated. This consists of a brief analysis of the individual patient file, treatment conditions and circumstances of death. This investigation should determine the probable cause of death and whether the death was avoidable or not.

Registration of deaths

Anyone who arrives alive but dies in a treatment facility, even if the death occurs within minutes after arrival, even if the patient dies of a co-morbid condition (e.g. malaria), must be registered both as a case and as a facility death. Individuals who die before having been brought to the treatment facility must not be registered as a death in the facility. They are reported separately as "community deaths". The CTC coordinator should check the number of deaths every day.

Preparation of corpses

Once the death has been recorded, the corpse should be transported to the morgue as quickly as possible. The corpse should not be prepared on the ward (and in all events, never in view of other patients).

The corpse should be washed with 2% chlorine solution, using a sponge. Sprayers should not be used to "disinfect" a corpse.

The corpse should be placed in a non-porous body bag with two disposable underpads (one placed under the head, the other under the buttocks) to absorb possible leaks through the mouth and anus. The bag is closed until burial or cremation that should be held as soon as possible.

If the corpse cannot be buried within 24 hours, natural orifices (i.e. mouth and anus) can be plugged with cotton. This technique can limit the leak of excreta but should not be routinely used. The plugging of orifices should be carried out by health staff (usually auxiliary nurses) or specifically trained staff. It should be avoided if it is not essential or acceptable to the population or if staff has not been trained in this practice.

Staff preparing corpses should wear personal protective equipment and carefully wash their hands after this operation.

Burial of Corpses
Burial of corpses for suspected and confirmed cholera will follow prevailing SOPs on handling of infectious corpses.

MONITORING AND EVALUATION

The following indicators should be tracked on a daily basis:

- Number of CTU/CTC established and operational
- Capacity of CTU/CTC - number of beds, number of health staff
- Daily occupancy of the CTU/CTC - number of beds
- Total patients, admissions, discharges
- Deaths - disaggregated by Facility and Community (BID)
    - Details of the deaths should be provided as well
- Total clinical staff (clinicians,

In a large central CTC, you may want to also disaggregate the data and report by specific ward.

Key Performance Indicators should be tracked:

1. % occupancy (number of occupied beds/bed capacity)*100
2. Patient to Staff Ratio (clinician and nurse ratios should be reported separately)
3. In-patient CFR

Where feasible, conduct mortality audits on facility deaths to determine risk factors for mortality to inform operations.

NB: It is important to keep track of bed occupancy and maintain at most 80% occupancy. Consider expansion if occupancy is consistently above 80%.

CLOSING DOWN A CTC

Once the outbreak response is over and a decision is taken to close down the CTC, the following steps should be implemented.

- Cleaning and disinfection of all doors, floors, walls, stairs, handles, beds, etc. should be done with a 0.2% chlorine solution, and rinsed with water 10 minutes after cleaning.
- All buckets that have been used for stool or vomit should be thoroughly washed with detergent and a 2% chlorine solution and air-dried in the sunlight, when possible.
- Unless the CTC/CTU is located within the grounds of an existing health structure that will continue to use the waste zone, all pits should be filled – the pits for ash backfilled with soil, and the sharps pits filled with concrete (to enclose all sharps and protect future users of the land).

RISK COMMUNICATION AND COMMUNITY ENGAGEMENT

INTRODUCTION AND OVERVIEW OF RCCE

Risk Communication and Community Engagement (RCCE) play a critical role in influencing the desired behaviour change among community members who are part of the key stakeholders in the fight against cholera. It creates public awareness and demand for uptake of services including vaccination against cholera as part of the response to halt the outbreak.

Risk communication refers to **real-time exchange of information**, advice and opinions between experts or officials and people who face a threat (hazard) to their survival, health or economic or social well-being. Effective risk communication allows people most at risk to understand and adopt protective behaviours. It also allows authorities and experts to listen to and address people's concerns and needs so that the advice they provide is informed, relevant, timely, trusted and acceptable to the people at risk. This is achieved through empowering the community with timely life-saving information that promotes protective behaviours. While Community engagement is a **mutual partnership** between response teams and communities facing the threat. The **goal is for the community to take ownership** of how the threat is controlled and managed, and to participate effectively in the response.

Further, RCCE has a critical function in supporting the effective implementation of various other pillars of the Cholera response plan particularly WASH, case management,

surveillance and Infection Prevention and Control (IPC). The RCCE interventions are well implemented and targeted following an informed assessment of the risks surrounding the outbreak. Through RCCE interventions, communities are empowered to adopt healthy behaviours that help to halt the spread of the disease. Further, the interventions help to create demand for the uptake services by the community including the vaccine as part of the immediate term interventions to halt the outbreak.

TARGET AUDIENCE

The RCCE guidelines have been developed for actors in the health and non-health sectors that may be involved in the cholera preparedness and response. These are the MOH stakeholders and those from other line ministries who have a clear responsibility for planning, preparing, implementing and evaluating the response.

As for the target audience for cholera key messages, it is sufficiently diversified. The key messages developed target different types of people at different levels of the community. The table below gives an idea of the segments of the different audiences targeted by key messages as well as activities planned for this cholera response.

Table 1. Target audience and their relevant participants in the response

Types of audience	**Meanings**	**Identified target action**
Primary audience	The core group of people around whom the strategic communication objectives are focused and within whom the main behaviour change (which is to get the child vaccinated) must take place.	All age groups • Heads of Households • Mother • Father • Caregivers/Guardians • Adolescents
Secondary audience	Group of people who directly relate to the primary audience through frequent contact and who may support or inhibit behaviour changes in the primary audience through their influence.	• Grand parents • Teachers • Community volunteers • Health workers • Media • Faith leaders • Other community leaders •

Tertiary audience	Tertiary audiences are individual/community groups, institution who may support or inhibit behaviour and social change in a community by allowing or disallowing an intervention to take place. These people control the local social environment, communication channels and decision-making processes and have a great influence on local/social norms.	• Religious Leaders • Traditional leaders • Political leaders • Opinion leaders • Other line ministries • Media • NGOs • Community Based Organizations (CBOs) • Schools • Action Groups etc.

RCCE COMPONENTS

1. Health Education
2. Social Mobilization & Community Engagement
3. Outbreak Communication
4. Behavior Change Communication (BCC)
5. Media and Social Networks
6. Rumor Tracking and Management
7. Advocacy

RCCE STRATEGIES

- Inter –personal communication
- Door to Door sensitization on cholera
- Public announcements using town criers/ ZANIS
- Community sensitizations led by the Minister of Health and other line ministries
- Clean up campaigns in communities
- Stakeholder engagement of key leaders in the fight
- School engagements
- Market engagements
- Bus terminus/stations engagements
- Distribution of IEC Material such as posters, brochures, leaflets,
- Use of print and electronic media i.e. radio, TV & Newspapers
- Live coverage of the events by various private TV/radio stations
- Drama performances in collaboration with other partners
- Working with cholera champions

RCCE LOGISTICTS

Essential logistics include; cholera Policy documents, Vehicles, Public Address systems, hand held mega phones, batteries, IEC Materials, chlorine for distribution, tables/Gazebo-information desk, change room, waiting area for discharges, chairs, phones, iPad, registers, reporting books, stationery, waste bins, hand washing, facilities, domestic chlorine, transport for patients in case of the central CTC, ORS for demonstration & distribution upon discharge at CTU/CTCs e.t.c.

Essential logistics to facilitate prompt response are categorised as following;

Table 2 Category of logistics

Documents	Office Supplies	Equipment & supplies	Other Supplies	Transport
Cholera policy documents	Tables	Public Address systems	ORS sachets	Vehicle & Motor bike for staff
IEC materials- brochures, leaflets, posters, Job Aids, flash cards, flip charts,	Chairs	Hand held mega phones	Domestic chlorine	Vehicle for discharged clients
Register	Lockable cabinet	Batteries	Hand washing facilities	Bicycles for CBVS community work
Reporting books	Tent/Gazebo for shelter Laptops IPad Phones Stationery		Waste bins	

ROLE OF RCCE IN CHOLERA RESPONSE

RCCE is a cardinal in information sharing and equipping for both the public and health care workers to take up positive preventive measures. The following are some of the expected roles at various levels of care

At the National Level:

- Conduct advocacy meetings with various Key stakeholders
- Coordinate Media briefing
- Support the Broadcasting of spots/ jingles on TV and radio
- Conduct Radio and TV discussion programme
- Develop /Produce tools and IEC materials (flyers for school, posters, aprons, key messages, scripts for radio and TV spots)
- Monitor Digital social mobilization including social listening activities
- Orient national supervisors in RCCE
- Monitor and provide technical support to subnational level
- Mobilise resources
- Compile RCCE activities implemented daily by the province and send a report to the director health promotion

At the Provincial Level

- Conduct Advocacy meeting with various key stakeholders
- Conduct Radio discussion programme
- Orient the District Health Promotion Officers

- Organize Media engagement
- Organize advocacy meeting with leaders at provincial level
- Monitor and provide technical support to district staff
- Track the completion of RCCE data on a daily basis via the google link
- Monitor the implementation of media plan activities
- Support the updating of stakeholder mapping
- Support the mobilisation of local resources
- Compile RCCE activities implemented daily by the districts and send a report to national level

At the District Level

- Develop activities plan
- Organise training of Health Facilities
- Organize advocacy meeting with key stakeholders
- Send the letters to school, churches
- Support Supervision of social mobilization door to door activities
- Conduct radio programs
- Compile and fill in social mobilisation data on a daily basis in the Google link
- Manage rumours and misinformation (collect and track rumours, find their sources, evaluate their impact on the campaign, and the resulting actions to contain misinformation)
- Support the mobilisation of local resources
- Conduct Engagement meeting for Faith-based Organisations, CBOs include men, Young and women associations
- Compile RCCE activities implemented daily by health facilities and send a report to the province
- Facilitate establishment of Oral hydration points in the community
- Conduct public address

At the Health Facility level

- Send letters to school, churches informing them about cholera situation and how the people can protect themselves
- Organize community meetings with key leaders
- Orient community mobilizer and town criers
- Mobilize men, women, youth, and other relevant community members within their associations
- Conduct Social mobilization and door-to-door activities
- Mapping of local stakeholders
- Manage rumours and misinformation via rumour and misinformation log (collect and track rumours, find their sources, evaluate their impact on the campaign, and the resulting actions to contain misinformation)
- Mobilization of local resources
- Mobilize men, women, youths and other key community members within their local groups
- Monitor oral hydration points

CHANNELS OF COMMUNICATION

The methodology and the channels used for reaching out to the target audiences is as essential as the information intended for the audience. It is therefore important to evaluate

advantages and limitations for each method and channel of communication according to local circumstances before it is employed.
Mass media generally used by national authorities such as radio, television, press, posters in towns, text messages may not reach everyone (e.g. rural populations or deprived urban population). Other means should be considered such as presentations/ discussions in village or neighborhood meetings in local language, or through opinion leaders or influencers amongst local authorities, religious or traditional leaders, associations, community health workers, teachers, drama groups, door to door sensitization by community volunteers, use of public Address system, etc. Mobile teams can also carry out home visits and conduct health education coupled with demonstration activities at water points, schools, health facilities, markets and other places.
Any means adapted to the context can be used to inform the population.
All distributions, including soap distributions, are an opportunity to carry out health promotion activities.

RCCE before Cholera outbreak

Before the outbreak, health promotion activities help to communicate a possible risk of a cholera epidemic to the community. The communication aims to prepare the community through raising awareness about the risks of cholera, prevention methods, the disease symptoms, what to do and what not to do in case of suspicion of the disease. This communication must take place at several levels:

1) National (political authorities, collect information concerning the country's capacity to manage a cholera epidemic, prepare tools for risk communication such as awareness posters, awareness messages on cholera, for example washing hands or consume hot meals.)
2) Health Care Workers (How to be prepared for the disease? Pre-deployment of kits and logistics to take care of sick people, especially in the event of an outbreak.
3) Community (Inform the population about the risks of cholera, the symptoms of cholera, what to do and what not to do in case of suspicion of the disease

RCCE during Cholera out break

During a cholera epidemic, risk communication is important, even essential, in the sense that it makes it possible to:

- **Quickly control** the epidemic by keeping the community informed in time
- **Reduce the risk of** disease **spreading**
- **Raise awareness about personal protection and prevention measures** and how to proceed if someone around them become ill.

Public health professionals should also report any suspected cases and what they do when a case is admitted to hospital.

How to communicate about cholera risks?

When a health emergency such as cholera epidemic occurs, many if not all of us need to know:
1. **The event**: What happened? How serious is it? Who is concerned? Who is responsible? What do you know for sure?
2. **The risk**: Is it dangerous? Are my loved ones and I at risk? Who is most affected? What increases and decreases my risk?

3. **Actions:** What can be done to prevent getting sick? What do we do ? What can I do to protect myself and my loved ones? What should I do if I or a member of my family is sick? Who will take care of me or my family member if he/she gets sick?

RCCE after Cholera out break

After the outbreak, communication with the community and other relevant players in the response is maintained for feedback, documentation of key lessons and evaluation of interventions for better planning.

- Prepare response report that considers all the actions taken before and during the cholera epidemic
- In each area of intervention, evaluate the effectiveness of the communication team
- Maintain communication with the community and at other relevant levels
- Have an updated list of media outlets
- Learn from previous experiences

Messages

The key messages must specifically focus on cholera and the current outbreak. They must be simple, clear and consistent.

People must at least be made familiar with:

- the appropriate level of the risk for contracting the disease and the effects/ impact of the disease
- the symptoms of the disease
- what to do in the event of watery diarrhoea
- individual prevention measures
- the outbreak control measures set up (location of CTC, ORP, safe water points, etc.)
- Share key public information messages
- In an event of use of mass cholera vaccination, targeted messages are shared to increase vaccine uptake in the targeted audience/ community
- Stick to basic messages. Sometimes additional information or discussions are necessary, e.g. when addressing rumours and misconceptions or community rejection of the CTC or any other intervention.
- Messages on the posters/ TV/RADIO must be well thought after and approved to avoid stigma, inequality or miscommunication. Messages should be understood easily.
- In case of CTC/ CTU the places must be labelled with enough details for both the patients/ health workers and visitors.

Top line RCCE messages for communities:

1. **Cholera is an infectious disease that causes acute watery diarrhoea.**
    - You can catch cholera by eating or drinking contaminated food or water/ getting in contact with contaminated faeces or vomitus from a cholera infected person or having unprotected contact with the body of someone who has died of cholera.
2. **If someone has cholera:**
    - Stay calm. seek early care and treatment, most people recover fully after getting early treatment.

- Immediately, the person should be re hydrated with oral rehydration solution. ORS sachet. (or a home-made solution mix of 1 litre safe water, 6 teaspoons sugar and half a teaspoon of salt).
- Secondly, seek early medical care from the nearest health facility, or CTC OR ANY isolation facility designated by the authority for cholera treatment. As you take your patient to the health facility ensure that all the basic information about the patient is correctly filled in or submitted.

3. **If cholera is circulating in your community, protect yourself and your loved ones by:**
   - Washing your hands regularly using soap and water, especially after touching/ using the toilet (faeces, changing baby/ adult diapers) or before eating.
   - Using safe water (disinfected, boiled or bottled) for drinking, washing fruit and vegetables and cooking.
   - Using boiled cooled water.
   - Cooking food thoroughly, keeping it covered, and eating immediately after cooking it, while it is still hot.
   - Allow the health experts to disinfect the soiled clothes or vomitus, house / toilets of the suspected cholera case/patient.
   - Breast feeding mothers must Continue to breast feed infants and young children in a clean environment.
   - Getting vaccinated with the oral cholera vaccine, if it is available to you is among some of the ways to prevent and control cholera. However, when one is vaccinated it doesn't mean they cannot contract cholera, all the preventive measures must be followed diligently.

Addressing myths and misconceptions / rumors in the community.

In general rumors arise when:

- An issue or information is important to the people but it has not been clearly explained.
- People may believe when the source is perceived to be credible.
- Ignorance and illiteracy.
- Motivated by political players.

What to do;

Listen politely and do not ridicule,
Use scientific facts in a simplified manner.
Tell the truth and never hide information. (Side effects)
Clarify with visual aid / examples/ counsel the client.

The table below shows some of the risky and desired behaviour observed during the recent cholera outbreak in Zambia.

Table 2:Risk and desired behaviour observed around cholera outbreak in Zambia

Risky behaviours	Desired behaviours

Delay in seeking health care due to security concerns and hiked taxis fares.	Community seeking health care early, when suspected to have cholera. Increased stakeholder collaboration to address concerns.
Low risk perception with regards to cholera	Increased risk perception among the community with regards to cholera
Religious or cultural beliefs leading to refusal of oral cholera vaccination	High acceptance of vaccination by the targeted population at risk. People trust the communication made by the Ministry of Health and its partners
Self-stigma or stigma by community members against a person with cholera	Patients with cholera and the community understand that anyone can get cholera and the only way to recover and fight the disease is to support one another and seek medical help early. Community engagement.
Some parents hesitate to vaccinate their children when they are ill	Parents agree to vaccinate their children even if they are ill
Some populations are concerned about the safety and possible side effects of the cholera vaccine	Population is convinced that the vaccine is safe, without side effects and agree to get vaccinated
Self-medication by some people in the community	People seek medical treatment at the health facility
Drinking of Kachasu as prophylaxis and treatment for the diseases	People understand that Kachasu does not protect them and cannot treat cholera but gives them false hope leading to delay in seeking care Stop completely to use Kachasu
Mistrust of health workers	Scientific information to be shred in a simplified manner especially on (side effects in relation to vaccinations.) nothing but the truth.
Drinking chlorine to cure cholera	Populations are properly supervised on how to use chlorine by using demonstrations during health promotion activities and on mass media such as TV.
Cholera caused by bad weather.	Targeted approach to the affected population to increase awareness and knowledge about causes of cholera.
Community members using ash to disinfect the toilets and hand wash,	Scientific information to be shared in a simplified manner especially on cholera prevention such as hand wash with soap.

RCCE data collection and feedback mechanism

RCCE data is needed to evaluate the implementation of activities and to find corrective actions or directions to improve interventions. Data collection begins with the CBVs'

activities. The latter fill in the tally sheet and rumour log in their possession during the door-to-door strategy.

The synthesis of the data collected by the CBVs is done in a synthesis tool at health facility level, which in turn sends the synthesis to the district. Once in the district, the person in charge of promotion in charge of communication in the district will introduce these data into a computer via a link shared with all the districts. Thus, introduced at the district level, the communication data will pass to the provincial and central level

SOCIAL MOBILIZATION AND COMMUNITY ENGAGEMENT

Community engagement during health emergency responses is often confused with risk communication. While these two approaches have some overlap, they are distinct. Community engagement is a collaborative approach in which formal responders and members of cholera affected or cholera-at-risk communities work together to prevent and respond to cholera outbreaks. Risk communication is often one-way and focuses on providing information. This type of communication is usually used to transmit details about how people can prevent transmission through behavior change; why, when, and where people can seek help; how people can safely and effectively care for infected family members, and the availability and effectiveness of vaccines.

Community members and responders may collaborate to design and deliver locally relevant risk communication messaging. Community engagement can also be used to more effectively deliver a range of other response activities, including:

1. **Surveillance, early detection, and reporting.**
   Communities are often the first to identify cholera cases and report them to health actors. Community engagement can help build trust and strengthen this information flow. A stronger flow of information makes it easier for formal responders to promptly identify and respond to cases. The same channel also supports the flow of other critical information, such as how interventions are perceived in the community and what kinds of information, including rumours, are circulating.

2. **Prevention and control.**
   In addition to helping craft and adapt risk communication messaging that resonates with affected populations, community engagement, such as through feedback and qualitative data collection, can provide critical insights to help ensure other preventative measures are effective and sensitive to the local context. Preventive measures include vaccination, WASH practices, and safe and dignified burial practices, such as in relation to washing the bodies of the dead.

3. **Treatment and care.**
   Working with community members to design pathways for treatment and care can help ensure these pathways are realistic, accessible, and acceptable, and that they do not exacerbate any stigma associated with cholera. This engagement is an important part of building trust in the response.

GUIDANCE FOR GOOD COMMUNITY ENGAGEMENT

Core principles of community engagement

There are some principles that response actors can keep in mind when aiming to initiate effective community engagement for cholera response. Community engagement should:

- **Be integrated and coordinated**. Community engagement is not just an aspect of risk communication. It should be integrated across all response pillars. Community engagement should also draw on previous and/or existing hygiene promotion activities, rather than starting from the ground up.
- **Be coordinated across borders, where this is important**. Relevant information should be regularly shared between response stakeholders in all countries to ensure a more consistent and coherent response across borders.
- **Be inclusive**. Identify those most at risk of infection by conducting vulnerability assessments that can help identify marginalized groups such as women, children, elderly people, people with disabilities, and people from minority groups. Their involvement is critical to ensuring that prevention activities and other aspects of the response are effective for all. Men are potentially more vulnerable to cholera than women and other locally marginalized groups. This is may be due to their greater mobility, as well as more limited health seeking and interaction with health facilities which may result in their lesser access to good health information. Improved community engagement to increase transparency and collaboration could help increase the level of trust between affected communities and responders in this and other settings.
- **Build trust**. Identify, prioritize, and monitor which trust issues should be addressed. Prioritization should focus more on making the response and responders more worthy of community trust, rather than attempting to convince community members to change their attitudes towards the response. An important way to build trust in the response and responders is to identify locally trusted people and networks to work with, while recognizing that these may not be obvious. For instance, local elites, health workers, and military, police, and government leaders may not be trusted by community members. Herbal and other traditional healers and cultural or religious leader may be more influential, although this too, should not be taken for granted. Directly ask community members who is trusted locally. Also critical for trust is to ensure communication is open and honest, and that there are measures in place to enhance accountability of response actors.
- **Mitigate stigma and discrimination**. Be aware that poorly designed activities could inadvertently stigmatize affected communities and groups. Cholera outbreaks can lead to the emergence of stigma and discrimination due to the disease's perceived association with a lack of cleanliness and hygiene. Stigmatization may lead to victim blaming or the labelling of areas or groups as 'backward'. Emphasizing structural determinants, such as a lack of access to safe water, can help counter stigma and discrimination.
- **Emphasize two-way communication**. Avoid treating community engagement activities only as message dissemination channels. Rather, focus on eliciting and listening and responding to community members' questions and concerns, their understandings of cholera, and their ideas for how to respond effectively. Two-way communication also relates to accountability. Encourage feedback on the quality and effectiveness of response and commit to change where the community says it is needed.

- **Recognize and support community capacities**. Community engagement efforts should aim to identify and support local strategies and practices, as well as draw on local capacities to support other response measures, such as hiring trusted local people to work as contact tracers or in other aspects of response. Responders should also listen to concerns from the community about its lack of capacity or resources to dedicate to the cholera response, and support accordingly.
- **Work with local government structures and cadres**. Especially in widespread outbreaks, there may be a need to constantly reprioritize between in-depth engagement strategies and broader approaches. Working closely with local government and health system actors – such as community health workers, health surveillance assistants, environmental health officers, and health promotion teams – is critical to ensuring the quality of engagement is not negatively affected when there is a need to broaden the approach.
- **Be flexible**. Like cholera outbreaks themselves, communities' responses to the disease, and to response measures, can shift in unpredictable ways. These shifts, which may come about during different phases of the outbreak, are sometimes influenced by community engagement activities themselves, or by broader political or social processes. Be open to adapting community engagement approaches if things are not working, or if community preferences change. Social and behavioural data and community feedback may signal when it is time to adapt strategies.

Oral Cholera Vaccination (OCV)

Community engagement is crucial to improve confidence in OCV, as misconceptions about OCV persist. Misconceptions include, for example, that vaccines should be injectable and therefore the oral vaccine is ineffective. Community engagement can be used to promote information about OCV, while also answering questions and concerns. Ensure the response takes an equitable approach to OCV provision, given the overall shortage of OCV. Community engagement practitioners should:

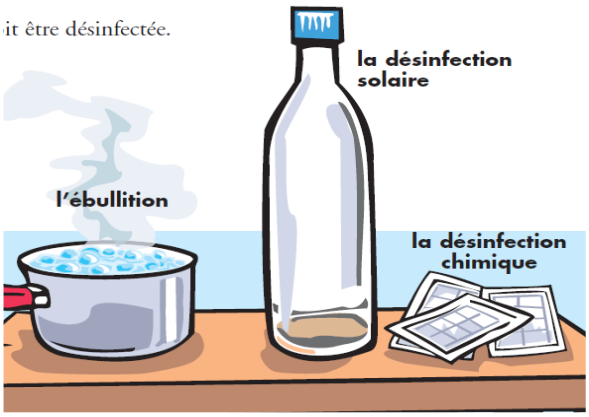
- **Ensure vaccine campaign strategies differentiate between urban and rural populations**. Large community meetings, like those used to share information in rural areas, may be less appropriate in urban settings, which may require door-to-door engagement. Vaccination programmes in urban areas should consider conducting vaccinations on weekends, using fixed sites, and starting vaccination early in the morning and finishing late in the evening.
- **Ensure that equity is at the centre of any vaccination strategy.** The communities most vulnerable to cholera, such as those lacking WASH services or distant from health services, are the ones who are most able to access OCV and have their concerns specifically addressed.
- **Use rumour tracking to understand the latest rumours regarding OCV, and design relevant two-way communication approaches, including opportunities for community members to ask questions in an open forum and receive relevant answers**. Acknowledge unknowns and uncertainty where they exist. Community engagement efforts should identify and address concerns and misconceptions.
- **Engage with locally trusted influencers, such as religious leaders, to promote OCV where needed**. This could include, for example, a religious leader getting publicly vaccinated and/or sharing their experience of vaccination and side effects with their congregation.

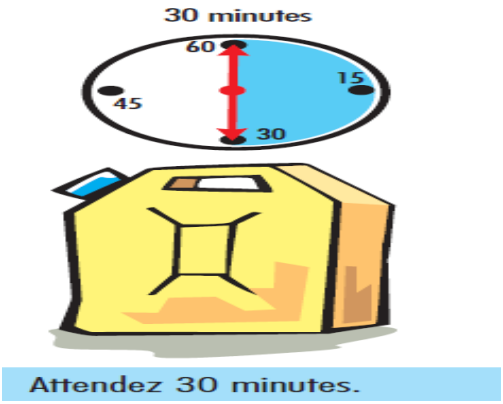
- **Use a mix of locally relevant communication platforms to promote confidence in OCV and create opportunities for dialogue.** These platforms can include those based on technology (such as SMS, radio, and TV) and traditional platforms and interventions (such as interpersonal communication).

DEMONSTRATIONS

Demonstration is described as an act of showing that something exists or is true by giving proof of evidence. RCCE activities are accompanied by demonstrations in certain critical including; Access to safe drinking water, preparation of Oral Rehydration Salt (ORS) and Sugar Salt Solution (SSS) and critical steps of hand hygiene. These are practical and visual in nature to support risk communication in cholera outbreak and response.
The instructions should be well explained in a simple language for the public to understand, clear and simple for the general public to follow

Access to safe drinking water





Access to **safe drinking water is essential** for the affected and non-affected population. Water should be treated at source or point of use depending on the context and stored appropriately.

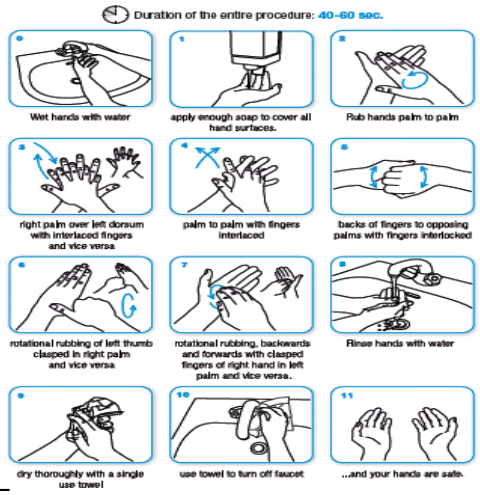
- Collect water from a known safe source
- Even if it looks clear, water can contain the germs that cause cholera.
- Add chlorine to make it safe before drinking or using it to wash vegetables or items used to prepare food
    - Add 5 liter container put a ¼ of a lid top
    - 10 liter of water put ½ of a lid top
    - 20-liter put 1 lid top and wait for 30min before drinking or
- Boil your water to make it safe
- Keep the drinking water in a clean container with a small opening and cover with a lid to prevent contamination
- Pour the water from the container – do not dip a cup into the container to avoid contamination

- If dipping into the water container cannot be avoided, use a cup or other utensil with a handle to scoop the water.

Hand washing and critical moments

Hand wash is other important aspect that should be considered seriously when conducting demonstrations. There must be Soap, safe running in all the ORP Stations and other strategic points. There must be visual aids to show the 11 steps of hand washing-wash all parts of your hands – front, back, between the fingers and under the nails and 8 steps for hand rub.

- Wash your hands with soap and safe water: before cooking, before eating and before feeding your children
- After using the latrine (or cleaning your children after they have used the latrine),
- After taking care of or touching a sick person with cholera



Refer to annex 17: Hand wash steps

Preparation of ORS

About 70% of cholera cases develop mild to moderate diarrhoea and require oral treatment only. Early oral therapy helps avoid the appearance or aggravation of significant dehydration that would require hospitalization.

To ensure rapid access to oral rehydration, Oral Rehydration Points should be established in locations that are easily accessed by all person.

Preparation of ORS;

- The utensils must be clean and safe.

- Measure 6 teaspoons of sugar and 1 tea spoon of salt in 1liter of cooled boiled water.

Access to Improved Sanitation

Prevent open defecation and work with the community to ensure safe disposal of excreta. Improve access to sanitation facilities and promote their proper use and regular maintenance

- Latrines should be placed in locations that will not contaminate any drinking water source (at least 30 meters from any water source and 2 meters above the water table)
- Involve the community in all phases of the design and implementation of on-site sanitation projects to ensure access to and use of the facilities
- Establish handwashing stations with soap near all latrines and promote handwashing with soap

ANNEXES

ANNEX 1: ND1 FORM

(On Next Page)

Ministry of Health

_____ Reporting Health Facility

_____ Reporting District

Generic Reporting Form – from Health Facility/Health Worker to District Health Team

☐ AFP ☐ Cholera ☐ Diarrhea with Blood/Shigella ☐ Neonatal Tetanus ☐ Measles ☐ Meningitis ☐ Plague ☐ V.H.F. ☐ Yellow Fever ☐ _____ Other

Official Use Only **Epid Number**: _____-_____-_____-_____ (Province - District - Year Onset - Case Number) Received at National _____/_____/_____

Name(s) of Patient: _____ **Date of Birth:** _____/_____/_____ **Age:** _____ _____ _____ (**If DOB unknown**) **years** (If <12 months) **months** (NNT only) **days**

Patient's Residence: Village/Neighborhood _____ **Sex:** ☐ M=Male F=Female

Town/City: _____ **District of Residence:** _____ ☐ U=Urban R=Rural **Urban/Rural**

Locating Information: _____
If applicable, Name of mother and father (In case of neonate or child)

Date Seen at Health Facility: _____/_____/_____
Date Health Facility Notified District: _____/_____/_____

Dates of Onset: _____/_____/_____

For cases of Measles, AFP, NT (TT in mother), Yellow Fever, and Meningitis:
Number of vaccine doses received ☐ 9=unknown
For Measles, AFP, TT, YF- documented by card. For Meningitis by history.

Date of last vaccination: _____/_____/_____
(AFP, Measles, Neonatal Tetanus (TT in mother), Yellow Fever, and Meningitis only)

Blank variable #1_____

Blank variable #2_____

In/Out patient : ☐ 1=In-patient 2=Out-patient

Outcome ☐ 1=Alive 2=Dead 9=unknown

Final Classification: ☐ 1=Confirmed 2=Probable/Compatible 3=Discarded 4=Suspected

Person Completing Form **Name:** _____ **Signature:** _____

Date Sent Form to District: _____/_____/_____

Note that there are may be specific investigation forms for different disease conditions e.g. AFP investigation form

If Lab Specimen Collected

Official Use Only **Epid Number**: _____-_____-_____-_____ (Province - District - Year Onset - Case Number) Received at National _____/_____/_____

Name(s) of Patient: _____ **Date of Birth:** _____/_____/_____ **Age:** _____ _____ _____ (**If DOB unknown**) **years** **months** (If <12 months) **days**

_____ Reporting Health Facility

_____ Reporting District

For Health Facility: If lab specimen is collected, complete the following information. And send a copy of this form to the lab with the specimen.

Date of specimen collection: _____/_____/_____
Date Specimen sent to lab: _____/_____/_____

Specimen source: Stool Blood CSF _____ Other

For the Lab: Complete this section and return the form to district team and clinician

Date lab specimen: _____/_____/_____

Specimen Condition: Adequate Not adequate

Disease/ Condition	Type of test	Results (P=pending)	Disease / Condition	Type of test	Results	Virus Detection
Cholera	Culture	+ - P	Yellow Fever	IgM	+ - P	
	Direct Exam	+ - P _____ Method used for Direct Exam	Measles	IgM	+ - P	
Meningitis			Rubella	IgM	+ - P	
N. meningitidis	Culture	+ - P	RVF	IgM	+ - P	+ - P
S. pneumonia	Culture	+ - P	Ebola	IgM	+ - P	+ - P
H. influenza	Culture	+ - P	CCHF	IgM	+ - P	+ - P
N. meningitidis	Latex	+ - P	Lassa	IgM	+ - P	+ - P
S. pneumonia	Latex	+ - P	Marburg	IgM	+ - P	+ - P
H. influenza	Latex	+ - P				
Shigella Dysenteriae	Culture	SD type 1 Other shig No shig				
Plague	Culture	+ - P				
	IFA>1: 64	+ - P				

Other lab results: _____

_____

Date lab sent results to district: _____/_____/_____

_____

Name of lab sending results:_____

Other pending tests: _____

Date district received lab results: _____/_____/_____

Date lab results sent to Clinician by district: _____/_____/_____

NOTE: District is responsible for ensuring lab results get to clinicians. Failure to do so will undermine cooperation with clinicians on reporting of cases in the future

ANNEX 2: CHOLERA CASE INVESTIGATION FORM

(on next page)

GOVERNMENT OF ZAMBIA
MINISTRY OF HEALTH

CHOLERA CASE INVESTIGATION FORM

FACILITY: _____ **DISTRICT:** _____

Tracking Number:_____
(Health Facility Code -Current Year – Case Number)

Patient First Name: _____**Surname**:_____
Date of Birth (dd/mm/yyyy): _____/_____/_____ **Sex:** Male/Female

Additional Demographic Information

PREGNANT: Yes/No/Unknown;

LACTATING: Yes/No/Unknown;

Level Of Education: No Education /Primary /Secondary/Tertiary;

Marital Status: Single/Married/Living with partner/Divorce/Widow/Widower/Not applicable

Work/Occupation: _____

Workplace/Nursery/School/College Name: _____

Workplace/Nursery/School/College Physical Address: _____

Workplace/Nursery/School/College Village/Town/City: _____

Workplace/Nursery/School/College Contact Phone: _____

Name of Parent/Guardian/Next of Kin : _____

Current Residential Coordinates: Latitude: _____Longitude: _____

Investigation Information

*DATE OF INVESTIGATION: _____/_____/_____

Was this case/condition/event detected by a health worker? Yes/No

Where was the case/condition/event detected? Health Facility/Community/Laboratory

Location where symptom started (Address): _____

Residential Village/Town/City where symptom started: _____

Residential Chiefdom/Zone where symptom started: _____

Patient clinical information

Are you living in camps or sheltered homes: Yes/No

People staying with in the same household: _____

Date last dose was administered (dd/mm/yyyy): _____/_____/_____

Potential Vibrio vehicles - Drinking water

Drinking water source 1: _____

Drinking water source 2: _____

Drinking water source 3: _____

Drinking water source 4: _____

Potential Vibrio vehicles - Non-drinking water

Non drinking water source 1: _____

Non drinking water source 2: _____

Non drinking water source 3: _____

Non drinking water source 4: _____

Potential Vibrio vehicles - Food items

Food items 1: _____

Food items 2: _____

Food items 3: _____

Food items 4: _____

Bacteriology Lab findings

Drinking water found infected by vibrio: Yes/No

Food items found infected by vibrio: Yes/No

Non drinking water found infected by vibrio: Yes/No

Exposure to the identified hazards prior onset of the disease

Drink from water source 1 three days prior to the onset of the disease: Yes/No

Drink from water source 2 three days prior to the onset of the disease: Yes/No

Drink from water source 3 within three days prior to the onset of the disease: Yes/No

Drink from water source 4 three days prior to the onset of the disease: Yes/No

Food item 1 eaten in 3 days prior to the onset of the disease: Yes/No

Food item 2 eaten in 3 days prior to the onset of the disease: Yes/No

Food item 3 eaten in 3 days prior to the onset of the disease: Yes/No

Food item 4 eaten in 3 days prior to the onset of the disease: Yes/No

Funerals attended in 3 days prior to the onset of the disease: Yes/No

Other Social events attended in 3 days prior to the onset of the disease: Yes/No

*Does the alert meet case definition: Yes/No/Unknown

Case Investigator Assessment

*Does the alert meet case definition for Cholera? Yes/No/Unknown

Conclusion of Investigation

Date of conclusion (dd/mm/yyyy): _____/_____/_____

Final Diagnosis: _____

Final Case Classification: Confirmed by Laboratory/Confirmed by Clinicians/Probable/Suspect/Not a case

Final Patient Vital Status: Alive/Dead/Unknown

Date of death (dd/mm/yyyy): _____/_____/_____

General Comments: _____

INVESTIGATOR

*Name: _____

*Designation: _____

*Contact Phone number: _____

These are compulsory variable and must be completed.

ANNEX 3: CRITERIA FOR RDT TESTING OF CHOLERA SUSPECTED CASES IN DETECTION OF A PROBABLE CHOLERA OUTBREAK IN A SUB-DISTRICT/DISTRICT

Number of suspected cholera cases tested by RDT	**Minimum Number of suspected cholera cases tested positive by RDT**	**Interpretation**
Among 3 to 7 suspected cases tested	At least 3 RDT+	Probable cholera outbreak detected
Among 8 to 10 suspected cases tested	At least 4 RDT+	
Among 11 to 14 suspected cases tested	At least 5 RDT+	
Among 15 to 17 suspected cases tested	At least 6 RDT+	
Among 18 to 21 suspected cases tested	At least 7 RDT+	

Source: GTFCC Interim Guidance Public health surveillance for cholera

ANNEX 4: FIELD INVESTIGATION AND INITIAL RESPONSE CHECKLIST (ADAPTED FROM GTFCC)

Prior to departure

1. Verify the source of the alert.
   - Verify that the information is from a reliable source and reflects conditions suggesting a true outbreak.
2. Obtain the required authorizations.
   - In addition to official authorizations, make sure to include permission from local leaders or persons of influence in the community.
3. Prepare materials and supplies for surveillance and to collect and transport specimens.
   - Standard line lists or registers, case investigation forms, case definitions and procedures for surveillance;
   - Materials for handwashing (water, soap, and bleach to disinfect water), gloves, boxes for collection and disposal of contaminated supplies and equipment; and
   - Rapid diagnostic tests (RDTs) and materials for specimen collection and transport: stool containers, rectal swabs, and Cary-Blair transport medium.
4. Prepare supplies for patient care, infection prevention and control (IPC) and health and hygiene education.
   - Copies of treatment protocols, oral rehydration solution (ORS), chlorine for water treatment, medical supplies (such as Ringer's lactate, giving sets, IV cannulas), soap;
   - Information, education, and communication (IEC) materials and body bags.
5. Arrange transport, security, and other logistics.
   - Organise transport under secure conditions for the team and supplies.
   - Organise transport of specimens to the reference laboratory.

In the field

6. Review the registers at the health facilities.
   - Check the register, if available, or speak to clinicians about any previous cases.
   - Collect data from the register, including numbers of patients and deaths from suspected cholera per age category (under 5 years of age and 5 years of age and older) per week.
   - Try to collect data from at least 1 month prior to the first suspected cases to identify when the number of cases increased.
   - Collect data on where patients live when available.
   - Provide data collection tools (register, line list) and training in case definition, data collection and reporting.
7. Examine patients and review clinical management.
   - Assess the clinical presentation of the cases.
   - Review current case management practices and protocols.
   - Ensure adequate patient flow and adapt as necessary, anticipating arrival of additional patients if appropriate.
   - If the CFR is greater than1%, assess the health facility to identify gaps and priority actions to ensure appropriate access and treatment.
   - Provide protocols and job aids, training and medical supplies as needed.
8. Collect laboratory specimens to confirm the diagnosis.

- Collect faecal specimens (liquid stool or rectal swabs) from suspected patients.
- If RDTs are available, prioritise sending specimens from RDT-positive samples to the laboratory for confirmation.
- Send stool samples to the laboratory following standard procedures.
- Verify that health-care workers can safely collect, store and transport samples.

- Provide training in sample collection, storage and transport and provide job aids and supplies, if needed.
- Collect faecal specimens (liquid stool or rectal swabs) from suspected patients and send them to the laboratory for confirmation under appropriate conditions.
- If RDTs are available, priorities sending specimens from RDT-positive samples to the laboratory for confirmation.
- Verify that health-care workers can safely collect, store and transport samples.
- Provide training in sample collection, storage and transport and provide job aids and supplies if needed.

9. Review water, sanitation, and hygiene (WASH) and IPC measures at the health facility.
    - Evaluate water supply and sanitation facilities and IPC measures and reinforce good practices, as appropriate.
    - Ensure there is enough water to cover the daily needs of patients and caregivers and adequate measures for the safe disposal of excreta and vomit.
    - Ensure that handwashing facilities and chlorine solutions for disinfection are available. As needed, provide protocols, training and supplies (such as buckets, clothes, soap, alcohol-based hand rubs, chlorine, cleaning materials, and personal protective equipment such as gloves, waste bins and cholera cots).
10. Conduct a community WaSH investigation.
    - Investigate the possible sources of contamination and likely modes of transmission (such as water sources, markets, gatherings, funerals and cultural practices).
    - If possible, test for free residual chlorine (FRC) in water that is expected to be chlorinated and test for faecal contamination in other water sources. Chlorinate these sources if FRC levels are low.
    - Engage with the community through health and hygiene promotion, using IEC materials to deliver cholera prevention messages and to promote early treatment for diarrhoea.
11. Conduct active case finding, social mobilisation and community engagement.
    - Actively search in the community for additional cases with similar symptoms and refer to the health facility for treatment.
    - Train community health workers in case definition, data collection and reporting. Community health workers can also carry out active case finding.
    - Assess the knowledge of the community on cholera prevention and control measures. Deliver key messages to the community to prevent cholera.
    - Deliver ORS, soap for handwashing and products for water treatment.
    - As with community WaSH investigations, engage with family and neighbours of sick people through health and hygiene promotion, using IEC materials to deliver cholera prevention messages and promote early treatment for diarrhoea.
12. Conduct household visits and interviews
    - Interview sick people and their relatives to identify water sources and potential risk exposures. If possible, test chlorinated drinking water sources for FRC and other drinking water sources for faecal contamination. Chlorinate these sources if FRC levels are low.
    - Provide prevention messages to the family members.
    - Deliver soap for handwashing and products for household water treatment.
13. Conduct risk and needs assessments.
    - Conduct a risk assessment to evaluate the risk of spreading and the impact of the disease.

- Conduct a needs assessment to identify the available resources (human and supplies) and list the additional necessary resources.

After the field visit

14. Debrief with appropriate authorities, summarise main findings and provide recommendations.
    - Describe cases and laboratory findings.
    - Define areas and populations affected and at risk.
    - Identify possible causes of the outbreak and the potential mode(s) of transmission.
        - Most important is to report whether the case is likely due to local transmission or importation from another outbreak area
    - Describe the preventive and control measures already implemented.
    - Identify the resources needed for responding to the outbreak.
    - Provide specific recommendations and actions to be implemented.
15. Report the findings of outbreak investigation.
    - Prepare an outbreak investigation report.
    - Disseminate the report among appropriate authorities and partners.

ANNEX 5: MATERIAL REQUIREMENTS FOR A SINGLE CATI RESPONSE

The following checklist is indicative of materials needed for a single CATI response for approximately 200 households. It is checked against current stocks to identify gaps well before implementation.

Checklist: Resources per CATI response

	Quantity (~200 HHs)	Per household (HH)
WASH		
Hygiene kit	200	1 hygiene kit per HH or the components below
Aquatabs	12000	1 month supply (2 tablets per day * 30 days). Liquid chlorine can also be used.
Soap	800	1 month supply (4 bars)
Jerry cans	200	1
Pool testers	2	For testing community water sources
Hygiene promotion		
Megaphone	1	
Posters	10	Assume 10 health facilities, schools, etc.
CBV job aids	2	Assume 2 CBVs
CBV mobile phone credit	2	Assume 2 CBVs
Case management and testing		
SD Bioline© of Crystal VC©	10	Assume enriched RDT testing is done for verification of index cases
Cary Blair Swabs	20	Assume 10 RDTs will be done and double this quantity.
Bucket	1	Assume 1 per DSO or trained health worker
Stool sampling containers	20	Assume 10 RDTs will be done and double this quantity.
Labels	20	
Swabs	20	
Disposable Pipettes	20	
ORP setup kit	1	ORP for site of CATI
Gloves	1	Box
Visor/Face Shield	1	Assume 1 per DSO or trained health worker
Overcoat	1	
Vaccination (if used)		
Cholera vaccines	1200	Single dose for all >1 year * mean 5 persons per household (+ 20% wastage)
Vaccine cards	1000	Single dose for all >1 year * mean 5 persons per household
Vaccination register	1	
Cold boxes	2	~500 plastic vials per box
Rubbish bags	20	
Logistics		
Vehicles	2	Assume 2 per District CATI Team (1 for team member and 1 for supplies)
Register	1	Either paper of tablet version of survey/register can be used for direct tallying of CATI activities, vaccination, etc.
Tablet (optional)	1	
Pens	1	1 box
Notebooks	1	1 box
Rain boots	5	Consider size of team

ANNEX 6: LABORATORY REQUEST FORM FOR STOOL

(on Next page)

ZAMBIA NATIONAL PUBLIC HEALTH REFERENCE LABORATORY

Plot No SW/GF/SKILLS LAB2 Levy Mwanawasa University Drive. P.O. Box 30205

ZNPHI
ZAMBIA NATIONAL PUBLIC HEALTH INSTITUTE

LABORATORY REQUEST FORM

PATIENTS DETAILS			
First Name: Mr/Mrs/Ms	Surname:	Initials	
Date of Birth: d d / m m / y y y y	Age:	Sex:	Client ID/ File Number/Case ID
Client Contact information			
Phone:	Email:		
Client Location:			
Province:		District:	
Facility:		Ward:	

SPECIMEN DETAILS				
Sample type:	☐STOOL ☐ URINE ☐BLOOD CULTURE ☐SWAB ☐CSF ☐ VTM ☐EXTRACTS ☐DRY SWAB ☐SPUTUM ☐OTHER			
Collected by:		Date:		Time:
Collection site (Anatomical site):				
Sample Status: Routine ☐ Urgent ☐ Traveler ☐ Surveillance ☐ Case study ☐				

CLINICIAN/REQUESTING OFFICERS DETAILS			
Name:		Signature	
Contact number/email:			
Report destination:			

CLINICAL DETAILS
Note: Please include history of vaccination/medication where possible

TEST(S) REQUESTED. tick selected (✓)					
MOLECULAR		SEQUENCING		MICROBIOLOGY	
☐	COVID-19 PCR Test	☐	COVID-19 Sequencing	☐	Stool M/C/S
☐	Monkey Pox PCR	☐	Monkey Pox Sequencing	☐	Urine M/C/S
☐	COVID-19 Ag/Ab	☐	Bacteria gene Sequencing	☐	Blood Culture
☐	DNA Extraction	☐		☐	Swab M/C/S
☐	RNA Extraction	☐		☐	CSF M/C/S
☐	DNA Quantification	☐		☐	Viteck 2 AST/ID
☐	RNA Quantification	☐		☐	
☐	RNA Amplification (PCR)	☐		☐	
☐	DNA Amplification (PCR)	☐		☐	
Other (specify):					

Note: Kindly ensure that samples are appropriately collected and transported to ZNPHRL in recommended containers and conditions, and fill out the form correctly to ensure optimum quality results. Samples received in unacceptable conditions will be evaluated and redirected accordingly. For further information contact ***znphrl@znphi.co.zm***	Received by:..... Time:

ANNEX 6: SUMMARY OF RECOMMENDATIONS FOR CHOLERA TESTING IN SUB-DISTRICT/DISTRICT

Method	Summary of recommendations for cholera testing in sub-district/district	
	In the absence of a confirmed cholera outbreak	**with a confirmed cholera outbreak**
RDT	*Test all suspected cholera cases by RDT*	*Test the first 3 suspected cases per day per health facility by RDT, depending on availability of RDTs. If RDT supply is low, test the first suspected case per day per health facility or the first two suspected cases per day per health facility.*
Laboratory testing (culture/PCR)	*Test all suspected cases with RDT+ results by culture/PCR testing including, if warranted, testing for toxigenicity*	*Test 3 RDT+ per week per sub district/district by culture/PCR (without testing for toxigenicity)*
(Alternative) Laboratory testing (culture/PCR) if RDT not available	*Test all suspected cases by culture/PCR including, if warranted, testing for toxigenicity*	*Test the first 3 suspected cases per week per health facility by culture/PCR (without testing for toxigenicity)*
AST	*Perform AST on confirmed cholera case(s)*	*Perform AST on the first 5 confirmed cholera cases per sub-district/district at the onset of a confirmed cholera outbreak.* *Then, perform AST on at least 3 confirmed cholera cases per sub-district/district per month. If fewer than 3 cases are confirmed in a sub-district/district in a given month, perform AST on all confirmed cases.*
WGS	*WGS is encouraged for confirmed imported cholera case(s) with uncertainty about the origin of importation if access to WGS is available but not required for public health intervention*	*Performing WGS on a subset of confirmed cholera cases is encouraged if access to WGS is available but not required for public health intervention*

ANNEX 7: KEY EPIDEMIOLOGICAL SURVEILLANCE INDICATORS IN SUB-DISTRICT/DISTRICT WITH A CONFIRMED CHOLERA OUTBREAK

Indicator	*Definition*	*Numerator*	*Denominator*	*Interpretation*
Incidence Rate	Occurrence of new cholera cases reported in a population during a given time interval. Often expressed as a rate per 1,000, 10,000 or 100,000.	Number of new cholera cases reported during a given time interval	Average population at-risk during the same time interval	Indicates the evolution of the outbreak and the rapidity of its spread and allows comparison between geographic units
Attack Rate (AR) or Cumulative Incidence Rate)	Proportion of the population at-risk that has contracted cholera during a given time interval. Often expressed as a percentage (%).	Total number of cholera cases reported since the beginning of the outbreak	Population at risk at the beginning of the outbreak	Indicates the impact of the outbreak in the population.
Case Fatality Rate (CFR)	Proportion of cholera deaths among cholera cases presenting at health facilities during a specified time interval. Often expressed as a percentage (%).	Number of cholera deaths that occurred at health facilities reported during a given time interval	Number of cholera cases reported at health facilities within the same time interval	CFR is an indicator of adequate case management and access to cholera treatment. A high CFR (≥1%) is usually due to one or a combination of different factors such as poor access to the health treatment facilities and inadequate case management.
Test Positivity Rate (RDT and Culture/PCR)	Proportion of tests performed (RDT or culture/PCR) that are positive. Expressed as a percentage (%).	Number of positive test results (RDT or culture/PCR)	Number of tests performed (RDT or culture/PCR)	To be triangulated with the epidemic curve to support the interpretation of epidemic trends. For example, a low test positivity rate combined with an increase in suspected cholera cases may indicate a concurrent outbreak of diarrheal illness caused by a different pathogen or issues with laboratory confirmation.

ANNEX 8: ADMISSION FORM

(on Next page)

Admission and triage form

1. IDENTIFICATION

Patient name_____Admission date:___/___/____Time:___:_____
Age:___years/months Sex: ¤Male ¤Female If female, any possibility of pregnancy? ¤No ¤Yes
OCV received: ¤No ¤Yes ¤Don't know if yes, when?___/___/____
Address: _____Closest landmark: _____Phone #:_____

CLINICAL DATA - *Please circle if the patient has any of the following and give the length of time in days*

Watery stool x___days Fever x___days Bloody stool x___days
Vomiting x___days When was the last time the patient vomit?_____hours ago
When did the illness start?___/___/___ and time of first symptoms:_____When was the last time the patient urinated?____hours ago
Any known contacts with anyone else with similar symptoms? ¤ No ¤ Yes Who?_____
Please list any other symptoms: _____

_____

_____

Vitals: Temp_____ RR_____ BP_____ P_____ RBS_____ Weight_____ SpO2_____
HIV status _____ if Positive, On Treatment ¤Yes ¤No. If Yes duration on ART: ____ Last CD4: _____
Underlying Comorbid Conditions: ¤Heart Failure ¤Liver failure ¤Renal failure ¤Other _____

2. PHYSICAL EXAM AND DIAGNOSIS

Danger signs	¤ Lethargic or unconscious ¤ Absent of weak pulse ¤ Respiratory distress	¤ No danger signs	
Signs	¤ Not able to drink or drinks poorly ¤ Sunken eyes ¤ Skin pinch goes back slowly	¤ Irritable or restless ¤ Sunken eyes ¤ Rapid pulse ¤ Thirsty, drinks eagerly ¤ Skin pinch goes back slowly	¤ Awake and alert ¤ Normal pulse ¤ Normal thirst ¤ Eyes not sunken ¤ Skin pinch normal
Treatment Plan	If one or more danger signs OR >2 above are checked→ Severe dehydration (Plan C)	If no danger signs AND >2 above are checked→ Some dehydration (Plan B)	No dehydration (Plan A)

3. TREATMENT

	Severe dehydration (Plan C)	Some dehydration (Plan B)	No dehydration (Plan A)
Treatment	¤ IV fluids: Ringer's lactate bolus <1 yr: 30ml/kg in 60 min >1 yr: 30ml/kg in 30 min Quantity:____ml over____min ¤Reassess after bolus If absent/weak pulse→repeat bolus Quantity:____ml over____min ¤ IV fluids: Ringer's Lactate bolus <1 year: 70ml/kg in 5 hours >1 year: 70ml/kg in 2.5 hours Quantity:___ml over____hours	¤ ORS 75ml/kg over 4 hours Quantity:___ml over 4 hours ¤ Zinc supplementation (20mg/day) in children 6 months - 5 years ¤ Reassess after ORS -Severe: Give IV fluids -Some: Repeat ORS amount -No dehydration: Discharge with ORS	¤ After each loose stool, give: Age (in yrs) / <2 / 2-9 / >10 ORS (ml) / 50-100 / 100-200 / As much as wanted ¤ Zinc supplementation (20mg/day) in children 6 months - 5 years
Discharge instructions	¤ Reassess hydration after IV fluids -Severe: Repeat IV fluids -Some: ORS (see 'Some' box) ¤ Give antibiotics Drug & dose_____	Consider discharge if: - Has no signs of dehydration - Can take ORS without vomiting - No watery stools for 4 hours - Can walk without assistance - Is passing urine - Has been advised when to return to hospital/CTC - Health messaging completed	Before discharge, check following: ¤ Health messaging completed ¤ ORS given for home ¤ Assure caregiver can correctly mix and give ORS without supervision

4. LABORATORY DATA

Stool sample taken? ¤ No ¤ Yes Date taken:___/___/_____ Cholera RDT result: ¤+ve ¤-ve ¤ Not conducted
Stool culture sent: ¤No ¤Yes Date stool culture sent:___/___/____

5. OUTCOME:

Date of outcome:___/___/____¤Discharged ¤Dead ¤Self-discharged ¤Referred (where:) ¤ Unknown

ANNEX 9: PROGRESS FORM-ALL PATIENTS AND SAM PATIENTS

(on Next Page)

TREATMENT REVIEW/PROGRESS CHART. NAME:_____ SEX/AGE____ DATE OF ADMISSION_____ FILE NO_____

Date										
Time										
Current resus plan										
VITALS	PR									
	RR									
	RBS									
	Temp									
	SpO_2									
	Weight									
Fluid Input (ml)										
Number of loose motions										
Number of times Vomited										
Urine output (ml or diapers)										
HYDRATION STATUS										
Sunken eyes/normal eyes										
Unconscious/Lethargic/Irritable										
Not drinking/drinks eagerly/normal										
Skin goes back very slowly/slowly/normal										
Diagnosis of New Hydration status										
New Treatment plan(e.g plan C 400mls over 30mins, target weight, Bloods,)										
Comment (results, additional exam findings, special treatment plans)										
Time of Next assessment										
Doctor/Clinician (Sign)										

REHYDRATING MONITORING CHART FOR SAM

NAME_____**Sex /Age**..... **DoA** ..... **Diagnosis with Co-morbidity** ..... **File No**.....

PATIENTS WITH OEDEMA 2+ OR 3+

Give 30mls ORS/ watery stool and monitor at least every 4 hours

PATIENTS WITH SEVERE WASTING OR OEDEMA 1+

I. With no dehydration: give ORS at 50mls/loose stool until diarrhea stops. Monitor at least every 4 hours
II. With dehydration: give ORS 20ml/kg every 2 hours until attains target weight. Monitor at least every 2 hours

Date:												
TIME												
Resp. Rate												
Pulse Rate												
Weight												
No. stools												
No. vomits												
Amount of ORS Taken												
Type and amount of feed given												
General Condition (improving, Static, Deterioating)												
COMMENT												
TIME FOR NEXT REVIEW												
Breastfeeding Y/N												
Name and sign												

Stop ors if: Increase in RR by 5 and HR by 25
Increased oedema
Jugular veins engorged

ANNEX 10: SAMPLE REGISTER FOR ORAL REHYDRATION POINTS

(on Next Page)

ORP NAME:	DATE:	REGISTRAR:	Page_____of _____ this day.		

Arrival time to ORP	Patent Name	Sex		Age		Time since onset of symptoms		Dehydration (no, some, severe)			Outcome					No. ORS sachets used/given	Address/Location/Phone	Verified to fit Case Definition Y/N	RDT result (Pos +, Neg _ or ND (not done))	Other Services Offered	Leaving ORP: time
		M	F	0-4yrs	5 years and older	Less than 24hrs	More than 24hrs	no	some	severe	Home	Referral			Died at ORP						
												Child SAM	pregnant	....XXX....							
Total No.																					

ANNEX 11: HUMAN RESOURCE REQUIREMENTS FOR CTC

Human Resources

Medical staff

Coordinator/supervisor

A nurse or doctor experienced in cholera management, in charge of the overall operation of the CTC, training, staff information and management, safety of staff and patients.
Present every day (either physically or on telephone standby).
Depending on the size of the CTC and other factors, an assistant (e.g. a healthcare supervisor) may be necessary. Someone should be designated and trained to replace him/her in the event of absence (accident, illness, etc.).

Nurses

Responsible for nursing care and the supervision of patients, management of their unit's pharmacy, implementation of hygiene measures in their unit, training and management of auxiliary nurses.
Day and night: 2 nurses for triage, one nurse per 6-7 patients in the IV treatment unit, one nurse per 20 patients in oral treatment units.
Note: in a small decentralised CTU, a nurse may fill the role of the doctor or coordinator.

Auxiliary nurses or medical ward helpers

Responsible for the hygiene and comfort of patients, preparation and distribution of ORS in their unit.
Day and night: one auxiliary nurse per nurse.

Doctors

Responsible for admissions and discharges, the treatment and supervision of patients (application of protocols), training and management of medical staff, management of complicated cases.
Day: one doctor per 50 beds; but higher numbers will be needed for CTCs with high volume of critically ill patients (PLAN C). At least one doctor for triage, however triage may be entrusted to a well trained nurse.
Night: depending on patient numbers and need, staffing ratios may differ or be the same for the night.

Pharmacy manager

A pharmacist or nurse responsible for the stock and supply of the CTC as well as possible dependant peripheral facilities, like ORPs (day post).

Cleaners

Staff responsible for cleaning (clean and contaminated zones), managing patient buckets and the collection and transport of waste to the waste treatment area.

Porters

Staff responsible for transporting patient's incapable of moving alone.
Day and night: at least 2 porters.

Health promoters
Staff responsible for promoting hygiene in the CTC and in homes, information and demonstrations on how to prepare ORS to continue treatment at home. Health promoters are not essential if another category of staff covers this work (e.g. auxiliary nurses or nurses). If the latter do not have time to give patients all the instructions they need, it is better to train health promoters.

Logistical and WASH staff
Logistics, water and sanitation supervisor
A specialist experienced in cholera management, in charge of the setting up and maintenance of facilities, monitoring supply of logistics, water and sanitation materials, and the management, training and supervision of technical staff.
Present every day (either physically or on telephone standby).
Depending on the size of the CTC, s/he will have an assistant logistics supervisor and/or an assistant water and sanitation supervisor. One of these two assistants should be designated and trained to replace him/her in the event of absence (accident, illness, etc.).

Water and sanitation assistant
A technician experienced in cholera management, responsible for the installation and maintenance of the potable water distribution system (including water quality tests, etc.), sanitation equipment, the supply of relevant materials (chlorine-releasing compounds, etc.) and the management and supervision of technical staff.

Portable water and chlorine solution preparers
Staff responsible for the treatment, storage and distribution of potable water and the preparation of chlorine solutions (day posts).

Waste area operator
Person responsible for operation of the waste area (day post).

Laundry staff
Staff responsible for washing staff uniforms, the CTC's laundry and patient and attendant's laundry (day posts).

Water carriers
If the CTC does not have a water distribution network, staff responsible for carrying water (to drink, for hygiene purposes, etc.) to the different sections of the CTC (e.g. small peripheral CTC or CTC in the process of being set up).

Logistics assistant
A technician experienced in cholera management, responsible for setting up and maintenance of the CTC, logistics supply (equipment, food, energy, etc.), management of the vehicle fleet, and management, training and supervision of logistics staff.

Storekeeper
Person in charge of running the logistics and food store (day post).

Cook and assistant.

People responsible for the preparation of meals for patients, attendants and staff (day posts).

Guards
Staff responsible for watching the CTC's entrances/exits and general security in the CTC. Day and night: one at each staff and patient entrance and exit.

Ambulance staff
If the CTC has its own ambulances: staff responsible for the transfer of patients from ORPs or basic health facilities to the CTC. Minimum of two person per ambulance per shift (Driver and medical personnel)

	200 Bed CTC				50 Bed CTC				20 Bed CTC			
Category	**Day**	**Night**	**Off**	**Total**	**Day**	**Night**	**Off**	**Total**	**Day**	**Night**	**Off**	**Total**
CTC coordinator-supervisor	1	-	-	**1**	1			**1**	1			**1**
Administrator	1	-	-	**1**	1			**1**	1			**1**
Doctor / medical certificate	4	4	4	**12**	2	1	1	**4**	1	1	1	**3**
Clinical officers	5	5	5	**15**	2	2	2	**6**	1	1	1	**3**
Nurses	30	30	30	**90**	15	15	15	**45**	8	8	8	**24**
Ward helper	8	8	8	**24**	2	2	2	**6**	2	2	2	**6**
Head pharmacy/Pharmacists	2	1	1	**4**	1		1	**2**	1		1	**2**
Logistics water and sanitation supervisor	1	-	-	**1**	1			**1**	1			**1**
EHT	3	1	1	**5**	2	1	1	**3**	1	1	1	**2**
Logistics officer	1	1	1	**3**	1	1	1	**2**	1	1	1	**2**
Storekeeper	1	1	1	**3**	1	1	1	**3**	1	1	1	**3**
Watchman/Sprayer	6	6	6	**18**	3	3	3	**9**	2	2	2	**6**
Cook	1	1	1	**3**	1	1	1	**3**	1	1	1	**3**
Cook assistant	4	4	4	**12**	2	2	2	**6**	1	1	1	**3**
Laundry worker	2	2	2	**6**	2	2	2	**6**	2	2	2	**6**
Cleaner	3	2	2	**7**	2	1	1	**4**	1	1	1	**3**
Chlorinator/solution preparer	1	1	1	**3**	1	1	1	**3**	1	1	1	**3**
Hygiene educator/ health promoter	2	2	2	**6**	1		1	**2**	1		1	**2**
Water carrier	2	2	2	**6**	1	1	1	**3**	1	1	1	**3**
Porters	2	2	2	**6**	2	2	2	**6**	2	2	2	**6**
Mortuary attendant	1	1	1	**3**	1	1	1	**3**	1	1	1	**3**
(where available) ambulance driver + clinical support	2	2	2	**6**	2	2	2	**6**	2	2	2	**6**
Total	**83**	**76**	**76**	**235**	**47**	**40**	**41**	**125**	**34**	**30**	**31**	**92**
NB: Staffing requirements may vary depending on location and needs as well as available human resource.												

APPENDIX 12: Recommended Supplies needed for 100 bed CTC

The quantities can be increased or decreased depending on the size of the CTC

Item	No. Available	Variance	Comment
Structure			
CTC available for isolation of cholera cases			
Room available for isolation of cholera cases			
Cholera Beds			
Laboratory			
SUPPLIES FOR STOOL SAMPLE COLLECTION			
Sterile swabs without transport media (individually wrapped)			
Swabs with transport media			
Stool specimen containers, wide mouth			
Cotton wool			
Specimen collection swab, Cary-Blair Agar, single swab			
Gloves, examination, nitrile, powder-free, large, non-sterile, single use			
Gloves, examination, nitrile, powder-free, medium, non-sterile, single use			
Disposable Gown			
Sodium chloride 0.9%, 10ml plastic ampoules BP			
Cooler box			
Biohazard Specimen Bags, 10x10cm			
DIAGNOSTIC TEST KIT			
Vibrio Cholerae 01/0139 RDTs			
AGGLUTINATING SERA			
Vibrio cholerae 01 polyvalent antisera - 2mls			
Vibrio cholerae 01 Ogawa antisera - 2mls			
Vibrio cholerae 01 Inaba antisera - 2mls			
Vibrio cholerae 0139 antisera - 2mls			
ANTIBIOTIC DISKS/E-TEST			
Doxycycline 30µg 5X50			
Ciprofloxacin 5µg 5X50			
Azythromycin 15µg 5X50			
Cefotaxime 30µg - 5X50			
Co-trimoxazole 25µg 5X50			
Ampicillin - 5X50			
Nalidixic Acid - 5X50			
Azithromycin or Erythromycin E-Test 256–0.015µg/mL (Biomerieux) - 1X50			
Ceftriaxone E-TEST			
CULTURE MEDIA			
Xylose Lysine Desoxycholate agar (XLD) - 500g			
Desoxycholate Citrate agar - 500g			
MacConkey with crystal Violet agar - 500g			
CLED agar - 500g			
Mueller Hinton agar - 500g			

Thiosulphat Citrate Bile Sucrose (TCBS) agar - 500g			
MacConkey sorbitol agar - 500g			
Carry Blair Transport medium - 500g			
Tripticase Soy Agar (TSA)			
Alkaline peptone water - 500g			
Selenite Broth 500g			
Sodium Biselenite 100g			
Urea crystals analytical grade			
Sulphide Indole Motility (SIM) agar			
Triple Sugar Iron agar			
Lysine Iron agar			
Urea agar base			
Eosin Methylene Blue Agar			
Simmons citrate agar			
Reagent & Consumables			
Petri dishes 10x 20			
Applicator, 150x2.2mm, wooden stick, cotton tip.			
Non impregnated paper disks			
Gram Stain Reagent kit (4 x 500ml)			
Inoculation loop 1µl, white, sterile,			
McFarland Standard 0.5, single tube			
Lense cleaner paper			
Water Quality Laboratory			
Non Medical			
Motorised Sprayer 20L			
Knap sack sprayer 15L			
IK super Sprayer 15L			
Medical Tents 5m x 4m (Children)			
Infrared Thermometer			
DPD Chlorine Tablets			
Laboratory			
Water sampling bottles			
Food sampling bottles			
Lovibond Comparator			
Hydrogen Sulphide (H_2S) bottles			
Cotton wool 500g			
Methylated Spirit 2.5L			
Hand washing Buckets 20L			
Drinking water buckets with a tap (40L)			
Water storage bin + washing of plates 70L			
Water buckets (20 litre)			
Cooler Boxes 15L			
Phenol Red Tablets			
Portable Lab			
Swabs with amies gel medium			
Non Medicl			
IPC			

Raincoats			
Gumboots Size 5			
Gumboots Size			
Gumboots Size			
Gumboots			
Work suits/Overalls			
Plastic Cups			
Plastic plates			
Sacks for doors			
5000 litres Tanks			
Disfectants 5litres			
Sodium Hypochlorite (750 mls)			
Rubber Brooms			
Thick plastic aprons (waterproof)			
Think rubber gloves (waterproof)			
Liquid Chlorine 750ml			
Granular Chlorine 25Kg			
Other commodities			
Antibacterial Bar Soap 175g			
Hand Sanitizer 100ml			
Hand Sanitizer 500ml (1)			
Hand Wash (Liquid soap)500ml			
Disposable Gown XL (1)			
Disposable Gown Large			
Disposable Gown Medium (1)			
Disposable Coverall for ICU (1)			
Disposable Overalls XL (1)			
Disposable Overalls XXL (1)			
Disposable Overalls XXXL (1)			
Tyvek (Disposable Overalls) Large			
Tyvek (Disposable Overalls) Medium (1)			
Disposable Head Cover (100)			
Safety Goggles			
Scrubs Suit (1)			
Examination Gloves (Nitrile) Powder Free Large (100)			
Examination Gloves (Nitrile) Powder Free Medium (100)			
Examination Gloves (Nitrile) Powder Free Small			
Examination Gloves (Nitrile) Powder Free XL (100)			
Face Masks KN95 (1)			
Face Mask N95			
Face Masks			
Infrared Thermometer (1)			
Pulse Oximeter (1)			
Medical Face Shield (1)			
Viral Collection & Transport Kit			
Viral RNA Mini Extraction Kit (250)			

Drugs			
Ciprofloxacin 200MG/100ml Bottle (INJ)			
Ciprofloxacin 200MG/100ml SUSPEN (PO)			
Ciprofloxacin 250MG/tab TABLET (PO)			
Azithromycin 200MG/5ml, 15ml SUSPEN (PO)			
Azithromycin 250MG/tab TABLET (PO)			
Doxycycline 100mg tab/Cap (500)			
Sulfamethoxazole-Trimethoprim 240mg/5ml			
Sulfamethoxazole-Trimethoprim 400+80MG/tab TABLET (PO)			
Oral Rehydration Salts 27.9G/Unit POWDER (PO)			
Kit yamoyo			
Zinc Sulphate 20MG/tab TAB-CAP (PO)			
Examination Gloves (Nitrile) Powder Free Medium			
Hand Sanitizer 500ml			
Hand Wash (Liquid soap)500ml			
Disfectants 5litres			
Sodium Chloride 0.9% 500ml SOLUTION (IV)			

ANNEX 12: REFERRAL FORMS
(on Next Page)

Cholera Health Facility Referral Form

Date/Time of Referral: ___/_____/_____ _____:_____ Referring Facility: _____

Receiving Facility: _____

Name: _____ Age: _____ Sex:_____

Residence: _____

Phone #: _____ Phone # Family: _____

DO NOT TRANSFER UNLESS THE PATIENT IS **STABLE**

Stable = Has **none** of the following features: weak/feeble pulse, capillary fill time >3 sec, cold peripheries, unconscious, hypoglycemia (RBS<3.5mmol/L)

Vitals: Pulse: _____ Temp: _____ RR: _____ RBS: _____ BP: _____ Wt: _____

SpO2:_____

Treatment Plan:

Antibiotic given: Doxycycline ☐ Cipro ☐ Tetracycline ☐ Other ☐ _____

Plan A ☐

ORS Given: _____mL - last start time: _____:_____

Plan B ☐

IV fluids Ringer's Lactate bolus: _____mL given – last start time: _____:_____

ORS Given: _____mL - last start time: _____:_____

Plan C ☐

IV fluids Ringer's Lactate bolus: _____mL given – last start time: _____:_____

Pediatrics only: Zinc ☐ _____

Comments:

_____

_____

_____

_____

Clinician Name: _____ Phone #: _____

Cholera Referral Ticket from an ORP

Name of ORP/Village	
Name of Patient / Age	
Time of Arrival at ORP	
Referred by	
Date of Referral	
Time of Referral	
Time since symptoms (circle one)	Less than 24 hours ☐ More than 24hours ☐
Level of Dehydration (circle one)	None/mild ☐ Some ☐ Severe ☐
Treatment Started	Yes No
Other referral reason?	

Cholera Referral Ticket from an ORP

Name of ORP/Village	
Name of Patient / Age	
Time of Arrival at ORP	
Referred by	
Date of Referral	
Time of Referral	
Time since symptoms (circle one)	Less than 24 hours ☐ More than 24hours ☐
Level of Dehydration (circle one)	None/mild ☐ Some ☐ Severe ☐
Treatment Started	Yes No
Other Referral Reason?	

ANNEX 14: Example ECCE Stakeholder Mapping

Stakeholder mapping

Faith-based, Traditional Leadership and Community Development	**CSOs/NGOs/International Agencies**
• National Coalition of Religious Leaders or Inter-Faith Bodies Representatives Evangelical Fellowship of Zambia (EFZ) • Traditional / Tribal Leader Association • Ministry of Chiefs & Traditional Affairs • Ministry of National Guidance and Religious Affairs • Ministry of Community Development and Social Welfare • Members of Parliament	• Red Cross • Save the Children Young • Women's Christian Association (YWCA) • Zambia Civil Society Platform (ZICSP) • John Snow Incoparation. (JSI) / Discover Health • Catholic Relief Services (CRS) • Center for Infectious Disease Research in Zambia Other
National Professional Affiliations or Coalitions and Private Sector	**Media Related**
• Zambia Medical Association • Pharmaceutical Society of Zambia – or Professional Association of Pharmacists • Traditional Health Practitioners • Association Rotary Zambia • Lions International • National Teachers Association or Teachers Union of Zambia • Trade Unions of Zambia • Airtel, MTN or Zamtel as part of their socorperate social responsibility • Delivery companies • Transport / national / domestic airlines • Market place leaders • Bus driver association • Workers associations	• National Journalists and Media Workers Association • Zambia Institute of Independent Media (ZIIMA) • Press Club Social media influencers / national bloggers? • Health Journalists • Media Coalitions • International media workers /representatives

ANNEX 15: CHOLERA RESPONSE STRATEGIES BY PILLAR

Cholera Outbreak Response Strategies by Pillar:
COORDINATION:
Goal: Ensure response structure in place to lead the response and ensure coordination with relevant stakeholders within the community, province, and national level.

- Pre-outbreak
  - Create a Cholera Preparedness and Response Plan
- During outbreak
  - Use and update the cholera preparedness and response plan.
  - Set up an incident management structure to manage the response and communicate the roles to relevant parties in MoH, Local Government, MoWDS, etc. and the Epidemic Preparedness and Response Committees.
  - Create an incident action plan/outbreak response plan and budget for the response.
  - Hold IMS meetings and pillar meetings to provide situational awareness and strategize outbreak response plans. Ensure that activities are monitored, action items from meetings are tracked.
  - Document 3W for response including partners to ensure common understanding of who is doing what where.
  - Create and routinely disseminate a SitRep with provincial and national MoH/ZNPHI and partners.
  - Ensure clear plan in place for requesting commodities from ZAMMSA.

SURVEILLANCE:
Goal: Early detection of new cases and accurate monitoring of outbreak dynamics

- Pre-outbreak
  - **DO:**
    - Use RDT on suspect cases and collect stool specimen for culture from RDT positive patients and send to laboratory for culture confirmation.
- During outbreak
  - **DO:**
    - Only use RDTs in areas where no outbreak has been detected.
    - In newly affected or suspect areas, use RDTs on suspect cases. Collect stool specimen for culture from RDT positive patients and send to laboratory for culture confirmation.
    - Report daily statistics on cases and deaths focusing on person/place/time: demographic characteristics of cases and deaths including place of residence.
    - Case investigation into the risk factors including whether derived from local transmission or imported from an outbreak area, water sources used and other risk factors.
      - Conduct active case search in the area around the case, where feasible.

        - Deploy a cross pillar team for investigations including surveillance, EHT/WASH, and RCCE.
    - Collect daily aggregate data (new cases, RDTs, RDT+, specimens cultured, culture positive, facility and community deaths).
    - Early in an outbreak, collect detailed information on geolocation and risk factors, particularly water sources to help guide targeted interventions. Map case locations to identify clustering of cases.
        - Use official GRZ systems (eIDSR) to record case data.
    - If case numbers increase consider transitioning to aggregate reporting with a limited set of data points (ward/other geographic area, age, sex).
    - Conduct investigations on community deaths/BIDs and facility deaths to understand drivers of mortality.
- **DON'T:**
    - Don't use RDTs for patient diagnosis or case classification once an outbreak is confirmed. RDTs are a surveillance tool only. Admissions and diagnostics decisions should only be based on clinical symptoms of patient (case definition). Consider removing RDTs from CTCs once an outbreak has been confirmed in the area/region/sub-district.
    - Don't spray outside walls of homes with chlorine during case investigation/contact tracing activities. This increases stigma of cholera patients in the community and results in people with cholera being reluctant to seek care for themselves and family members to avoid being labeled as someone with cholera. If an outbreak escalates to hundreds of cases a day, cease contact tracing activities and focus staff time on capturing critical elements of surveillance (person/place/time) and on key prevention activities (RCCE, water quality monitoring, household distribution of ORS and chlorine and soap, etc.)

CASE MANAGEMENT

Goal: Provide timely, quality care to cholera patients to save lives. CFR < 1%

- Pre-outbreak
    - Designate key health care facilities within the district, which could serve as cholera treatment centers.
    - Ensure that the first 10 patients could be treated with the associated commodities and human resources (see case management SOP).
- During outbreak
    - **DO:**
        - Ensure sufficient clinical staff to patient ratios to ensure good patient monitoring of rehydration and patient vitals. 1:4 may be needed if high numbers of patients in Plan C are presenting to facilities.
        - Pay special attention to staffing on the night shift to ensure quality patient care, rehydration and monitoring of vitals.
        - Train all CTC staff and provide refresher trainings as needed through supportive supervision visits.
        - Post treatment algorithms by Plan (A, B, C) in all CTCs

        - Ensure sufficient numbers of ORPs are in the community at locations populations can easily access and that ORPs are properly functioning by distributing ORS sachets to households and able to make referrals for symptomatic patients.
            - Consider utilizing existing health posts and facilities (not designated as CTCs) for ORPs.
        - Track bed capacity and occupancy to help decision-makers. Increasing occupancy will signal the need to expand CTC bed capacity.
        - Create a referral process from peripheral areas to CTCs and plan for transport of patients.
        - Ensure IPC regulations are followed at the CTC to prevent transmission to staff.
    - **DON'T:**
        - Don't use RDTs for patient diagnosis or admission's decision. Base admission's criteria on clinical presentation of patient only (e.g., those meeting the clinical case definition)

WASH:
Goal: Ensure provision of safe water, sanitation, and hygiene for everyone
Pre-Outbreak:

- Assess stocks of WASH commodities, including chlorine for bulk treatment and household water treatment.

During Outbreak:

- **DO:**
    - Conduct inventory of drinking water sources available to the community and ensure provision of treated/chlorinated water to all populations.
        - Prioritize chlorination of centralized water systems.
        - Where decentralized water systems are being used, consider point-of-source (bucket chlorination, inline chlorinators, etc.) or distribution of household water treatment products.
    - Conduct routine monitoring of all treated drinking water sources for presence of free chlorine residual (FCR). Where time permits, consider post distribution monitoring of stored household drinking water for FRC to assess uptake of household water treatment products.
    - Take remediation actions to chlorinate water sources when FCR levels are <0.2 ppm
    - Make central message the importance of treating or boiling all drinking water.
    - Promote handwashing after using the toilet, before preparing food, after changing baby's diaper, etc.
    - Where feasible, test for microbiological indicators (thermotolerant coliforms) at the points of water distribution to individuals or shared water supplies. If positive, chlorinate immediately at points of distribution or stored water and perform regular FRC level assessments (lower priority than FRC).
- **DON'T:**
    - Don't assume certain or all water sources are safe. A system of water quality monitoring is essential to ensure water is safe for consumption.

- Chlorinate wells or bodies of water (ie those not in measurable containers).
- Do not routinely test drinking water for *Vibrio cholerae*.

RCCE:

Goal: Ensure that communities actively participate in controlling the cholera outbreak by promoting safe, healthier practices, facilitating community action, and helping to reduce fear, stigma, and misinformation.

- **DO:**
  - Provide clear, simple, single key messages on cholera prevention.
  - Keep messages simple, picture-based and one single message, e.g., "Always treat or boil your drinking water."
    - Ensure translations are available in local languages.
  - Work with community gatekeepers on ways of messaging with the community.
  - For verbal CBV messaging to the community, focus on top three messages, starting with safe water:
    - Always treat or boil your drinking water.
    - If you or your child are sick with diarrhea, drink ORS and go to the clinic.
    - Always wash your hands after using the toilet and before preparing food.
  - Conduct context analysis, rapid KAP surveys to understand context/knowledge gaps.
  - Establish rapid community feedback mechanisms to inform response activities and messaging (e.g., focus groups, community workshops, rapid qual feedback system).
  - Conduct rapid social listening (social media, etc.) to understand local perceptions/rumors about the outbreak, use this to inform response activities ("infodemic management").
- **DON'T:**
  - Don't present multiple messages on one poster. Use a single message at a time.
  - Don't focus on less critical prevention messages first (e.g., dirty environment, food, flies, etc.) Drinking safe water sources is the most critical prevention message, followed by early care-seeking when ill and handwashing.
  - Focus on one-way messaging without consulting (at a minimum) or involving communities in message development.
  - Rely on assumptions of why people do what they do (WASH and health-seeking behaviors).

LAB

Goal: Rapid identification of cholera cases and tracking of outbreak + antibiotic resistance

- Pre-outbreak:
  - Identify closest laboratories that can perform culture and ensure facilities are aware of where to send specimens. Ensure laboratory transport network functional to move specimens to the necessary lab.
  - Pre-position RDTs in areas, particularly those far from culture capacity.
  - Confirm outbreak using culture and/or PCR.
- During outbreak:

- Once outbreak has been declared, remove RDTs from outbreak area.
- Continue testing specimens in newly affected areas to declare outbreak.

Conduct three (3) culture tests and antibiotic susceptibility tests a week to track outbreak.

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