

*Cover*

## **Table of Contents**

---

<i>Forward</i>	1
<b>1. CLINICAL GUIDELINES FOR CHOLERA MANAGEMENT</b>	<b>2</b>
1.1. Brief Notes on Cholera	2
1.2. Management of Patient with Cholera	6
1.3. Management of a Cholera Treatment Centre	12
1.4. Patient/Relatives Education	16
<b>2.0. CHOLERA SURVEILLANCE AND OUTBREAK CONTROL</b>	<b>17</b>
2.1. Objectives of Cholera Surveillance	17
2.2. Process of Cholera Surveillance	17
2.3. Outbreak Response	17
2.4. Environmental Health Interventions in Prevention and Cholera Control	18
<b>Annexes</b>	
i) Cholera Kit	
ii) Health Workers Update Training on Management and Control of Cholera	
iii) Surveillance Forms	
• Line Listing Form	
• Weekly Reporting Form and Summary – IDS form I - Revised	
iv) Rehydration Protocols	

## FOREWORD

According to statistics from Kenya's health facilities, 80% of attendance and revisits to hospitals and clinics are due to preventable diseases. Cholera, which is one of the preventable diseases, has been on the increase and the country has been experiencing frequent outbreaks mainly in Coast, Eastern and Nyanza Provinces; while the rest of the country has continued to experience sporadic but considerable episodes of Cholera outbreaks.

Cholera is an acute bacterial enteric disease characterized by a sudden onset of profuse, painless watery diarrhoea, occasional vomiting, rapid dehydration, acidosis and circulatory collapse.

Effects of global warming and diminishing water availability are strongly associated with increasing incidences and frequent outbreaks of Cholera. This has led the WHO into classifying Cholera among the re-emerging communicable diseases.

While access to improved water supply and sanitation is crucial in disease prevention, taking on board strategies to address cultural beliefs as well as hygiene education contributes to a major reduction in environmental related diseases. There is need therefore, for broad community participation in the fight against Cholera. Individuals, groups and organizations, especially in the Public Health sub-sector, need to know about and participate in the management and control of Cholera. It is for this reason that these guidelines have been developed.

These guidelines provide useful reference material for managers of health institutions as well as health workers involved in Cholera treatment and their supervisors. They provide critical training areas that health personnel require as an update for preparedness and response to Cholera epidemics.

This document is useful as an on-the-job manual and as a reference to both experienced and upcoming health professionals involved in the control and management of Cholera epidemics.

Any issues of clarification and suggestions for the guidelines update should be forwarded to the Disease Outbreak Management Unit (DOMU).

I wish to thank all those who have been involved in one way or the other in the production of this guideline including DOMU Secretariat, WHO-KCO, WHO-AFRO, KEMRI, MSF, UNICEF and several other contributors whom space cannot allow me to individually list. I hope that the users will find it useful tool in the management and control of Cholera.

DR. RICHARD MUGA DSM, OGW  
DIRECTOR OF MEDICAL SERVICES

# 1. CLINICAL GUIDELINES FOR CHOLERA MANAGEMENT

## 1.1. Brief Notes On Cholera

**1.1.1. Definition-** Cholera is an acute diarrhoeal illness resulting from colonization of the small intestines by the *Vibrio Cholerae*. Cholera is an acute bacterial enteric disease characterized by sudden onset of profuse painless watery diarrhoea, occasional vomiting, rapid dehydration, acidosis and circulatory collapse.

### 1.1.2. Cause: *Vibrio Cholerae*

- A gram-negative bacilli comma shaped.
- Usually motile
- Posses two antigen 'O' & 'H'
- Is flagellated
- Can survive at freezing point
- Can survive in variety of foodstuff and water up to 5 days in ambient temperature and up to 10 days at 5-10 degrees centigrade.
- Can survive in a fly for up to 14 days
- Can be destroyed by irradiation and heat above 70 degrees centigrade
- Sensitive to acidity and drying
- Up to 1-million *Vibrio Cholerae* needed to cause disease.

There are over 60 sero-groups of *Vibrio Cholerae*. Only sero-group 01 causes Cholera disease. Sero group 01 has two biotypes - *El-tor* and *Classical*

	<b>Biotypes</b>	<b>Serotype</b>
Serogroup 01	<i>El-tor</i> <i>Classical</i>	<i>Ogawa, Inaba Hokoijima</i>

Most epidemics are caused by *El-tor* biotype

Reasons: It exists in aquatic plants and animals (seafood). Water is a major reservoir.

### 1.1.3. Infection

After ingestion of an infectious dose of Vibrios through contaminated water, food or direct contact (e.g. hands), development of disease depends on: -

- i) Hosts immunity
- ii) Level of gastric acid - pH of 4.5 or lower inactivates *V. Cholerae*.
- iii) Breast milk provides protection against *V. Cholerae*
- iv) 90% of Cholera cases are usually mild - indistinguishable from other forms of diarrhoea. Only 10% are dramatically acute Vibrio diarrhoea.

In areas where Cholera occurs frequently, it accounts for 5-10% of all causes of diarrhoea \*  
Asymptomatic (health carriers) cases are common.

#### 1.1.4. Common sources of Cholera infection

1. Drinking contaminated water- at source and at home storage.
2. Contaminated foods - milk, cooked rice, lentils, potatoes, beans, eggs seafood (e.g. shellfish).
3. Fruits and vegetables - especially those grown by irrigation with waste-water (sewerage garden); and when fruits and vegetables are eaten raw.

#### 1.1.5. Pathogenesis of Cholera

After ingestion of *Vibrio Cholerae*, there is production of entero-toxin (Which is heat-labile). The toxin attaches itself to mucosa lining the gut.

It stimulates production of ATP (Adenosine Tri-Phosphate) enzyme. ATP breaks into CAMP (Cyclic Adenosine 3-5 Mono-phosphate) that causes secretion (from the gut) of chlorine (Cl-) thus causing less water and sodium (Na+) to be re-absorbed. Loss of sodium and chloride is followed by loss of bi-carbonates (HCO<sub>3</sub><sup>-</sup>) and potassium (K+). The loss of HCO<sub>3</sub><sup>-</sup> – predisposes to acidosis and hence electrolyte imbalance.

#### 1.1.6. Clinical Manifestation

Incubation period: 12 - 48hours (shortest)

Average: 1 - 4 days

Watery, painless profuse diarrhoea

- Rice water diarrhoea - result from gut debris
- Vomiting effortless - (not preceded by nausea)
- Severe muscle cramps (e.g. cuff muscles) due to hypo-natraemia
- Signs of Dehydration.
- Circulatory collapse (thin pulse, cold clammy skin, thirst/stupor)

#### 1.1.7. Diagnosis

By isolating *Vibrio Cholerae* from a rectal swab of a suspected patient.

Take a rectal swab,

Transport in Carry blair Transport Media to the laboratory

#### 1.1.8. Case Management

- Assess dehydration
- Rehydrate patient and monitor the re-assess hydration status
- Maintain hydration - replace ongoing fluid loss until diarrhoeal stops
- Give oral antibiotic to patients with severe Dehydration.
- Feed the patient
- Adult patients - offer normal diet when vomiting stops

- Infants and young children - continue breast-feeding.

#### 1.1.9. Prevention Measures

- Wash hands with soap before handling food and after visiting a toilet
- Ensure water is safe by boiling or chlorination
- Food - cook your food thoroughly and eat it whilst still hot
- Cover your food from flies, cockroaches and dust
- When eating stored food - reheat it till hot
- Wash with clean water all fruits and vegetables eaten raw
- Dispose of human wastes into a pit latrine and dispose of general refuse safely - to prevent flies from breeding.
- Keep the habit of eating from clean environments/containers
- Avoid illicit drinks brewed with contaminated water

#### 1.1.10. Case Definition of Cholera

- A patient older than 5 years develops severe dehydration from acute watery diarrhoea (usually with vomiting); usually more than four episodes of diarrhoea in 12 hours.
- Any patient above the age of 2 years has acute watery diarrhoea in an area where there is an outbreak of Cholera

**Vibrio Cholerae** - is a comma shaped gram negative flagellated bacillus

There are more than 60 sero-groups of *Vibrio Cholerae* but only sero-group 01 causes Cholera disease. The sero-group 01 occurs as two biotypes Classical and *El-Tor*. Each biotype occurs as sero-types *Ogawa* and *Inaba*, *Hokijima* is a rare sero-type.

The *El-Tor* bio-type is responsible for most Cholera outbreaks, although outbreaks caused by the classical bio-type still occur in the Indian sub-continent. The *El-Tor* biotype also causes a higher proportion of asymptomatic infections than the classical biotype and survives longer in the environment. It can thrive in association with certain aquatic plants (**phytoplanktons**) and animals (**zooplanktons**), making water an important reservoir for infection.

#### 1.1.11. Transmission

Cholera is acquired by ingestion of an infectious dose of Cholera *Vibrios*. Fecally contaminated water is usually the vehicle for transmission of infection, either directly or through the contamination of foods. Food may also get contaminated from the soiled hands of infected persons.

The dose of *Vibrio Cholerae 01* required to produce illness depends on the susceptibility of the individual. It can be affected by the level of acidity of the stomach (the *Vibrio* is destroyed at pH 4.5 or lower), and by immunity produced by prior infection with *Vibrio Cholerae 01*. In endemic areas, breast-feeding protects infants and young children.

(It is estimated that one requires ingesting over 1,000,000 *Vibrios* to cause illness)

## 1.2. Management of Patient With Cholera

Cholera should be suspected when:

- A patient older than 5 years develops severe dehydration from acute watery diarrhoea (with more than four episodes in 12 hours; usually with vomiting); or
- Any patient above the age of 2 years has acute watery diarrhoea in an area where there is an outbreak of Cholera

### Steps in the management of suspected Cholera:

Step 1. Assess for dehydration

Step 2. Rehydrate the patient and monitor frequently. Then reassess hydration status.

Step 3. Maintain hydration: replace ongoing fluid losses until diarrhoea stops.

Step 4. Give an oral antibiotic to patients with severe dehydration.

Step 5. Feed the patient.

### 1.2.1. STEP 1. Assess for dehydration

Use Table 1 to determine whether the patient has:

- Severe dehydration
- Some dehydration
- No signs of dehydration

1. LOOK AT:			
• Condition	Well, alert	* Restless, irritable*	*Lethargic or unconscious; floppy *
• Eyes	Normal	Sunken	Very sunken and dry
• Tears	Present	Absent	Absent
• Mouth and Tongue	Moist	Dry	Very dry
• Thirst	Drinks normally, not thirsty	*Thirsty, drinks eagerly*	*Drinks poorly or not able to drink *
2. FEEL:			
• Skin pinch (abdominal)	Goes back quickly	*Goes back slowly*	*Goes back very slowly*
3. DECIDE:	The patient has <b>No signs of dehydration</b>	If the patient has two or more signs including at least one * sign *, <b>there is some Dehydration</b>	If the patient has two or more signs, including at least one sign*, <b>there is severe dehydration</b>

<sup>1</sup> In adults and children older than 5 years, other \*signs\* for severe dehydration are \*absent radial pulse\* and \*low blood pressure\*. The skin pinch may be less useful in patients with marasmus (severe wasting) or Kwashiakor (severe malnutrition with oedema) or obese patients. Tears are a relevant sign only for infants and young children.

### **1.2.2. STEP 2. Rehydrate the patient, and monitor frequently; reassess hydration status**

#### ***For Severe Dehydration:***

- *Give IV fluid* immediately to replace fluid deficit. Use Ringer's lactate solution or, if not available, normal saline.

Start IV fluid immediately. If the patient can drink, begin giving oral rehydration salts (ORS) solution by mouth while the drip is being set up.

*For patients aged 1 year and older, give 100ml/kg IV in 3 hours, as follows: -*

- 30ml/kg as rapidly as possible (within 30 minutes); then
  - 70ml/kg in the next 2½ hours.
- *Monitor the patient* very frequently. After the initial 30ml/kg have been given, the radial pulse should be strong (and blood pressure should be normal.) If the pulse is not yet strong, continue to give IV fluid rapidly.
  - *Give ORS solution* (about 5 ml/kg) as soon as the patient can drink, in addition to IV fluid.
  - *Reassess the patient* after 3 hours (infants after 6 hours), using Table 1:
    - If there are still signs of *severe dehydration* (this is rare), repeat the IV therapy already given.
    - If there are signs of *some dehydration*, continue as indicated below for some dehydration.
    - If there are *no signs of dehydration*, go on to Step 3 to maintain hydration by replacing ongoing fluid losses.

#### ***For Some Dehydration:***

- *Give ORS solution:*
- Administer ORS solution in the amount recommended on Table 2 on the next page.
- If the patient passes watery stools or wants more ORS solution than shown, give more.

Age <sup>1</sup>	Less than 4 months	4-11 months	12-23 months	2-4 years	4-14 years	15 years or older
Weight	Less than 5 kg	5-7.9 kg	8-10.9 kg	11-15.9 kg	16 – 29.9 kg	30kg or more
ORS solution in ml	200-400	400-600	600-800	800-1200	1200-2200	2200 – 400

Use the patient's age only when you do not know the weight. The approximate amount of ORS required (in ml) can also be calculated by multiplying the patient's weight (in kg) times 75.

- Monitor the patient frequently to ensure that ORS solution is taken satisfactorily and to detect patients with profuse ongoing diarrhoea who will require closer monitoring.
- Reassess the patient after 4 hours, using Table 1:
  - If signs of severe dehydration have appeared (this is rare), rehydrate for severe dehydration, as above.
  - If there is still some dehydration, repeat the procedures for some dehydration and start to offer food and other fluids.
  - If there are no signs of dehydration, go on to Step 3 to maintain hydration of replacing ongoing fluid losses.

Most patients absorb enough ORS solution to achieve re-hydration even when they are vomiting. Vomiting usually subsides within 2-3 hours, as re-hydration is achieved.

Use a naso-gastric tube for ORS solution if the patient has signs of some dehydration and cannot drink, or for severe dehydration *only* if IV therapy is not possible at the treatment facility.

Urine output decreases as dehydration develops, and may cease, it usually resumes within 6-8 hours after starting re-hydration. Regular urinary output (every 3-4 hours) is a good sign that enough fluid is being given.

**For No Signs of Dehydration:**

Patients first seen with no *signs of dehydration* can be treated at home.

- **Give ORS packets** to take home. Give enough packets for 2 days. Demonstrate how to prepare and give the solution. The caretaker should give this amount of ORS solution:

<b>Age</b>	<b>Amount of Solution after each loose stool</b>	<b>ORS packets needed</b>
<b>Less than 24 months</b>	50 – 100ml	Enough for 500ml/day
<b>2- 9 years</b>	100ml – 200ml	Enough for 1000 ml/day
<b>10 years or more</b>	As much as wanted	Enough for 2000ml/day

- **Instruct the patient or the caretaker to return** if any of the following signs develop:
  - Increased number of watery stools
  - Eating or drinking poorly
  - Marked thirst
  - Repeated vomiting

Or if any signs indicating other problems develop:

- Fever
- Blood in stool

**1.2.3. STEP 3. Maintain hydration; replace continuing fluid losses until diarrhoea stops.**

When a patient who has been re-hydrated with IV fluids or ORS solution is reassessed, and has no signs of dehydration, continue to give ORS solution to maintain normal hydration. The aim is to replace stool losses as they occur with an equivalent amount of ORS solution.

- As a guide, give the patient:

<b>Age</b>	<b>Amount of solution after each loose stool</b>
<b>Less than 24 months</b>	100ml
<b>2-9 years</b>	200ml
<b>10 years or more</b>	As much as wanted

The amount of ORS solution actually required for maintaining hydration varies greatly from patient to patient, depending on the volume of stool passed. The amount required is greatest in the first 24 hours of treatment, and is especially large in patients with severe dehydration. In the

first 24 hours, the average requirement is 200ml of ORS solution per kg of body weight, but some may need as much as 350ml/kg.

#### 1.2.4. STEP 4: Give an oral antibiotic to the patient with severe dehydration

An effective antibiotic can reduce the volume of diarrhoea in patients with severe Cholera and shorten the period during which *Vibrio Cholerae* O1 is excreted. In addition, it will usually stop the diarrhoea within 48 hours, thus shortening the period of hospitalisation.

- *Start antibiotics* – after the patient has been re-hydrated (usually in 4-6 hours), and vomiting has stopped.

There is no advantage is using injectable antibiotics, which are expensive. No other drugs should be used in the treatment of Cholera.

Use Table 3 to select the antibiotic and dose:

<b>Table 3. Antibiotics used to treat cholera</b>		
<b>Antibiotic<sup>a</sup></b>	<b>Children</b>	<b>Adults</b>
Doxycycline Stat dose	_____	300 mg <sup>b</sup>
Tetracycline 4 times a day for 3 days	_____	500 mg
Erythromycin <sup>c</sup> 4 times a day for 3 days	30-50mg/kg syrup	500 mg
Chloramphenicol 4 times a day for 3 days	50mg/kg in four divided doses	500 mg

<sup>a</sup> Erythromycin or chloramphenicol may be used when the antibiotics recommended above are not available, or where *Vibrio cholerae* O1 is resistant to them.

<sup>b</sup> Doxycycline is the antibiotic of choice for adults (except pregnant women) because only one dose is required. Tetracycline is equally effective; however it should not be used for children and pregnant women.

<sup>c</sup> Erythromycin is the antibiotic of choice for children, pregnant women and breast-feeding mothers.

#### 1.2.5. STEP 5. Feed the patient

- *Resume feeding* with a normal diet when vomiting has stopped.
- *Continue breast-feeding* infants and young children.

### **Complications**

*Pulmonary Oedema* is caused *when too much IV fluid* is given, and especially when metabolic acidosis has not been corrected. The latter is most likely to occur when normal saline is used for IV rehydration and ORS solution is not given at the same time. When the guidelines for IV rehydration are followed, pulmonary oedema should not occur. ORS solution never causes pulmonary oedema.

*Renal failure* may occur *when too little IV fluid* is given, when shock is not rapidly corrected, or when shock is allowed to recur, especially in persons above the age of 60. Renal failure is rare when severe dehydration is rapidly corrected and normal hydration is maintained according to the guidelines.

---

#### **What Health Workers need to know about Cholera Patient Management:**

1. Cholera is caused by a Bacterium *Vibrio-Cholerae*
2. Transmission is by faecal-oral route
3. Dehydration is the main cause of death
4. 95% of patients can be managed through quick correction of dehydration, without drugs using ORS
5. In severe dehydration use IV fluids preferably Hartman's or ringer's Lactate solutions.
6. As soon as severe dehydration has been corrected and vomiting stopped, start the patient on ORS.
7. Patient's clothes and blankets should be decontaminated using Dettol, Jik or other recommended disinfectant.
8. Feed the patient as soon as he/she is able to take orally.
9. No patient should go home without patient health education i.e. hand washing before handling food, eating food while still hot and boiling water or milk before drinking.

### 1.3. Management of a Cholera Treatment Centre

Cholera is a very infectious disease and spreads easily and rapidly where people reside in congested and unsanitary conditions. A treatment centre can be a major source of infection because Cholera patients contaminate the environment and many friends and relatives visit the sick.

Cholera patients usually pass profuse diarrhoea without any control and quickly become very weak. Patients therefore soil themselves and any efforts to clean and change them can potentially be a source of contamination.

It is highly discouraged to transfer Cholera patients to far off stations for treatment. Referral or transfer of Cholera patients may just create a way of wider transmission of the disease. Experts recommend that Cholera should be treated where cases are occurring. A temporary treatment centre should be opened if there is no existing health facility.

#### 1.3.1. Siting a Temporary Cholera Treatment Centre (CTC)

A suitable site for a temporary CTC should be within the locality where Cholera cases are occurring. A CTC should be away from the community market or a place with major community activities. A safe distance allows for privacy and reduces chances of accidental contamination. It should also be sited where it cannot contaminate the community water supply – consider the following: -

Good access	Road, telephone, and electricity where these facilities are available.
Water supply	<ul style="list-style-type: none"><li>- Adequate and reliable water supply is essential for the required cleaning.</li><li>- Availability of treated water or with the possibility of treating water should be considered.</li></ul>
Existing infrastructure	<ul style="list-style-type: none"><li>- Consider an existing building that can be converted into a CTC at minimal cost.</li><li>- Good drainage and safe disposal of general and medical wastes from a CTC.</li><li>- Availability of toilets /bathrooms - or where temporary structures can be developed quickly and at modest costs.</li></ul>

#### 1.3.2. Organization of a CTC

1. A CTC should have a perimeter fence to isolate it from free flow of people.

2. Control human traffic by use of ropes and only allow guided flow so that as people enter or leave a CTC, they disinfect their feet/shoes in a footbath of chlorine water.
3. Use volunteers or subordinate staff to guide and control human traffic.
4. Create critical sections or rooms for smooth organization of activities. The following are essential:

Admission area	<ul style="list-style-type: none"> <li>- Facilities for resuscitation</li> <li>- Facilities for history taking and examination of patients</li> </ul>
Intravenous re-hydration area	This is also is also the acute care room/area. Patients who are severely dehydrated or with collapsed circulation are admitted here.
ORS re-hydration room	<ul style="list-style-type: none"> <li>- Patients with only mild to moderate dehydration are admitted here</li> <li>- Oral medication and initiation of oral feeding take place here</li> </ul>
Treatment Room	Where equipment for procedures are prepared from. Medicine cupboard and supplies are kept here.
De-contamination Room	<ul style="list-style-type: none"> <li>- Contaminated articles are decontaminated before being sent for cleaning or laundry.</li> <li>- Faeces and vomit of cholera patients should be decontaminated before disposal</li> </ul>
Dead bodies Room	<ul style="list-style-type: none"> <li>- All bodies of Cholera victims should be disinfected before being released to the relatives.</li> <li>-Protective clothing should be used by health workers</li> </ul>
Staff Resting Room	This is a room where health workers can rest or take refreshments and recover when they feel exhausted.
Patient and Relative Education Area	<ul style="list-style-type: none"> <li>- All patients and their relatives should be taught about Cholera, how it is contracted and prevention.</li> <li>- Individual and group counselling can also take place here.</li> <li>- Educational demonstrations are done here</li> </ul>
<b>NB:</b> At every doorway in a CTC there should be a footbath with 0.2% chlorine solution for disinfecting the shoes/feet and a hand washing facility before exit. .	

### 1.3.3. Role of Chlorine in Cleaning a Cholera Treatment Centre

An infected person with or without signs discharges Cholera germs (*Vibrios*) in their stool and can contaminate water or foods. Any surfaces or articles that come into contact with the stool of a Cholera patient gets contaminated and is potentially infectious. The only way to reduce the risk of transmission is effective disinfection of Cholera stools, vomitus, contaminated clothing and floor surfaces. Chlorine is one of the most widely used disinfectants.

Chlorine is an important substance in fight against Cholera. It is used to disinfect water and to prepare solutions of different strengths for washing patients, disinfection of materials, buildings, excreta, vomitus and disinfection of bodies of Cholera patients.

**A. HOW TO MAKE SAFE DRINKING WATER WITH DIFFERENT CHLORINE PRODUCTS AVAILABLE IN KENYA**

1. With HTM (Calcium Hypochlorite 70%)
2. With Jik (Sodium Hypochlorite 3.5%)
3. With Bleach 5% (GoK-MoH)

**Procedure:**

- First ensure that the water is clear before chlorination.
- In case the water is muddy, filter it or stand it for some time to allow sedimentation then decant it.

**With the HTM 70%:**

- Prepare a 1% chlorine solution in 1 litre of clear water by adding 1 tablespoon or 15 grammes of HTM 70%.
- Take from this 1% solution: 1 tablespoon (10mls) and add to 20 litres of raw clear water.
- Wait for thirty - (30) minutes before drinking.

**With Jik 3.5%:**

- Add a teaspoon (5mls) in 20-litres raw clear water.
- Wait for thirty - (30) minutes before drinking.

**With Bleach 5%:**

- Add a teaspoon (5mls) in 40-litres raw clear water or 2.5mls in 20 litres of water.
- Wait for thirty - (30) minutes before drinking.

**NB. Shelf life for bleach solution is one year.**

**B. DISINFECTION WITH CHLORINE IN THE HEALTH FACILITIES**

1 Tablespoon = 10 mls,      1 teaspoon = 5 mls,      1 cup = 200 mls  
 1 tablespoon full of chlorine powder = 15 grammes

0.05% Chlorine Solution	0.2% Chlorine Solution	2% Chlorine Solution
<p><b>1 tablespoon in 20 litres of water</b>                      With Bleach 5 % (Sodium hypochlorite solution)  <b>14 tablespoons in 20 litres of water</b>                      ¼ of cup in 20 litres of water</p>	<p>With Chlorine HTM 70%  <b>1 tablespoon in 5 litres of water</b>                      With Bleach 5 % (Sodium hypochlorite solution)  <b>2 tablespoons in 5 litres of water</b></p>	<p><b>2 tablespoon in 1 litre of water</b>                       With Bleach 5 % (Sodium hypochlorite solution)  <b>2 cup in 1 litre of water</b></p>
<p>Must be used for</p> <ul style="list-style-type: none"> <li>• Hands disinfection points</li> <li>• Clothes disinfection Soak for 15 minutes</li> <li>• Skin disinfection</li> </ul> <p><b>NB. To be used within 24 hours</b></p>	<p>Must be used for Disinfection of:</p> <ul style="list-style-type: none"> <li>• Beds, Floors, Utensils, Latrines, Walls, Plastic buckets, ets....</li> </ul> <p><b>NB. To be used within 3 days</b>  <b>Use Gloves for this solution</b></p>	<p>Must be used for disinfection of:</p> <ul style="list-style-type: none"> <li>• <b>Vomitus &amp; stools</b> Put 1 cup into an empty bucket &amp; 1 cup before pouring in the latrine (decontaminate for 15 minutes)</li> <li>• <b>Dead Bodies</b> Clean or spray the corpse with this solution before last offices</li> </ul> <p><b>NB. Use gloves for this solution</b></p>

Remember: **Chlorine reacts with metals. Never prepare solution in metallic containers.**  
**Store the solution in airtight, non-metallic containers sheltered from heat, light &**

**Chlorine**

2% solution

**Uses**

Disinfection of vomitus, faeces and latrines toilets.

- Washing bodies of patients who die of Cholera.

0.2% solution

Disinfection of floors

- Spraying of homes of Cholera patients (floors, beds, latrines)
- Spraying of beds in a Cholera Treatment Centre (CTC).
- Footbaths in all entrances in/out of a CTC (Solution should be changed daily)
- Disinfection of clothes by soaking for 10 minutes. Clothes are rinsed and washed afterwards.

0.05% solution Washing of hands and skin

- Rinsing dishes
- Washing of new patients on arrival at CTC possibly with a spray.

**Common varieties of Chlorine compounds available in Kenya**

- |                  |   |   |
|------------------|---|---|
| Jik              | - | Sodium hypochlorite solution            |
| Aquatabs         | - | Chlorine tablets                        |
| Bleaching Powder | - | Lime of chlorine (Calcium hypochlorite) |

### 1.3.4. Different levels of a Cholera Treatment centre (CTC) and Functions

Level	Staff	Function
Village	<ul style="list-style-type: none"> <li>• CHWs</li> <li>• Village Elders</li> </ul>	<ul style="list-style-type: none"> <li>• Initiate re-hydration with ORS</li> <li>• Visit the homes of cases for health education.</li> <li>• Refer moderate to severely dehydrated cases to higher levels.</li> <li>• Supervise construction of latrines.</li> <li>• Assist in the disinfections of water</li> <li>• Supervise burials.</li> <li>• Compile a list of all cases and contacts and give to ECHN at the dispensary</li> </ul>
Dispensary	ECHNs	<ul style="list-style-type: none"> <li>• Re-hydrate moderately dehydrated cases using ORS.</li> <li>• Treat with caps Doxycycline.</li> <li>• Where referral is not feasible re-hydrate severely dehydrated cases through NG tube or IV infusion.</li> <li>• Refer cases to higher levels.</li> <li>• Compile report of cases seen at this level and contacts and those seen by the CHWs.</li> <li>• Plan follow up care in consultation with CHWs.</li> <li>• Swab cases from new areas and at agreed intervals.</li> <li>• Instruct and supervise CHWs on how to decontaminate dead bodies, clothes and other contaminated articles.</li> </ul>
Health centre or Hospital – A Cholera Treatment Centre	<p>All the above and the following</p> <ul style="list-style-type: none"> <li>• Nurses</li> <li>• Clinical Officers</li> </ul>	<ul style="list-style-type: none"> <li>• Receive and re-hydrate Cholera cases.</li> <li>• Initiate outbreak investigation.</li> <li>• Take rectal swabs to confirm diagnosis.</li> <li>• Maintain records and give reports to the DOMT.</li> <li>• Treat cases with antibiotics according to guidelines above.</li> </ul>

## 1.4. Patient/Relatives Education

### How You Can Protect Yourself From Cholera:-

(Messages for Community Members)

#### The Disease Spreads Through Food and Water

1. Eating food while still hot will prevent Cholera disease.
2. Boiling water or milk before drinking will kill Cholera germs.
3. Washing hands with soap and water before eating will remove Cholera germs from hands.
4. Thorough washing of fruits and vegetables before eating or cooking will prevent Cholera.
5. Flies and dust can carry Cholera germs onto food. Keep food covered at all times.
6. Use Dettol, JIK or other recommended disinfectants to kill Cholera germs in clothes and blankets used by Cholera patients. Washing infected clothes in rivers, lakes etc can help spread Cholera.
7. People who sell food can transmit Cholera; only eat food in recommended hygienic places.
8. Every family member should use a toilet/pit latrine. Faeces containing Cholera germs transmit Cholera, through food and water.

## 2.0. CHOLERA SURVEILLANCE AND OUTBREAK CONTROL

**Surveillance** as continuous watchfulness of disease occurrence with the purpose of gathering the information for appropriate action

### 2.1. Objectives of Cholera Surveillance

Surveillance of Cholera is essential for generating information that may lead to:-

- ✓ Forecasting Cholera outbreaks
- ✓ Early detection of disease pattern to enable rapid investigation and application of early response
- ✓ Monitor trends of the Cholera
- ✓ Evaluate control measures being instituted
- ✓ Determine risk factors that persist in the affected areas

### 2.2. Process of Cholera Surveillance

- ✓ Data collection on all diarrhoeal cases and laboratory analysis of stool samples eg. Rectal swabs for cultures and sensitivity.
- ✓ Data tabulation and analysis – this shows causative agents of diarrhoea and distribution.
- ✓ Data interpretation – shows association of cases and deaths due to diarrhoea with various risk-factors
- ✓ Dissemination of findings to:
  - All health workers involved on areas needing further investigations
  - Health managers for necessary planning and resource allocation
  - Leaders for mobilizing certain public health practices or actions in the community

### 2.3. Outbreak Response

#### 2.3.1. Minimum Surveillance Package for Cholera Preparedness

A rapid response team in place with Contingency funds

Disease data

- ✓ Cases and deaths; sex and age-groups affected and geographical distribution areas affected
- Environmental Risks
- ✓ Water quality analysis in the water bodies and at household level.
- ✓ Food quality analysis at commercial food outlets, food handlers and household levels.

Buffer Stock

- ✓ Minimum stock of essential medical supplies
- ✓ Rehydration fluids - Ringers Lactate solution and ORS
- ✓ Drugs antibiotics
- ✓ Laboratory reagents for Cholera confirmation
- ✓ IEC materials.

### **2.3.2. Minimum Cholera Reporting**

- ✓ Outbreak investigation report
- ✓ Cholera statistics on Epidemic Monitoring Form
- ✓ Epidemic curve
- ✓ Disease map completed
- ✓ Post-epidemic report
- ✓ Feedback to health workers, leaders, supervisors and partners.

## **2.4. Environmental Health Interventions in Prevention and Cholera Control**

### **2.4.1. Information, Education and Communication Strategies in Prevention and Control of Cholera and Other Diarrhoeal Diseases**

#### **Introduction**

Health statistics emanating from health facilities reveal that over 80% of attendance and revisits are due to preventable ailments. In some parts of the country Cholera and other diarrhoeal diseases have been on the increase. The problem has been worsened by frequent Malaria outbreaks. This scenario obviously calls for emphasis on preventive and promotive health services with the view of reducing morbidity and mortality due to preventable diseases.

Experience has shown that while access to improved water supply and sanitation facilities is crucial in disease prevention, taking on board strategies to address cultural beliefs as well as hygiene education contribute to a major reduction in environment related diseases. Implementation of new facilities needs to be accompanied by changes in health and hygiene behaviour.

One of the fundamental pre-requisites for achieving any meaningful change is broad community participation. There is need of individuals, groups and organizations to know about and participate in decisions particularly those that potentially affect them and the communities in which they live and work.

Health workers may have technical solutions to health problems but may not know much about a community as the people who live there themselves. It therefore makes sense to involve communities in making plans because they know local conditions and the possibilities for change. A common approach is to try and involve the community in helping to carry out initial surveys so that one can draw on their detailed local knowledge. The enthusiasm that comes from community participation can lead to greater sense of reliance for the future and often leads to a better relationship between the community and health workers.

From previous studies and experiences, it is clear that sanitation coverage, poor housing, contaminated or unprotected water sources and poor hygiene practices coupled with cultural beliefs that are detrimental to health are contributory factors to disease out breaks in the affected areas .As much as we sensitize the communities to rebuild, improve and maintain their facilities, there is need to advocate for construction of more facilities and promotion of advocacy for behaviour change.

#### **2.4.2. Environmental Health and Hygiene Education**

In the control and prevention of Cholera and other diarrhoeal diseases there is need to address or take into consideration the following:

- Risk factors reduction
- Change of risk behaviours
- Environmental determinants of health.
- Creation of living conditions that are conducive to health at both individual and community levels.

In order to address these factors, it is important that one understands the community very well. Therefore the following strategies will be used both at individual level and community level.

## **Strategies**

- Check on water sources and educate communities on the need to protected water supplies.
- Carry out sanitary surveys and address water quality.
- Provide paqua labs for on site water testing.
- Rehabilitate existing water sources and improve wastes disposal in conjunction with the community.
- Conduct awareness campaigns aimed at all sectors of the population.
- Design and use appropriate participatory health and hygiene education initiatives and support materials.
- Institutionalise a long term monitoring system for both disease transmission and maintenance of water and waste disposal facilities
- Train health workers and other extension workers in participatory hygiene education.
- Address food quality and safety control.
- Address food hygiene and food handlers

## ANNEX I

### Cholera Kit - One

Commodity	Unit	Amount		
<b>Rehydration Supplies</b>				
• ORS	Sachets	2,000		
• Ringer's lactate 500ml	Bottles	2,000		
• 5% Dextrose 500ml	Bottles	100		
• N/saline 500ml	Bottles	50		
• 1/2 Strength Darrows solution.	Bottles	50		
• Scalp veins - assorted sizes	No	250		
• Cannulae - assorted sizes	No	250		
• N/G Tube Adults	No	10		
• N/G Tube Paediatrics	No	10		
• 50% Dextrose (100ml)	Bottles	10		
<b>Antibiotics</b>				
• Doxycycline Caps				
• Cotrimoxazole Tablets	Tins 1000	10		
• Cotrimoxazole syrup (100ml)	Tins 1000	5		
• Erythromycin Tablets	Bottles	500		
• Erythromycin Syrup (100ml)	Tins 1000	5		
• Nalidixic acid Tabs	Bottles	1,000		
• Chloramphenical Cap.	Tins 1000	5		
• Chloramphenical Syrup (100ml)	Tins 1000	5		
• Augmentin Tabs (675mg) 10 per pkt.	Bottles	500		
• Augmentin syrup (228mg/5ml)	Pkts	200		
	Bottles	500		
<b>Disinfectants</b>				
• Lysol Sol.)				
• Sodium Hypochlorite	Lts - 5	100		
• Chlorine Powder	Ltrs - 5	100		
• Chlorine Tabs (Aqua Tabs)	Kgs	100		
	Tins 7000	20		
<b>Supplies</b>				
• Water dispensers with Tap (50 lts)				
• Adhesive Tapes	No	2		
• Syringes assorted size (with needles)	No	10		
• Methylated spirit	Pcs	500		
• Gloves (400) Medium & (600) Large	Ltrs	10		
• Rubber gloves	Pairs	1000		
• Swab stick	Pairs	20		
• Bottles for ORS (1LT)	No	50		
• Bottles for ORS (1/2 lts)	Pcs	20		
• Tumblers 200ml	No	20		
• Spoons	No	40		
• Dispensing envelopes	No	20		
• Cotton Wool	No	200		
• Boots	Rolls	10		
• Razor blades	Pairs	10		
Stationery	Pkts	10		
- Cholera register				
- Stock cards				
- Rehydration protocols				

**ANNEX (II)**  
**TRAINING OF STAFF**

**Main Topics**

- Transmission of Cholera.
- Hygiene Education.
- Early case Finding
- Emergency water treatment
- Management of a Cholera treatment centre
- Treatment of Cholera
- Protecting others and self from Cholera infection
- Community Prevention of Cholera
- Surveillance of Cholera.



**Annex iii**

**GENERIC LINE LIST – FOR REPORTING FROM HEALTH FACILITY TO DISTRICT  
and for use during Outbreaks**

Health Facility: \_\_\_\_\_

District: \_\_\_\_\_

Outpatients [ ]: (Use separate sheets for

Date Received at dist. Hqs.: \_\_\_\_\_

In-patient [ ]: in and out patient sheets)

Condition/disease: \_\_\_\_\_

ID Number <small>(Assigned at the district Level only)</small>	Name	Village or town or neighborhood	Sex	Age <small>(in years or in months if &lt;12 months)</small>	Date first seen at health facility	Date of onset of disease	No. of doses of Vaccine <small>(Exclude doses given within 14d of onset)</small>	Extra Variable	Lab Tests		Outcome (Alive/Dead)	Comments
									Extra Variable	Specimen taken Yes/No		
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												

\* If district sends blood specimen to lab use ID number as well as (ppp – DDD-YY-oox format) to identify the lab specimen

Note: If more than 100 cases occur in a week (e.g for measles, Cholera) at a health facility, may stop line listing and record just the total number

\* If health facility sends lab specimen to lab without passing through the district, then the name (only) will be the lab specimen identifier

# INTEGRATED SURVEILLANCE OF PRIORITY COMMUNICABLE DISEASES

Epidemic Monitoring

Form

Province \_\_\_\_\_ District/ Health Facility:: \_\_\_\_\_ Week Ending: \_\_\_\_\_ Month: \_\_\_\_\_ Year: \_\_\_\_\_

	< 5 years				5- 14 yrs				15 + years				Total				Cumulative Totals (from 1 <sup>st</sup> Jan)			
	Cases		Deaths		Cases		Deaths		Cases		Deaths		Cases		Deaths		Cases		Deaths	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
<b>Diseases to reported monthly</b>																				
Malaria*																				
Pneumonia																				
Childhood diarrhoea																				
AIDS																				
Tuberculosis																				
<b>Epidemics - Report Immediately</b>																				
Cholera																				
Typhoid																				
Dysentery																				
Measles																				
Meningitis (meningococcal)																				
Plague																				
Yellow Fever																				
Other VHF																				
<b>Diseases for eradication /elimination – report immediately</b>																				
Acute Flaccid Paralysis (AFP for Poliomyelitis)																				
Neonatal Tetanus																				
General Comments (if any)																				

\* When malaria occurs as epidemic, report immediately.

VHFs = Viral Haemorrhagic Fevers

Reported by: \_\_\_\_\_ Designation: \_\_\_\_\_ Date: \_\_\_\_\_

