CHOLERA GUIDELINES

This document contains the Department of Health’s policy and recommendations for control of cholera in the individual, the community and the environment and aims to prevent deaths due to cholera and the spread of infection. It has been elaborated with the support of the World Health Organisation.

CLINICAL PRESENTATION OF CHOLERA : CASE DEFINITION

Cholera should be suspected if:

- a patient presents with severe dehydration or dies from acute watery diarrhoea
- there is a sudden increase in the daily number of patients with acute watery diarrhoea, especially if there is any suspicion of “rice water” stools

Most infections are asymptomatic or mild, and indistinguishable from other mild diarrhoea.

In the severe form:
- onset is typically sudden
- diarrhoea is profuse, painless and watery, resembling “rice water”
- (The presence of blood in stools is not a characteristic of cholera)
- vomiting may occur, usually early in the illness
- majority of patients are afebrile, children are more often febrile than adults
- dehydration occurs rapidly (up to 1000ml/hour of diarrhoea may be produced)
- all complications result from effects of loss of fluids and electrolytes in stool and vomitus
- muscle cramps, acidosis, peripheral vasoconstriction, and ultimately renal and circulatory failure, arrhythmias and death may occur if treatment is not given timeously.

BACTERIOLOGICAL CONFIRMATION

When A clinical diagnosis of Cholera is first made in an area where it is being seen for the first time, a fresh stool specimen from each patient must be sent urgently for laboratory culture.

Once a positive culture has been reported in a new outbreak area, all subsequent patients from that area, presenting with appropriate clinical symptoms, must be assumed to be suffering from Cholera.

Where many cases are being seen from an identified area, a stool sample should be sent from a newly presenting case every 3rd day to ensure ongoing bacteriological confirmation of the clinical diagnosis and the presence of Cholera in that area.
INFECTIOUS AGENT

The current outbreak of cholera in KwaZulu-Natal is caused by *Vibrio cholera* *Ogawa*.

MODE OF TRANSMISSION

*Vibrio cholerae* is spread via the faecal-oral route. Best known sources of infection are:

- drinking water that has been contaminated at its source, during storage or usage
- contaminated foods, vegetables that have been fertilized with human excreta (nightsoil) or “freshened” with contaminated water
- soiled hands can also contaminate clean drinking water and foods
- fish, particularly shellfish taken from contaminated water and eaten raw or insufficiently cooked

INCUBATION PERIOD

From a few hours to 5 days, (usually 2 - 3 days).

PERIOD OF COMMUNICABILITY

Duration of stool-positive stage. Asymptomatic carrier status may persist for several months.

POPULATION AT RISK

The people most at risk of contracting cholera are those who do not have access to piped water.

EPIDEMIC PREPAREDNESS

A strong programme for the control of diarrhoeal diseases is the best preparation for a cholera epidemic. In the long term, improvements in the water supply and in sanitation are the best means of preventing cholera. In an outbreak, however, the best control measures are the early detection and treatment of people with cholera, together with health education.

In order to respond quickly to an epidemic of cholera and to prevent deaths from the disease, health facilities must have access to adequate quantities of essential supplies, particularly oral rehydration solution, and intravenous fluids. During a cholera outbreak, these supplies are needed in greater quantities than normal.
To prepare for an outbreak, it is essential to maintain additional stocks at appropriate points in the drug delivery system. Small "buffer stocks" should be placed at local health facilities, larger buffer stocks at district or provincial levels, and an adequate emergency stock at a central distribution point.

Medical and paramedical personnel involved in the treatment of cholera should receive intensive and continuing training to ensure that they are familiar with the most effective techniques for the management of patients with cholera.

**CONTROL**

**PREVENTIVE MEASURES**

Community should be informed about sources of contamination and ways to avoid infection.

Attention to sanitation can markedly reduce the risk of transmission of intestinal pathogens, including cholera. This is especially true where the lack of good sanitation may lead to contamination of water sources. High priority should be given to observing the basic principles of sanitary human waste disposal and particularly the protection of water sources from faecal contamination. The development of sanitary systems appropriate to local conditions should be facilitated and their siting in relation to water sources emphasised. Basic hygiene involving thorough hand washing following contact with excreta should be encouraged for both adults, infants and children.
Where water supplies are at risk of contamination, households should be taught about the necessity and the techniques of sanitizing water in the home. The simplest and most cost effective method is chlorination of water in the storage container using household bleach. Boiling is effective only if vigorous. Filtration may be necessary in addition to boiling if the only water available contains much particulate matter. Chlorination alone is not sufficient in such circumstances.

Even when drinking water is rendered safe, infection may still be transmitted by contaminated surface water used for bathing and for washing clothing, food or cooking utensils. In an outbreak situation all water sources with potential for contamination must be tested, rendered safe if contaminated or otherwise closed to usage and alternative sources provided.

Since food is an important vehicle for the transmission of enteric pathogens, attention to food safety is an essential preventive measure which should be intensified when there is a threat of cholera. Street vendors and communal food sources will require particular attention, since they pose a special risk. Flies play a relatively small role in spreading cholera but their presence in large numbers indicates poor sanitary conditions which favour transmission of the disease.

**PUBLIC AWARENESS**

Educate target groups, and encourage participation in:

**water purification** or ensuring a safe water supply by boiling or chlorination of domestic water using household bleach: **Add 1 teaspoonful (5 ml or one capful if bottle has a screw cap) of household bleach to 20 - 25 liters of water. Thoroughly mix solution with the water and allow to stand for at least two hours (preferably overnight) before using the treated water**

- sanitary disposal of human waste without contaminating water sources
- control of flies
- food hygiene - avoid any potentially contaminated food especially raw or partially cooked fish and shellfish. Food of vegetable origin should be peeled or shelled.
- uncooked food poses the greatest risk
- boiling or pasteurization of all milk.

Actively inform and educate health care workers and the community about the extent and severity of the outbreak and the effectiveness and simplicity of current treatment methods, and the benefits of reporting cholera cases promptly. The free flow of information will prevent panic spreading through the community.
Warn food handlers to:
• exclude infected persons from handling food
• wash vegetables and fruit in treated water before use
• prepare and store food under proper hygienic conditions
• cook food thoroughly in treated water and eat it while still hot
• prevent contamination of cooked food by contact with raw food, contaminated surfaces or flies
• wash hands thoroughly with soap after defaecation and before preparing or eating food
• encourage individuals to use cutlery when eating
• discourage the habit of several people eating simultaneously from a communal food container.

• left over food should be reheated before eating

Encourage breast feeding of infants.

**NOTE:** Cholera vaccination is NOT recommended. Vaccines currently available do not have a place in controlling the current cholera epidemic in KwaZulu-Natal.

**CONTROL OF PATIENT, CONTACTS AND ENVIRONMENT**

An organised programme for the control of diarrhoeal disease is essential. The best control measures are the early detection and effective treatment of infected persons allied to health education. The mortality is likely to be high among severe cases (up to 50%) in an unprepared community.

The basic requirements for preparedness include the establishment of a reliable surveillance and reporting system, ensuring the availability of essential supplies and the training of workers in the clinical management of acute diarrhoea.

**SURVEILLANCE**

*Bacterial Surveillance*

Surveillance programmes must be based on bacteriologically proven cases. All proven cases must be reported immediately to the Provincial Communicable Disease Control Officer. An attempt must be made at bacteriological diagnosis (rectal swabs or stool specimens; see Annexure A) in cases of Gastro-enteritis suspected of being due to or possibly due to cholera, presenting at hospitals/peripheral clinics or observed by mobile health teams and field workers.
Environmental surveillance

- 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
- Monitor the spread of cholera in risk areas by periodically sampling strategic sewage effluent (hospitals, hostels, sewage purification works) as an early warning system (Annexure B).

Note: An area where Cholera has been present may only be declared free of Cholera when there has been no evidence of its presence for a continued period of 10 days. Surveillance in that area must nevertheless be continued for a period of 12 months.

TREATMENT

Hospitalisation with enteric precautions is desirable for severely ill patients but strict isolation is not necessary. Less severe cases can be managed on an outpatient basis with oral rehydration.

Rehydration is essential. All cases presenting clinically as cholera cases, must be rehydrated immediately.

Rehydration

Prompt fluid therapy with volumes of electrolyte solution, enough to correct dehydration, acidosis and hypokalemia, is the cornerstone to cholera therapy. Oral administration of glucose-electrolyte solution (8 teaspoons sugar, ½ teaspoon salt, mixed with 1 liter safe water) to patients with diarrhoea, including patients with cholera, will save many lives. 80 - 90% of patients can be successfully treated by oral rehydration.

It is emphasized that all cases of diarrhoea showing signs of dehydration must receive adequate oral rehydration immediately, before transportation to hospital, should transfer be indicated.

Recommended rehydration fluids

<table>
<thead>
<tr>
<th>Infants and children ( &lt; 2 years)</th>
<th>1/2Darrow's solution with 5% Glucose</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Older children (&gt;12 years) and adults</th>
<th>Ringer Lactate with 5% Glucose</th>
</tr>
</thead>
</table>
Intravenous electrolyte administration is essential in severe cases of dehydration, particularly patients in shock or persistent vomiting. Useful solutions include Ringer's lactate or WHO "diarrhoea treatment solution" (4 g sodium chloride, 1 g potassium chloride, 6.5 g sodium acetate and 8 g glucose per liter). The initial fluid replacement should be 30 ml/kg in the first hour for infants and in the first 30 minutes for persons over 1 year of age, after which the patient should be reassessed. After circulatory collapse has been effectively reversed, most patients can be switched to oral rehydration to complete the 10% initial fluid deficit replacement and to match continuing fluid loss.

Note: For more detailed information regarding the clinical assessment of dehydration and fluid replacement therapy, please see the attached "Guidelines For The Management Of The Patient With Cholera" compiled from the relevant World Health Organisation document. These guidelines have most relevance in the hospital situation where medical expertise will be most readily available

ANTIBIOTICS

Antibiotic management is not recommended for the vast majority of cholera patients. Most patients will respond to rehydration therapy alone.

CIPROFLOXACIN

THE CIRCULAR OF 22 SEPTEMBER 2000 REFERS.

CIPROFLOXACIN IS NOW APPROVED FOR USE IN A SINGLE DOSE OF 1gm (2 x 500 mg) IN PATIENTS CONSIDERED, ON EXAMINATION BY A DOCTOR, TO BE SEVERELY ILL WITH CHOLERA AND WHERE AN ADDITION TO REHYDRATION THERAPY IS ESSENTIAL.

IN SUCH CASES IT MUST BE ADMINISTERD UNDER DIRECT MEDICAL SUPERVISION AND IN HOSPITAL ONLY.

IT MUST BE CLEARLY UNDERSTOOD USE OF CIPROFLOXACIN IN SUCH CASES IS AN ADJUNCT TO REHYDRATION MEASURES AND NOT A REPLACEMENT OR ALTERNATIVE THERAPY.
**PROPHYLAXIS.**

Prophylaxis with antibiotics such as tetracycline is NOT recommended because of the high incidence of resistance. The best prophylaxis is the use of clean water and toilets, together with hand washing before food handling.

During a local cholera epidemic:

Discourage visitors to the house and attendance of large communal gatherings e.g. beer drinks.

**Note:** Travel and trade restrictions between countries or different areas of one country, cannot prevent the spread of cholera.

**GENERAL MEASURES**

Start rehydration immediately.
Remove patient to a treatment center if diarrhoea and/or dehydration persists
The patients' soiled clothes and linen should be thoroughly washed in strong hot soapy solution and hung out to dry in the sun.
Do not wash soiled clothes, or allow people to play or swim, in communal drinking water sources, rivers, etc.
Corpses should be transported in sealed fluid-tight containers where possible.
Strict hand washing must be practised after using the toilet and before handling food.
Promote the construction and use of clean toilets - there must be no faecal contamination of the environment (water and food sources).
Promote the use of safe sources of water.
Identify and eliminate breeding places of flies.

**REPORTING**

Until there is bacteriological confirmation of the presence of Vibrio cholera, all suspected cases in an area must be reported as “Diarrhoeal Disease”.
Once there is bacteriological confirmation of the diagnosis on stool culture, all subsequent cases with similar presentation must be reported as “Cholera”.

ANNEXURE A

INSTRUCTIONS FOR COLLECTION OF STOOL SPECIMENS
FOR CHOLERA INVESTIGATIONS

General information.

1. Specimen labels must be properly filled in.
2. Specimens should be collected before any antibiotic treatment.
3. Delays between collection of specimens and despatch to the laboratory should be minimized.

Stools may be sent in normal specimen containers for isolation of all pathogens including *Vibrio cholerae*.

If a delay of more than 24 hours is anticipated, the specimen should be submitted in Cary-Blair transport medium. Swabs should be plunged deeply into the medium, left in position for at least 30 seconds, then twisted gently and removed.

NOTE. This applies to plastic-stemmed swabs, if wooden-stemmed swabs are used, these can be broken off at the lip of the specimen container after plunging into the transport medium.

ANNEXURE B

INSTRUCTIONS FOR COLLECTION AND SENDING OF SEWER PADS
FOR CHOLERA DETERMINATION

1. Special wide-necked bottles containing (double strength) alkaline peptone water are obtainable from the SAIMR stores in Johannesburg and the SAIMR laboratory serving that area.
2. Commercially available plain sterile surgical gauze swabs measuring approximately 10 cm square. Tie one corner with a length of wire (or string if no rats present) and immerse the pad to hang below the surface of the effluent. The swab should remain in place for 24-72 hours, after which it should be pulled out.
3. Hold a 2-3 cm long piece of the swab with sterile forceps, cut it off with sterile scissors and place the piece in the peptone water bottle. Close the lid tightly.
4. Place the used instruments in a jar or flat container with methylated spirits. The instruments must be completely immersed. On arrival at the next sewer pad site, remove the instruments from the jar, CLOSE THE JAR and then hold a lighted match to the instruments to remove all traces of alcohol.
5. Complete the attached label and send the specimen to the laboratory serving the specific hospital, clinic, etc. Specimens should arrive at the laboratory within 6 - 12 hours of collection.
Cholera should be suspected when:

- A patient develops severe dehydration from acute watery diarrhoea (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  Feed the patient.
**STEP 1. Assess for dehydration**

Use Table 1 to determine whether the patient has:

- Severe dehydration
- Some dehydration
- No signs of dehydration

<table>
<thead>
<tr>
<th>Table 1. Assessment of the Diarrhoea for Dehydration 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. LOOK AT :-</strong></td>
</tr>
<tr>
<td>CONDITION</td>
</tr>
<tr>
<td>EYES</td>
</tr>
<tr>
<td>TEARS</td>
</tr>
<tr>
<td>MOUTH and TONGUE</td>
</tr>
<tr>
<td>THIRST</td>
</tr>
<tr>
<td><strong>2. FEEL :-</strong></td>
</tr>
<tr>
<td>SKIN PINCH</td>
</tr>
<tr>
<td><strong>3. DECIDE:-</strong></td>
</tr>
<tr>
<td>The Patient has NO SIGNS OF DEHYDRATION</td>
</tr>
</tbody>
</table>

In adults and children older than 5 years, other *signs* for severe dehydration are *absent radial pulse* and *low blood pressure*. The skin pinch may be less useful in patients with marasmus (severe wasting) or kwashiorkor (severe malnutrition with oedema), or obese patients. Tears are a relevant sign only for infants and young children.
STEP 2. Rehydrate the patient, and monitor frequently. Then 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 100 ml/kg IV in 3 hours, as follows:*

- 30 ml/kg as rapidly as possible (within 30 minutes); then
- 70 ml/kg in the next 2 hours.

*For patients less than 1 year, give 100 ml/kg IV in 6 hours, as follows:*

- 30 ml/kg in the first hour; then
- 70 ml/kg in the next 5 hours.

- **Monitor the patient very frequently.** After the initial 30 ml/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/h) 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.

Table 2. Approximate amount of ORS solution to give in the first 4 hours

<table>
<thead>
<tr>
<th>Age 1</th>
<th>Weight</th>
<th>ORS solution in ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 4 months</td>
<td>Less than 5kg</td>
<td>200 – 400</td>
</tr>
<tr>
<td>4 – 11 months</td>
<td>5-7.9kg</td>
<td>400 – 600</td>
</tr>
<tr>
<td>12 – 23 months</td>
<td>8-10.9kg</td>
<td>600 – 800</td>
</tr>
<tr>
<td>2 – 4 years</td>
<td>11-15.9kg</td>
<td>800 – 1200</td>
</tr>
<tr>
<td>5 – 14 years</td>
<td>16-29.9kg</td>
<td>1200 – 2200</td>
</tr>
<tr>
<td>15 years or older</td>
<td>30kg or more</td>
<td>2200 – 4000</td>
</tr>
</tbody>
</table>

1. 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), dehydrate 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 by replacing ongoing fluid losses.
Notes on Rehydration

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

Use a nasogastric 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 rehydration. 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 the patient this amount of ORS solution:

<table>
<thead>
<tr>
<th>AGE</th>
<th>AMOUNT OF SOLUTION AFTER EACH LOOSE STOOL</th>
<th>ORS PACKETS NEEDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 24 months</td>
<td>50 – 100ml</td>
<td>Enough for 500ml/day</td>
</tr>
<tr>
<td>2 – 9 years</td>
<td>100 – 200ml</td>
<td>Enough for 1000ml/day</td>
</tr>
<tr>
<td>10 years or more</td>
<td>As much as wanted</td>
<td>Enough for 2000ml/day</td>
</tr>
</tbody>
</table>

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
STEP 3. Maintain hydration (of the patient who presented with severe or some dehydration): replace ongoing fluid losses until diarrhoea stops

When a patient who has been rehydrated with IV fluid 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:

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The amount of ORS solution actually required to maintain 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 who present with severe dehydration. In the first 24 hours, the average requirement in such patients is 200ml of ORS solution per kg of body weight, but some may need as much as 350ml/kg.

Continue to reassess the patient for signs of dehydration at least every 4 hours to ensure that enough ORS solution is being taken. Patients with profuse ongoing diarrhoea require more frequent monitoring. If signs of some dehydration are detected the patient should be rehydrated as described on pages 3 and 4, before continuing with treatment to maintain hydration.

A few patients, whose ongoing stool output is very large, may have difficulty in drinking the volume of ORS needed to maintain hydration. If such patients become tired, vomit frequently or develop abdominal distension, ORS solution should be stopped and hydration should be maintained intravenously with Ringer’s lactate solution or normal saline, giving 50 ml/kg in 3 hours. After this is done, it is usually possible to resume treatment with ORS solution.

Keep the patient under observation, if possible, until diarrhoea stops, or is infrequent and of small volume. This is especially important for any patient who presented with severe dehydration.

If a patient must be discharged before diarrhoea has stopped, show the caretaker how to prepare and give ORS solution, and instruct the caretaker to continue to give ORS solution, as above. Also instruct the caretaker to bring the patient back if any of the signs listed on page 5 should develop.
CHOLERA GUIDELINES
FOR USE IN CLINICS

1. PRESENTATION: Cholera should be suspected if :-

A patient presents with severe diarrhoea or dies from acute watery diarrhoea.

There is a sudden increase in the daily number of patients with acute watery diarrhoea, especially if there is any Suspicion of “rice water” stools.

2. DIAGNOSIS

Suspect Cholera on clinical presentation as above.

Confirm diagnosis by sending fresh stool specimen urgently for culture. Once a positive stool culture is obtained from a patient from a new isolated area, diagnose all subsequent similar cases from that area as Cholera.

3. TREATMENT

Rehydration, Rehydration, Rehydration, by oral administration of glucose-electrolyte solution (8 teaspoons sugar, ½ teaspoon salt, mixed with 1 litre safe water.

Start IV fluids and seek urgent medical advice, if referral to hospital is considered necessary. Use Ringers (adults) or ½ strength Darrow’s (children).

4. REPORTING / NOTIFICATION

Until there is bacteriological confirmation of diagnosis on stool culture, report all cases as “Diarrhoeal Disease”.

After the first culture, report all similar cases as “Cholera”.

5. SURVEILLANCE

Report all confirmed or suspected cases to your District Office immediately.

Commence contact and community education immediately.

Cm/jf/mack57