Most persons infected with the cholera bacterium have mild diarrhea or no symptoms at all. Only about 7% of persons infected with *Vibrio cholerae* O1 have illness requiring treatment at a health center.

Cholera patients should be evaluated and treated quickly. With proper treatment, even severely ill patients can be saved. Prompt restoration of lost fluids and salts is the primary goal of treatment.

**SYMPTOMS OF MODERATE OR SEVERE CHOLERA**

- Profuse, watery diarrhea
- Vomiting
- Leg cramps

**SIGNS AND SYMPTOMS OF DEHYDRATION**

**Some dehydration**
- Restlessness and irritability
- Sunken eyes
- Dry mouth and tongue
- Increased thirst
- Skin goes back slowly when pinched
- Decreased urine
- Infants: decreased tears, depressed fontanels

**Severe dehydration**
- Lethargy or unconsciousness
- Very dry mouth and tongue
- Skin goes back very slowly when pinched (“tenting”)
- Weak or absent pulse
- Low blood pressure
- Minimal or no urine
**ORAL REHYDRATION**

Dehydrated patients who can sit up and drink should be given oral rehydration salts (ORS) solution immediately and be encouraged to drink. It is important to offer ORS solution frequently, measure the amount drunk, and measure the fluid lost as diarrhea and vomitus. Patients who vomit should be given small, frequent sips of ORS solution, or ORS solution by nasogastric tube. ORS solution should be made with safe water. Safe water means the water has been boiled or treated with a chlorine product or household bleach.

**Guidelines for treating patients with some dehydration**

<table>
<thead>
<tr>
<th>Age</th>
<th>&lt;4 mo.</th>
<th>4-11 mo.</th>
<th>12-23 mo.</th>
<th>2-4 yr.</th>
<th>5-14 yr.</th>
<th>≥15 yr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (kg)</td>
<td>&lt;5</td>
<td>5-7</td>
<td>8-10</td>
<td>11-15</td>
<td>16-29</td>
<td>≥30</td>
</tr>
<tr>
<td>ml</td>
<td>200-400</td>
<td>400-600</td>
<td>600-800</td>
<td>800-1200</td>
<td>1200-2200</td>
<td>2200-4000</td>
</tr>
</tbody>
</table>

- The approximate amount of ORS (in milliliters) can also be calculated by multiplying the patient’s weight in kg by 75.
- A rough estimate of oral rehydration rate for older children and adults is 100ml ORS every five minutes, until the patient stabilizes.
- If the patient requests more than the prescribed ORS solution, give more.
- For Infants:
  - Encourage the mother to continue breast-feeding.

**Notes:**

1. The volumes and time shown are guidelines based on usual needs. If necessary, amount and frequency can be increased, or the ORS solution can be given at the same rate for a longer period to achieve adequate rehydration. Similarly, the amount of fluid can be decreased if hydration is achieved earlier than expected.
2. During the initial stages of therapy, while still dehydrated, adults can consume as much as 1000 ml of ORS solution per hour, if necessary, and children as much as 20 ml/kg body weight per hour.
3. Reassess the patient after 1 hour of therapy and then every 1 to 2 hours until rehydration is complete.
4. Resume feeding with a normal diet when vomiting has stopped.
INTRAVENTOUS REHYDRATION

Patients with severe dehydration, stupor, coma, uncontrollable vomiting, or extreme fatigue that prevents drinking should be rehydrated intravenously.

Intravenous solutions

<table>
<thead>
<tr>
<th>Best</th>
<th>Ringer’s Lactate Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptable*</td>
<td>Normal saline*</td>
</tr>
<tr>
<td>Unacceptable</td>
<td>Plain glucose (dextrose) solution</td>
</tr>
</tbody>
</table>

*Acceptable in emergency, but does not correct acidosis and may worsen electrolyte imbalance.

Guidelines for treating patients with severe dehydration

Start intravenous fluids (IV) immediately. If the patient can drink, give ORS solution by mouth while the IV drip is set up. Give 100 ml/kg Ringer’s Lactate Solution divided as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>First give 30 ml/kg IV in:</th>
<th>Then give 70 ml/kg IV in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants (&lt;12 mos.)</td>
<td>1 hour*</td>
<td>5 hours</td>
</tr>
<tr>
<td>Older (&gt;1 yr.)</td>
<td>30 minutes*</td>
<td>2 ½ hours</td>
</tr>
</tbody>
</table>

* Repeat once if radial pulse is still very weak or not detectable.

- Reassess the patient every 1-2 hours and continue hydrating. If hydration is not improving, give the IV drip more rapidly. 200ml/kg or more may be needed during the first 24 hours of treatment.
- Also give ORS solution (about 5 ml/kg per hour) as soon as the patient can drink.
- After 6 hours (infants) or 3 hours (older patients), perform a full reassessment. Switch to ORS solution if hydration is improved and the patient can drink.

Signs of adequate rehydration

- Skin goes back normally when pinched
- Thirst has subsided
- Urine has been passed
- Pulse is strong
ANTIBIOTICS

An antibiotic given orally will reduce the volume and duration of diarrhea. Treatment with antibiotics is recommended for moderately and severely ill patients, particularly for those patients who continue to pass large volumes of stools during rehydration treatment, and including all patients who are hospitalized. Do not give antibiotics to asymptomatic persons. Zinc given orally can reduce the duration of most infectious diarrhea in children. No drugs besides antibiotics and zinc for treatment of diarrhea or vomiting should be given.

Appropriate oral antibiotics (give one of these) ** ALL BY MOUTH**

- These recommendations are based on the antibiotic resistance profile of *V. cholerae* isolates from the Haiti cholera outbreak, as reported on December 14, 2010, and local drug availability.

- Multiple first choice and second choice options are presented. Selection of antibiotics should be based on individual case consideration and available medications.

<table>
<thead>
<tr>
<th>Patient classification</th>
<th>First choice</th>
<th>Second choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults (non-pregnant)</td>
<td>Doxycycline: 300 mg by mouth in one dose</td>
<td>Azithromycin: 1 gram in a single dose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Erythromycin: 500 mg 4 times a day for 3 days</td>
</tr>
<tr>
<td>Pregnant women</td>
<td>Azithromycin: 1 gram in one dose</td>
<td>Erythromycin: 500 mg 4 times a day for 3 days</td>
</tr>
<tr>
<td>Children ≥12 months old and capable of swallowing pills and/or tablets</td>
<td>Azithromycin: 20 mg/kg in one dose</td>
<td>Tetracycline: 12.5 mg/kg 4 times a day for 3 days</td>
</tr>
<tr>
<td></td>
<td>Erythromycin: 12.5 mg/kg 4 times a day for 3 days</td>
<td>Doxycycline: 2-4 mg/kg in one dose*</td>
</tr>
<tr>
<td>Children &lt;12 months old and others unable to swallow pills and/or tablets</td>
<td>Azithromycin oral suspension: 20 mg/kg in one dose</td>
<td>Tetracycline oral suspension: 12.5 mg/kg 4 times a day for 3 days</td>
</tr>
<tr>
<td></td>
<td>Erythromycin oral suspension: 12.5 mg/kg 4 times a day for 3 days</td>
<td>Doxycycline oral suspension: 2-4 mg/kg in one dose**</td>
</tr>
</tbody>
</table>

* Doxycycline is safe for treatment of cholera in children at the recommended dose. The Pan American Health Organization recommends doxycycline as a second-line choice because of limited regional availability and to avoid future overuse in children.

Zinc supplementation

Zinc supplementation significantly reduces the severity and duration of most childhood diarrhea caused by infection. When available, supplementation (10-20 mg zinc per day) should be started immediately.

References: