

**PROPER SANITATION IS THE ONLY METHOD TO SUCCESSFULLY BEAT A CHOLERA OR SHIGELLOSIS OUTBREAK!**

**What to use for disinfection\*:**

Chlorine product	Hands and skin	Floors, clothes, bedding, equipment.	Body fluids** (Rice Water stool, Diarrhea, Vomit treated in large containers)
	Final concentration: 0.05% active chlorine	Final concentration: 0.5% active chlorine	Final concentration: 2% active chlorine. Wait at least 2 hours before dumping.
Household bleach (5% active)	0.1 liters of bleach to 9.9 liters of water (WRITE: 0.05%)	1 liter of bleach mixed with 10 liters of water (WRITE: 0.5%)	4 liters of bleach mixed with 6 liters of water (WRITE: 2%)
Household bleach (30% active chlorine)	Add 16 grams or 1 tablespoon to 10 liters of water (WRITE: 0.05%)	16 grams or 1 tablespoon to 1 liter of water (WRITE: 0.5%)	64 grams or 4 tablespoons to 1 liter of water (WRITE: 2%)
Calcium hypochlorite powder or chlorine granules (70% active chlorine)	7 grams or 1/2 a tablespoon to 10 liters of water (WRITE: 0.05%)	7 grams or 1/2 a tablespoon to 1 liter of water (WRITE: 0.5%)	28 grams or 2 tablespoons to 1 liter of water (WRITE: 2%)

\* ALWAYS label the solutions with a permanent marker.

\*\* Note that if chlorine is limited, body fluids can be treated with a final concentration of 0.5% chlorine, but the fluids must be held and occasionally stirred for at least 6 HOURS before dumping.

**Education of Patient Caretaker (Family Member):**

Inform the Patient Caretaker of their duties in terms of how the patient waste should be handled, where the bathrooms or latrines are located, where hand washing stations are located, and what food items (including at what time) the family is expected to provide and what food items the treatment center will provide.



**COTS Program  
Inpatient Nurse  
Pocket Card**

**WHO messages to avoid diarrhea:**

- Wash your hands with soap:
  - After using toilets/latrines
  - After disposing of children’s feces
  - Before preparing food
  - Before eating
  - Before feeding children
- Boil or disinfect water with chlorine solution
- Only eat freshly cooked food
- Do not defecate near water sources
- Use latrines and keep them clean
- Peel it, cook it, or leave it

**Food and Water Hospital Policies  
(in addition to WHO messages above):**

- ORS should not be stored for more than 6 hours.
- Health care workers should **NOT** handle food or water
- The kitchen should be **SEPERATE** from the hospital; kitchen staff should not handle hospital waste
- Dispose of all unused cooked food if there is no refrigeration (below 10°C)
- All food should be cooked thoroughly to at least 70°C
- Keep raw and cooked foods separately
- A treatment center must have 40-60 liters of clean water per patient per day
- Rice-water stool (diarrheal fluids) and vomitus fluids should be disposed of by the sanitation team

## Assessment and plan for dehydration:

Dehydration Criteria:	Observation		
<b>General Condition</b>	Well/ alert	Restless/ irritable	Lethargic/ unconscious
<b>Eyes</b>	Normal	Sunken	Very sunken
<b>Thirst</b>	None	Drinks eagerly and/ or is thirsty	Drinks poorly or unable to drink
<b>Radial pulse</b>	Full volume	Low volume	Weak/absent
<b>Skin pinch</b>	Goes back quickly	Goes back slowly ( $\geq 2$ seconds)	Goes back very slowly ( $\geq 3$ seconds)
<b>Dehydration Status</b>	<b>NO</b> Dehydration	<b>SOME</b> Dehydration (if $\geq 2$ criteria above present)	<b>SEVERE</b> Dehydration (if $\geq 2$ criteria above present)
<b>% Dehydration</b>	0-5%	5-<10%	$\geq 10\%$
<b>Treatment plan</b>	<b>Maintenance</b> Hydration:	Correction of <b>SOME</b> Dehydration:	Correction of <b>SEVERE</b> Dehydration:
	ORS volume to match stool volume. If no danger signs (see below), then NO need for hospitalization	Hydration with ORS. KEEP for observation	Rapid IV hydration. Monitor closely in treatment center

## General assessment for all diarrheal patients:

This should be done immediately, within the first 30 minutes of treatment, and then at least every 2 hours during treatment

- **Dehydration Status** (shown in above table)
- Vital signs
  - o **Temperature:** cholera does not cause fever — if there is an elevated temperature consider a co-morbid condition like malaria, dysentery, or pneumonia.
  - o **Respiratory rate:** Kussmaul breathing is seen due to metabolic acidosis, distinguish between this respiratory compensation and signs of a co-morbid lung disease.

- o **Pulse:** weakened pulse can be a sign of severe dehydration as described in the table.
- o **Blood pressure:** as available, can be an important indicator of shock.

- **Urine output**
- Number, appearance and volume of **stools and vomit**
- **General physical exam** (look for co-morbid conditions that may complicate the clinical course)

### Danger signs for all diarrheal patients:

- Increase in temperature
- Becomes lethargic
- Convulsions
- Turns blue
- Increased vomiting
- Abdominal distension
- Loss of appetite
- Fast breathing (consider pneumonia):
  - 0-2 months >60 breaths/minute
  - 2-12 months >50 breaths/minute
  - 1-5 years >40 breaths/minute
  - >5 years >30 breaths/minute

### Maintenance hydration with ORS\*:

Age	Approximate ORS amount following each stool;	Approximate ORS amount following each stool;
	By milliliters (ml)	By household measures
Children <2 years	50-100ml	10-20 teaspoons
2-10 years	100-200ml	½ - 1 glass
>10 years	As much as is tolerated	Minimum 1 glass

\* In children: if the caretaker knows the weight of the patient, advise the patient caretaker to administer one teaspoon per kilogram of ORS for each loose stool. ORS should be given in small amounts (small spoons of 5ml for children <2 years and sips from a cup for older patients) frequently (every 1-2 minutes). If the patient vomits, wait 10 min. and continue to give ORS but more slowly.

### Correction of SOME dehydration with ORS:

Age	Weight (kg)	Amount of ORS in first FOUR* or SIX* hours (ml)
<4 months	<5	200-400
4-11 months	5-7.9	400-600
1-2 years	8-10.9	600-800
2-4 years	11-15.9	800-1200
5-14 years	16-29.9	1200-2200
>14 years	≥30	2200-4000
	60	4200
	70	About 5 liters

\* The correction fluids of 75ml/ kg should be given within the first FOUR HOURS FOR ADULTS/ CHILDREN and within the first SIX HOURS FOR INFANTS (<1 yr), with regular follow-up. Give fluids more slowly (half the rate) for severely malnourished children/ infants.

### Correction of SEVERE dehydration with IV hydration:

Severe dehydration requires rapid replacement of a total of 100 ml/ kg of fluids by IV.

Age	Amount of time to give first 30ml/kg	Amount of time to give remaining 70ml/kg
≤ 1 year	1 hour	5 hours
> 1 year	½ hour	2 ½ hours

- ORS should be given as soon as the patient is (1) no longer severely dehydrated and (2) is able to drink without vomiting (within 2-3 hours) as described in the ORS table above for SOME dehydration. ORS can be started while the IV is finishing.
- IV solution should **NEVER** be given orally.
- If IV treatment is not available and the patient cannot drink, ORS can be given via nasogastric tube –this is an **EXTREMELY RARE** situation.

### IV rehydration (rather than ORS) SHOULD be used in the following circumstances:

- With severe dehydration
- With severe vomiting
- With ileus
- In cases of glucose malabsorption
- If dehydration worsens while the patient is taking ORS
- Unconscious person and/ or not able to drink

### Recommended antibiotics used for CHOLERA.

Appropriate antibiotics should be given to patients suspected of having cholera with **SOME** or **SEVERE** dehydration. Patients with no detectable dehydration need not be treated with antibiotics (this conserves resources). ALWAYS check antimicrobial sensitivity patterns in your area before dispensing drugs for cholera:

Antibiotic*	Dose in children**	Dose in adults**
<b>Doxycycline</b>	Not drug of choice	300 mg single dose (seek alternative for pregnant women)
<b>Erythromycin</b>	12.5 mg/ kg 4 times a day for 3 days	Not drug of choice (exception is pregnant women at 250 mg 4 times a day for 3 days)
<b>Ciprofloxacin</b>	15 mg/ kg 2 times a day for 3 days	500 mg 2 times a day for 3 days***
<b>Azithromycin</b>	20 mg/ kg single dose with max of 1 g	1 g single dose
<b>Trimethoprim (TMP)-Sulfamethoxazole (SMX)</b>	TMP 5 mg/ kg and SMX 25 mg/ kg 2 times a day for 3 days	TMP 160 mg and SMX 800 mg 2 times a day for 3 days

\* Antibiotic selection must depend on the sensitivity pattern determined for the specific cholera outbreak. Do not use anti-diarrheal drugs as they have not been shown to benefit patients. \*\* All doses are given in the oral formulation.

### Recommended antibiotics used for SHIGELLOSIS.

ALWAYS check antimicrobial sensitivity patterns in your area before dispensing drugs for shigellosis:

Antibiotic*	Dose in children	Dose in adults
<b>Ciprofloxacin</b>	15 mg/ kg 2 times a day for 3 days (oral)	500 mg 2 times a day for 3 days (oral)
<b>Pivmecillinam</b>	15-20 mg/ kg 3 times a day for 5 days (oral), Max dose 300 mg	400 mg 3 times a day for 5 days (oral)
<b>Ceftriaxone</b>	50-100 mg/ kg once a day for 2-5 days (IM or IV)	2 g once a day for 3 days (IM or IV)
<b>Azithromycin</b>	20 mg/ kg once a day for 3 days (oral)	500 mg once a day for 3 days (oral)

### Danger signs specific to shigellosis patients (these patients are at an increased risk of death)

- Patients not improving on conservative treatment after two days
- Age (infants and adults >50 years old)
- Children who are not breastfed
- Children recovering from measles
- Malnourished patients
- Dehydrated patients (see the cholera management section for an explanation of dehydration assessment and management)
- Unconscious patients
- Hypo- or hyperthermic patients
- Patients who have had a convulsion with their illness

### Zinc supplementation\*:

Age	Dose of zinc	Duration
<b>0-6 months</b>	10mg once a day	10-14 days
<b>6 months- 5 years</b>	20mg once a day	10-14 days

\* All children <5 years old with diarrhea should receive zinc.

### Discharge when the patient :

- Has no dehydration
- Is able to take ORS adequately
- Has a decreased level of purging so that fluid losses can be easily corrected in the household with home fluids and ORS.

Plan the discharge of the patient: if the patient is on IV fluids you have to stop IV treatment first and observe the patient to see whether he/she can maintain his/her hydration status by drinking ORS only.

## The 7 Key Concepts from the COTS Program :

Concept:	Action:
No one who arrives at a treatment center and is still breathing should die of cholera.	Train your staff regularly so that they can respond rapidly and effectively.
Cholera is essentially the only diarrheal disease where patients can become severely dehydrated in less than six hours.	Find out where the first cholera patients came from. This may help to target your resources.
Over 90% of diarrheal patients improve with ORS alone.	Only dehydrated patients require IV fluids.
Antibiotic treatment for cholera shortens the course of disease.	Use antibiotics for dehydrated patients, but these are not as important as fluid replacement therapy.
Antibiotic treatment plays a crucial role in shigellosis.	Determine the antimicrobial sensitivity trends and use appropriate antibiotics for shigellosis patients.
Develop strategies to minimize the risk of the next outbreak.	Promote the correct use of ORS, IV fluids, and zinc and improve health education, infrastructure and training of staff.
Acute management in a diarrheal outbreak is the same despite HIV status.	Follow the key concepts of epidemic diarrheal management regardless of the prevalence of HIV in your patient population.