REPUBLIC OF KENYA

Ministry of Health

CHOLERA

MANAGEMENT GUIDELINES

2023 EDITION

INTEGRATED DISEASE SURVEILLANCE AND RESPONSE
MINISTRY OF HEALTH - KENYA

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ACRONYMS AND ABBREVIATIONS

ABHR	Alcohol Base Hand Rub
AEFI	Adverse Event Following Immunization
APW	Alkaline Peptone Water
AR	Attack Rate
AST	Antimicrobial Susceptibility Testing
CFR	Case Fatality Rate
CHA	Community Health Assistant
CHMT	County Health Management Team
CHV	Community Health Volunteer
CLTS	Community Led Total Sanitation
CTC	Cholera Treatment Center
CTU	Cholera Treatment Unit
DDSR	Division of Disease Surveillance and Response
EOC	Emergency Operations Center
EPI	Expanded Programme on Immunization
FGD	Focus Group Discussion
FIB	Fecal Indicator Bacteria
FIFO	First in First out
FCR	Free Chlorine Residual
GTFCC	Global Task Force on Cholera Control
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
IEC	Information, Education, and Communication
IMS	Incident Management System
IMT	Incident Management Team
IOM	International Organization for Migration
IPC	Infection Prevention Control
IR	Incidence Rate

IV	Intravenous
KHIS	Kenya Health Information System
M&E	Monitoring and Evaluation
MoH	Ministry of Health
MoWSI	Ministry of Water, Sanitation and Irrigation
MSF	Medecins Sans Frontieres
NGO	Non-governmental organization
NMCEP	National Multisectoral Cholera Elimination Plan
OCV	Oral Cholera Vaccines
ORP	Oral Rehydration Point
ORS	Oral Rehydration Solution
PCR	Polymerase Chain Reaction
PET	Polyethylene Terephthalate
PO	Per Oral
PPE	Personal Protective Equipment
PVC	Polyvinyl chloride
RCCE	Risk Communication and Community Engagement
RDT	Rapid Diagnostic Test
ReSoMal	Rehydration Solution for Malnutrition
RL	Ringers Lactate
RRT	Rapid Response Team
SAM	Severe Acute Malnutrition
SBP	Systolic Blood Pressure
SITREP	Situation Report
SODIS	Solar Disinfection
SOP	Standard Operating Procedure
UNICEF	United Nations Children's Fund
UV	Ultra Violet
WASH	Water Sanitation and Hygiene
WGS	Whole Genomic Sequencing
WHO	World Health Organization
WSU	Washington State University

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FOREWORD

Cholera remains a major issue of public health importance despite the efforts put in to control it. Kenya has previously experienced outbreaks that have had significant effects on the health system and the economy of the country. Cholera presents with acute watery diarrhea that if not managed well can result in severe dehydration and even death hence the need for early detection and prompt treatment with fluid replacement and appropriate antibiotics.

During the 71st World Health Assembly in May 2018, a resolution to implement the cholera prevention and control Global Roadmap was introduced by the Governments of Zambia and Haiti with Kenya supporting the resolution. Kenya has a validated '2022 -2030 National Multisectoral Cholera Elimination Plan, aligned to 'Ending cholera – A Global Roadmap to 2030' that envisions a 90% reduction in cholera deaths by 2030.

At the onset of the October 2022 outbreak, an evaluation of cholera treatment facilities was conducted by the Division of Disease Surveillance and Response. The key finding of the evaluation was that the Case Fatality Rate (CFR) was higher than what is set by the World Health Organization (CFR less than 1%). A major contribution to the high CFR was that the health care workers were not conversant with the management of cholera as provided by the Global Task Force on Cholera Control (GTFCC). Kenya's previous cholera management guidelines had not been reviewed since 2002, hence a gap in the management that has since changed.

The Cholera Management Guidelines are aligned with the '2022-2030 National Multisectoral Cholera Elimination Plan (NMCEP)'. We hope that the guidelines will provide a guide to all the health care workers both at the national and subnational levels leading to a reduction in local disease transmission as well as cholera-related deaths.

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EXECUTIVE SUMMARY

The Cholera Management Guidelines 2023 will guide the Health Care workers who attend to patients at the national and subnational levels. It is divided into nine sections.

The background information section covers general information about cholera the epidemiology, modes of transmission as well as the risk factors. Coordination provides the structure of management of the preparedness and response activities. The Surveillance section tackles issues on the detection of cases, reporting, analysis of the data, monitoring of the outbreak, and feedback on the effectiveness of control measures in an outbreak. The laboratory investigation and confirmation section focuses on investigation and the confirmation of the diagnosis. Case management provides guidelines on how to treat a patient diagnosed to have cholera. Water Sanitation and Hygiene delves into the measures for reducing the chances of infection and transmission of cholera bacteria through the provision of safe water and observing proper fecal waste disposal amongst other measures. Risk Communication and Community Engagement emphasizes the importance of informing the community about the risks of infection as well as engaging them on how to prevent oneself from being infected. There is a section on the Oral Cholera Vaccines that complement the other non-vaccine measures. The final section is Data Management which looks at the tools that are utilized in the monitoring of cholera outbreaks.

We hope that these guidelines will guide the health care workers who manage cholera patients and ultimately lead to lower morbidity and mortality.

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1 BACKGROUND INFORMATION

1.1 Epidemiology

Cholera is a diarrheal disease caused by infection of the intestine with the gram-negative bacteria Vibrio cholerae, either type O1 or O139. Both children and adults can be infected. It is one of the key indicators of social development and remains a challenge to countries where access to safe drinking water and adequate sanitation cannot be guaranteed.

There are over 100 vibrio species known but only the "cholerae" species are responsible for cholera epidemics. Vibrio cholerae species are divided into 2 sero groups:

- Vibrio cholerae O1, subdivided into Classical and El Tor biotypes,
- Vibrio cholerae O139 serogroup was first identified in 1992 in India. It has since been isolated in other Asian countries between 1993 and 1998.
- Both El Tor and Classic biotypes are divided into 3 serotypes: Ogawa, Inaba and Hikojima. Vibrios grow easily in saline water and alkaline media. They survive at low temperatures but do not survive in acid media; they are destroyed by gastric acid in the stomach, by chlorine disinfectant solutions, or by boiling the clear water to a rolling boil at 100°C for 1 minute (at elevations above 6,500 feet, where boiling point tends to be lower boil for at least 3 minutes).

About 20% of those who are infected develop acute, rice-watery diarrhea – 10–20% of these individuals develop severe, rice-watery diarrhea with vomiting. Treatment is rehydration and, if applied appropriately, should keep the case-fatality rate below 1%.

1.2 Risk Factors

- Poor social and economic environment, and precarious living conditions associated with:
  - Adequate water supply (quantity and quality)
  - Inappropriate and poor sanitation and hygiene practices
  - Inadequate food safety
  - High population density and movements; camps, prisons, schools, and slum populations are highly vulnerable.

- Underlying diseases such as malnutrition, chronic diseases, and HIV/AIDs are thought to increase the severity of cholera.
- Climate change, environmental and seasonal factors
- Inappropriate burial practices for cholera bodies

1.3 Mode of Transmission

Cholera is transmitted through the fecal-oral route. A dose of more than one million organisms is usually needed to cause illness.

- Drinking water that has been contaminated by fecal matter at its source, during storage or usage
- Contaminated foods and vegetables that have been fertilized with human excreta (night soil) or "freshened" with contaminated water
- Beverages, ice, and bottled water prepared with contaminated water
- Soiled hands can also contaminate clean drinking water and food
- Fish, particularly shellfish taken from contaminated water and eaten raw or insufficiently cooked.
- Transmission by contact, touching the patient, soiled linen, surfaces, and touching dead bodies.

1.4 Clinical Features

1.4.1 Pathogenesis

The large majority of ingested bacteria are destroyed by stomach acidity; surviving bacteria colonize intestinal cells, where they multiply and produce a very powerful enterotoxin that causes profuse watery diarrhea by a secretion mechanism. In general, vibrio does not cross the intestinal barrier and does not provoke septicemia. The toxin adheres to intestinal cells and causes excretion of isotonic fluid in the intestinal lumen: it is the enterotoxin that causes fluid loss and diarrhea.

1.4.2 Incubation Period and Period of Infectivity

The incubation period is usually 2 hours to 5 days. Symptoms usually last 2 to 3 days, although in some patients they can continue up to 5 days.

Infected persons, whether they are symptomatic or not, can carry and transmit vibrios between 1 to 4 weeks; a small number of individuals can remain healthy carriers for several months. Antibiotic therapy and vaccination can decrease the duration of symptoms and the period of infectivity.

1.4.3 Signs and Symptoms

- Sudden onset of diarrhoea
- Diarrhoea is profuse, painless, and watery, with flakes of mucous in the stool (rice water stool)

Note: Presence of blood in stool is not a characteristic of cholera

- Nausea and profuse vomiting may occur, usually early in the illness
- Majority of the patients are febrile, children are more febrile than adults
- All complications result from the effects of loss of fluids and electrolytes in stool and vomitus
- Muscle cramps, acidosis, peripheral vasoconstriction, and ultimately renal and circulation failure, arrhythmias, and death may occur if treatment is not given promptly
- In general, cholera is an acute enteric disease characterized by the sudden onset of profuse painless effortless watery diarrhoea or rice-water-like diarrhoea, often accompanied by vomiting, which can rapidly lead to severe dehydration and cardiovascular collapse.

2 COORDINATION OF PREPAREDNESS AND RESPONSE ACTIVITIES

2.1 Setting up Coordination Structures

For effective and seamless coordination of outbreak response, the Incident Management Teams (IMTs) at both levels of government i.e. National and County levels will be activated. The teams must be multidisciplinary with multi-sectoral representation, constituted as outlined (Figure 1).

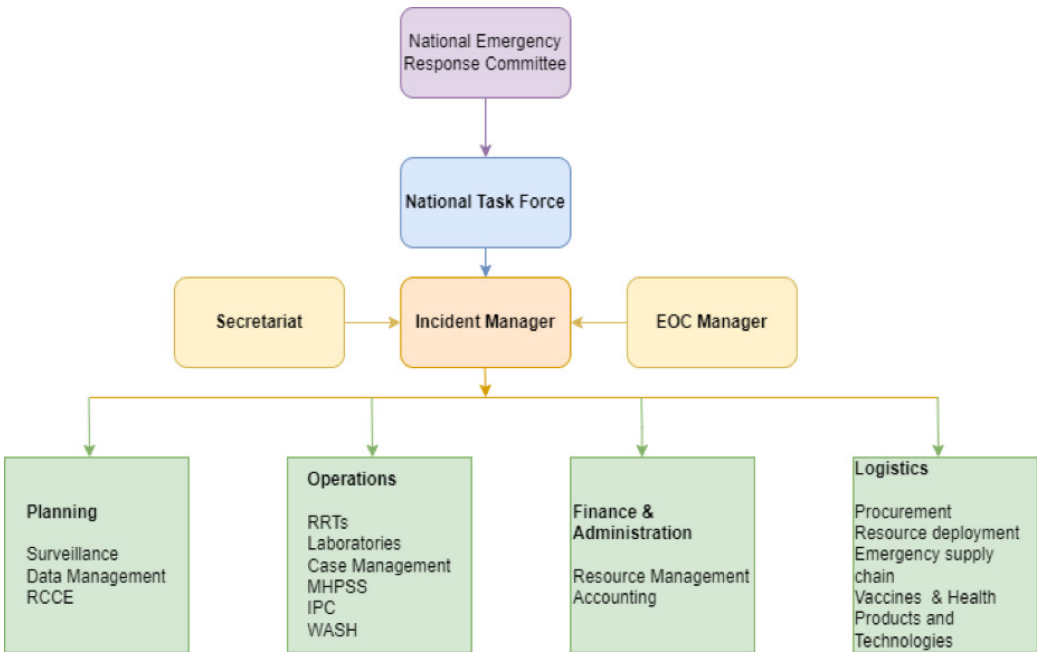


FIGURE 1: CHOLERA INCIDENT MANAGEMENT SYSTEM (IMS)

The National government team will provide technical support to counties to guide the implementation of outbreak response activities, promote information sharing, and use of outbreak data for decision making.

The IMTs will amongst other functions conduct the following activities ;

- Activate preparedness and response plans
- Meet regularly to review the epidemiological situation
- Evaluate the impact of interventions and address bottlenecks
- Determine thresholds for reactive vaccination campaigns

- Conduct intra-action and after-action review meetings
- Document best practices to enhance better preparedness in future
- Through the data management teams, will collate data from the various areas, support analysis of the linelist data, share timely outbreak situation reports, and provide feedback to better inform targeting of interventions.

2.2 Rapid Response During Cholera Outbreaks

The Rapid Response Team (RRT) is a multidisciplinary team of experts who take the lead in conducting the initial investigation of reported and suspected cases or outbreaks to confirm the nature and extent of the disease/public health event under investigation.

TABLE 1: COMPOSITION AND FUNCTIONS OF RRT AT NATIONAL, COUNTY AND SUB COUNTY LEVELS

Composition	Roles and Responsibilities
Team Leader **Director of EPR or other Representative at State Level as assigned**	• Presents available information • Outlines investigation plans • Assigns roles and responsibilities • Communicates with media and other officials • Oversees team member roles • Quantifies and mobilize human and material resources to implement the appropriate public health response. • States priorities and gaps in the response activities • Liaises with all stakeholders involved in the investigation and response to the outbreak • Notifies the next level about the outbreak
Epidemiologist/ Surveillance	• Verifies the existence of an outbreak • Conducts rapid assessments to establish predisposing factors, risk behavior, determinants, and gaps • Supervises data collection and analysis to provide information on the evolution of the outbreak • Educates on the case definitions and identification of cases • Coordinates the activities of the RRT related to the investigation and containment of suspected or confirmed outbreaks • Identifies and coordinates control measures

	• Collects all available information from the state (sub-national) focal points before the field mission and prepare the logistic of the mission in collaboration with the Team Leader • Alerts all relevant national health authorities • Coordinates all follow-up measures in collaboration with the Team Leader
Clinician	• Institutes case management measures • Advises and gives leadership in managing patients • Educates, implements, and supervises infection control measures • Advises on area hospital bed capacity and medical capability • Advises on collection of clinical specimens from cases/patients • Ensures that case notes for each patient are recorded
Laboratory Scientist	• Performs laboratory diagnosis to help refine case definition and confirm the outbreak • Advises and ensures proper specimen collection, storage, and transportation • Develops a plan for sharing specimens with County and National or WHO laboratories • Asses area laboratory capability for detection and confirmation of *Vibrio cholerae* and capacity of trained staff
Environmental Health Officer/ Wash specialist	• Conducts field investigations, assessment of environmental, water, and sanitation situation • Conducts case follow-up and contact tracing • Conducts environmental decontamination • Liaises with stakeholders involved in field investigation • Enforces the provisions of Public Health laws, premises inspections, food condemnations, arranging for water and food quality testing • Liaises with the Health Promotion Officer on provision of social mobilization and community education • Sets up of CTC in consultation with other members • Oversees preparation of chlorine solutions for disinfection

Health Promotion Officer/ Communication Specialist	• Mobilizes stakeholders to support health education • Identifies, orients, and trains community health workers about the outbreak • Provides strategies for community education about the outbreak • Conducts health education sessions in both affected and unaffected areas to contain the outbreak • Conducts community mobilization and other public information activities • Develops and distributes Information Education and Communication (IEC) materials based on findings • Coordinates and assists in communications to the media, the international community, and officials • Constructs main messages • Liaises with community and other important stakeholders • Rumor management
Logistician/ Administrator	• Manage supplies including the requirements of the RRTs • Work with the security officer • Monitor finances and allowances for the field workers • Arrange transportation • Monitor communications • Coordinates with private sector utilities and contractors for use of private sector resources in public works-related operations
Infection Prevention Control Officer	• Oversees use and distribution of PPE, and decontamination processes within wards • Advises cholera treatment facilities and the community on proper infection control • Liaises with the environmental health officer, assists in the layout of CTC, management of hand washing facilities, foot baths
Health Information Manager	• Collects and analyses information collected at the health facilities and sub counties • Responsible for overall data collection, analysis, and reporting of surveillance data
Partners	• Technical and logistical support

3 SURVEILLANCE

Strengthening public health surveillance for cholera aims to better inform timely and targeted multi- sectoral interventions, to limit the spread of cholera, and reduce morbidity and mortality. Cholera is an epidemic-prone disease that should be notified to the next level within 24 hours.

3.1 Goal of Cholera Surveillance

To detect and respond promptly and appropriately to cases and outbreaks of watery diarrhoea

Objectives of surveillance

- To detect a cholera outbreak
- To monitor the outbreak, identify risk factors, and carry out contact tracing
- To plan for prevention and control measures
- To assess the capacity of the community to respond to an outbreak.

Cholera surveillance should include:

- Health facility-based, surveillance, community-based surveillance, and event-based surveillance for the timely detection and reporting of suspected cholera cases
- Timely reporting of standard case-based data
- Routine and systematic testing of suspected cholera cases
- Routine analysis and interpretation of surveillance data at the local level
- Regular dissemination of surveillance outputs (sitreps, bulletins) to guide multi-sectoral interventions;
- Timely reporting at sub-county, county, national, regional, and global levels.

3.1.1 Standard Case Definitions

Cholera standard case definition

- Suspected cholera case

In areas where a cholera outbreak has not been confirmed: Any person aged two years and older presenting with effortless acute watery diarrhoea and severe dehydration or who has died from effortless acute watery diarrhoea.

In areas where a cholera outbreak is declared: any person presenting with or dying from effortless acute watery diarrhoea.

- Probable case

A suspected case with an epidemiological link to a confirmed case; or a patient positive on RDT.

- Confirmed cholera case

A suspected case with *Vibrio cholerae* O1 or O139 confirmed by culture or polymerase chain reaction (PCR) and in countries where cholera has not been detected for 3 years* or more, PCR targeting gene(s) specific for cholera toxin

*** Acute watery diarrhoea is defined as three or more loose or watery (non-bloody) stools within 24 hours.**

- Cholera Simplified Case Definition for Community Level

In an area where there is no cholera outbreak, any person more than or equal to 5 years presenting with severe dehydration or death from watery diarrhoea.

In an area where there is a cholera outbreak, a suspected case is any person more than or equal to 2 years presenting with lots of watery diarrhoea

Alert Threshold

An alert threshold for cholera is a predefined level of disease activity that, when surpassed, triggers an alert or notification to public health authorities and stakeholders. It serves as an early warning system, signaling a potential increase in cholera cases or the presence of unusual activity that requires heightened surveillance and attention.

An alert threshold is if a single case is suspected.

Response to alert threshold

If a single case is suspected:

- Health facilities and community health workers should immediately report any cholera alert to the next level.
- National and County Rapid Response Teams shall then initiate a field investigation to confirm the cholera outbreak.
- Enhance strict hygiene measures and isolation procedures.
- Carry out contact tracing
- Conduct case investigation

Obtain stool specimens from 5 patients within 5 days of onset of acute watery diarrhoea, and before antibiotic treatment is started. See the guidance on how to prepare, store and transport the specimens.

Action Threshold

An action threshold for cholera is a predetermined level of disease activity that, when reached or exceeded, triggers immediate response and intervention to control and manage the cholera outbreak. It signifies a critical point at which public health authorities and stakeholders must initiate rapid and coordinated actions to prevent further transmission and mitigate the impact of the outbreak.

An Action threshold is if a suspected case is confirmed by a laboratory test.

Response to action threshold

If a suspected case is confirmed:

- Mobilize the community early to enable rapid case detection and treatment.
- Survey the availability of safe drinking water.
- Work with community leaders to limit the number of attendants in funerals or other large gatherings for ceremonies or other reasons, especially during an epidemic.
- Reduce sporadic and outbreak-related cases through continuous access to safe water.
- Promote safe preparation of food (especially seafood, fruits, and vegetables).
- Promote safe disposal of human waste.

3.1.2 Surveillance Activities Before, During, and After the Outbreak

Cholera surveillance activities in phases

Before the outbreak:

1. Develop and maintain a surveillance system: Establish a system for reporting suspected cases of cholera to the relevant health authorities. The system should include reporting mechanisms from health facilities, laboratories, and community-based health workers.
2. Identify high-risk areas: Identify areas with a high risk of cholera outbreaks based on past outbreaks, population density, access to clean water and sanitation facilities, and other factors.
3. Train health workers: Train health workers on cholera diagnosis, treatment, detection, contact tracing, surveillance, and maintain a database of trained health care workers.

During the outbreak:

1. Immediate reporting: Health facilities should report suspected cases of cholera to the Sub County health management team as soon as possible.
2. Case investigation: Investigate suspected cases of cholera to confirm the diagnosis and identify the source of the outbreak and refer for treatment.
3. Contact tracing: the process of identifying persons who may have been exposed to an infected person and subsequent collection of further data to assess transmission.

How to carry out contact tracing:

Step 1. Interview the Index Case

Step 2. Identify close contacts and complete the contact tracing forms

Step 3. Notify and Interview Close Contacts

Step 4. Health Education and Guidance

Step 5. Regularly evaluate the effectiveness of contact tracing efforts to identify strengths, challenges, and areas for improvement.

4. Laboratory testing: Conduct laboratory testing to confirm the presence of Vibrio cholerae and determine the serotype.

5. Active case-finding – if possible, active case-finding in communities and health facilities should be organized to allow: ·detection of cholera patients at an early stage of the disease; advice to be given to family members and the community about protecting themselves from contamination.
6. Control measures: Implement control measures to prevent further spread of the disease, including treatment of cases, provision of clean water, sanitation and hygiene promotion, and vaccination.

After the outbreak:

1. Evaluation: Evaluate the response to the outbreak, including the effectiveness of the surveillance system, case management, and control measures.
2. Review and update guidelines: Review and update cholera surveillance guidelines based on the lessons learned during the outbreak.
3. Post-outbreak surveillance: Continue to monitor cholera cases and outbreaks to detect any re-emergence of the disease and prevent future outbreaks.
4. Preparedness: Use the lessons learned during the outbreak to improve preparedness for future outbreaks. This includes ensuring that there are sufficient medical supplies, trained health workers, and an effective surveillance system in place.

3.2 Cholera Epidemiological Surveillance

Describe the outbreak by time, place, and person to guide control measures.

- Monitor and evaluate the impact of the interventions implemented.
- Conduct field investigations in the affected areas including active case finding,
- Explore possible sources of contamination
- Identify risk factors and transmission pathways.
- Line listing and contact tracing
- Map the locations of homes and water sources where people have been found to have cholera to help identify areas at risk,
- Target interventions and monitor disease spread.
- Evaluate prevention and control measures for suspected or potential risk exposures.
- Conduct a case-control or KAP study
- Generate a hypothesis for further research

3.2.1 Descriptive Epidemiology:

1) By Person

- Description of cases (suspected and confirmed) by age, gender
- Express the number of cases as incidence rates (IRs) and attack rates (ARs).
- Include the number of hospitalized patients and the proportion of cases by dehydration status or treatment plan applied.
- Provide the number of deaths (at the health facility and in the community) in a region or sub-county over time.
- The risk of dying from cholera is usually expressed by case fatality rate (CFR), by dividing the number of deaths attributed to cholera by the total number of cholera cases (suspected and confirmed).

2) By time

- Description of cases and deaths over time to monitor the trends and magnitude of the epidemic
- Data are usually presented as a histogram epidemic curve, plotting the number of cases by date of visit or date of onset of symptoms.
- The risk of death from cholera is represented in the epidemic curve by the CFR for each time period (i.e. daily, weekly, or monthly)

3) By place

- Provide geographic distribution of cases by place of residence
- If possible, collect GIS points and create maps of patients' households and water sources to help identify high-risk areas.

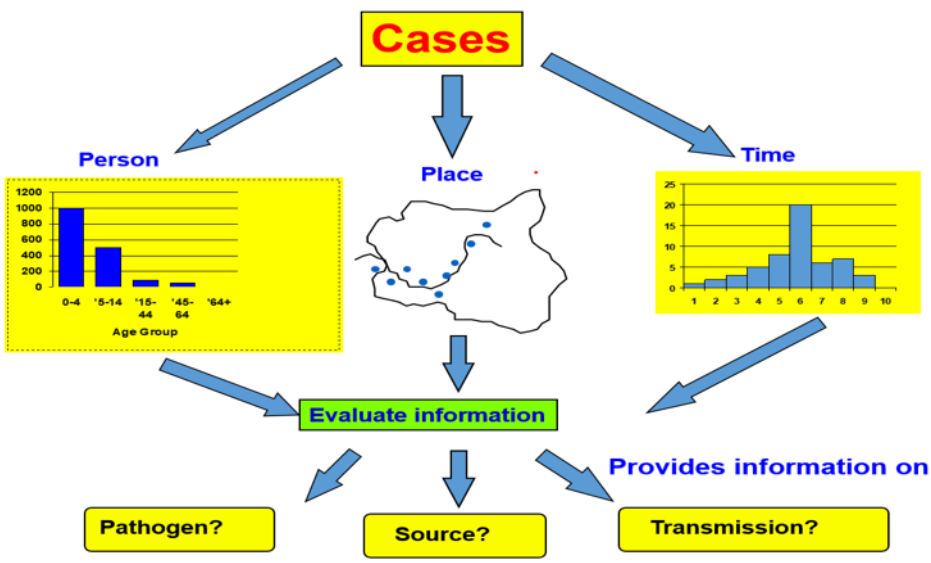


FIGURE 2: DESCRIPTIVE EPIDEMIOLOGY OF CHOLERA BY TIME, PLACE, AND PERSON

3.3 Risk Assessment

Risk assessment in cholera refers to the process of evaluating and analyzing the potential risks and vulnerabilities associated with the occurrence and spread of cholera. It involves identifying and assessing factors that contribute to the transmission of the disease and the likelihood of its occurrence in a specific population or geographic area. The aim of risk assessment (Annex 2) is to inform decision-making and guide the implementation of appropriate preventive and control measures.

Key steps in conducting a risk assessment for cholera include;

1. **Identification of hazards:** This involves identifying the sources and pathways of cholera transmission, such as contaminated water sources, inadequate sanitation facilities, or specific behaviors that increase the risk of exposure to Vibrio cholera.
2. **Assessment of exposure:** Evaluating the likelihood and extent of exposure to cholera, considering factors such as water and food sources, sanitation practices, population density, and socio-economic conditions.
3. **Evaluation of susceptibility and vulnerability:** Assessing the susceptibility and vulnerability of individuals or populations to cholera infection, considering factors such as age, immune status, access to healthcare, and nutritional status.
4. **Analysis of consequences:** Examining the potential health, social, economic, and environmental consequences of a cholera outbreak. This includes assessing the impact on morbidity and mortality, healthcare system burden, economic productivity, and community well-being.
5. **Risk characterization:** Integrating the information gathered from the previous steps to characterize the overall level of risk associated with cholera. This involves synthesizing the data and identifying the key risk factors, hotspots, and vulnerable populations.
6. **Communication of findings:** Presenting the results of the risk assessment clearly and to stakeholders, decision-makers, and the public. This facilitates informed decision-making and supports the development of targeted interventions and strategies to mitigate the identified risks.

3.4 Cholera Needs Assessment

A needs assessment in the context of cholera refers to a systematic process of identifying and evaluating the specific needs and requirements of a population or community affected by cholera. The purpose of the need assessment (Annex

2) is to gather information and data to inform the planning, implementation, and evaluation of appropriate interventions and response activities.

Key steps involved in conducting a needs assessment for cholera:

1. **Define the scope and objectives:** Clearly define the purpose and objectives of the need assessment. Determine the specific population or geographical area to be assessed and the desired outcomes of the assessment.
2. **Collect relevant data:** Gather information from various sources to understand the current situation and context. This may involve reviewing existing data and reports, conducting surveys or interviews, and engaging with key stakeholders, including community members, healthcare providers, and local authorities.
3. **Identify priority areas:** Analyze the data collected to identify priority areas of need. This may include assessing the burden of cholera cases, identifying gaps in healthcare services, evaluating access to safe water and sanitation facilities, and understanding community knowledge and practices related to cholera prevention and control.
4. **Engage stakeholders:** Involve key stakeholders throughout the needs assessment process to ensure their perspectives and expertise are considered. This may include local health authorities, community leaders, healthcare workers, non-governmental organizations (NGOs), and other relevant partners.
5. **Analyze and interpret data:** Analyze the collected data to identify trends, patterns, and key findings. Interpret the data to gain insights into the specific needs and challenges related to cholera prevention, treatment, and control in the affected population.
6. **Prioritize interventions:** Based on the identified needs, prioritize interventions and strategies that address the most critical gaps and challenges. Consider the feasibility, cost-effectiveness, and sustainability of the proposed interventions.
7. **Develop an action plan:** Use the findings of the needs assessment to develop a comprehensive action plan. The plan should outline specific activities, timelines, responsible parties, and required resources to address the identified needs and improve cholera prevention and control efforts.
8. **Monitor and evaluate:** Continuously monitor and evaluate the implementation and impact of the interventions. This allows for ongoing assessment of needs, adaptation of strategies, and improvement of the response over time.

3.5 Line Listing

In the context of cholera, a line listing refers to a systematic record or database that captures individual cases of cholera in a standardized format. It is a tabular representation of individual cases, typically arranged in chronological order of their occurrence.

Line listings in cholera include key information about each case;

1. **Case identification:** A unique identifier is assigned to each case, such as a case number or code.
2. **Demographic information:** Personal details of the case, including age, sex, address, and contact information. This helps in understanding the distribution of cases and identifying any demographic patterns or risk factors.
3. **Clinical information:** Information related to the clinical presentation and symptoms of the case, such as the onset date of symptoms, severity of illness, and outcomes (e.g., recovered, hospitalized, deceased).
4. **Laboratory confirmation:** Results of laboratory tests confirming the presence of Vibrio cholerae, the bacterium responsible for cholera infection. This may include information about the type of laboratory test conducted and the date of testing.
5. **Epidemiological information:** Additional details about the case's exposure history, such as recent travel, contact with other cholera cases, or exposure to contaminated water or food sources. This helps in identifying potential sources of transmission and understanding the spread of the disease.
6. **Treatment and management:** Information about the treatment provided to the case, including specific medications, intravenous fluid administration, or hospitalization.

3.6 Cholera Surveillance Indicators

3.6.1 Incidence Rate (IR)

The IR shows the speed at which new cases occur within a given period of time (usually per week) in a given area or a specific population (such as an age group).

IR can be expressed per 100 (percentage), per 1000, per 10 000 persons, or even more in case of small numbers of cases.

IR indicates the evolution of the epidemic and the rapidity of its spread. It can be compared between groups and with other areas since incidence is adjusted by population.

Example calculation: *If there were 50 new cases of cholera in a population of 10,000 people over a one-year, the incidence rate per 100,000 person-years would be calculated as follows:*

Incidence Rate = (Number of New Cases of Cholera / Population at Risk) x Multiplier

Incidence Rate = (50 / 10,000) x 100,000 = 500

In this example, the incidence rate for cholera would be 500 cases per 100,000 person-years.

3.6.2 Attack Rate (AR)

AR is the cumulative incidence of cholera over a defined period (usually the duration of an epidemic) in a defined area and population.

AR is usually expressed as a percentage and can be calculated by age and area. AR indicates the impact of the epidemic on the population. In rural communities with low population density, the AR might vary (0.1–2%). In crowded places (such as urban settings, refugee camps), the AR tends to be higher (1–5%). In settings with no immunity and poor water and sanitation conditions, AR can exceed 5%.

Attack Rate = (Number of Cholera Cases / Population at Risk) x 100

Example calculation: *If there were 20 confirmed cases of cholera in a population of 1,000 people during a specific period, the attack rate would be calculated as follows:*

Attack Rate = (20 / 1,000) x 100 = 2%

In this example, the attack rate for cholera would be 2%.

3.6.3 Case Fatality Rate (CFR)

CFR is the proportion of cholera deaths among the total number of cases within a specified period, expressed as a percentage.

Deaths occurring at the CTUs/CTCs and in the community should be recorded and analyzed separately. Calculate CFR at health facilities and in the community.

CFR, calculated with deaths and cases registered in a given health structure, is an indicator of adequate case management and access to treatment. The death of a person from cholera at any time after arrival at a health facility is considered to be an institutional death.

Cholera CFR can reach 50% if adequate treatment is not provided for patients with severe dehydration. With adequate and appropriate treatment, no one should die of cholera. However, a treatment center with a CFR of less than 1% is considered to be well-run.

CFR = (Number of Cholera Deaths / Number of Cholera Cases) x 100

Example calculation: *If there were 10 confirmed cholera-related deaths in the community and a total of 200 cholera cases, the CFR would be calculated as follows:*

CFR = (10 / 200) x 100 = 5%

In this example, the CFR for cholera deaths in the community would be 5%.

4 LABORATORY INVESTIGATION AND CONFIRMATION

Laboratory services give a scientific foundation by providing accurate information on trends of pathogen and antimicrobial susceptibility. This then informs effective and efficient prevention and control measures and prioritization of resource distribution. Whereas cholera is a water-borne infectious pathogen, biosafety and biosecurity measures have to be enforced at all stages in handling suspected cases and samples.

Laboratory service plays a central role in three phases as below:

Outbreak phases	Activities
Pre-Outbreak	• Strengthen Laboratory capacity; • Staffs training, • Availing diagnostic equipment and supplies • Quality assurance(monitoring) • Establish a sample referral system network
During Outbreak	• Periodic sampling and testing • Maintain Quality assurance • Reporting and dissemination of results • Biosafety and Biosecurity
Post-Outbreak	• Sampling and testing to confirm the end of an outbreak

4.1 Laboratory Coordination During an Outbreak

The laboratory function shall be coordinated by the National level and the County Laboratory focal person as provided for under IDSR technical guidelines. At the County, this function is delegated from the County Health Management Teams (CHMTs). The major function includes epidemic preparedness (sourcing for supplies and distribution) and response within the administrative unit as well as enhancing collaboration with other institutions within the Laboratory network.

4.2 Laboratory Confirmation

- Laboratory confirmation of cholera is done by culture or Polymerase chain reaction (PCR) as recommended by WHO guidelines.

- One Confirmed case is sufficient to declare an outbreak.
- When a cholera outbreak is suspected and an alert is triggered. Collect fecal material (stool or rectal swab) from 5-10 individuals who meet the standard case definition.
- Send the samples to the nearest laboratory with the capacity to:
  - Confirm cholera
  - Identify the strain, biotype, and serotype
  - Assess antibiotic sensitivity

Five percent (5%) of the confirmed isolates should be sent to the National Public health reference laboratory for quality Control, molecular epidemiology, and archiving of the isolates in support of biosecurity and biosafety measures.

4.3 Sample Collection, Preparation, Packaging, Storage, and Transportation

- Accurate and reliable test results depend on having a sample that has been collected, stored, and transported correctly.
- The sample should be collected by qualified trained healthcare workers as per laboratory sample collection guidelines.
- Collect fecal samples (stool or rectal swabs) from suspected cases upon encounter preferably within 4 days of the onset of illness (when pathogens are usually present in highest numbers) and, if possible, **before any antimicrobial therapy has been started.**
- Properly labeled samples must be accompanied by a duly filled case investigation form (MOH 502)

4.3.1 Stool Sample Collection

- A freshly collected stool should be placed in a clean wide-mouth leak-proof container (> 10 mL for liquid stools; > 20 g solid or semi-solid stools).
- Transport the sample to the laboratory within two hours at room temperature (ideally 22-25°C).
- Use **Cary-Blair transport medium** if a delay of >2 hours is anticipated. This media is stable for up to seven days and does not require refrigeration (before use or once inoculated).
- If **Cary-Blair transport medium** is not available, wet filter paper kept in a moist environment may be an alternative. Dip the paper disc into the liquid stool and place it 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 the transport of fecal specimens for detection by PCR only.
- A stool sample can also be collected in **Alkaline Peptone Water (APW)** which preserves the sample for < 24 hours.
- The sample should be <10% of that of the volume of APW. *(Annex 4)*

4.3.2 Rectal Swabs

4.3.2.1 Collection Procedure

- Moisten the swab in sterile Cary-Blair transport medium.
- Insert the swab 2–3 cm beyond the rectal sphincter and rotate. *(Annex 5)*
- Immediately insert the swab in the transport medium to the bottom of the tube.
- Break off and discard the top portion of the stick that extends beyond the tube.
- Record the patient's name or initials, specimen number, type of sample, and date of collection on the outside of the Cary-Blair transport medium.
- Send the sample to reach the laboratory within 7 days after taking the sample; **Do not refrigerate the sample.**
- Collect the stool samples and preserve the sample in the Cary-Blair transport medium.
- If antimicrobial therapy has been initiated before the sample collection, information regarding which antibiotic, dosage, and duration of treatment should be indicated in the laboratory request form.
- Antibiotic therapy may impact laboratory results, and more so culture results than RDT and PCR.
- Stool should be collected in a clean container free of disinfectant or detergent residue.
- Sample should not be collected from bedpans and diapers as they may contain residual disinfectant or other contaminants.

Note: Do not delay the rehydration of patients to take a specimen. Specimens may be collected after rehydration has begun.

4.3.3 Transportation

- Facility-based sample transportation systems or Local courier systems should be used in the transportation of samples to the testing laboratories.

- All samples should be triple-packaged before transportation. *(Annex 6)*

4.4 Sample Testing in the Laboratory

4.4.1 Rapid Diagnostic Tests

- Rapid diagnosis Tests (RDTs) are used as a tool for screening suspected cases but not for confirmation *(Annex 7)*.
- All Cholera RDT-positive cases at the pre-outbreak who meet the standard case definition should be considered probable and treated for cholera, as 5-10 of the positive samples are sent for culture.
- Cholera **RDT results cannot be used for declaring an outbreak.** Additional samples from those who test positive on cholera RDT should be collected for confirmation by culture.
- RDTs do not replace stool culture or PCR to confirm cholera (specificity is low and therefore false positives can occur). However, if RDTs are available at the health facility, prioritize samples from patients who tested RDT-positive for laboratory confirmation.

Note: Only RDTs validated by National Public Health Laboratories shall be used.

4.4.2 Culture and Sensitivity Testing

- This is done to confirm the outbreak and identify the serotype 01: Ogawa/Inaba 0139 antibiotic susceptibility testing *(Annex 8)*

4.4.3 Molecular Analysis: PCR Test

- This is done to confirm the outbreak and identify the serotype 01: Ogawa/Inaba 0139 antibiotic susceptibility testing

4.4.4 Genomic Sequencing Test

- It's used to confirm and link endemic strains.
- Genomic sequencing tests are not for public health interventions and activities.
- Confirmed isolates may be stored for whole genomic sequencing at a later time.

4.4.5 Number of Samples Required

- Laboratory confirmation by culture or PCR of the first suspected cases is essential to confirm a cholera outbreak. One laboratory-confirmed-positive sample is required to declare a Cholera outbreak in the specific area.

- Collect stool specimens from the first suspected cases (5–10 cases) and send them to the laboratory for confirmation.
- Laboratory will release results to the higher authority for further action
- Once the outbreak is declared, there is no need to confirm all suspected cases.
- Determine antimicrobial susceptibility patterns for the first five (5) isolates confirmed by the laboratory at the beginning of the outbreak to provide sufficient information to guide antimicrobial treatment.
- For monitoring purposes, Periodic sampling from each affected area should be done to monitor trends and antimicrobial susceptibility testing (If RDTs are available, prioritize RDT-positive samples).

TABLE 2: NUMBER OF SAMPLES REQUIRED FOR TESTING IN HEALTH FACILITIES DURING A CONFIRMED CHOLERA OUTBREAK

RDT	Test the first 3 suspected cases per day per health facility by RDT
Alternative Laboratory testing (culture/PCR) RDT not available	Test 3 RDT+ per week per health facility by culture/PCR
Antimicrobial Susceptibility Testing (AST)	Then, perform AST on at least 3 confirmed cholera cases per health facility per month.
Whole genomic sequencing (WGS)	Performing WGS on a subset of confirmed cholera cases is encouraged if access to WGS is available but not required for public health intervention

- If fewer than three (3) suspected cases are detected in a surveillance unit on a given week, all suspected cases should be tested.
- Selection of RDT positives samples for further laboratory testing should have the goal of testing from all affected geographic areas and from multiple time points.

4.4.6 Recommendations for Testing where RDT are not Available

- The first three (3) suspected cases per week per health facility should be tested by:
  i. culture and seroagglutination for presumptive identification of species (*Vibrio cholerae*) and serogroup (O1/O139)

ii. PCR for species identification (*Vibrio cholerae*) and serogroup identification (O1/O139)

NB: Toxigenicity having been already confirmed on the first positive case when the outbreak was detected in the country, there is no need for further toxin testing.

4.4.7 Recommendations for Antimicrobial Susceptibility Testing

- At the onset of a confirmed cholera outbreak, AST should be performed on the first five (5) confirmed VC O1/O139 per surveillance unit.
- Then, AST should be performed on at least three (3) confirmed cholera cases per surveillance unit per month.
- If fewer than three (3) cases are confirmed in a surveillance unit on a given month, AST shall be performed on all confirmed cases.

4.4.8 Biosafety Measures when Handling Cholera Samples

During sample collection, all biosafety and biosecurity measures must be adhered to by:

i. Use of appropriate Personal Protective Equipment (PPE) during sample collection, triple packaging

ii. During sample processing at the laboratory.

iii. Samples and Isolates "MUST" be stored appropriately and in a secure place to prevent bioterrorism.

4.4.9 Water Analysis

- The laboratory will perform water analysis on water collected in sterile bottles or sterile plastic bags, by public health officers.
- Water samples should be received at the laboratory within 6 hours at room temperature or 24 hours if in cold chain (2-8C).
- The volume required should be at least 250ml.
- Laboratory will analyze for fecal *E.coli, coliforms, and V. cholerae.*

4.4.10 Food Specimen Collection

- Samples of food are collected where outbreaks have been reported (hotels, schools, and homes where cases are reported).
- Food samples collected for bacteriological analysis should be transported to the laboratory as soon as possible (within 2 hours and if on cold chain 2 to 8 degrees within 24Hrs).
- Cold chain should be maintained while transporting food samples.

- Samples should be packed in such a way that there is no spillage during transportation.
- The receiving laboratory should be notified before samples are sent out.
- Store the sample for a minimum practicable period under such conditions that changes in composition are prevented or kept to a minimum.
- The sample should where possible be freshly prepared or in case of an outbreak all the foods that were eaten by the people at the time.

5 CASE MANAGEMENT

5.1 Principles of Treatment

Timely detection of cholera cases and prompt initiation of treatment is key in reducing morbidity, mortality and containing disease transmission.

1. **Severe dehydration/ Shock is a medical emergency.** The priority is to identify and correct and prevent dehydration with the appropriate rehydration fluids. **Fluid management is the mainstay of cholera management.**
2. Complementary therapies (antibiotics and zinc sulphate) are useful in reducing the duration and severity of diarrhea but do not replace fluid therapy rehydration
3. Initiate oral feeding as soon as the patient can tolerate feeds
4. Continue breast-feeding infants and young children

Systematic and stepwise approaches for effective case management

- Triage all patients appropriately
- Apply standard and pathogen-specific precautions
- Assess the patient's level of dehydration
- Rehydrate the patient according to the level of dehydration (no, some, or severe dehydration or shock).
- Patients with some dehydration or severe dehydration or shock should be admitted to Cholera Treatment Unit/ Cholera Treatment Center (CTU/CTC)
- **The patients should be managed on cholera beds if available**
- Monitor the patient frequently, and reassess their hydration status
- Collect a stool sample or rectal swab sample **before initiating antibiotic**
- Where possible the following tests should be done; Complete Blood Count, Liver Function Test, Urea Electrolytes & Creatinine, and others as may be indicated
- Give an oral antibiotic if indicated
- Patient should resume feeding when vomiting has stopped
- Continue monitoring the patient and replacing fluid losses until the diarrhea stops
- On discharge give the patient a 2-day supply of Oral Rehydration Solution (ORS) for home use and instructions on homecare
- Patients with no dehydration can be treated at home, at an oral rehydration point (ORP), or in the outpatient area at the CTU/CTC
- Advise the patient and family on follow-up and preventive actions for cholera

5.2 Treatment Plans

- Treatment is based on the degree of dehydration of the patient: no dehydration, some dehydration, severe dehydration, or shock
- Patients with no signs or some signs of dehydration are treated with ORS (plan A and plan B, respectively)
- Patients with severe dehydration and shock require IV rehydration
- Refer to the flow chart for cholera case management for adults *(Figure 3)* and children *(Figure 4)*.
- Re-assess the patient's hydration status as guided in the flowcharts

NB: After reassessment of hydration status, rehydrate according to the new level of dehydration

5.2.1 Intravenous (IV) Fluids

- The fluid of choice for rehydration is Ringer lactate (RL)
- If RL is not available, 0.9% sodium chloride (Normal Saline), with or without glucose, can be used

NB: IV fluid containing only glucose (e.g., 5% dextrose) should not be used

5.2.2 Preparing and Administering ORS

- 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

ORS preparation Steps

1. Wash your hands with soap and clean running water
2. Pour the full packet into the clean container
3. Measure half a liter (500ml) of pure water in the container containing ORS powder
4. Keep mixing until ORS is fully dissolved. If there is no dissemination, then the powder is fully dissolved
5. Use the prepared ORS within 12 hours. Discard after 12 hours and prepare another batch.

TABLE 3: ASSESSMENT AND CLASSIFICATION OF THE LEVEL OF DEHYDRATION

Assessment and classification of the level of dehydration				
Mental status	Normal, awake	Agitated, irritable	AVPU<A, Lethargic	Altered level of consciousness
Radial pulse; temp gradient	Easily palpable; no temp gradient	Palpable (possibly rapid); no temp gradient	Difficult to palpate (weak); no temp gradient	Weak/ absent; temp gradient
Eyes	Normal	Sunken	Sunken	Sunken
Skin pinch	Disappears rapidly	Disappears slowly (< 2 seconds)	Disappears very slowly (> 2 seconds)	Disappears very slowly (> 2 seconds)
Thirst	Drinks normally	Thirsty, drinks avidly	Incapable or drinks very little	Incapable of drinking
Diagnosis	No dehydration	Some dehydration	Severe dehydration	Shock
Decision	***Treatment plan A***	***Treatment plan B***	***Treatment plan C***	***Treatment for shock***

FIGURE 3: FLOW CHART FOR ADULT PATIENTS' EVALUATION AND TREATMENT

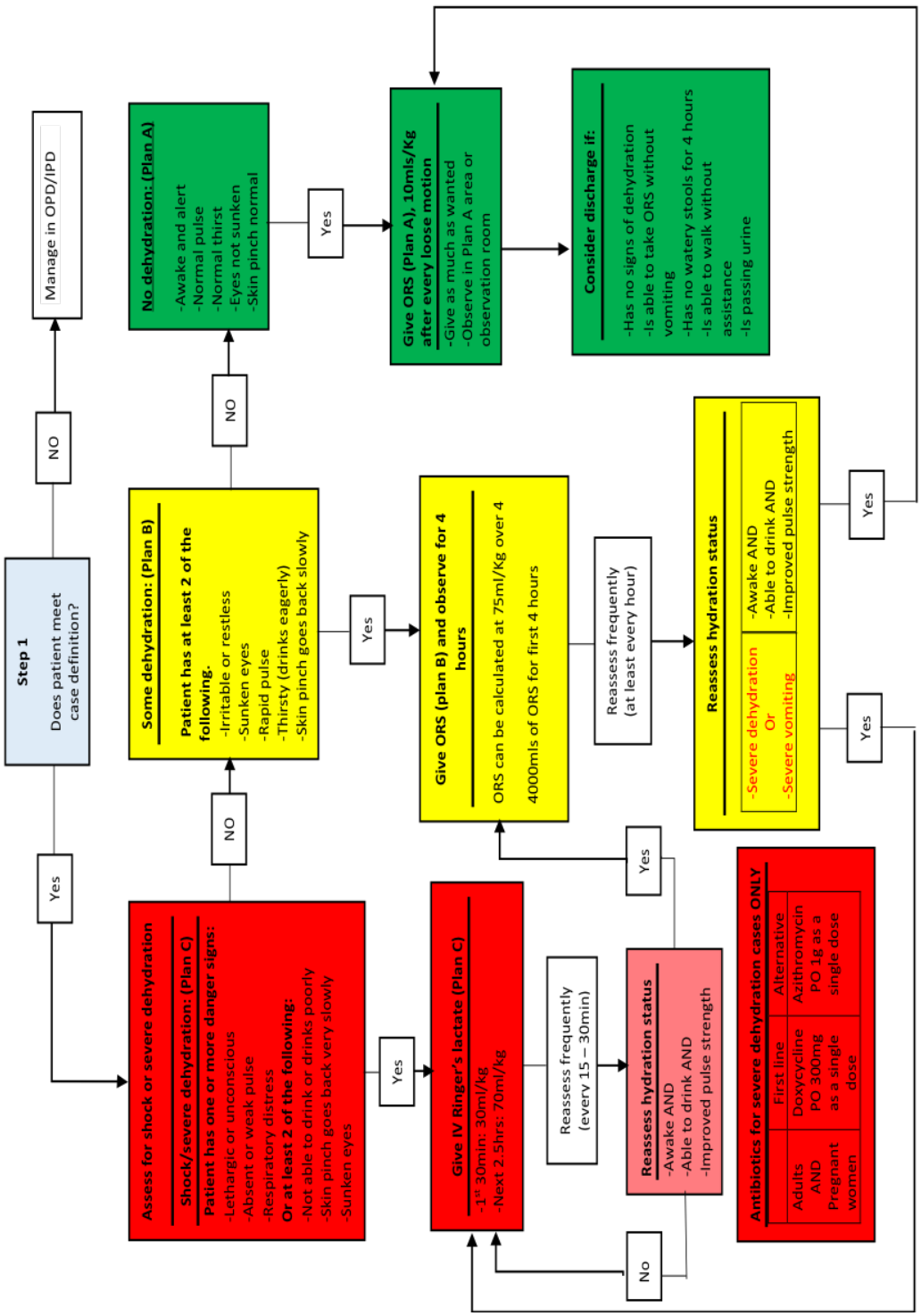
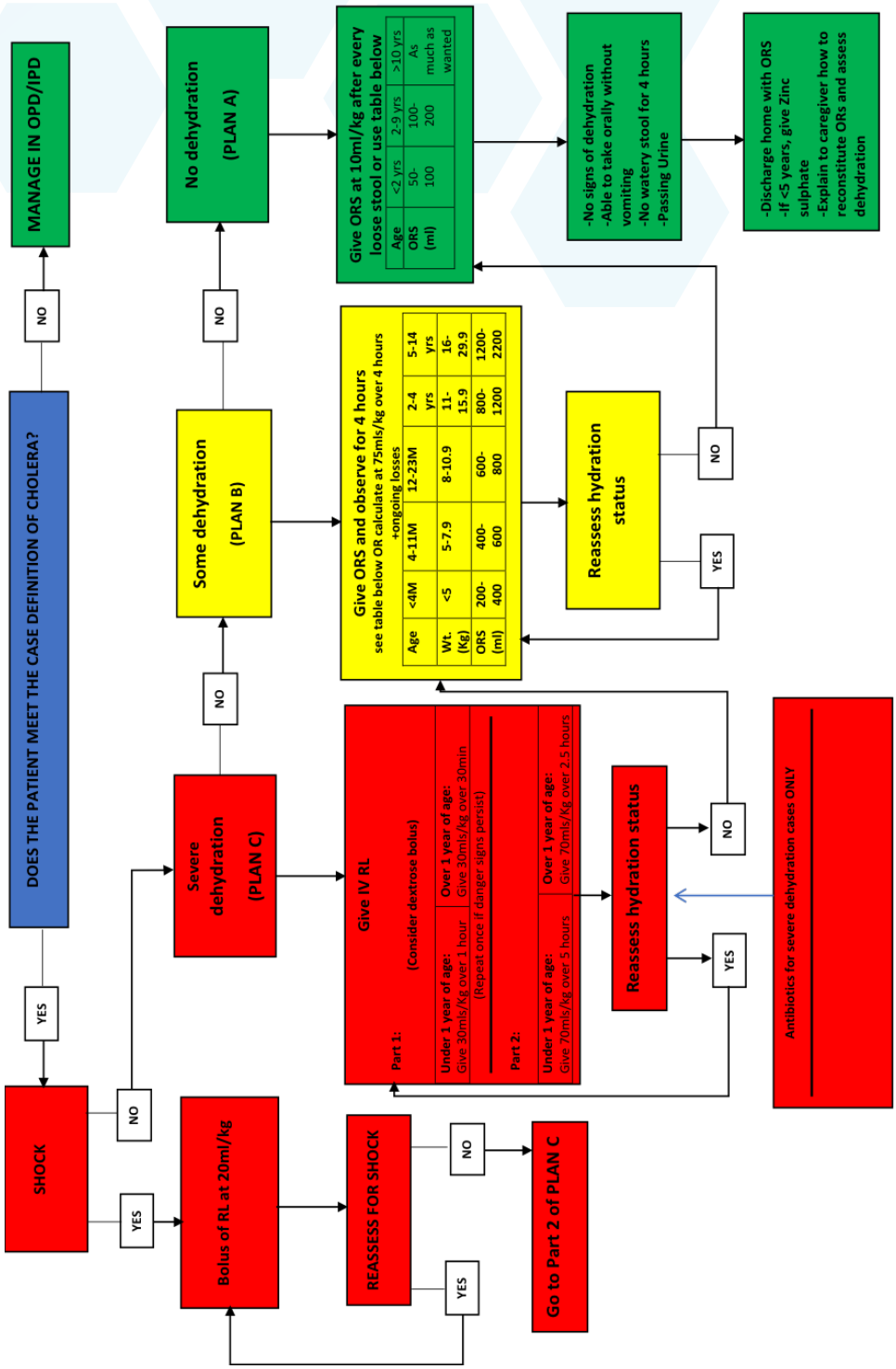


FIGURE 4: FLOW CHART FOR PEDIATRIC EVALUATION AND TREATMENT OF SHOCK AND DEHYDRATION



5.2.3 Compensation for Ongoing Losses

- During the rehydration phase, the losses from ongoing diarrhoea must be compensated by ORS. The ORS volumes for ongoing losses are estimated in table 4 below.
- If the patient is incapable of drinking, ongoing losses must be compensated via the intravenous route.
- As soon as the patient can drink, replace ongoing losses with ORS.
- Compensate for the total number of stools lost at the end of the 3-hour rehydration phase over a period appropriate for the amount of volume to be replaced **(do not exceed 25 ml/kg/hour)**

Example calculation: *For a 3-year-old child, 8 stools were passed during the 3-hour rehydration, thus giving 800 ml (8 x 100 ml) over 3 hours at the end of rehydration is required to replace ongoing losses.*

TABLE 4: QUANTITY OF ORS FOR COMPENSATION OF ONGOING LOSSES

Quantity of ORS for compensation of ongoing losses		
Age (Years)	**Amount of ORS after each loose stool**	**Quantity per day**
Under 2	50-100 ml (10-20 teaspoons of 5 ml)	500 ml/day
2 to 10	100-200 ml (½ to 1 glass of 200 ml)	1000 ml/day
Over 10 & adults	at least 200-250 ml (1 glass of 200 ml)	2000 ml/day

5.2.4 Antibiotic Treatment

- Antibiotics can reduce the volume and duration of diarrhea.
- Antibiotics are indicated for the following groups:

1. Cholera patients hospitalized with shock and severe dehydration
2. Patients passing 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
3. Patients with coexisting conditions (including pregnancy) or comorbidities (such as Severe Acute Malnutrition (SAM), and HIV), regardless of the degree of dehydration

Note: Antispasmodics, antidiarrheals, antiemetics, and plasma expanders are not indicated in the treatment of cholera and should not be used

TABLE 5: ANTIBIOTIC THERAPY

Antibiotic Therapy*			
Category	**Antibiotic**	**Children**	**Adults (including Pregnancy)**
First line	Doxycycline PO	4 mg/kg single dose	300 mg single dose
Alternative	Azithromycin PO	20 mg/kg single dose	1 g single dose
	Ciprofloxacin PO	20 mg/kg single dose	1 g single dose

***WHO recommends doxycycline to children and pregnant women as a single dose. Where available, Antimicrobial Susceptibility Testing (AST) should guide antibiotic choice.**

5.2.5 Feeding

Patients should be given a normal, non-restricted diet. For breastfeeding children increase the frequency of feedings. Breast milk does not replace ORS, which is given between feedings.

5.2.6 Zinc Supplementation for Children

- Zinc supplementation in the management of children aged 6 months to 5 years with watery diarrhea (regardless of the cause or degree of dehydration) reduces diarrhea volume and duration
- When available, supplementation should be started immediately
- For children above 6 months give 20 mg p.o. zinc sulphate per day (for children less than 6 months 10mg PO per day) for 10 days
- Zinc may reduce the absorption of some classes of antibiotics, including; ciprofloxacin. For the best effect with these classes of drugs, antibiotics should be administered 2 hours before zinc or 4 – 6 hours after zinc

Note: Children receiving therapeutic food for the treatment of SAM do not require zinc supplementation, as these foods contain sufficient zinc

5.3 Management of Complications

- Children with severe acute malnutrition (SAM), pregnant mothers, elderly people, and those with uncontrolled chronic conditions (such as congestive heart failure, diabetes, and hypertension) are especially vulnerable to complications
- Pulmonary edema can occur if excessive IV fluid is given and renal failure can occur if too little fluid is given; hypoglycemia and hypokalemia can occur, especially in children with malnutrition who are rehydrated with Ringer's lactate alone

Note: A senior review or referral is indicated for patients with complications

5.3.1 Treatment of Cholera in Children with Severe Acute Malnutrition (SAM)

- Malnourished children with cholera are at risk of complications and death. Assessment of the child's malnutrition status and dehydration level will determine the treatment plan
- Immediately treat children with SAM and suspected cholera at a CTU/ CTC
- For oral rehydration of children with SAM during an outbreak of cholera, give standard ORS
- Do not give ReSoMal (Rehydration Solution for Malnutrition) as its sodium content is not sufficient to replace that lost in cholera
- For severe dehydration requiring IV therapy, follow rehydration guidelines for malnourished children
- Breastfeeding and feeding with therapeutic milk should continue throughout rehydration

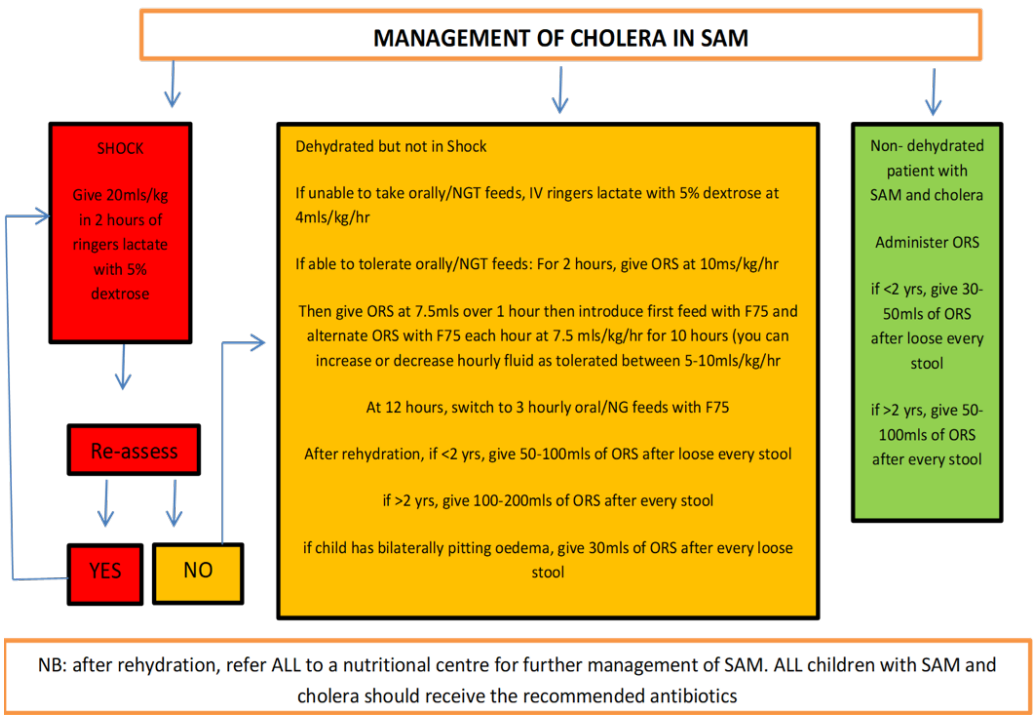


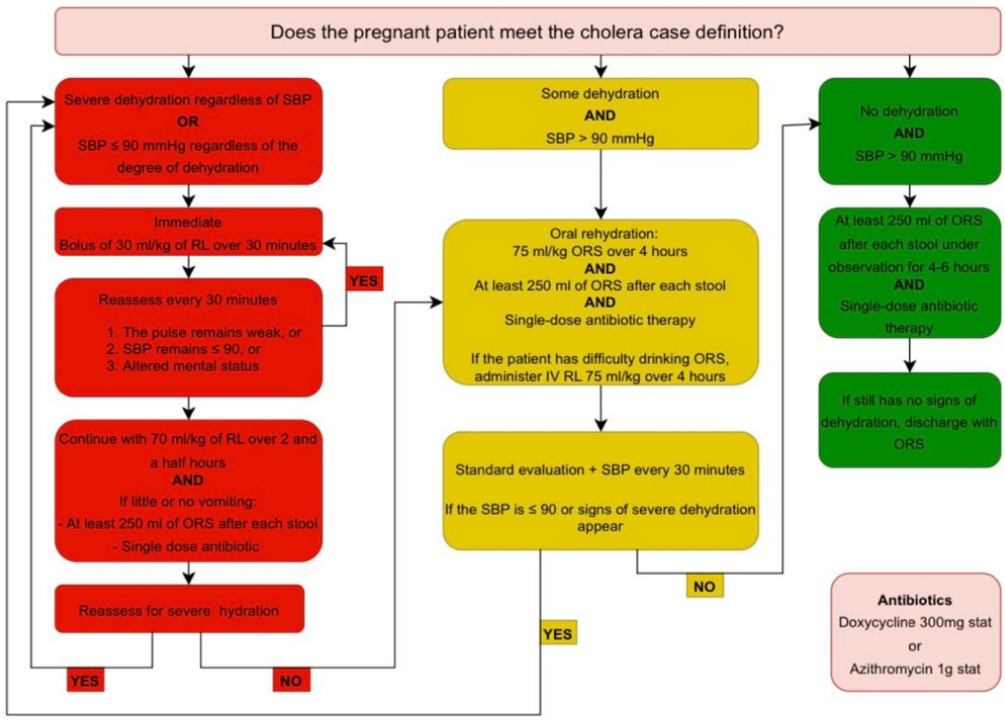
FIGURE 5: TREATMENT FLOW CHART OF CHILDREN WITH SEVERE ACUTE MALNUTRITION (SAM)

5.3.2 Treatment of Cholera in Pregnancy

- Pregnant women with cholera are at a higher risk of losing their fetuses, compared to the general population of pregnant women
- In the first trimester, the initial evaluation is the same as for all other patients. The second and third trimester initial evaluation is detailed in Table 6.
- The use of the Oral Cholera Vaccine as a preventive measure is considered to be safe and is recommended in pregnancy.
- In large outbreaks, organize the CTC/CTU to ensure privacy for pregnant women, especially during labor and delivery, and ensure access to reproductive health services

TABLE 6: TREATMENT AND EVALUATION OF THE SECOND OR THIRD TRIMESTER

Treatment and evaluation of the second or third trimester	
Initial diagnosis	**Treatment and Evaluation**
Severe dehydration (regardless of Systolic Blood Pressure/ SBP) OR SBP ≤ 90 (regardless of the degree of dehydration)	**Treatment** • Immediate: Bolus of 30 ml/kg of RL over 30 minutes Repeat the bolus if: – the pulse remains weak, or – SBP remains ≤ 90, or – consciousness remains altered • Once the patient has stabilized: Continue with 70 ml/kg of RL over 2 and a half hours + If little or no vomiting: – Encourage the patient to take ORS as frequently as possible and at least 250 ml of ORS after each stool – single dose antibiotic therapy within 4 hours or as soon as possible (Refer to table 5 on antibiotics) **Evaluation** Standard evaluation + SBP every 30 minutes during the first 4 hours. If the SBP is again ≤ 90 or danger signs reappear, repeat boluses of 30 ml/kg over 30 minutes until the SBP is > 90 and/ or danger signs resolve then, resume the previous infusion of 70 ml/kg. Subsequently, adapt the surveillance of maternal SBP, according to the severity of fluid loss from diarrhoea.
Some dehydration AND SBP > 90	**Treatment** Oral rehydration: 75 ml/kg ORS over 4 hours + At least 250 ml of ORS after each stool + Single-dose antibiotic therapy If the patient has difficulty drinking ORS, pass rapidly to IV rehydration (75 ml/kg of RL). **Evaluation** Standard evaluation + SBP every 30 minutes. If the SBP is ≤ 90 or signs of severe dehydration appear, start the IV therapy for severe dehydration.
No dehydration AND SBP > 90	At least 250 ml of ORS after each stool under observation for 4-6 hours + Single-dose antibiotic therapy



Key: SBP - Systolic Blood pressure
NB: Always assess the patients at the recommended interval and manage according to the level of dehydration

FIGURE 6: TREATMENT FLOW CHART OF PREGNANT WOMEN

5.4 When to Discharge Patients From the Treatment Facility

Consider discharge if the patient:

- Has no signs of dehydration
- Can take ORS without vomiting
- Has no watery stools for 4 hours
- Can walk without assistance
- Is passing urine

Discharge instructions:

- Patients should be advised to return as soon as possible to the nearest facility should symptoms recur.
- Provide patients with at least a 2-day supply of ORS and confirm they can correctly prepare and give ORS at home without supervision
- Inform the patient, family members, and/or caregivers about precautions and instructions at the household level, as follows:

- Drink and use safe water
- Wash your hands with safe running water and soap or with ABHR at critical times, including;
  - After using the toilet or handling faeces
  - Before, during, and after preparing food.
  - Before and after eating food
  - If caring for a patient, always wash your hands before and after providing care, and after handling any soiled items (such as clothes, and linens)
  - After changing diapers or cleaning up a child who has used the toilet
- Cook food thoroughly (eat while hot or preheat it)
- Remove and wash any bedding or clothing that may have had contact with diarrheal 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 diarrhea, 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

5.5 Cholera Treatment Facilities

Cholera Treatment Centers and Cholera Treatment Units are healthcare facilities set up during outbreaks to isolate and treat cholera patients.

5.5.1 Cholera Treatment Center (CTC)

- A CTC is an autonomous inpatient facility that has its' own general services (latrines, showers, kitchen, laundry, morgue, and waste area), stocks, and resources (medical and logistics, water, and electricity) *(Figure 7)*.
- It operates 24 hours a day.
- During cholera outbreaks, site identification of a CTC is a major problem, especially in resource-limited areas.
- The CTC can be established in health facilities, open secured spaces, and any other separately constructed structures with specified requirements. *(Annex 9)*

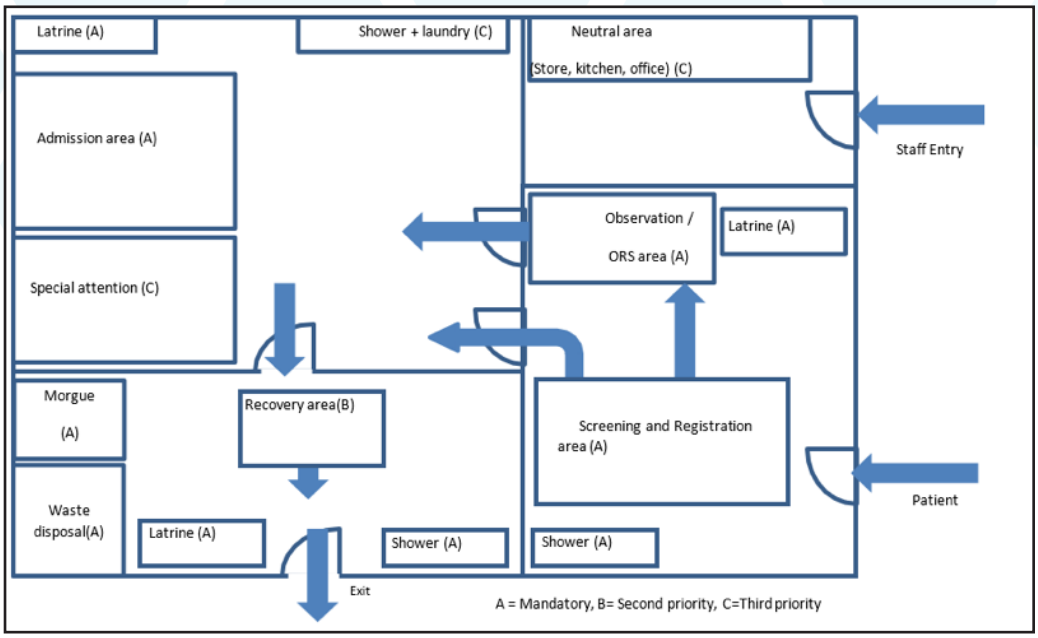


FIGURE 7: DESIGN OF AN IDEAL CTC

5.5.2 Cholera Treatment Unit (CTU)

- A CTU is a simpler facility than a CTC in terms of installations and is located within a healthcare facility.
- CTUs are designed to treat both simple cases of cholera (oral treatment) and severe cases (IV treatment) and function 24 hours a day
- CTUs are, however, much smaller than CTCs
- The capacity of a CTU varies according to the context and needs. In certain situations, a CTU may have only 2 beds, but a CTC can have 10 and up to 30 beds

5.5.3 Oral Rehydration Points (ORPs)

- Providing rapid access to oral rehydration solution (ORS) saves lives
- ORPs provide first-line, community-level rehydration, as a highly decentralized element of case management services
- No specific structure is necessary for the delivery of ORS: ORPs can be fixed or mobile or integrated as part of a healthcare structure
- However, basic IPC measures should be implemented to prevent ORPs from being a source of infection
- ORPs provide oral treatment for patients with suspected cholera and dehydration and refer patients with some or severe dehydration to

cholera treatment facilities (after starting ORS if possible)

- ORPs should provide care during all daylight hours, 7 days per week
- Whenever possible, involve and train community health workers or community volunteers in the preparation and distribution of ORS in the community, assessment, and treatment of patients, and referral of patients with some or severe dehydration for further treatment
- Any program delivering ORS is also a good mechanism for delivering health and hygiene education messages

5.6 Infection Prevention and Control (IPC) at the CTC/ CTU

- IPC measures include hand hygiene, PPE use, safe food, and linen handling, waste management, corpse preparation, and vector control
- All staff must be trained in relevant infection control protocols before working
- Protocols should be readily available on-site for reference

5.6.1 Hand Hygiene

- Staff should observe the 5 moments of hand hygiene.
- Place hand-washing stations at key points like latrines, patient areas, kitchen, laundry, waste management, and morgue
- Stations should be accessible, labeled, and have use instructions.
- Hand washing with soap and safe water treated with 0.05% chlorine solution

5.6.2 Personal Protective Equipment

- PPE suitable for standard and contact precautions is recommended for staff attending to patients, cleaning, or handling waste.
  - Standard precautions include: clean gloves and surgical masks
  - Contact precautions: clean gloves and plastic/water-proof gowns and boots
- Reusable PPE should be cleaned with a 0.2% chlorine solution, then washed with detergent and air-dried, preferably in sunlight

5.6.3 Laundry

- Soiled materials should be separated, immersed in a 0.2% chlorine solution for 10 minutes, washed with detergent, and air-dried in sunlight if possible

- Locate the laundry area near the most contamination-prone areas.
- Use large plastic tubs for washing if sinks are unavailable
- Clean the washing area's slab daily with a 0.2% chlorine solution

5.6.4 Cleaning and Disinfection

- Regular cleaning and disinfection of all CTC/CTU areas is vital for infection control, involving the use of 2%, 0.2%, and 0.05% chlorine solutions for different activities
- CTC/CTU floors should be concrete or plastic-covered for easy cleaning
- Clean latrines, showers, and bathing rooms multiple times daily, including slabs, doors, handles, and walls up to one meter or higher if needed

TABLE 7: CHLORINE SOLUTIONS AND USE FOR DISINFECTION

Chlorine solution*	Uses
2%	Disinfection of dead bodies, stool, and vomit
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, vehicles used for transporting patients, and foot baths
0.05%	Disinfection of hands (when neither soap and safe water nor ABHR is available)

***Take note of the concentration of the mother solution as you reconstitute the various concentrations for use.**

5.6.5 Waste Management

- Infectious waste must be decontaminated on-site and disposed of in a restricted area
- Divide waste into sharps, soft, organic, and cholera waste
- Sharps should be put in puncture-proof boxes and incinerated or buried. Burn soft waste in incinerators or pits
- Dispose of organic waste in lidded pits
- Treat cholera waste with 2% chlorine, and dispose of it in a dedicated pit or patient latrine
- Label waste containers and fill them to three-quarters of their capacity
- Empty daily, then wash and disinfect with a 0.2% chlorine solution

5.6.6 Management of Wastewater

- Collect all wastewater in a grease trap and infiltrate via a soak-away pit
- If impossible, treat wastewater specifically before discarding it
- Discuss technical solutions with sanitation specialists

6 WATER, SANITATION AND HYGIENE (WASH)

Access to safe water and sanitation is a basic human right. However, this is not usually the case for thousands of people that do not have access to safe water, sanitation, and hygiene services. Providing adequate WASH services to households, institutions (schools, health care facilities, prison, religious centers, etc.) and other public settings (markets, transport hubs) is therefore crucial during cholera outbreaks.

6.1 Access to Adequate Safe Water

- Communities, institutions, and other public settings should be encouraged to use water from improved water sources (piped, boreholes, protected wells/streams, rainwater, water bowsers). Unprotected wells/springs and surface water e.g. rivers, ponds and dams are considered unsafe sources of water and can be made safe by water treatment.
- Even if the drinking water is accessed from an improved source, water can easily be contaminated during its collection, transportation, and storage in the household. Communities, therefore, need to be educated on treating and safe storage of water at household-level.
- The daily water needs per person during non-outbreak situations is 20 liters per person per day minimum. Water needs are much higher during an outbreak situation, especially outbreaks of diarrheal disease (such as cholera) at 60 liters per person per day.

6.1.1 Water Quality Monitoring and Testing

During cholera epidemics, the objective is to ensure that at-risk or affected populations have access to safe water in sufficient quantity. It is critical to monitor fecal contamination of all sources of drinking water, regardless of the source. Preferred indicators of fecal contamination include thermotolerant coliforms, Escherichia coli, and fecal streptococci. In the context of an ongoing epidemic, evidence of fecal contamination of a drinking water source indicates a risk of cholera transmission, even if *V. cholerae* has not been found in the specific sample analyzed.

Only two tests are essential in this context:

- Free Chlorine Residual (FCR) level testing in all water sources that are already supposed to be chlorinated. Initial testing must be followed by systematic monitoring during outbreaks.

- Free chlorine residuals should be maintained as follows:
  - 0.5 mg/L at all points in the supply chain;
  - 1.0 mg/L at stand posts and wells;
  - 2.0 mg/L in tanker trucks at filling points.
- Fecal indicator bacteria (FIB) (Escherichia coli, thermotolerant coliforms) testing is mainly reserved for closed water sources that are not regularly chlorinated (i.e., boreholes, protected wells, etc.). For open water sources and those sources with low or no FCR, it should be assumed that the sources are contaminated and therefore require appropriate chlorination. FIB testing in these situations is not essential but may still be used as a secondary test if time and resources permit. No FIB should be detected in any 100 mL sample of water that is directly intended for drinking. In the case of an active outbreak, any drinking water should be made safe for consumption by adequate chlorination. Safety of drinking water can be ensured by:

i) immediate treatment (i.e., chlorination) while testing for FCR levels

ii) or assuring that the water is free of fecal contamination (i.e., by testing for fecal indicator bacteria). These measures must be followed by regular testing to confirm adequate chlorine levels and/or the absence of fecal indicator bacteria is maintained.

- For water sampling, water can be classified into three main types (Annex 10):

- Water from a tap in a distribution system or from a fixed pump outlet, etc.

- Water from a water course (river, lake, etc.) or a tank

- Water from a dug well, etc.

6.1.2 Water Treatment

Water treatment at the Source

Analysis of the context will determine the best method for water treatment (at the source or at the point of use). Selection of the water treatment method such as filtration, disinfection-chlorination will depend on the resources and techniques available and the parameters (physical and microbiological) of the water to be treated. Combining treatments (used together, either simultaneously or sequentially) will increase the effectiveness.

- In high-turbid water, a pre-treatment (sedimentation, flocculation, or coagulation) might be necessary to remove suspended particles and reduce turbidity to 10 Nephelometric Turbidity Units or less before disinfection or chlorination. Turbidity levels can be tested with a turbidity tube.

- If water is chlorinated, regularly monitor Free Chlorine Residual (FCR) levels and maintain the appropriate level by adapting the dosing and frequency of chlorination as necessary.
- The optimal pH range in which chlorine is effective is 6.5–8.5. FCR levels and pH can be tested with a photometer or colorimeter (commonly known as a pool tester).

Note: Direct chlorination of wells and other unprotected sources is not recommended as it is ineffective

Water treatment at the point of use /Household

When the quality of water at the source cannot be guaranteed, a treatment process is needed to disinfect the water at the point of use i. e household, institution level (at the tap, vessels, or storage containers). Various methods of household water treatment are available, including boiling, chlorination, solar water disinfection (SODIS), and filtration. (Annex 11)

- If household water treatment products are to be used, ensure that households understand the water treatment techniques, the residual effect of chlorine, and removal of excess chlorine.

Note: Excess chlorine can be removed from water by boiling it for 15 minutes or leaving it in an uncovered jug for at least 24 hours and the excess will evaporate. Shaking water in a jerrycan and then opening the lid and leaving it open for a while and then repeating the process also works.

- Encourage the use of closed, narrow-mouthed containers (Figure 8) with a protected dispenser (spigot or tap, spout) for extracting water if not available, ensure drinking water is stored in a clean, covered container such as a bucket

FIGURE 8: CONTAINER FOR STORAGE OF SAFE WATER

- Containers should be cleaned regularly, and good hand hygiene should be ensured to reduce potential contamination when filling or extracting water.
- In the case of chlorination, the recommended FCR after 30 minutes of contact time is 0.5 mg/L at the point of use (at the tap, or storage container).

6.2 Access to Improved Sanitation

Safe disposal of human excreta is important for the prevention of cholera infections that could result from contaminated faeces.

- During community and environmental surveillance, a team should be assigned to inspect local areas for human and animal waste disposal at households, institutions (e.g. schools, prisons), and other public settings such as markets, transport hubs, etc. A thorough sanitary inspection is to be carried out.
- Access to improved sanitation facilities (for example, toilets connected to a public sewer or to a septic tank, pour-flush latrines, simple pit latrines, ventilated improved latrines) is critical for safe management of human feces.
- Latrines should be placed in locations that will not contaminate any drinking water source (at least 30 meters away from any water source and 2 meters above groundwater.)
- Unsafe practices such as open defecation should be discouraged through community education on methods for safe disposal of feces. Households practicing open defecation should be mobilized to construct latrines appropriate for local conditions and scale up community led total sanitation (CLTS).
- During a cholera outbreak, institutions such as schools, prisons, religious centers, and public locations such as markets and transport hubs can be risk locations for cholera spread. Hence, access to safe sanitation facilities in institutions and public places is crucial to be addressed during cholera outbreaks. Minimum sanitation standards for schools are as per "Standards and guidelines for WASH infrastructure in schools in Kenya, 2018"

6.2.1 Management of Excreta and Liquid Waste

- Ensure safe excreta management and disposal during the outbreak. However, minimize latrine emptying during cholera outbreaks.
- If latrines must be emptied, take all precautions to avoid contamination during emptying and ensure excreta is disposed of safely. should be

done under the strict supervision of environmental health officers.

- Handwashing stations with water and soap should be set up near the toilets (at least 5m).
- Liquid waste from kitchens, hand-washing stations should not be drained onto the ground; liquids should be connected by a pipe to a septic tank or seepage pit.

6.3 Hygiene Promotion

6.3.1 Hand Hygiene

Handwashing with soap and safe water is one of the easiest ways to prevent the spread of cholera. Soap helps to remove dirt and cholera germs from hands. A person can protect themselves and their family from cholera by washing their hands often. Unwashed (or poorly washed) hands can transfer cholera germs to food, water, and household surfaces.

Use running water to wash your hands. Use soap either bar or liquid, plain or antiseptic. Bar soap must be allowed to drain in between use therefore use soap racks. Use friction to remove dirt from under fingernails. Timing (10 -20 seconds) is the standard acceptable length of time for hand washing. Use clean towels (disposable or individual) for drying, or allow to air dry.

Handwashing should be done during the following times:

- After visiting/using the toilet
- Before eating
- After changing the baby's diaper
- Before and after preparing food
- Before and after caring for someone who is sick with vomiting and diarrhea

6.3.2 Safe Food Handling Practices

Safe food preparation is important to reduce the transmission of cholera in the community. Food can be contaminated with *V. cholerae* during production, preparation, transportation, storage, or consumption. The basic rules for safe food preparation should be included as part of health and hygiene promotion programs.

- Street vendors and marketplaces with inadequate access to safe water and sanitation or inadequate hand hygiene can play an important role in spreading cholera.
- Reinforce food safety laws and inspection of restaurants, food vendors, and food processing factories and avoid unsafe agricultural practices (such as using sewer water to irrigate crops).

- Train on or reinforce safe food preparation practices.
- Promote hand hygiene and set up handwashing stations with soap and safe water in markets and places selling food.

The following precautions should be taken in food handling:

- Wash hands with soap and water before preparing and eating food
- Use only safe or disinfected water for preparing food, beverages, and ice, or treat water before using
- Cook food thoroughly well and keep it covered
- Eat it hot or reheat it
- Wash and peel fruits and vegetables before eating
- Avoid raw foods
- Clean food preparation areas and kitchenware with soap and safe water and let them dry completely before reusing them.
- Do not use manure that contains human waste (excreta or faeces) in vegetable gardens or crops.
- Acute cases and proven carriers who handle, process, and/or serve food (especially in commercial settings) should be excluded from these activities pending treatment and follow-up testing.
- In outbreak situations, food safety behaviors should be reinforced at a community level. Food safety inspections at restaurants and street vendors, and ensuring compliance with regulations, will also play an important role in preventing infections.
- Make sure that people at home, in restaurants, in food vending settings, and in factories handle food safely. Refer to the nationally established standards and controls for the handling and processing of food.

6.3.3 Minimum Hygiene Standards for Food and Drink Establishments

Commonly, food and drinks are served in hotels, restaurants, schools, camps, abattoirs, butcher shops, prisons, etc. In addition, festivals, traditional ceremonies, weddings, funerals, and other public gatherings provide food and drink that may be contaminated. The following guidelines should be followed wherever food or drinks are served.

6.3.4 Food Handlers

- Ensure food handlers follow hygiene measures strictly (fingernails should be kept short; wash hands with clean water and soap after visiting the latrine, before preparing food and before serving food to consumers).

- Food handlers should wear a clean gown and apron/hair cover when preparing and serving food; gowns used during food preparation and service should be removed when visiting the toilet, cleaning rooms, and during compound sanitation.
- Food handlers should not prepare or serve food to consumers if they feel symptoms of a diarrheal disease; following a cholera outbreak, food handlers should be tested and certified free from disease-causing organisms before resuming work.
- There should be separate latrines and shower facilities for food handlers.

6.3.5 Sanitation Facilities in Food and Drink Establishments

- Ensure availability of toilets: floor and walls of the toilets should be kept smooth with no cracks or holes.
- The toilet should also be kept clean and open for customers' use during service hours.
- Ensure availability of water and soap near the toilet for washing hands after visiting the latrine (post messages to promote the importance of hand washing).

To ensure food hygiene, environmental health officers, public health officers/technicians should;

- Conduct health education on food hygiene practices for the general public and those in the food industry.
- Visit restaurants, food vendors, food packaging factories, and so on to inspect food handling practices. Look for safe practices such as proper hand-washing facilities, cleanliness, and adherence to national standards.
- Issue a valid food hygiene license and close restaurants, vending areas, or factories which do not comply with minimum public health requirements if inspection results show unsafe food handling practices at the premises.
- Enforce the relevant laws on food hygiene and safety (Food Drugs and Chemical Substance Act Cap 254, Public Health Act Cap 242, Meat Control Act Cap 356).

Food provided in institutions including schools MUST meet the prescribed national food safety and quality requirements. Available evidence indicates that learners are exposed to health risks that result from inefficient food safety and quality management practices. Monitoring of food quality in school should be as per the Kenya School Meals, Food Safety and Quality Guidelines, 2019.

6.4 Conducting Safe and Dignified Burial

Funerals for persons who have died of cholera can contribute to the spread of an epidemic. Bodies of people who have died of cholera pose a risk of transmission because bodily fluids contain a high concentration of *Vibrio cholerae*. Funerals can contribute to the geographical spread of cholera, as people who attend the ceremony may be infected and can take the disease back to their communities. Contamination may occur during funerals when food and drinks are prepared by individuals who prepared or touched the body. Social, cultural, and religious beliefs and practices should always be considered. Ensure that the community agrees with modifications of cultural practices before burial. It is important to discuss with community leaders to find a way to respect community practices and keep the population safe through preventive measures including:

- Avoid large funeral gatherings but if it is not possible, ensure all protective measures are in place, including handwashing facilities that have soap and safe running water or ABHR or if these are not available 0.05% chlorine.
- Avoid serving food at the funeral but if food must be served the food should be eaten hot and handwashing has to be observed. A designated health worker present at the funeral can be help ensure hygiene practices are maintained.
- To prevent the spread of cholera, the handling of corpses should be kept to a minimum and burial should take place as quickly as possible preferably within 24 hours.
- Trained staff who wash and prepare the body must wear gloves, aprons, and masks. The body should be cleaned with a 2% chlorine solution. Do not empty the intestines. Trained staff should fill the mouth, nose, and anus with cotton wool soaked in chlorine solution.
- The people carrying the body should wear gloves. The body should be carefully wrapped preferably in a body bag. Only trained staff should handle the body during the burial process.
- Disinfect the dead person's clothing and bedding with the appropriate chlorine solution (0.2%). If chlorine is not available, bedding and clothing can be disinfected by stirring for five minutes in boiling water and drying in direct sunlight or by washing with soap and drying thoroughly in direct sunlight.
- The family members may be present during the preparation of the body for burial. They must be informed of how to protect themselves from infection and be provided with necessary personal protective equipment and handwashing facilities.

6.5 WASH Supplies

WASH CHOLERA KIT MINIMUM

1. Multipurpose soap hand washing (400g/person/month)
2. Aqua tabs – 20 liters [for underground water source]
3. PUR sachets – 20 liters/ Filter cloth [turbid water source]

WASH CHOLERA KIT PLUS

1. Multipurpose soap hand washing (400g/person/month)
2. Aqua tabs – 20 liters [for underground water source]
3. PUR sachets – 20 liters/ Filter cloth [turbid water source] and 10 liters
4. Rigid jerry can – 20 liters [safe storage]
5. Bucket with lid – 20 liters [filtration]
6. A 10-liter handwashing device – a bucket with a tap
7. Tippy taps
8. Chlorine granules

Note: Water treatment supplies must be sufficient to treat 5L / person/ day for the entire family for 1 month

7 RISK COMMUNICATION AND COMMUNITY ENGAGEMENT

Health Communication is a multifaceted and multidisciplinary approach to reaching different audiences and sharing health-related information to influence, engage, and support individuals, communities, health professionals, special groups, policymakers, and the public to champion, introduce, adapt, or sustain behavior, practice or policy that will ultimately improve health outcomes.

7.1 Risk Communication

Risk communication during public health emergencies is the real-time exchange of information, advice, and opinions between experts or officials and people who face a threat to their survival, health, or economic or social well-being. It includes a range of communication principles, activities, and exchange of information required through the preparedness, response, and recovery phases of a serious public health event between responsible authorities, partner organizations, and communities at risk to encourage informed decision-making, positive behavior change, and the maintenance of trust.

Risk communication with the public during a cholera outbreak is critical for the rapid control of the outbreak, keeping the public informed, and reducing the risk of social, political, and economic turbulence.

The purpose of risk communication is to ensure that the public and especially those in affected communities are informed about how to reduce the risk of infection, transmission, and spread of the disease; how to take personal protective and preventive measures, and immediate actions to take if one suspects or is suspected of having cholera inclusive of seeking early care and how to notify and make referrals to local health authorities.

Considerations for effective cholera risk communication

I. Create and maintain trust by providing timely and factual information at each outbreak phase.

II. Acknowledge and communicate even in uncertainty by sharing what is known and the actions undertaken.

III. Be proactive, transparent, and fast with the first and subsequent communication and involve all stakeholders.

IV. Use a mix of appropriate channels based on the scope of the outbreak

and target audiences, such as community dialogues, print, electronic, social media, and public awareness events.

V. Understand local knowledge, risk perception and behavior about cholera and adapt the messages accordingly.

VI. Develop, pretest, and print key messages and disseminate to all target audiences, including the most vulnerable and those in hard-to-reach areas.

VII. Develop a locally adopted risk communication plan to address and mitigate the risk behaviors/drivers. *(Annex 12)*

7.2 Community Engagement

Community engagement involves at-risk and affected communities before, during, and after an outbreak to promote and facilitate community ownership of the response. It increases trust, confidence, and cooperation with response teams, providing community feedback and increasing the uptake of preventive practices.

TABLE 8: KEY ACTIONS BY DIFFERENT LEVELS DURING THE PHASES OF A CHOLERA OUTBREAK

National	County/ Sub-County	Community
Before the Outbreak Phase		
Develop and Review the cholera RCCE strategy	Contextualize cholera RCCE strategy	Participate in cholera RCCE strategy through stakeholders' forums
Review required risk communication materials.	Review required risk communication materials.	Enhance preparedness actions
Develop, print, pre-test, validate, and preposition IEC materials	Participate in the development, pretesting, validation, dissemination, and pre-position of IEC materials	Pre-testing, validating, and using the IEC materials
Identity/train spokespersons on Cholera response	Identity/train spokespersons on Cholera response	Identify community resource persons
Develop and share SOPs for social mobilization and community engagement	Implementation of SOPs	Not applicable

Integrate risk communication in the emergency response plan	Ensure adoption/ development of risk communication emergency response plan	Ensure communication participation and engagement are well reflected in the plan.
Establish a communication coordination mechanism	Establish/activate County multisectoral Cholera response coordination committees	Ensure community representation
During Outbreak		
Activate the national RCCE committee	Activate the county-level RCCE committee	Activate the community advisory committees
Provide technical assistance periodically to Counties to conduct assessments.	Conduct behavioral rapid assessments in cholera hotspots	Participation in the behavioral rapid assessments through FGDs, Observations, etc.
Create a system for dynamic listening and rumor management.	Conduct cholera rumors listening and rumor management	Report rumors to health authorities
Conduct RCCE capacity-building workshops.	Conduct RCCE capacity- building workshops.	Conduct interactive stakeholder health education sessions
Review/tailor key messages and IEC materials	Tailor key messages and IEC materials for Sub County	Dissemination of key messages in the community
Periodic review of RCCE response and achievements.	Periodic review of RCCE response and achievements.	Community participation in the review and feedback
Conduct sensitization and public awareness through mass media.	Conduct sensitization and public awareness through mass media.	Conduct community sensitization through; barazas, worship centers, community dialogues, etc.
Compile the RCCE report including a submission from the counties. *(Annex 13)*	Submit weekly RCCE activity report.	Data collection and report

After the Outbreak - Continue Routine Cholera Prevention & Control RCCE Activities		
Conduct RCCE end evaluation and review	Conduct RCCE end evaluation and review	Share findings and recommendations with stakeholders
Review the RCCE plan to incorporate lessons learned	Review the RCCE plan to incorporate lessons learned	Ensure community participation in the review and updating of RCCE strategies and materials
Conduct RCCE response evaluation to assess the impact *(Annex 14&15)*	Conduct RCCE response evaluation to assess the impact	Ensure community participation in the RCCE impact evaluation activities

7.2.1 Cholera Behavioral Risk Factors

- Poor sanitation and hygiene practices.
- Poor water treatment and storage practices.
- Poor health-seeking behavior
- Delay in seeking care/treatment.
- Lack of knowledge of ORS, including preparing homemade sugar salt solutions.
- Caring for sick household members and lack of awareness of preventative measures.

7.2.2 Key Steps in Message Development

1. Define the objectives based on rapid assessment findings and data.
2. Identify the target audiences.
3. Develop draft messages and share them for input.
4. Design and layout of key messages considering context-specific focus.
5. Pre-test messages and materials with target audiences.
6. Validation of key messages at county/sub-county
7. Finalization, production, and dissemination of IEC materials.
8. Evaluate the impact.

7.2.3 Key Messages

What is cholera?

- Cholera is a diarrheal illness caused by a bacterial infection in the intestine.
- Cholera causes severe watery diarrhea and may cause vomiting.
- Cholera can cause death from dehydration (the loss of water and salts from the body) within hours if not treated.

How is cholera spread?

- Cholera bacteria are present in the faeces of infected people.
- Cholera is not likely to spread directly from one person to another. However, household contacts of cholera cases and persons living near a confirmed cholera case are at higher risk of disease.

How to protect yourself, your family, and your community from cholera

1. Personal hygiene and sanitation

- Wash your hands with soap, ashes, or lime with safe running water:
  - Before cooking
  - Before eating and before feeding your children
  - After using the latrine, after changing the child's diaper/ napkins
  - After taking care of and/or touching a sick person.
- Wash all parts of your hands – front, back, between the fingers, and under the nails.
- Use the latrine/toilet for safe disposal of fecal matter and keep latrines clean.

2. Food:

- Cook it, peel it, or leave it
- Cook raw food thoroughly.
- Eat cooked food immediately while it is still hot.
- Cover cooked food and store it carefully in a hygienic environment.
- Reheat cooked food thoroughly before eating.
- Avoid contact between raw food and cooked food.
- Wash hands before and after preparing, cooking, or eating food.
- Wash all fruits and vegetables that are eaten raw using safe treated water.
- Eat fruit and vegetables you have peeled yourself.
- Wash your cutting board especially well with soap and safe water.
- Wash your utensils and dishes with hot soapy water, dry and store them safely.

3. Safe drinking water

- Collect water from a known safe source (where quality is being monitored frequently).
- Always drink boiled and treated water only.
- Boil water and bring to a rolling boil for 1 to 3 minutes.
- Store treated water safely in a covered container with a tap or a closed lid
- Pour the water from the container; do not dip a cup into the container.

4. Water sources

- Regularly monitor water quality as per protocol.
- Use the protected water sources (e.g., piped water, covered well, borehole) for all drinking water.
- Conduct a water safety assessment with the community to eliminate potential or suspected sources of contamination.
- Always avoid open defecation, including water sources.
- Do not wash yourself, your clothes, or your pots and utensils in the source of drinking water.
- Cover open wells and seal them properly when not in use to avoid contamination.
- Hang the buckets used to collect water when not used; they must not be left on a dirty surface.
- Keep areas surrounding wells and hand pumps as clean as possible.
  Get rid of the refuse and stagnant water around a water source.

What to do if you and your family are ill with diarrhea?

- Avoid self-medication or herbal medicine.
- Do not panic, but act quickly. The sick person should drink a solution of oral rehydration salts (ORS) made with safe (boiled or treated) water.
- Go immediately to the community health worker or the nearest health facility.
- The sick person should continue to drink ORS while seeking care.
- Encourage continuation of breastfeeding while a child or mother has cholera.

When taking care of sick people

- Wash your hands with soap and safe running water after caring for sick people, touching their clothes or bedding, or handling or cleaning up their stools or vomit.
- Do not wash a sick person's bedding or clothing in a water source.
- Always use personal protective materials while handling /caring for the sick. The fluids (vomitus and stool) should be dumped in the latrine, and the carrying vessel should be carefully cleaned/ disinfected.
- Disinfect the sick person's clothing and bedding with a chlorine solution (0.2%). If chlorine is unavailable, the sick person's bedding and clothing can be disinfected by stirring for 5 minutes in boiling water and drying in direct sunlight.

8 USE OF ORAL CHOLERA VACCINES (OCV)

The Oral Cholera Vaccine (OCV) is a vaccine specifically developed for the prevention and control of cholera.

8.1 About the OCV

Vaccine composition: OCV contains inactivated whole-cell *Vibrio cholerae* bacteria, specifically the serogroups O1 and O139.

Three available vaccines: Currently, there are three WHO-prequalified oral cholera vaccines available; Dukoral, Euvichol, and Shanchol.

In Kenya, Euvichol and Shanchol are currently in use. Both vaccines have demonstrated efficacy and safety in preventing cholera.

Vaccine administration: OCV is administered orally, usually in the form of a liquid **(It should never be injected)**. It can be given to individuals aged one year and above. The vaccine is taken in two doses, with an interval between doses that can vary depending on the specific vaccine used. (Refer to manufacturer's instructions)

Mode of action: OCV works by stimulating the immune system to produce antibodies against the cholera bacteria. These antibodies help protect vaccinated individuals from developing severe cholera symptoms or reduce the duration and severity of the illness if infection occurs.

Duration of protection: OCV provides relatively short-term protection. The duration of protection can vary but is generally estimated to be 2 to 3 years. Booster doses may be required to maintain long-term immunity, especially in high-risk areas or for individuals with ongoing exposure to cholera.

Target population: OCV campaigns typically target high-risk populations, including individuals living in cholera-endemic areas, areas affected by cholera outbreaks, or areas with inadequate water and sanitation infrastructure. Vaccination may also be recommended for travelers visiting cholera-affected regions.

Special populations: OCV is safe for use in children, pregnant or lactating mothers, and patients with severe diseases such as tuberculosis or HIV.

Integration with other interventions: OCV is often used as part of a comprehensive cholera control strategy, alongside interventions such as improved water and sanitation infrastructure, hygiene promotion, surveillance, and case management.

Vaccine effectiveness: OCV is effective in preventing cholera and reducing the burden of the disease in various settings. However, it is important to note that the vaccine's effectiveness can vary depending on factors such as the vaccine coverage, the level of cholera transmission in the area, and the population's immune response.

- 1 dose provides protection for 6 months
- 2 doses provide protection for at least 3 years

Note: The 2nd dose should be given at least 2 weeks and not more than 6 months from the 1st dose

8.2 Cold Chain Requirements for OCV

Maintaining the cold chain is crucial for preserving the potency and effectiveness of vaccines. The cold chain refers to the storage and transportation of vaccines at recommended temperatures to ensure their quality. The key cold chain requirements for OCV are;

1. **Storage temperature:** OCV should be stored at a temperature between +2°C to +8°C and should never be frozen. This range helps maintain the stability and potency of the vaccine. It is essential to have appropriate refrigeration equipment, such as vaccine refrigerators, to store the vaccine within this temperature range.
2. **Temperature monitoring:** Regular temperature monitoring is necessary to ensure that OCV is stored within the recommended temperature range. Monitoring devices, such as digital data loggers or temperature-sensitive labels, can be used to track the storage temperature continuously. Temperature records should be maintained and reviewed regularly.
3. **Cold chain transport:** During transportation, OCV should be kept in a temperature-controlled environment to maintain the required temperature range. Cold boxes, coolers, or vaccine carriers with ice packs or temperature-controlling devices should be used to ensure proper temperature conditions are maintained throughout the transportation process.
4. **Cold chain equipment maintenance:** Proper maintenance of cold chain equipment is essential to ensure its functionality and reliability. Regular servicing and calibration of refrigerators and temperature monitoring devices should be carried out to ensure accurate temperature control and monitoring.
5. **Vaccine stock management:** Effective stock management practices should be implemented to avoid stockouts or expired vaccines. FIFO (first in, first out) principle should be followed, ensuring that vaccines

with the nearest expiry dates are used first. Regular stock checks should be conducted to monitor vaccine availability and manage stock rotation effectively.

8.3 Logistics

8.3.1 Vaccine Needs Calculation

- Calculate logistics required as per the target population
  - Vaccine stock = (target Population X 1 dose x Wastage factor) + 25 % buffer
  - Wastage factor for OCV = 1.1

How to calculate cold chain capacity

- Gross volume=Length x Width x Height (in cubic meters)
- Net volume=Length x Width x Height x 0.63 (in cubic meters)
- Converting cubic meters to Litres=Length x Width x Height x0.63 x1000
- Review existing calculations of all material requirements as per the micro-plans. Determine shortfalls and develop specific and practical solutions in conjunction with the EPI coordinators (transport, carriers, ice packs)
- Review the available cold chain inventory.

8.3.2 Training and Capacity-Building

Healthcare workers involved in the handling and storage of OCV should receive training on cold chain management practices. This includes proper storage techniques, temperature monitoring, and emergency response procedures in case of cold chain breaches or equipment malfunctions.

8.3.3 Emergency Preparedness

Contingency plans should be in place to address potential emergencies or power failures that could impact the cold chain. Backup power sources, such as generators or battery-powered vaccine refrigerators, can be used to maintain the required temperature range during such situations.

8.3.4 Waste Management

Waste generated during OCV administration should be managed as per the National waste management guidelines.

8.4 OCV Side Effects

OCV is generally safe and well-tolerated. However, like any vaccine, it can have side effects. Here are some common side effects associated with OCV and it's management:

1. **Mild gastrointestinal symptoms:** OCV can cause mild gastrointestinal symptoms such as abdominal pain, nausea, vomiting, and diarrhea. These symptoms are usually self-limiting and resolve within a few days. It is important to stay hydrated and maintain fluid balance by drinking plenty of fluids, preferably clean and safe water.
2. **Allergic reactions:** In rare cases, individuals may experience allergic reactions to OCV. Symptoms can include hives, itching, swelling of the face or throat, difficulty breathing, or dizziness. If any signs of a severe allergic reaction occur, immediate medical attention should be sought.
3. **Systemic reactions:** Systemic reactions such as fever, headache, fatigue, or muscle aches may occur in some individuals. These reactions are typically mild and temporary.

8.5 Adverse Events Following Immunization (AEFI)

While the Oral Cholera Vaccine is generally safe and well-tolerated, there is a possibility of experiencing adverse events after vaccination.

What to do in case of any adverse events following immunization;

- All AEFI should be reported immediately to the immediate supervisor and the AEFI form *(Annex 16)* filled and cascaded to sub-county, county, and national levels within 24 hours.
- Reassure the person and provide prompt medical care and treatment depending on the specific nature and severity of the adverse event.
- Collect the OCV vial that was used, document the process, date of manufacturer, expiry date, and the batch number.
- An investigation should be conducted within 48 hours to determine the cause and severity of the adverse event.
- Communicate with the public about the adverse events that occur during the vaccination campaign and what measures are being taken to address them.
- Ensure proper storage and handling of the vaccine to prevent any contamination or degradation that could lead to adverse events.

Note: After administering the vaccine, the person should be monitored for at least 30 minutes.

9 DATA MANAGEMENT

Data management is a fundamental process during the preparedness, response, and control of cholera. Data is generated routinely and in the course of pre-epidemic, epidemic, and post-epidemic phases.

Objective of data management

- To provide guidance on cholera data management from the community, facility, sub-county, county, and national level to ensure, complete, accurate, and timely data for public health action.

9.1 Data Collection

Data collected throughout the Cholera epidemic cycle *(Table 9)* are generated in different phases.

TABLE 9: DATA COLLECTION BEFORE, DURING, AND AFTER A CHOLERA OUTBREAK

Pre-epidemic phase	Epidemic phase	Post-epidemic phase
1. Routine cholera epidemic monitoring data including zero reporting in MOH 505 (both electronic & Paper based) and event-based surveillance data is submitted by use of **M-dharura** mobile application 2. Rapid Risk/ Needs Assessment Form 3. Cholera Preparedness Checklist 4. Routine monitoring of diarrheal cases including zero reporting	• Suspected cholera cases are reported to health authorities through a variety of data sources, from hospitals, the community, and the media. • At the community level, signals are reported by the community Health Volunteer, verified by the CHA/Public health officer, and immediately referred to the nearest health facility • The clinician fills the outpatient register at the Outpatient Patient Department (MOH 204 A&B). • A Case Investigation Form integrated case-based surveillance form (MOH 502) is filled by a competent health care worker and a stool sample is collected. • The suspected case is then recorded in the line listing form (MOH 503) at the cholera treatment facility by a competent health care worker. **An accurate and complete line list should be updated daily and notifications done to the next level** • All Epi-linked cases should be line-listed in the MOH 503. • The subcounty surveillance coordinator should use standard templates to consolidate all the data from all the cholera treatment facilities daily, review the data to ensure accuracy and completeness, and share via recommended means to the CDSC who will consequently relay to the Head DDSR • All the cholera cases in a week should also be aggregated and reported in the weekly surveillance reporting tool, MOH 505.	*Post-epidemic phase is marked by zero reporting of cholera cases for two incubation periods.* • Maintain routine surveillance, conduct data quality audits, and update pandemic preparedness and response plans accordingly. • An intensive phase of recovery and evaluation may be required and is captured in after-action review forms

9.1.1 Cholera Surveillance Data Flow

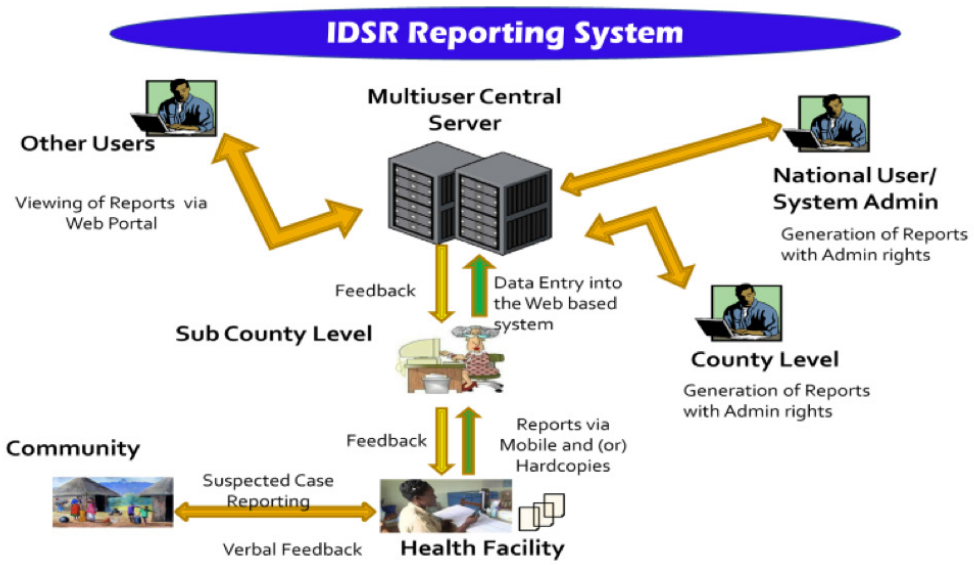


FIGURE 9: CHOLERA SURVEILLANCE DATA FLOW

9.1.2 Cholera Data Capture Tools at the Community Level

- MOH 100- community referral form
- MOH 513 - Household Register
- MOH 514 - Service delivery Logbook-Submitted to the CHA by CHVs
- MOH 515 - Summary by CHA
- Community Treatment and Tracking Register
- M-dharura for event-based surveillance.

9.1.3 Cholera Data Capture Registers at the Facility Level

- MOH 204 A&B - Outpatient registers,
- MOH 301 - Inpatient register
- MOH 240- Laboratory register

9.1.4 Cholera Data Reporting Tools

- Rumor logs
- MOH 503 – IDSR health facility Line listing form
- MOH 502 – Integrated Case based surveillance form
- MOH 505 - IDSR weekly reporting form

- MOH 705A&B - Summary for Outpatient registers
- MOH 706 - Laboratory reporting form
- Adverse Event Following Immunization (AEFI) Reporting Form
- Contact tracing Forms

9.1.5 E-surveillance Platforms:

- Kenya Health Information System (KHIS) - Indicator-Based Surveillance
- m-Dharura digital platform - Event Based Surveillance

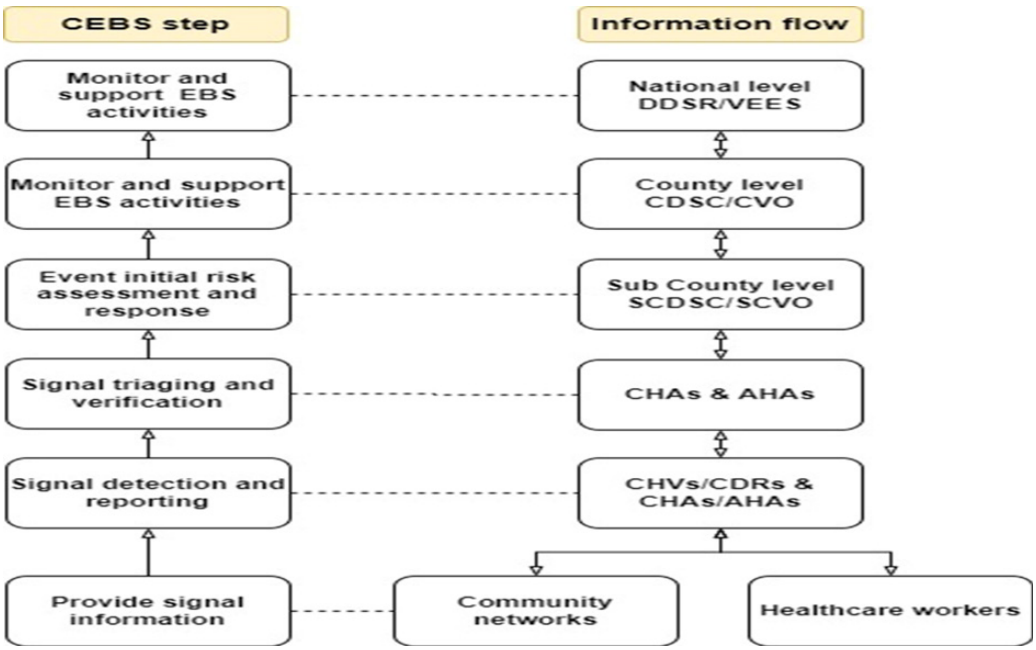


FIGURE 10: DATA FLOW IN COMMUNITY EVENT-BASED SURVEILLANCE SYSTEM

9.1.6 List of Variables to be Included in a Cholera Line List (MOH 503)

Various variables should be included in a line-list. These variables are determined by the scope of the outbreak and the findings from the assessments. The generic line list (MOH 503) attached to this document has several variables, but during an investigation, the following variables should be included in the line list (see proposed linelist);

- Patient Name
- Contact
- Age

- Sex
- County of residence
- Subcounty of residence
- Ward of residence
- Village/town/neighborhood
- Name of Health facility
- Hospitalization – inpatient/Outpatient
- Date seen at the facility
- Date of onset
- Signs and symptoms
    - Diarrhea -Yes/No
    - Vomiting -Yes/No
- Dehydration status/Treatment plan – No signs of dehydration (Plan A), Dehydration (Plan B), severe dehydration (Plan C)
- Vaccination status -0,1,2
- Sample taken – Yes/No
    - Date sample collected
    - Type of sample- Stool/Rectal swab
- Name of testing Laboratory
- RDT – Positive/negative/not performed, unknown
- Laboratory culture results +/-, PCR +/-, not performed, unknown,
- Outcome – Discharged, Died, Referred
- Date of outcome – dd/mm/yyyy
- Place of death (Health facility/Community)

9.2 Analysis of Surveillance Data

Analysis of the cholera outbreak should be done at all levels; health facility, sub-county, county, and National Levels after data cleaning.

A detailed descriptive analysis of the line-listed cases should be done to guide responses and interventions. The analysis should be done by time, place, and person to find out;

1. Who is at risk or is affected? –**The Person:**
2. Where are they? – **The Place**
3. When did the event occur? - **The Time**

This helps in identifying populations at higher risk for cholera disease, information used for resource allocation, and the development of testable hypotheses that can be subjected to explorative analysis to identify the associated causes and risk factors.

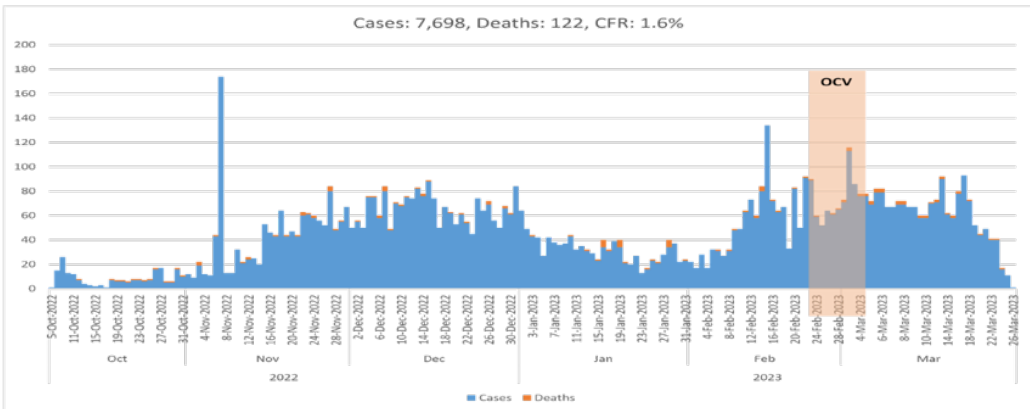
9.2.1 Analysis by Time

The main objective of analysis by time is to show trends of the outbreak over time.

Tools used: Table Line graphs, histograms (epicurve).

Events that occurred during the particular outbreak can also be highlighted on the epicurve with arrows showing the date;

- Of onset of the first (or index) case
- The health facility notified the Sub County
- The first case was seen at the health facility
- The Sub County began the case investigation
- The Response began
- The Sub County notified the higher level



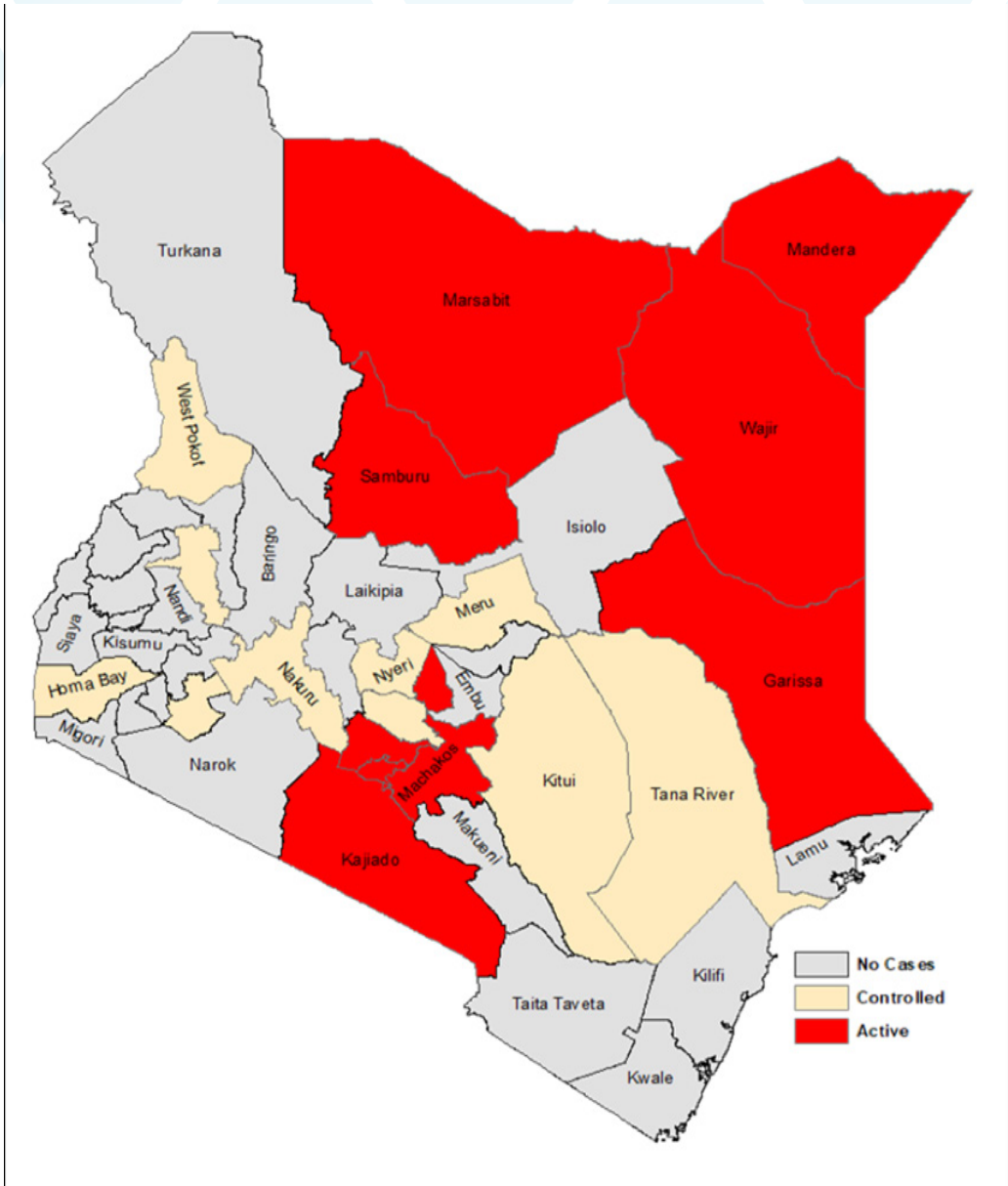
Example: Epi-curve showing the cases and deaths of Cholera outbreak cases in Kenya

9.2.2 Analysis by Place

The objective of analysis by place is to:

- Determine where the cases are occurring
- Identify high-risk area (s)
- Locations of populations at risk (where they live and/or work)

Tools used: Spot map of the sub-county or area affected, table or a bar chart, Place (spot map, shaded map)



Example: Map of Kenya showing counties with active Vs. controlled outbreak

9.2.3 Analysis by Person

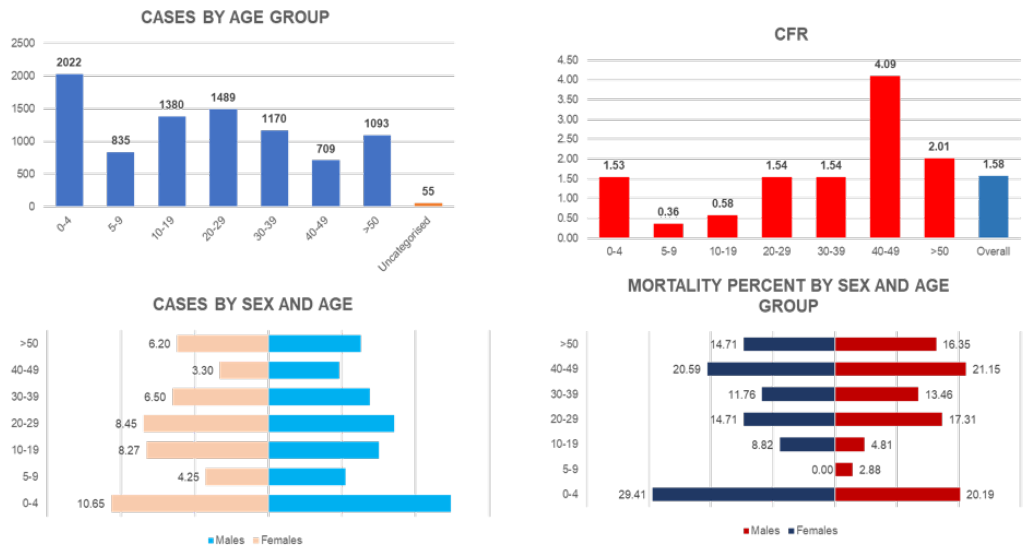
It explains personal characteristics and behaviors e.g. age, sex, Occupation, Race/ethnicity/tribe, socioeconomic status e.tc

The main objectives are to:

- Describe reasons for changes in behavior and disease occurrence

- Find out how it occurred
- Determine the potential risk factors and Who is susceptible

Tools used: Extract specific data about the population affected and summarize it in a table, bar, or a pie chart



Examples: Bar charts showing analysis of cholera cases by age group and sex

9.3 Cholera Situation Reports

Daily situation reports will be done in all Counties affected by the outbreak. The National level will also generate a daily national cholera report of affected counties.

The report will also be included in the weekly disease outbreak situation report produced by the National Division of Disease Surveillance and Response (DDSR).

The situation report (see the template below) should have the following information:

- Highlights
- Situation Overview
- Humanitarian Response
- Coordination
- Funding

SITREP TEMPLATE

MOH HEADER			
Situational Report (SITREP)			
Outbreak Name		Country affected	
Date & Time of report		Investigation start date	
Prepared by			
Status (activation level)		Activation date	dd/mm/yyyy
Frequency of report			

1. HIGHLIGHTS

- Number of cases reported this week/day. Compare to the previous week/day.
- Cumulative case numbers to date e.g. From 'dd month year' until 'dd month year', a total of XXX (SUSPECTED/PROBABLE/CONFIRMED) cases including XX deaths of DISEASE/ SYNDROME have been reported from LOCATION.
- Summary of key challenges

2. BACKGROUND

Brief description of

- How and when the outbreak was recognized
- Description of disease burden in the country
- Overview of initial rapid situation assessment
- Date of outbreak declaration

3. EPIDEMIOLOGY & SURVEILLANCE

Case definition (please include as an annex)

Include the definition of suspected, probable, and confirmed cases as an annex so it is clear what the data is referring to.

Descriptive epidemiology

Please use graphs, tables, and maps for visualization of the data by time, place, and person. Please make sure all figures have clear titles including the population being displayed e.g. n=. Please make sure all axis and legends are clearly labeled. Please ensure sufficient interpretation is provided to aid the reader.

- Number of cases to date: (as a table)
  - o new and cumulative (suspected, probable, confirmed)

- deaths: count and CFR%
- incidence/attack rate (e.g. number of cases per 100 000 population)

- Case/person characteristics (e.g. age, sex, occupation, risk factors): comment on the most affected groups if present
- Time trends: Epi curve
- Geographical distribution (maps preferable, describe new areas affected)
- Clinical description (e.g. symptoms, duration, number of cases hospitalized)
- Analysis by exposure
- Source investigations
- State any delays in notification

Contact tracing summary (for events where contact tracing is necessary)

- Number of contacts, number seen, number traced, number missing, number that completed follow-up, number that became symptomatic
  - by lowest geographical location possible

4. LABORATORY INVESTIGATIONS

- A brief summary of tests performed and results
- Subtyping (this section may be combined with the epidemiology description above)

5. ENVIRONMENTAL ASSESSMENT

- If completed, summarize the findings of any environmental investigations to date (e.g. water testing, vendor inspections, community assessments, etc.)

6. PUBLIC HEALTH ACTION/RESPONSE INTERVENTIONS

Describe the response measures implemented by thematic area and any impact seen. Please add additional pillars if required e.g. vector control, operational research

- Coordination
- Surveillance
- Laboratory
- Case management
- Hazard containment
- Wash & IPC
- Risk communication, community engagement & social mobilization
- Logistics

7. CHALLENGES/GAPS

8. RECOMMENDATIONS & PRIORITY FOLLOW UP ACTIONS

- Coordination and leadership
- Surveillance
- Laboratory
- Case management
- Hazard containment
- Wash & IPC
- Risk communication, community engagement & social mobilization
- Logistics

9. CONCLUSIONS

- Provide concluding remarks on the overall perspective of the event including future outlook
- **Re-echo key messages for urgent attention.**

9.4 Data Storage and Sharing

Cholera data management will be implemented in full compliance with the Data Protection Act, 2019 and other applicable guidelines within the Ministry of Health. In this regard, data should be keenly processed for use and storage to ensure quality and integrity in terms of accuracy, completeness, and fitness for use, and stored in recommended periods and formats. The data should be protected from unlawful/unauthorized access and should be shared by authorized personnel with authorized persons/institutions using agreed dissemination methods. The disposal or destruction of data should be guided by existing data policies and acts in the country. In the event of a data breach, an alert should be raised immediately to the authority.

9.5 M & E Indicators

- Proportion of community health assistance submitting weekly summary reports.
- Proportion of health facilities submitting weekly summary reports.
- Submission of daily SITREP
- Frequency of Data quality checks in terms of completeness, timeliness, and accuracy
- Proportion of cholera outbreaks reported within 24hrs
- Attack rates
- Case fatality rates
- Proportion of cholera outbreaks with end of outbreak report

MOH502

MINISTRY OF HEALTH KENYA
Integrated Case Based Surveillance Form

ED2020

Use this form for a single case only
Duly complete the form before submission

(To be completed at the National level)
EPID No: ....
Country County Sub County Year
Date form received at national level _____/_____/_____

A. Name of Site Reporting & Disease being reported

A1. Health Facility ..... **A2**. Type .....
A3. Sub County ..... **A4**. County .....
A5. Disease reported (Tick One)
☐ AFP ☐ NNT ☐ Measles ☐ Meningitis ☐ Plague ☐ VHFs ☐ Yellow Fever ☐ S. AI ☐ Other (Specify) .....

NB: If you suspect AI, Please fill the Avian Influenza Case Investigation form

B. Identification

B1. Name of patient .....
B2. Sex: ☐ 1 = Male 2 = Female **B3**. Age in ☐ Years ☐ Months ☐ Days
B4. D.O.B. ____/___/___
B5. Residence: ☐ Urban ☐ Rural
B6. Tracer information:
a. Parent/Guardian: .....
b. Residence (Village/Hse No): .....
c. Neighborhood major landmark: .....
d. Street/Plot/Estate/S. location: .....
e. Town/City/Location: .....
f. Sub County: ..... County: .....
g. Telephone No of parent/guardian: .....

C. Clinical Information

C1. Date of onset of illness _____/_____/_____
C2. Date first seen at health facility: _____/_____/_____
C3. Date Health facility notified sub County level: ____/_____/_____
C4. Hospitalized: 1= Yes 2=No Date of Admission _____/___/____
C5. IP/OP No. .....
C6. Diagnosis: .....
C7. Means of diagnosis: ☐ Clinical ☐ Lab ☐ Epi linkage ☐ Other (specify): .....
C8. Vaccination History for disease under investigation [Measles, AFP (exclude birth dose of OPV), NNT (TT in mother), Yellow fever, Meningitis and suspected Avian Influenza]
a. Was the patient vaccinated against illness (including campaign)? ☐ 1 = Yes 2=No 9= unknown. If yes, no of doses: .....
b. Any vaccination given in the last two months? ☐ 1= Yes 2= No 9= unknown. Date of vaccination ____/___/____
C9. Status of the patient:
☐ Still hospitalized ☐ Discharged ☐ Dead

D. For Acute Flaccid Paralysis (AFP) Case Only
(To be filled by a clinician only)

D1. Date of onset of paralysis: _____/_____/_____
D2. Signs and symptoms: 1 = Yes 2 = No
☐ Fever at onset of paralysis ☐ Sudden onset of paralysis
☐ Paralysis progressed < 3 days ☐ Flaccid (floppy)
D3. Site(s) of paralysis: ☐ Left leg ☐ Right leg ☐ Left arm ☐ Right arm

Name .....**Tel. No**.....

D4. **Follow-up Examination** to be done after 60 days from onset of paralysis using the 60 days follow up form

E. For Neonatal Tetanus Case Only

E1. Delivery practices
a. Where was the baby delivered?
☐ Health facility (Name): .....
☐ Home by trained attendant ☐ Home by untrained attendant
☐ Unknown
b. Was the cord cut with sterile/clean blade? ☐ 1=Yes 2=No 9=Unknown
c. How was the cord stump treated or dressed? .....

E2. Baby's symptoms
a. How old (in days) was the baby when the symptoms began?
☐ Days ☐ Unknown
b. At birth, did the baby suck normally? ☐ 1=Yes 2=No 9=Unknown
c. Was the case confirmed as neonatal tetanus (if yes to the last 3 questions)? ☐ 1=Yes 2=No 9=Unknown

E3. Treatment
a. Was the baby treated at a health facility? ☐ 1=Yes 2=No 9=Unknown
b. Is the mother alive? ☐ 1=Yes 2=No 9=Unknown
(If no, complete case investigation form for maternal deaths)

E4. Case Response: [Sensitize TBAs and community leaders on safe delivery practices and cord care. Provide booster TT doses to mother of NNT case and women of child-bearing age in community.]
a. Did case response for the mother take place? ☐ 1=Yes 2=No 9=Unknown
b. Did a case response take place in her community? ☐ 1=Yes 2=No 9=Unknown

F. For Measles Case Only

F1. Presence of fever: ☐ 1=Yes 2=No
F2. Date of onset of rash: _____/_____/_____
F3. Type of rash: ☐ Maculopapular ☐ Other
F4. Was home of patient visited for contact investigation?
☐ Yes (Date): _____/_____/_____ ☐ No
F5. Is the case epidemiologically linked to a lab-confirmed case?
☐ Yes ☐ No ☐ Unknown

G. laboratory Information

G1. Specimen collection *(To be completed by the health facility)*
If lab specimen was collected, complete the following information and send a copy of this form to the lab with the specimen
For AFP don't collect specimen if onset of paralysis is more than 60 days old

a. Was specimen collected? ☐ 1=Yes 2= No
If no, why? .....
.....
b. Date(s) of specimen collection: __ /__ /__ and __ /__ /__
c. Specimen type: ☐ Stool ☐ Blood ☐ CSF ☐ OPS ☐ NS ☐ Animal tissue ☐ other (specify .....
d. Date specimen send to the lab: _____/_____/_____
e. Name of the lab: .....

G2. Lab results
☐ Received (provide).....
☐ Not yet received

H. Sub County Contact Person

H1. Form completed by: .....
Designation: ..... Sign: .....
H2. Sub County contact person details:
Name: .....
Designation: ..... Phone No: .....
Email: .....

Final Laboratory Results
(Please indicate the final laboratory results in detail)
.....
.....
.....

NS: Nasal Swab
OPS: Oropharyngeal Swab
S. AI: Suspected Avian Influenza

Comments: _____

Cholera Line List

S/No.	Name	Contact	Age	Sex	County of residence	Sub-county of residence	Ward	Village/Town	Health Facility name	Inpatient/outpatient	Date seen at the health facility	Date of onset of disease	Diarrhoea (Yes/No)	Vomiting (Yes/No)	Dehydration status (No, Some, severe)	Vaccine doses (0,1,2)	Sample collected (Yes, No)	Date Sample collected	Type of sample (Stool/ rectal swab)	Name of testing lab	RDT (Yes/No)	RDT Results (Positive/ Negative)	CULTURE(Yes/No)	Culture Results (Positive/ Negative)	PCR (Yes/No)	PCR Results (Positive/ Negative)	Outcome (Discharged/ /Dead/ Referred)	Date of outcome	Place of death (Health facility/ Community)
1																													
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													

Edition 2022 **MINISTRY OF HEALTH** **MoH 505**

IDSR Weekly Epidemic Monitoring Form

County_____ **Sub County**_____ **Health Facility**_____ **Epi Week**____ **Week ending**_____ **Month**_____ **Year**_____

No. of Health Facilities/Sites that reported _____ **No. of Health Facilities/Sites expected to report** _____

Diseases, Conditions or Events	< 5 years		≥ 5 years		Diseases, Conditions or Events	< 5 years		≥ 5 years	
	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths
AEFI*					Bacterial Meningitis				
Acute Jaundice					Neonatal deaths				
Acute Malnutrition					Neonatal Tetanus				
AFP (Poliomyelitis)**					Onchocerciasis				
					Plague				
Anthrax					Rabies				
Cholera					Rift Valley Fever				
Chikungunya					SARI (Cluster ≥3 cases)*****				
COVID -19									
Dengue					Pneumonia				
Dysentery (Bacillary)					Suspected MDR/XDR TB				
Guinea Worm Disease					Typhoid				
Measles					VHF******				
Suspected Malaria***					Yellow Fever				
Deaths due to Malaria****					Zika Virus				
					Others (Specify)*******				

Laboratory Surveillance

Disease	Microscopy			mRDT				Disease	Laboratory diagnosis	
Malaria	< 5 years	≥ 5 years	Total	< 5 years		>5 years		**Dysentery**	< 5 years	≥ 5 years
Tested								Tested		
Positive								Positive (**S. dysenteriae**)		
Bacterial Meningitis	No CSF	No contaminated	No Tested	+ve Nm	+ve S.Pneum	+ve Hib	S. agalactiae	**Tuberculosis (MDR/XDR)**	< 5 years	≥ 5 years
								Tested		
								Positive		
No of CSF Sub-Typed	+ve Nm A	+ve Nm B	+ve Nm C	+ve Nm W	+ve Nm X	+ve Nm Y	S. agalactiae	**Typhoid**	< 5 years	≥ 5 years
								Tested		
								Positive		

Reported by: _____**Designation** _____ **Sign** _____ **Date** _____

Annex 1: Cholera Surveillance Systems

Environmental surveillance is important in preparedness and control of the cholera epidemic. The following are to be taken into consideration when conducting an environmental surveillance:

- Conduct food quality and safety control through sanitary inspection and enforcement of public health laws
- Identify communities at risk (unsafe water supplies or inadequate sanitation) and ensure that they are informed about sources of contamination and ways to avoid infection.
- Investigate all bacteriologically proven cases to identify the sources of infection; including water quality testing & surveillance.
- Monitor the spread of cholera in risk areas by periodically sampling strategic sewage effluent (hospitals, prisons, hostels, sewage purification works) as an early warning system.

Health facility-based surveillance includes the detection, recording and reporting by health care professionals of patients meeting standard definitions of suspected cholera cases among those who present at the health facility to seek care.

Community-based surveillance relies on community health volunteers and other actors for the detection, reporting, and monitoring of health events in the community. Suspected cholera cases identified through community-based surveillance should be referred to a health facility.

Event-based surveillance is a non-disease-specific surveillance method that complements surveillance efforts by capturing unstructured information from formal and informal channels, such as online content, radio broadcasts and print media, communities, health workers, and laboratory workers.

Institutional Surveillance provides public health intelligence to aid in early warning and monitoring of public health impacts (e.g. seasonal cholera) in schools, or reassurance when an impact has not occurred. Using information collected during routine patient care, institutional is a type of syndromic surveillance that can be based on signs/symptoms/preliminary diagnoses before laboratory confirmation

Annex 2: Risk Assessment Checklist for Cholera

1. **Epidemiological Risk Factors:**
    - Is there a history of cholera outbreaks in the area?
    - Are there known cholera cases in the community or neighboring areas?
    - Is the population vulnerable to cholera due to factors such as inadequate water and sanitation infrastructure, overcrowding, or malnutrition?
2. **Environmental Risk Factors:**
    - Is there limited access to clean and safe water sources?
    - Are there inadequate sanitation facilities or open defecation practices?
    - Are there areas prone to flooding or water contamination?
3. **Behavioral Risk Factors:**
    - Are there poor hygiene practices, including lack of handwashing with soap and clean water?
    - Is there improper food handling and preparation, increasing the risk of contamination?
    - Are there cultural practices or traditions that may contribute to cholera transmission?
4. **Healthcare and Health System Factors:**
    - Is there limited access to healthcare facilities and timely medical care?
    - Are healthcare facilities equipped to diagnose and manage cholera cases effectively?
    - Are there sufficient supplies of oral rehydration solution (ORS) and intravenous fluids for cholera treatment?
5. **Surveillance and Response Capacity:**
    - Is there an established cholera surveillance system in place?
    - Are there mechanisms for timely reporting and investigation of suspected cholera cases?
    - Is there a trained and adequately staffed rapid response team to manage cholera outbreaks?
6. **Water and Sanitation Infrastructure:**
    - Is there access to safe drinking water and adequate sanitation facilities?
    - Are there systems in place for water quality monitoring and regular testing?
    - Are sanitation facilities properly maintained and accessible to the population?

7. **Social and Cultural Factors:**
    - Are there cultural beliefs or practices that may hinder the adoption of preventive measures?
    - Are there social factors that contribute to the rapid spread of cholera, such as mass gatherings or migration patterns?
    - Are there community engagement and behavior change communication strategies in place?
8. **Vulnerable Populations:**
    - Are there specific populations at higher risk, such as children, elderly individuals, or individuals with underlying health conditions?
    - Are there marginalized or displaced populations with limited access to healthcare and sanitation services?
    - Are there populations living in congested or informal settlements?

Needs Assessment Checklist for Cholera

1. **Epidemiological Assessment:**
    - Determine the current and historical burden of cholera in the area.
    - Identify the affected population groups and their demographic characteristics.
    - Analyze the geographical distribution of cholera cases and identify hotspots or high-risk areas.
2. **Water and Sanitation Assessment:**
    - Assess the availability and accessibility of clean and safe water sources.
    - Evaluate the adequacy and functionality of sanitation facilities.
    - Identify areas with open defecation practices or inadequate waste management.
3. **Healthcare Capacity Assessment:**
    - Assess the capacity of healthcare facilities to diagnose and manage cholera cases.
    - Determine the availability of essential medical supplies, including oral rehydration solution (ORS), intravenous fluids, and antibiotics.
    - Evaluate the capacity of healthcare personnel in terms of training and expertise in cholera management.
4. **Surveillance and Reporting Assessment:**
    - Evaluate the existing cholera surveillance system for timely detection and reporting of cases.
    - Assess the capacity for laboratory testing and confirmation of cholera cases.

- Identify any gaps or challenges in data collection, analysis, and reporting.

5. **Community Knowledge and Practices Assessment:**
    - Assess the knowledge and awareness of cholera among the community members.
    - Evaluate current hygiene practices, including handwashing, food handling, and water treatment.
    - Identify cultural or behavioral factors that may contribute to cholera transmission.
6. **Vulnerable Populations Assessment:**
    - Identify vulnerable populations, such as children, elderly individuals, pregnant women, and individuals with underlying health conditions.
    - Assess the specific needs and challenges faced by vulnerable groups in accessing healthcare and adopting preventive measures.
7. **Communication and Education Assessment:**
    - Evaluate the existing communication channels and platforms for disseminating cholera-related information.
    - Assess the effectiveness of communication materials and messages in reaching the target population.
    - Identify gaps in knowledge and awareness that need to be addressed through educational campaigns.
8. **Resource and Logistics Assessment:**
    - Assess the availability of financial resources, medical supplies, and human resources for cholera response activities.
    - Evaluate the logistical capacity for transportation and distribution of medical supplies and vaccines.
    - Identify any infrastructure or equipment needs for effective cholera management.

Annex 3: Laboratory Sample Collection Commodities

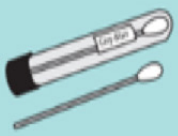
Cholera Laboratory Sample Collection Supplies
Gloves (Sterile powder free)
Cary Blair transport media
Paper discs
Cryovials
Stool container
Normal saline
Sterile swabs
Water collection bottles
Triple packaging material
Alkaline peptone water
Waste disposal bag (Red and black)
Disposable lab coat
Gum boots
Water proof apron
Mask
Cholera Laboratory Diagnostic Supplies
Alkaline Peptone Water (APW), 500mg
Thiosulfate-Citrate-Bile Salts-Sucrose (TCBS) Medium, 500 g
Tripticase Soy Agar (TSA)
Vibrio Cholerae Antisera 01 Polyvalent As (O1), 2 ml
Vibrio Cholerae Antisera O139 Bengal, 2 ml
Vibrio Cholerae Antisera O1 Inaba, 2ml
Vibrio Cholerae Antisera O1 Ogawa, 2ml
Mueller Hinton agar
Non impregnated paper disks
Sodium chloride 0.9%, 10ml plastic ampoules BP
Oxidase reagent 0.5ml
Inoculation loop 1µl, white, sterile,
McFarland Standard 0.5, single tube
Stock Culture Agar tubes of 3 ml
Gloves, examination, nitrile, powder-free, large, non-sterile, single use
Gloves, examination, nitrile, powder-free, medium, non-sterile, single use

Rapid diagnostic Kit (RDT)
Dressing forceps, 13cm, spring type, serrated rounded tips, stainless steel grade
Antibiotic Disks
Tetracycline, disk 30 µg
Azithromycin, ETEST® AZ 256
Trimethoprim/Sulfamethoxazole 1.25 + 23.75 µg
Ciprofloxacin, ETEST® CI 32
Nalidixic acid

Annex 4: Specimen Packaging and Domestic Transportation for Laboratory Confirmation of *Vibrio* 01/0139

FAECAL SPECIMENS CONDITIONING: 4 possible options

Use gloves and lab coat when handling samples at all times.
Specimen Label: Carefully identify specimens and indicate (using a permanent marker) patient name, date of collection, time, location of sampling and location of patient when likely infected.
Lab Form: Use Annex 2B - IDSR case-based laboratory reporting form.[1]

Faecal Specimen in Stool Container	APW (alkaline peptone water)	Wet and Dry Filter Paper (WFP/DFP)	Cary Blair medium, Faecal Sample or Rectal Swab
 Keep in initial stool container.	 Transfer faecal material from initial container into APW tube. **NOTE:** The faecal material should not exceed 10% of the volume of the APW enrichment.	**WET FILTER PAPER (WFP)**  Dip filter disk into watery faecal material with single-use device (forceps, needle), transfer into tube, add 2 to 3 drops of saline, close tube. **DRY FILTER PAPER (DFP)** Deposit one drop of watery stool onto filter paper. Air dry paper before placing into individual pouch with desiccant.	 **For faecal samples:** dip swab in liquid stool and transfer into Cary Blair medium. **Rectal swab:** Place swab directly into Cary Blair. No further manipulation is required.
Compatibility with testing methods (either directly from sample or after incubation steps in APW for those marked with *).			
RDT, culture, molecular analysis	RDT, culture, molecular analysis	WFP: culture, molecular analysis, RDT* DFP: molecular analysis	Culture, molecular analysis* and RDT*

Annex 5: Collection of Rectal Swabs

RECTAL SWAB

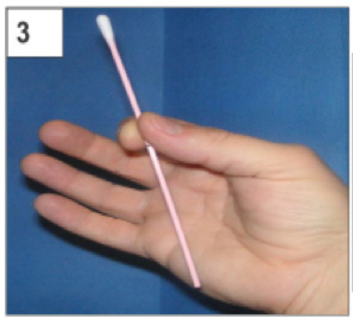
1. **Step 1** - Wash your hands, Put on the size of the gloves

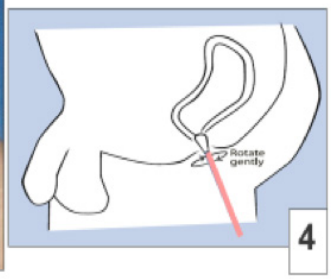
Step 2 - , Label the Cary Blair transport media tube provided. Take the sterile swab from the Cary Blair transport media provided. Remove the patient's lower garments. And let him lie down on her side

Step 3 – take the swab and hold it just on the middle,

Step 4 – gently insert the swab into the anus and slide it in 3 to 4 cm until your fingers are near anus. Rotate the swab between your finger and thumb several times.

Step 5 – carefully remove the swab and place it in the tube containing the Cary Blair transport media. Put the swab into the tube cotton end first

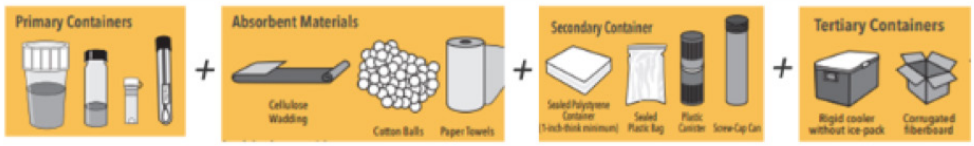




Step 6 – Package the swab and label and tranport it at room temperatutre to the Laboratory
Remove the gloves and wash your hands

Annex 6: Packaging of Samples

Triple packaging



- Samples must be accompanied by a laboratory analysis request form containing at least:
- The name of the treatment center(Facility), name or initial of patient, age and place of residence of the patient, date and time of collection of the sample, symptoms (including state of dehydration), result of the RDT, type of test requested (culture, antibiogram, and/or PCR for cholera)

Annex 7: Identification of Cholera Using Rapid Diagnostic Tests

RAPID DIAGNOSTIC TEST (RDT) FOR CHOLERA DETECTION

Quick Reference Guide - *For more detailed instructions please refer to the manufacturer's Package Insert*

GLOBAL TASK FORCE ON CHOLERA CONTROL

Indication of use

- RDTs are not used for individual diagnosis.
- RDTs are used as a tool **for early outbreak detection only** and once the outbreak is declared **for triaging the samples** to be sent to the laboratory.
- Perform RDT on fresh stool specimens and process within 2 hours collection.

Before you start

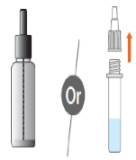
- Check the expiry date. If expiry date has passed, use another kit.
- Read carefully the instructions for use in its entirety.
- Ensure the reagent bottle is intact and solution is not turbid or discoloured. Discard bottle if unsatisfactory.

At the end

- Place all waste in a double-lined plastic bag labelled "Biohazard."
- Record the test results in the patient's information record or registers.
- Keep samples under adequate conditions and send them to the laboratory for culture or PCR (see GTFCC packaging and shipping job aids).
- Report results accordingly.

1 Wear appropriate personal protective equipment.
Put on the gloves.
Use new gloves for each patient.

2 Open the cap of the sample processing vial or specimen collection tube. Label tube with patient identifier.

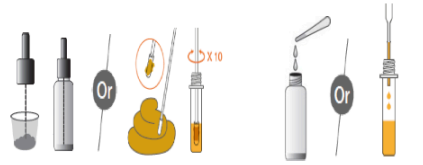


Sample processing vial

Specimen collection tube

3 **Solid fecal specimens**: Collect the sufficient fecal specimens using the specimen collection swab.

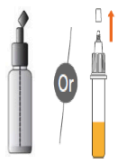
Liquid fecal specimens: Draw liquid fecal specimens up to the fill line using disposable dropper



Discard the swab or dropper in the sharps container or double-lined plastic bag labelled "biohazard" after adding specimen

4 Tightly recap sample processing vial or collection tube and shake to mix contents

5 Break or open the outer end of the cap (point away or cover with tissue to avoid splash). Dispense 4 drops of processed sample into labelled 5 ml test tube



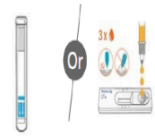
6 Carefully open test pouch. Discard if damaged, or if desiccant is missing or changed in color. Write patient's name on the dipstick or test device

Dipstick

Cassette

7 **Dipstick:** Place the dipstick in the test tube with the arrows facing tube down. Confirm the end of the dipstick is submerged in the processed sample

Cassette: Hold the collection tube vertically and dispense 3 drops into specimen well "S"



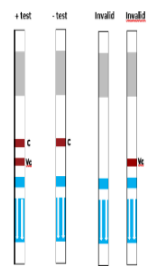
Test tube with dipstick

Cassette

8 **Dipstick: Wait 15-30 minutes.**
Remove dipstick and read the result

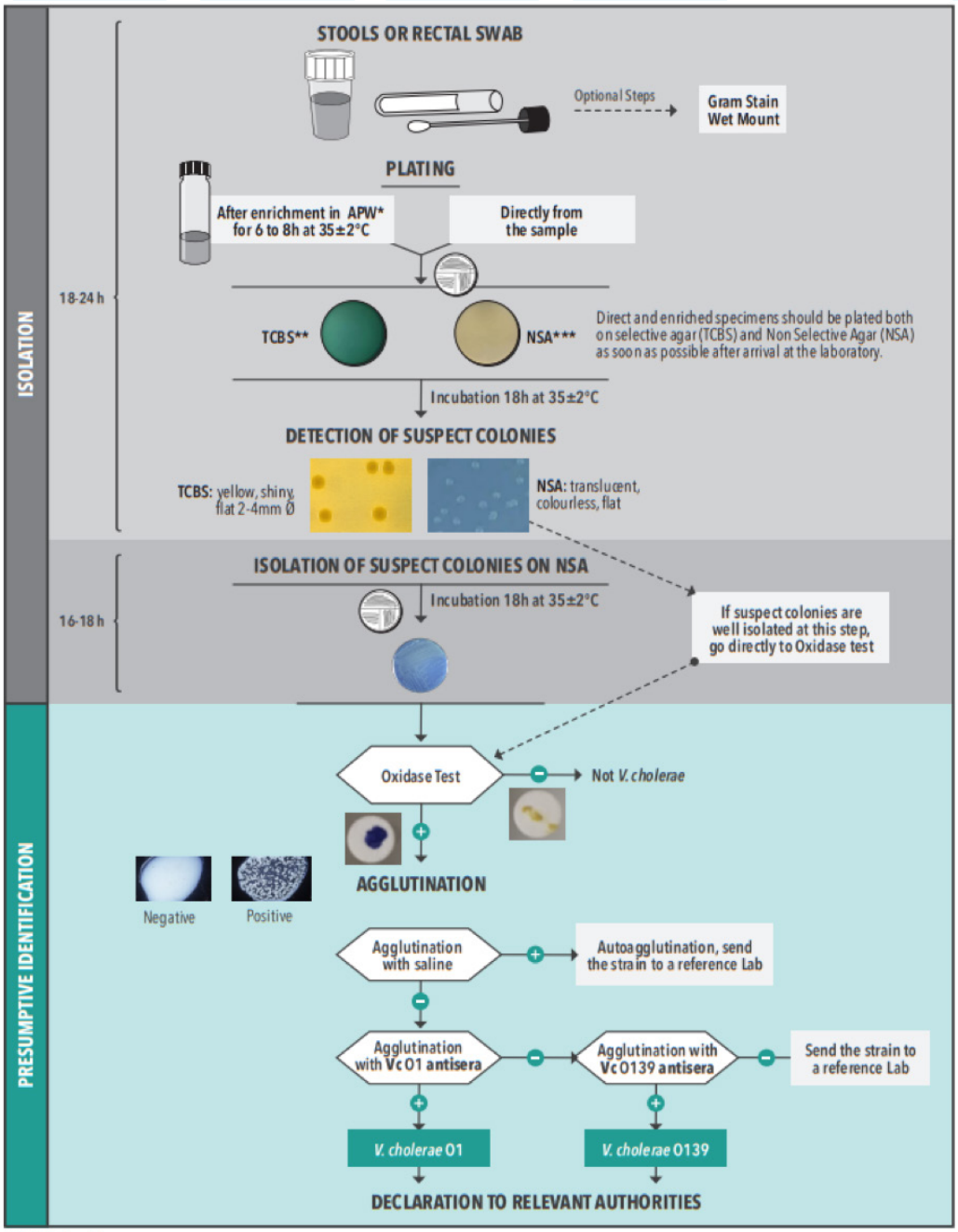
Cassette: Interpret test results **within 15 minutes** after adding Specimens and read the results

As each RDT type, even from the same manufacturer, may have different positions for positive and control lines on the strip, please use the instructions provided with the specific RDT in use for correct interpretation. Example→



The control line MUST appear for all valid results. If it does not appear, the result is considered invalid and the specimen should be retested using a new test kit.

Annex 8: Isolation and Identification of Vibrio Cholera from Culture



*APW: Alkaline Peptone Water
**TCBS: i.e. Thiosulfate Citrate Bile Salt medium, recommended selective agar for vibrios. MacConkey agar (on which V. cholerae colonies are lactose negative) is an alternative option but not recommended.
***NSA: non-selective agar, such as Mueller Hinton (recommended) Brain Heart Infusion Agar, or Trypticase Soy Agar
Note : Isolates that are serologically confirmed to be V. cholerae O1 should be further characterized.

GTFCC, V1.0, August 2022

Annex 9: CTC/CTU Requirements

These are designated facilities where patients with cholera are treated to prevent the spread of the disease.

1. Location

- The CTC/CTU should be located close to the affected community to ensure quick access for patients
- It should be located away from water sources to prevent contamination
- Adequate space should be available to accommodate patient beds, medical supplies, and necessary equipment
- The space should be adequate for future expansion if required
- Ward capacity = 2.5 m2 per patient + 1 attendant
    1. A 29m2 tent can accommodate 10 patients + attendants
    2. An 82m2 tent can accommodate 30 patients + attendants

2. Infrastructure and Facilities

- The CTC/CTU should have separate patient areas for males and females, preferably with individual isolation units
- The facility should be well-lit and have backup power to ensure 24-hour services
- Adequate handwashing stations with soap or alcohol-based hand rub (ABHR) should be available for patients, healthcare workers, and visitors
- Sanitation facilities, including toilets/ latrines and bathrooms, should be adequate, and gender-segregated and provided within the CTC/ CTU premises
- Special considerations for vulnerable groups in latrine/shower construction:
- Ensure firm, well-drained paths
- Build access ramps and uniform steps for limited mobility individuals
- Install easily graspable door handles and locks
- Provide handrails on ramps, steps, and inside facilities
- Supply movable, washable chairs

3.Water

- Access to clean and safe water is essential for patient care and hygiene practices within the CTC/CTU

- Water is needed for Drinking, cooking, ORS preparation; Washing hands, showering, dishwashing; Cleaning surfaces, equipment, and toilets; Laundry, body preparation for burial

a. Quantity

- Sixty litters per patient and 15 liters per caregiver daily are required
- A three-day supply should be stored on-site for any disruptions. Extra water might be needed based on cultural or climate factors. If possible, a water source and storage within the structure should be established for safe water access.

b. Water Quality

- Drinking water, including for ORS and cooking, must be treated, ideally through chlorination
- Maintain Free Chlorine Residual (FCR) level of at least 0.5 mg/L (at pH<8.0) after 30 minutes of contact
- FCR should be 1.0 mg/L at the source, 0.5 mg/L at the point of delivery
- Chlorine is effective between 6.5-8.5 pH. FCR levels can be measured using a photometer or colorimeter
- Regular FCR testing and chlorine dosage adjustment are necessary

4. Medical Equipment and Supplies

- The CTC/CTU should be equipped with the necessary medical supplies and equipment to provide appropriate care to patients
- Quantities depend on CTC/CTU capacity and patient load, but a month's supply of medical supplies, key disposables and food is advised
- This includes ORS, IV fluids, antibiotics, and other medications for cholera treatment
- Adequate stocks of supplies should be maintained to meet patient needs

5. Staffing and Training

- Trained and adequate healthcare professionals should be available to manage and treat patients in the CTC/CTU with plans for surge staff in place
- Staff should be knowledgeable about cholera treatment guidelines, IPC and patient care
- Training should be provided on proper hand hygiene, use of PPE, and waste management
- Staff should have clear job descriptions, receive specific training, and be provided with PPE and necessary equipment

6. Food Preparation and Handling

- Food preparation and handling in CTCs/CTUs requires food safety practices
- Provide three meals daily to patients, caregivers, and staff
- Only kitchen staff should handle food and meals. They must practice hand hygiene and clean surfaces and utensils with detergent and 0.2% chlorine solution, then air-dry in sunlight if possible
- Keep food hot, don't leave perishable food at room temperature for over two hours, store non-perishables safely, reheat food only once, and wash fruits and vegetables with safe water

7. Morgue

- The morgue needs ample space without windows, only ventilation holes with wire mesh
- It should have a discreet exit door
- Use concrete or plastic-covered floors for easy cleaning
- Tile-covered tables with a slope and centre channel help maintain hygiene and drainage
- Provide a nearby hand-washing station with soap and safe water within 20 meters
- Clean and disinfect the morgue regularly with a 0.2% chlorine solution

Safe Body Handling

- Handling of corpses should be kept to a minimum as the bodily fluids contain a high concentration of *Vibrio cholerae*
- Burial should take place as quickly as possible preferably within 24 hours
- Trained staff who wash and prepare the body must wear gloves, aprons and masks. The body should be cleaned with a 2% chlorine solution. Do not empty the intestines. Trained staff should fill the mouth, nose and anus of the body (but the not vagina) with cotton wool soaked in chlorine solution
- The people carrying the body should wear gloves. The body should be carefully wrapped preferably in a body bag. Only trained staff should handle the body during the burial process.
- Disinfect the dead person's clothing and bedding with the appropriate chlorine solution (0.2%). If chlorine is not available, bedding and clothing can be disinfected by stirring for five minutes in boiling water and drying in direct sunlight or by washing with soap and drying thoroughly in direct sunlight. The family members may be present

during the preparation of the body for burial. They must be informed of how to protect themselves from infection and be provided with necessary personal protective equipment and handwashing facilities.

8. Vector Control

Manage waste and wastewater to control vectors like flies or mosquitoes. If insufficient, use insecticides.

9. Communication and Information

- Clear signage and instructions should be provided within the CTC/CTU to guide patients, staff, and visitors
- Information materials on cholera prevention, treatment, and hygiene practices should be available and easily accessible for HCWs and caregivers
- Regular hygiene promotion sessions at CTCs/CTUs are necessary for patients and caregivers. Advice includes infection control practices like safe water use, latrine use, hand-washing, ORS importance, breastfeeding, and proper CTC/CTU movement

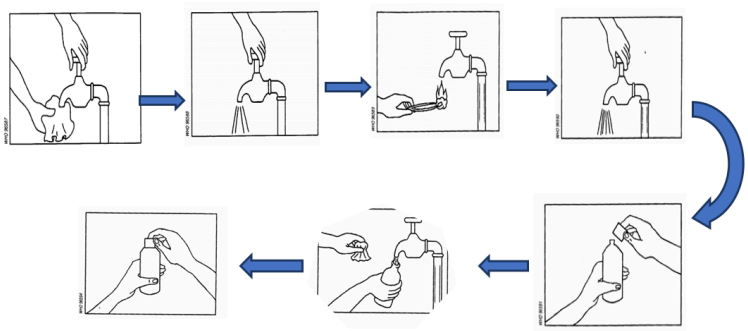
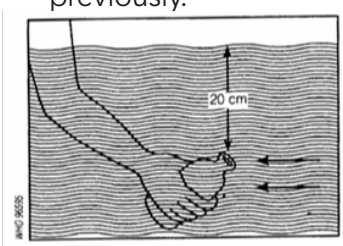
10. Evaluation of the CTC/CTU

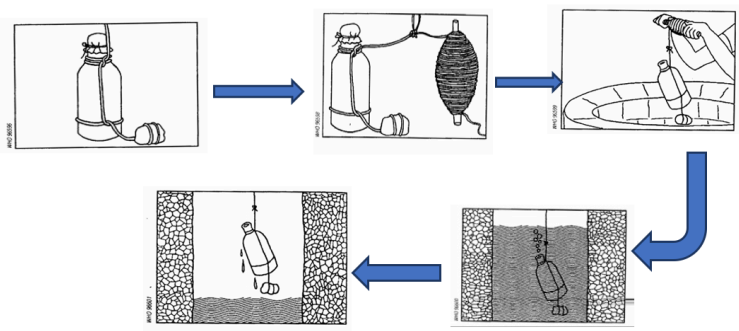
- Regular evaluation of the CTC/CTU is essential to assess adherence to guidance (it is recommended to use the **GTFCC CTC/CTU evaluation tool**)
- Assess all activities and services, including clear entry/exit points with hand-washing stations. Use a standardized tool with scoring
- Monitor frequently (daily, weekly, monthly) and report regularly to identify infection transmission risks and mitigate them

11. Closure of a CTC/CTU

- Clean and disinfect all surfaces with 0.2% chlorine solution
- Thoroughly wash buckets with detergent and 2% chlorine solution
- Decommission latrines and soak-away pits (if used), filling them with soil or concrete
- Ensure no organic matter or residues remain
- Sharps pits should be filled with concrete for safety

Annex 10: Water Sampling

Source	Steps of water sampling
A tap or pump outlet	1. Clean the tap: Using a clean cloth, wipe the outlet to remove any dirt. 2. Open the tap: turn on the tap at maximum flow and let the water run for 1-2 minutes then close the tap. 3. Sterilize the tap: For a minute using a fame or an alcohol-soaked cotton swab 4. Open the tap: Allow the water to flow for 1-2 minutes at a medium flow rate 5. Open the sterilized bottle: Carefully unscrew the cap 6. Fill the bottle: While holding the cap and protective cover face downwards (to prevent entry of dust, which may contaminate the sample), immediately hold the bottle under the water jet, and fill. A small air space should be left to make shaking before analysis easier. 7. Stopper or cap the bottle: Place the stopper in the bottle or screw on the cap and fix the brown paper protective cover in place with the string 
Sampling from a watercourse (river) reservoir (tank)	• Fill the bottle Holding the bottle by the lower part, submerge it to a depth of about 20 cm, with the mouth facing slightly upwards. If there is a current, the bottle mouth should face towards the current. The bottle should then be capped or stoppered as described previously. 

Sampling from dug wells and similar sources	• Prepare the bottle with a piece of string, attach a clean weight to the sampling bottle. • Attach the bottle to the string: take a 20-m length of clean string rolled around a stick and tie it to the bottle string. • Lower the bottle, weighed down by the weight, into the well, unwinding the string slowly. Do not allow the bottle to touch the sides of the well • Fill the bottle: Immerse the bottle completely in the water and lower it well below the surface without hitting the bottom or disturbing any sediment. • Raise the bottle Once the bottle is judged to be full, rewind the string on the stick to bring up the bottle. If the bottle is completely full, discard some water to provide an air space. Stopper or cap the bottle as described previously. 

Annex 11: Methods of Household Water Treatment

Boiling	• Use a clean, covered pot to boil water. • Bring the clear water to a rolling boil at 100 C for 1 minute (at elevations above 6,500 feet, where boiling point tends to be lower boil for at least 3 minutes). • After boiling, allow the water to cool before use. • Store the boiled water in clean, sanitized containers with tight covers
Chlorination	• Use available chlorine-based products e.g. PUR, aqua tabs and water guard • Determine the appropriate amount of chlorine based on the water volume to be treated. • Mix the chlorine thoroughly with the water and let it stand for at least 30 minutes. • Chlorination effectively kills cholera bacteria in water. • Ensure a reliable supply of chlorine solution or tablets.
Flocculation	• Water treatment process where a product is added to water • Solids form larger clusters, or flocs, that can be removed from the water.
Solar Disinfection	• Using heat and UV radiation to kill bacteria and parasites in water. • Ensure the water is clear, clean, and sediment-free for optimal UV penetration. • Place the water in a transparent container and expose it to strong sunlight for 6 to 8 hours if sunny or 2 days (if cloudy). • Only PET bottles should be used. These can be easily identified because unlike PVC bottles, PET bottles burn easily with a sweet smell.

Annex 12: Sample RCCE Plan

Sample risk communication and community engagement plan						
Strategy	Activities	Actions Needed	Responsible person	Indicators	Budget	Timelines
Advocacy	Activity 1: Mapping of key stakeholders including key sectors, media, religious leaders, NGOs/ CBOs	Development of mapping tool and collating information Indicate materials needed to support implementation	RCCE focal person	Mapping tool developed All stakeholders mapped by role	Indicate total cost of the activity	Indicate date/ period of activity
	Activity 2: Hold Orientation meetings with key influencers	Develop advocacy materials as handout Use mapped list of stakeholders and send invite Arrange for needed logistics (venue, refreshments, transport)	RCCE focal person	No of materials developed No of participants per role engaged No of meetings held	Indicate total cost of activity	Indicate date/ period of activity
	Activity 3: Hold coordination meetings with stakeholders including decision makers, traditional and religious leaders, civil society leaders etc.	Develop advocacy materials as handout Use mapped list of stakeholders and send invite Arrange for needed logistics (venue, refreshments, transport)	RCCE focal person	No of materials developed No of participants per role engaged No of meetings held	Indicate total cost of activity	Indicate date/ period of activity

Social Mobilization	Activity 1: Identify and orientate community resource persons on cholera prevention and control key messages and actions	Indicate materials needed to support capacity-building orientation including IEC and key messages Arrange for needed logistics (venue, refreshments, transport)	RCCE focal person	No of community resource persons identified and trained No of materials developed and disseminated	Indicate total cost of activity	Indicate date/ period of activity
	Activity 2: Conduct community engagement such as house to house, community dialogues using community resource persons including CHVs/ Promoters, community leaders.	Key messages tool kit disseminated Supportive supervision and monitoring tool Weekly reporting tool	RCCE focal person	No of households reached with key messages No of community dialogue sessions conducted No of participants engaged including hesitant groups	Indicate total cost of activity	Indicate date/ period of activity
	Activity 3: Deployment of PAS in high traffic areas such as markets, water points, houses of worship etc.	Key messages tool kit disseminated PAS equipment Development of micro plan and team movement team	RCCE focal person	No of areas reached per type No of people reached No of PAS deployed	Indicate total cost of activity	Indicate time/ period of activity
Communication	Activity 1: Mapping of electronic and social media channels of communication	Review/develop key messages Identify key resource person to conduct media engagement activities i.e. talk shows	RCCE focal person	No of channels mapped	Indicate total cost of activity	Indicate date/ period of activity

	Activity 2: Engagement of channels mapped	Key messages disseminated to media channels Orient resource persons and media personnel	RCCE focal person	No of media channels receiving key messages No of media personnel and resource persons oriented No of media channels engaged/no of spots and shows No. people reached	Indicate total cost of activity	Indicate date/ period of activity

Annex 13: Disease Outbreak RCCE Weekly Activity Updates Template

TYPE OF DISEASE/EVENT:

Dates: Week Starting: **Week Ending:**

County---------- **Sub-County----------** **Ward----------**

Key Highlights of activities implemented

#	Activity	Total number of expected planned activities	Number of planned activities conducted (No reached include categories like male, female etc.)	Location (List)	Remarks (any)
1	Advocacy Activities- under this capture no. of advocacy meetings held with key community influencers e.g. religious leaders/women/youth groups, teachers, business people/local admins like County/Assistant County Commissioners/chiefs/ town/ward admins				

2	Community Engagements activities ongoing/ implemented. • House to house visits/ sensitizations by CHVs • Community dialogue sessions conducted • Community Sensitizations at key strategic places/points e.g. mosques/ schools/markets/ water points				
3	Media-Radio Discussion programme: • Radio/TV shows conducted • Radio/TV spots aired				
4	Public Address Announcements				
5	Capacity-building. • CHVs sensitized on RCCE. • Frontline health care workers sensitized				
6	IEC materials distributed • Posters • Flip charts • Flyers • Leaflets • Brochures • Others				

7	List Partners who supported you this week?				
Challenges					
1	List any key risk drivers' behaviors • •				
2	List any Myths/ misconceptions. • •				
3	List support required/ recommendations • •				

Update Submitted by:

NAME…… DESIGNATION……

Annex 14: Key Steps to Monitoring and Evaluation in Risk Communication

Phases	Intervention	Activities
Before Cholera Outbreak	Preparedness	• Engage partners and stakeholders • Define M&E roles and responsibilities in case of an emergency • Define reporting structures and feedback loops • Determine basic input and output level indicators that can be used to monitor initial communication response • Develop M&E plan of action included in the RCCE response strategy
During Cholera Outbreak	Continuous Monitoring	• Conduct systematic collection of output-level data • Conduct monitoring plan to check quality of communication response activities • Activate feedback loops • Hold regular review meetings • Communicate results to all levels including community • Make changes to activities as per monitoring results
After Cholera Outbreak	Formal M&E System	• Conduct after-action review meetings • Conduct evaluation of impact of RCCE interventions • Utilize findings to review and update RCCE strategy • Document and share lessons learned

Annex 15: Sample Cholera RCCE M&E Framework

Indicator Phase		Advocacy	Electronic Media	Social media	IEC materials	Community engagement
Monitoring	Inputs	No. of advocacy meetings planned	No. of radio/TV stations airing messages	No. of social media materials developed	No. of materials developed and disseminated	Number of community mobilizers identified, trained, and engaged
	Outputs	No. of advocacy meetings conducted	No. of radio/TV spots aired	No. of social media engagements	Number of materials distributed	Number of people reached during sensitization sessions
Evaluation	Outcome	• % of respondents reporting to have adopted at least one new protective behavior (handwashing, treating water, using a toilet, etc.) • % of the population demonstrating correct water usage and storage • % of people aware of Cholera signs/symptoms, modes of transmission and preventative measures to avoid getting infected or infecting others				
	Impact	• % increase in the number of people aware of handwashing guidelines • % increase in the number of people performing regular handwashing • % increase in the number of people using latrines • % increase in the number of people regularly treating and correctly storing safe water at household levels				

Annex 16: AEFI Reporting Form

MINISTRY OF HEALTH
NATIONAL VACCINES AND IMMUNIZATION PROGRAM
AEFI Reporting Form

(To be filled in triplicate) ☐ Initial Report ☐ Follow-up report

NAME OF REPORTING INSTITUTION..... INSTITUTION MFL CODE.....

COUNTY..... SUB-COUNTY.....

Patient Details

PATIENT'S NAME..... IP/OP NO..... DATE OF BIRTH(or age).....

GENDER..... NAME OF GUARDIAN (If patient is a child).....

ADDRESS..... PHONE NUMBER(self or nearest contact).....

VILLAGE..... WARD..... SUB-COUNTY..... COUNTY.....

VACCINATION CENTRE..... COUNTY OF VACCINATION CENTRE.....

TYPE OF VACCINATION SERVICE (static, mass, outreach).....

Type of AEFI Please tick:		Brief details on the event (including timeline of occurrence)
BCG Lymphadenitis ☐	Anaphylaxis ☐	.....
Convulsion ☐	Encephalopathy, Encephalitis/Meningitis ☐	.....
Generalized urticaria (hives) ☐		.....
High Fever ☐	Paralysis ☐	.....
Injection site abscess ☐	Toxic shock ☐	.....
Severe Local Reaction ☐	Others (specify)..... ☐	.....

Onset of event: Date ..... /...../..... Time .....

Suspected vaccine(s)

Name of Vaccine(e.g. BCG, DPT-Hib-HeB)	Dose No.	Date vaccinated	Time vaccinated	Route,site of vaccination (i.m.,s.c.)	Details of Vaccine			Details of Diluents		
					Lot/Batch No.	Manufacturer's Name	Expiry Date	Lot/Batch No.	Manufacturer's Name	Expiry Date

Past medical history (including history of similar reaction or other allergies, concomitant medication/vaccine,concomitant illness, other cases,pregnacy status and other relevant information(continue on separate sheet if necessary)

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Action taken ☐ Treatment given (specify).....

☐ Specimen collected for investigation (specify type(s) of specimen).....

AEFI Outcome ☐ Recovered ☐ Recovering ☐ Not recovered ☐ Unknown ☐ Died

Name of Person Reporting..... Phone number.....

Designation..... Signature: ..... Date: .....

Final Classification of AEFI (*to be filled at national level*):

(See overleaf for guidelines on howto complete the form)

GUIDELINES ON COMPLETION OF THE FORM

WHEN TO COMPLETE THIS FORM

An adverse event following immunization (AEFI) is defined as any unfavorable medical occurrence which follows immunization and which may or may not be caused by the usage of the vaccine. The adverse event may be any unfavorable or unintended sign, abnormal laboratory finding, symptom or disease.

Complete the AEFI reporting form when any Adverse Event Following Immunization (AEFI) occurs and especially those of parental and/or health worker concern e.g.

1. Serious Events (results in death, hospitalization or prolongation of hospitalization) persistent or significant disability/incapacity, or is life-threatening
2. Injection Site Abscesses
3. BCG Lymphadenitis-Lumps In The Armpit Following BCG Vaccination
4. Severe Local Reaction – Redness, swelling or pain extends past the nearest joint; inability to move the limb; Redness, swelling or pain persist for more than 3 days
5. Seizures
6. Allergic reaction- anaphylaxis, hives, bronchospasm, edema
7. Clusters of events(> 2 cases of same event in same month) apart from fever
8. Any Uncommon Or Unexpected Events and events that are of public concern

- Report even if you are not certain the vaccine caused the event or you do not have all the details.
- Indicate if it is an **initial** or **follow-up** report
- Information on the Manufacturer and Expiry dates of the Vaccine and/or diluents may be obtained from the label of its container. If multiple vaccines are suspected, provide the required information on each of them.
- Enter date of birth if available, if not enter the age at the time the AEFI began
- Where more than one AEFI if they occur in the same patient and same time tick the multiple options provided, also provide a description of the AEFI in the space provided

WHERE TO REPORT

After completing this form, forward two copies to the sub-county public health nurse/officer/DMOH, who will liase with the Sub-county HRIO to report the case through the AEFI reporting module in DHIS2. One copy will be sent to the Head, National Vaccines and Immunization Program, P.o Box 43319-00100, Nairobi. Notify the next level immediately in case of serious AEFI or Clusters of Events.

WHAT HAPPENS TO SUBMITTED REPORTS

Data obtained from this and other reports will be assessed and used improve policy and service delivery in the Ministry of Health

All information is handled in strict confidence

Submission does not mean admission that the health worker or manufacturer or the product caused or contributed to the event.

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unicef for every child

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