PROPER SANITATION IS THE ONLY METHOD TO SUCCESS

COTS Program
Health Promotion Worker
Pocket Card

WHO messages to avoid diarrhea:

- Wash your hands with soap:
  - o After using toilets/latrines
  - o After disposing of children's feces
  - o Before preparing food
  - o Before eating
  - o 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 10ºC)
- All food should be cooked thoroughly to at least 70ºC
- 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

What to use for disinfection?

Follow the directions on the General Knowledge Pocket Card on how to make working bleach solutions.

Collecting diarrheal and vomitus waste from buckets and basins:

- Empty all buckets at least every 8 hours into a large container on a trolley.
- Providing a small basin will allow the patients to vomit more easily at the bedside. Empty these basins at the same time that the buckets are emptied into the same large container. Be careful -- this vomit may also contain V. cholerae or Shigella spp. may also contain V.

Cleaning latrines:

- The slabs and the floors of the latrine should be washed at least daily.
- The slabs and the floors should be disinfected with cresol or bleaching powder regularly.
- Once the latrine is 2/3 full (1.3 meters high from the bottom or 0.7 meters from the top), or when it will no longer be needed, fill it with soil and compact the soil.

Disposing of waste. There are two options for waste disposal:

- Disinfect the waste with bleach as described on the General Knowledge Pocket Card. If the waste is ultimately dumped into a sewer system, we strongly advise that the diarrheal waste is first bleached for fear of cross-contamination between drinking water and sewer systems.
- If there is a proper latrine designated for only the disposal of diarrheal waste from the buckets and basins, the pooled waste can be immediately dumped into the latrine. This waste does not need to be bleached.

Safety issues:

- All medical sharps (needles, razor blades, etc.) should be properly incinerated.
- Clean-up crew members should wear safety clothing in the form of rubber boots, and rubber aprons when handling large volumes of diarrheal fluids. If available, latex gloves and eye protection can be worn. The Clean-up crew should wear clothing dedicated for work at the hospital that is washed daily. At the end of the day, the Clean-up crew should carefully wash themselves with soap and change into their after-work clothing.
- Avoid skin contact with bleaching agents.
- Do not enter areas where ORS or food is being prepared because of contamination problems.
- Lift heavy things by bending at the knees and lifting with your legs instead of bending over and lifting with your back, which can cause injury.

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 ½ a tablespoon to 10 liters of water (WRITE: 0.05%)	7 grams or ½ 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.

FULLY BEAT A CHOLERA OR SHIGELLOSIS OUTBREAK!

PROPER SANITATION IS THE ONLY METHOD TO SUCCESS

VIRTUAL HOSPITAL

COTS Program
Dietician
Pocket Card

WHO messages to avoid diarrhea:

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- ORS should not be stored for more than 6 hours.
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- 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

Rules of the Kitchen:

- ORS should NOT be stored for more than 6 hours and should be stored in clean, covered containers until use.
- Health care workers should not handle food or water.
- The kitchen should be separate from the hospital.
- Dispose of all unused cooked food if there is no refrigeration (below 10ºC).
- All food should be cooked thoroughly to reach at least 70ºC.
- Wash hands thoroughly before and during food preparation.
- Keep raw and cooked foods separately.
- Use safe water.
- Promote breastfeeding exclusively for the first 6 months.

Assessing Nutritional Status:

Measure	Moderate Malnutrition	Severe malnutrition
Symmetrical edema (adults and children)	Not present	Yes (edematous malnutrition—for adults rule out non-nutritional causes)
WFH (children; chart in knowledge base)	-3 ≤ SD[a] < -2 or 70-79%	< -3 SD[a] or <85% (severe wasting)
Height for age (children; chart in knowledge base)	-3 ≤ SD[a] < -2 or 85-89%	< -3 SD[a] or <85% (severe stunting)
MUAC (children)[b]	110-125 mm	<110 mm
BMI (adults)[c]	16 – 16.99	<16 (severe malnutrition)
MUAC (adults)	160-185mm	<160mm (severe wasting)
MUAC (pregnant and lactating women)	170-185mm	<170mm (severe wasting)
BMI (adolescents 10-18)		<5th percentile (severe malnutrition) except in cases of stunting where cut-off is <3rd percentile

a = standard deviation from the mean

b = "mid-upper arm circumference". MUAC should be used for children and adults in screening, surveillance or in an area with large numbers of malnourished patients and low numbers of trained staff, weighing machines or height boards. It is also a good marker for the nutritional status of pregnant women.

c For adolescents and adults (≥10 years old) body mass index (BMI) is recommended as a measure of malnutrition. BMI is the weight (in kilograms) over the height (in meters) squared. BMI = kg / m2

Oral Rehydration solution (ORS):

ORS referred to in the COTS program has generally been 'reduced osmolarity ORS' that is premixed and provided in small packets – this ORS has glucose and salts as the base. However if rice and the required salts are available, rice ORS can be produced at the hospital. Rice ORS can be used, and is debatably preferred, for all situations except with children < 1 yr old (use reduced osmolarity ORS in this case).

Formulation for reduced osmolarity ORS:

Reduced osmolarity ORS*	Grams/ liter
Sodium chloride	26
Glucose, anhydrous	135
Potassium chloride	15
Trisodium citrate, dihydrate	29

* Use clean water and boil mixture for 10 min.

- Commercial STANDARD glucose-based ORS simply requires mixing the packet with the specified volume of clean water described on the packet. No cooking is necessary. Please note that almost all commercial ORS in packets is considered the 'reduced osmolarity ORS.'
- Reduced osmolarity ORS can be produced in the hospital according to the table above. After six hours you must discard any unused ORS.

General directions for making RICE ORS:

- Cook rice and smash it afterwards. Dry rice powder.
- Take 50g or 40g of rice powder and add it to one liter of clean water. Add 50ml of additional water to make up for the boiling loss.
- Add salts: sodium chloride, potassium chloride and citrate (alternatively potassium bicarbonate). The quantities of salts are the same as in the ORS table above (substitute the rice for the glucose).
- Mix the solution thoroughly while heating, and continue to stir it while it boils. Boil it for 10 minutes and then let it cool down to drink.
- You can store ORS for 6 hours. After six hours you must discard any unused ORS.

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PROPER SANITATION IS THE ONLY METHOD TO SUCCESS

VIRTUAL HOSPITAL

COTS Program
Doctor Pocket Card

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Assessment and plan for dehydration:

Dehydration Criteria:	Observation		
General Condition	Well/ alert	Restless/ irritable	Lethargic/ unconscious
Eyes	Normal	Sunken	Very sunken
Thirst	None	Drinks eagerly and/ or is thirsty	Drinks poorly or unable to drink
Radial pulse	Full volume	Low volume	Weak/absent
Skin pinch	Goes back quickly	Goes back slowly (≥2 seconds)	Goes back very slowly (≥3 seconds)
Dehydration Status	**NO** Dehydration	**SOME** Dehydration (if ≥2 criteria above present)	**SEVERE** Dehydration (if ≥2 criteria above present)
% Dehydration	0-5%	5-<10%	≥10%
Treatment plan	**Maintenance** Hydration:	Correction of **SOME** Dehydration:	Correction of **SEVERE** 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):
  - o 0-2 months >60 breaths/minute
  - o 2-12 months >50 breaths/minute
  - o 1-5 years >40 breaths/minute
  - o >5 years >30 breaths/minute

Maintenance hydration with ORS*:

Age	Approximate ORS amount following each stool; By milliliters (ml)	Approximate ORS amount following each stool; 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**
Doxycycline	Not drug of choice	300 mg single dose (seek alternative for pregnant women)
Erythromycin	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)
Ciprofloxacin	15 mg/ kg 2 times a day for 3 days	500 mg 2 times a day for 3 days***
Azithromycin	20 mg/ kg single dose with max of 1 g	1 g single dose
Trimethoprim (TMP)-Sulfamethoxazole (SMX)	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
Ciprofloxacin	15 mg/ kg 2 times a day for 3 days (oral)	500 mg 2 times a day for 3 days (oral)
Pivmecillinam	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)
Ceftriaxone	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)
Azithromycin	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
0-6 months	10mg once a day	10-14 days
6 months- 5 years	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.

What to use for disinfection*:

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	Final concentration: 0.05% active chlorine	Final concentration: 0.5% active chlorine	Final concentration: 2% active chlorine. Wait at least 2 hours before dumping.
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FULLY BEAT A CHOLERA OR SHIGELLOSIS OUTBREAK!

Educating Patient Caretaker
Information Sheet

Training for Patient Caretakers

1. Give ORS according to the instructions.

2. Not all patients will get intravenous fluids.

3. Give ORS slowly, this will reduce the risk of vomiting.

4. Giving ORS does not increase diarrhea output - ORS helps the patient have enough water in their body.

5. If possible, patients should eat normally, and infants should be breastfed.

6. Wash your hands frequently, especially after using the toilet and before eating or feeding.

7. Sometimes the patient will be sent home when the diarrhea has not completely stopped, so the Caretaker must continue to give ORS at home according to the instructions:

    Children: 1 teaspoon full of ORS per kg bodyweight per loose stool. If your child received zinc treatment, finish the treatment according to instructions at home.

    Adults: 2 glasses of ORS after each loose stool.

7. Complete the treatment, and follow the advice of the doctors/nurses given when discharged.

8. If the diarrhea gets worse, come back to see the health staff.

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VIRTUAL HOSPITAL

COTS Program Epidemiologist Pocket Card

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WHO definition for suspected cholera:

- A person older than 5 years with severe dehydration from acute watery diarrhea (usually with vomiting).
- Any person older than 2 years with acute watery diarrhea where there is an outbreak of cholera.
- In addition, any sudden increase in the daily number of patients with acute watery diarrhea, especially patients who pass typical rice-water stools.

WHO definition for suspected shigellosis:

- Diarrhea with visible blood in the stool.

Laboratory rules of thumb:

- Collect a random diarrheal sample by collecting from every 10th diarrheal patient. This should be adjusted according to the size of the outbreak so that the required 10-20 samples are collected. If you find that you are having less than 100 patients a month, then collect more frequently (i.e. every 5th patient).
- Get 10-20 diarrheal samples (1 sample from each patient) for laboratory confirmation at the beginning of the outbreak.
- Get 10-20 diarrheal samples at least every month to tract the causative organism/ strain and the antimicrobial sensitivity.
- Collect about 20 diarrheal samples at the end of the outbreak to confirm that the outbreak is over. Even in an endemic area, cholera or shigellosis should cause less than 5% of all acute diarrhea cases when an epidemic is not presently occurring.

Reporting outline:

Begin by describing how the outbreak was suspected: whether it started from a cluster of cases, a single case, or an incidence greater than the same period in previous years. Use the clinical case definition to collect data from treatment centers about the patients. If possible, obtain data from community health volunteers about patients not coming to the hospital.

It is useful to use a standardized admission information sheet like the one suggested by the WHO. Compile these data and describe the outbreak in terms of:

- Attack rate (cases/1000 population)
- Geographical extent
- Case fatality rate (CFR), including age and gender CFR distribution
- Gender distribution of cases
- Age distribution of cases (separate into two groups: under 5 years and 5 years and above)
- Speculate about the probable evolution of the outbreak (i.e. how many people might be affected, which stations might be affected, how this might influence the economy, health systems, and migration of people)
- Discuss special considerations for this particular outbreak
- Cultural issues
- Social structure
- Political situation
- Security
- Vulnerable populations
- Coping ability of the population

Classify the number of cases and number of deaths in at least two age groups; under 5 years and 5 years and older for reporting to the WHO

Don't forget the following possible 'at risk' groups:

- Patients with poor access to health services
- The extreme poor
- Racial/ethnic/religious minorities
- Malnourished patients
- Pregnant and lactating women
- Children not vaccinated against measles
- Elderly patients
- Non-breastfed infants

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VIRTUAL HOSPITAL

COTS Program Epidemiologist Pocket Card

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- 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

WHO definition for suspected cholera:

- A person older than 5 years with severe dehydration from acute watery diarrhea (usually with vomiting).
- Any person older than 2 years with acute watery diarrhea where there is an outbreak of cholera.
- In addition, any sudden increase in the daily number of patients with acute watery diarrhea, especially patients who pass typical rice-water stools.

WHO definition for suspected shigellosis:

- Diarrhea with visible blood in the stool.

Laboratory rules of thumb:

- Collect a random diarrheal sample by collecting from every 10th diarrheal patient. This should be adjusted according to the size of the outbreak so that the required 10-20 samples are collected. If you find that you are having less than 100 patients a month, then collect more frequently (i.e. every 5th patient).
- Get 10-20 diarrheal samples (1 sample from each patient) for laboratory confirmation at the beginning of the outbreak.
- Get 10-20 diarrheal samples at least every month to tract the causative organism/ strain and the antimicrobial sensitivity.
- Collect about 20 diarrheal samples at the end of the outbreak to confirm that the outbreak is over. Even in an endemic area, cholera or shigellosis should cause less than 5% of all acute diarrhea cases when an epidemic is not presently occurring.

Reporting outline:

Begin by describing how the outbreak was suspected: whether it started from a cluster of cases, a single case, or an incidence greater than the same period in previous years. Use the clinical case definition to collect data from treatment centers about the patients. If possible, obtain data from community health volunteers about patients not coming to the hospital.

It is useful to use a standardized admission information sheet like the one suggested by the WHO. Compile these data and describe the outbreak in terms of:

- Attack rate (cases/1000 population)
- Geographical extent
- Case fatality rate (CFR), including age and gender CFR distribution
- Gender distribution of cases
- Age distribution of cases (separate into two groups: under 5 years and 5 years and above)
- Speculate about the probable evolution of the outbreak (i.e. how many people might be affected, which stations might be affected, how this might influence the economy, health systems, and migration of people)
- Discuss special considerations for this particular outbreak
- Cultural issues
- Social structure
- Political situation
- Security
- Vulnerable populations
- Coping ability of the population

Classify the number of cases and number of deaths in at least two age groups; under 5 years and 5 years and older for reporting to the WHO

Don't forget the following possible 'at risk' groups:

- Patients with poor access to health services
- The extreme poor
- Racial/ethnic/religious minorities
- Malnourished patients
- Pregnant and lactating women
- Children not vaccinated against measles
- Elderly patients
- Non-breastfed infants

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 ½ a tablespoon to 10 liters of water (WRITE: 0.05%)	7 grams or ½ 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.

FULLY BEAT A CHOLERA OR SHIGELLOSIS OUTBREAK!

PROPER SANITATION IS THE ONLY METHOD TO SUCCESS

COTS Program Hospital Manager Pocket Card

WHO messages to avoid diarrhea:

- Wash your hands with soap:
  - o After using toilets/latrines
  - o After disposing of children's feces
  - o Before preparing food
  - o Before eating
  - o 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 10ºC)
- All food should be cooked thoroughly to at least 70ºC
- 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

Communicate with Supply Manager to secure supplies for hospital and community needs.

Public Health supplies (key elements):

- Disinfectant (cresol)
- Chlorine for water treatment/disinfection
- pH testing kits
- DPD (diethyl-p-phenylenediamine) water testing kits for measuring residual chlorine levels

Estimated supplies to treat 100 patients (key elements of the WHO list):

Rehydration supplies

- 650 packets oral rehydration salts (1 liter each)
- 120 bags Ringer's lactate IV solution (1 liter each)
- 120 giving sets (must include large-bore IVs, such as 18-19 gauge or larger); Also called IV sets.
- 10 scalp-vein needle sets (21 gauge)

Medicine

- Antibiotics for 20 adults and 20 children

Other supplies

- 2 large water dispensers (marked at 5 and 10L levels) with tap; for making ORS in bulk
- 20 bottles (1 liter) for ORS (e.g. empty IV bottles)
- 20 bottles (½ liter) for ORS
- 40 cups (100-200ml)
- 20 teaspoons
- 5 kg cotton wool
- 3 reels masking tape

The 7 Key Concepts from the COTS Program:

The Hospital Manager should remind the hospital team members of these important messages on a regular basis.

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.

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 ½ a tablespoon to 10 liters of water (WRITE: 0.05%)	7 grams or ½ 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.

FULLY BEAT A CHOLERA OR SHIGELLOSIS OUTBREAK!

PROPER SANITATION IS THE ONLY METHOD TO SUCCESS

COTS Program
Health Promotion Worker
Pocket Card

WHO messages to avoid diarrhea:

- Wash your hands with soap:
  - o After using toilets/latrines
  - o After disposing of children's feces
  - o Before preparing food
  - o Before eating
  - o 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 10ºC)
- All food should be cooked thoroughly to at least 70ºC
- 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

Messages to be given to the Community:

Refer to the General Knowledge Pocket Card for key WHO points on how a community can avoid diarrhea.

The community also needs to know where the nearest health facilities are located. If you are using 'ORS stations' the community should be informed where those are located. In addition, community messages about the prevention of dehydration and malnutrition during dehydration are important:

- Give someone with diarrhea ORS
- If ORS is not available, give home fluids
- Continue feeding during diarrhea
- Continue breastfeeding during diarrhea

Messages to be given to Caregivers:

Caregivers should be informed to bring family members to a health facility if they have:

- Many watery stools
- Blood in the stool
- Fever
- Repeated vomiting
- Marked thirst
- Eating/drinking poorly

How caregivers should provide maintenance hydration with ORS:

Maintenance ORS Hydration

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.

In addition to ORS, how caregivers can also use standard home fluids for hydration:

The best home fluids to use are those that have salt, including soups like chicken broth, rice broth or gruel, or other fluids like unsweetened tea, natural juices, or green coconut water. Never give artificially sweetened drinks, like juice or colas, as these products can make the diarrhea worse.

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.
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Calcium hypochlorite powder or chlorine granules (70% active chlorine)	7 grams or ½ a tablespoon to 10 liters of water (WRITE: 0.05%)	7 grams or ½ 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.

FULLY BEAT A CHOLERA OR SHIGELLOSIS OUTBREAK!

PROPER SANITATION IS THE ONLY METHOD TO SUCCESS

VIRTUAL HOSPITAL

COTS Program Inpatient Nurse Pocket Card

WHO messages to avoid diarrhea:

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  - o After disposing of children's feces
  - o Before preparing food
  - o Before eating
  - o 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 10ºC)
- All food should be cooked thoroughly to at least 70ºC
- 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		
General Condition	Well/ alert	Restless/ irritable	Lethargic/ unconscious
Eyes	Normal	Sunken	Very sunken
Thirst	None	Drinks eagerly and/ or is thirsty	Drinks poorly or unable to drink
Radial pulse	Full volume	Low volume	Weak/absent
Skin pinch	Goes back quickly	Goes back slowly (≥2 seconds)	Goes back very slowly (≥3 seconds)
Dehydration Status	**NO** Dehydration	**SOME** Dehydration (if ≥2 criteria above present)	**SEVERE** Dehydration (if ≥2 criteria above present)
% Dehydration	0-5%	5-<10%	≥10%
Treatment plan	**Maintenance** Hydration:	Correction of **SOME** Dehydration:	Correction of **SEVERE** 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):
  - o 0-2 months >60 breaths/minute
  - o 2-12 months >50 breaths/minute
  - o 1-5 years >40 breaths/minute
  - o >5 years >30 breaths/minute

Maintenance hydration with ORS*:

Age	Approximate ORS amount following each stool; By milliliters (ml)	Approximate ORS amount following each stool; 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**
Doxycycline	Not drug of choice	300 mg single dose (seek alternative for pregnant women)
Erythromycin	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)
Ciprofloxacin	15 mg/ kg 2 times a day for 3 days	500 mg 2 times a day for 3 days***
Azithromycin	20 mg/ kg single dose with max of 1 g	1 g single dose
Trimethoprim (TMP)-Sulfamethoxazole (SMX)	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
Ciprofloxacin	15 mg/ kg 2 times a day for 3 days (oral)	500 mg 2 times a day for 3 days (oral)
Pivmecillinam	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)
Ceftriaxone	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)
Azithromycin	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
0-6 months	10mg once a day	10-14 days
6 months- 5 years	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.

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 ½ a tablespoon to 10 liters of water (WRITE: 0.05%)	7 grams or ½ a tablespoon to 1 liter of water (WRITE: 0.5%)	28 grams or 2 tablespoons to 1 liter of water (WRITE: 2%)

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FULLY BEAT A CHOLERA OR SHIGELLOSIS OUTBREAK!

PROPER SANITATION IS THE ONLY METHOD TO SUCCESS

VIRTUAL HOSPITAL

COTS Program
Triage Nurse
Pocket Card

WHO messages to avoid diarrhea:

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  - o Before eating
  - o 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
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- Dispose of all unused cooked food if there is no refrigeration (below 10ºC)
- All food should be cooked thoroughly to at least 70ºC
- 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

Step 1: Immediate dehydration assessment. Know danger signs for diarrheal and shigellosis patients. Alert the doctor of danger signs. Fast action is key to saving lives.

Dehydration Criteria:	Observation		
General Condition	Well/ alert	Restless/ irritable	Lethargic/ unconscious
Eyes	Normal	Sunken	Very sunken
Thirst	None	Drinks eagerly and/ or is thirsty	Drinks poorly or unable to drink
Radial pulse	Full volume	Low volume	Weak/absent
Skin pinch	Goes back quickly	Goes back slowly (≥2 seconds)	Goes back very slowly (≥3 seconds)
Dehydration Status	**NO** Dehydration	**SOME** Dehydration (if ≥2 criteria above present)	**SEVERE** Dehydration (if ≥2 criteria above present)
% Dehydration	0-5%	5-<10%	≥10%
Treatment plan	**Maintenance** Hydration:	Correction of **SOME** Dehydration:	Correction of **SEVERE** 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

Immediate general assessment for all diarrheal patients:

- 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 respi ratory 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):
  - o 0-2 months >60 breaths/minute
  - o 2-12 months >50 breaths/minute
  - o 1-5 years >40 breaths/minute
  - o >5 years >30 breaths/minute

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
- Unconscious patients
- Hypo-thermic or hyper-thermic patients

Step 2: Send patients to appropriate site

- Send patients with no dehydration to outpatient center or home with ORS and instructions on its use
- Send patients with some dehydration to the treatment center for ORS and observation
- Send patients with severe dehydration immediately for IV fluid replacement in the hospital

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.
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* 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.

FULLY BEAT A CHOLERA OR SHIGELLOSIS OUTBREAK!

PROPER SANITATION IS THE ONLY METHOD TO SUCCESS

COTS Program Outpatient Worker Pocket Card

WHO messages to avoid diarrhea:

- Wash your hands with soap:
  - o After using toilets/latrines
  - o After disposing of children's feces
  - o Before preparing food
  - o Before eating
  - o 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 10ºC)
- All food should be cooked thoroughly to at least 70ºC
- 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

Messages to be given to the Community:

Refer to the General Knowledge Pocket Card for key WHO points on how a community can avoid diarrhea.

The community also needs to know where the nearest health facilities are located. If you are using 'ORS stations' the community should be informed where those are located. In addition, community messages about the prevention of dehydration and malnutrition during dehydration are important:

- Give someone with diarrhea ORS
- If ORS is not available, give home fluids
- Continue feeding during diarrhea
- Continue breastfeeding during diarrhea

Messages to be given to Caregivers:

Caregivers should be informed to bring family members to a health facility if they have:

- Many watery stools
- Blood in the stool
- Fever
- Repeated vomiting
- Marked thirst
- Eating/drinking poorly

How caregivers should provide maintenance hydration with ORS:

In addition to ORS, how caregivers can also use standard home fluids for hydration:

The best home fluids to use are those that have salt, including soups like chicken broth, rice broth or gruel, or other fluids like unsweetened tea, natural juices, or green coconut water. Never give artificially sweetened drinks, like juice or colas, as these products can make the diarrhea worse.

Outpatient workers should closely observe patients:

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):
  - o 0-2 months >60 breaths/minute
  - o 2-12 months >50 breaths/minute
  - o 1-5 years >40 breaths/minute
  - o >5 years >30 breaths/minute

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

Maintenance ORS Hydration

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.

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.
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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.

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PROPER SANITATION IS THE ONLY METHOD TO SUCCESS

VIRTUAL HOSPITAL

COTS Program Pharmacist Pocket Card

WHO messages to avoid diarrhea:

- Wash your hands with soap:
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  - o After disposing of children's feces
  - o Before preparing food
  - o Before eating
  - o 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):

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- Rice-water stool (diarrheal fluids) and vomitus fluids should be disposed of by the sanitation team

Key Pharmaceutical Points:

- Always check antimicrobial sensitivity patterns in your area before dispensing antibiotics for cholera or shigellosis.
- Never use anti-diarrheal medications, which can actually cause an increase in duration and severity of disease.
- All children aged 5 years and younger with diarrhea should be given zinc treatment in addition to fluids and antibiotics as needed.

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**
Doxycycline	Not drug of choice	300 mg single dose (seek alternative for pregnant women)
Erythromycin	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)
Ciprofloxacin	15 mg/ kg 2 times a day for 3 days	500 mg 2 times a day for 3 days***
Azithromycin	20 mg/ kg single dose with max of 1 g	1 g single dose
Trimethoprim (TMP)-Sulfamethoxazole (SMX)	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.

Zinc supplementation*:

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

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

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
Ciprofloxacin	15 mg/ kg 2 times a day for 3 days (oral)	500 mg 2 times a day for 3 days (oral)
Pivmecillinam	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)
Ceftriaxone	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)
Azithromycin	20 mg/ kg once a day for 3 days (oral)	500 mg once a day for 3 days (oral)

* Antibiotic selection must depend on the sensitivity pattern determined for the specific shigellosis outbreak; Ciprofloxacin is the first line drug.

Certain antibiotics should NOT be used for the treatment of shigellosis for various reasons:

Antibiotics:	Rationale for NOT using:
Ampicillin, chloramphenicol, cotrimoxazole, tetracycline	Used in the past, most *Shigella* spp. are now resistant
Nitrofurans, aminoglycosides, first and second generation cephalosporins, amoxicillin	Poor penetration into the intestinal mucosa, these are not clinically effective
Nalidixic acid	Used in the past, most *Shigella* spp. are now resistant Use may increase resistance to ciprofloxacin

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)
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VIRTUAL HOSPITAL

COTS Program Sanitation Manager Pocket Card

WHO messages to avoid diarrhea:

- Wash your hands with soap:
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  - o After disposing of children's feces
  - o Before preparing food
  - o Before eating
  - o 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):

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Ensure that the following tasks are completed:

Have you:

1. Removed all patients' bedding? (Does everyone have the correct color of the day? The sheets must be changed everyday and after a patient is discharged. Every day you will change bedding colors so that you can easily see which beds have been changed or need to be changed)
2. Removed all patients' waste?
3. Collected all hospital linens/dirty laundry?
4. Treated the waste?
5. Cleaned the laundry?
6. Hung everything to dry in the sun?
7. Disinfected all reusable patient equipment?
8. Cleaned the latrines?

Clean Water

- In a hospital, 40-60 liters of water per person per day.

What to use for disinfection?

- Follow the directions on the General Knowledge Pocket Card on how to make working bleach solutions.

How many latrines to build?

- Each latrine should serve a MAXIMUM of 20 people.
- Latrines must be at least 30m away from drinking water sources. Hospital waste should be disposed of hygienically by digging designated latrines.

Cleaning latrines:

- The slabs and the floors of the latrine should be washed at least daily.
- The slabs and the floors should be disinfected with cresol or bleaching powder regularly.
- Once the latrine is 2/3 full (1.3 meters high from the bottom or 0.7 meters from the top), or when it will no longer be needed, fill it with soil and compact the soil.

Collecting diarrheal and vomitus waste from buckets and basins:

- Empty all buckets at least every 8 hours into a large container on a trolley.
- Providing a small basin will allow the patients to vomit more easily at the bedside. Empty these basins at the same time that the buckets are emptied into the same large container. Be careful -- this vomit may also contain V. cholerae or Shigella spp.

Disposing of waste. There are two options for waste disposal:

- Disinfect the waste with bleach as described on the General Knowledge Pocket Card. If the waste is ultimately dumped into a sewer system, we strongly advise that the diarrheal waste is first bleached for fear of cross-contamination between drinking water and sewer systems.
- If there is a proper latrine designated for only the disposal of diarrheal waste from the buckets and basins, the pooled waste can be immediately dumped into the latrine. This waste does not need to be bleached.

What to use for disinfection*:

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COTS Program Security Guard Pocket Card

WHO messages to avoid diarrhea:

- Wash your hands with soap:
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  - o After disposing of children's feces
  - o Before preparing food
  - o Before eating
  - o 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 10ºC)
- All food should be cooked thoroughly to at least 70ºC
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The job of the security guard is to guard the hospital, its patients, staff, and supplies. You should never compromise the safety of the center by being politically aligned with any warring parties.

1. Be vigilant
2. Be courteous
3. Do not use excessive force

Excessive force is when you use more force than is needed for the situation. You should only use as much force as is necessary to stop the person. For example, if there is an unarmed person who is upsetting the order of the hospital, a weapon should NOT be used against them.

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)
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COTS Program Supply Manager Pocket Card

WHO messages to avoid diarrhea:

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

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Assumptions:
These supplies are for 100 patients, of which 20 are expected to be severely dehydrated and require IV fluids.

The supply manager must work with the epidemiologist and laboratory to calculate how much to scale up these supplies to meet the needs of the population.

Communicate with Hospital Manager to secure supplies for hospital and community needs.

Public Health supplies (key elements):
- Disinfectant (cresol)
- Chlorine for water treatment/disinfection
- pH testing kits
- DPD (diethyl-p-phenylenediamine) water testing kits for measuring residual chlorine levels

Estimated supplies to treat 100 patients (key elements of the WHO list):
Rehydration supplies
- 650 packets oral rehydration salts (1 liter each)
- 120 bags Ringer's lactate IV solution (1 liter each)
- 120 Giving sets (must include large-bore IVs, such as 18-19 gauge or larger); Also called IV sets.
- 10 scalp-vein needle sets (21 gauge)

Medicine
- Antibiotics for 20 adults and 20 children

Other supplies
- 2 large water dispensers (marked at 5 and 10L levels) with tap; for making ORS in bulk
- 20 bottles (1 liter) for ORS (e.g. empty IV bottles)
- 20 bottles (½ liter) for ORS
- 40 cups (100-200ml)
- 20 teaspoons
- 5 kg cotton wool
- 3 reels masking tape

Additional Supplies to treat 100 patients that the ICDDR,B recommends (key elements):

Rehydration and medicine:
- Injection of KCl saline
- Injection of 25% Dextrose 25 ml
- Injection of Normal Saline ½ liter
- Injection of Calcium Gluconate 10%
- Tablets of Zinc Sulfate (or other zinc preparation, e.g. syrup)

Other Supplies:
- 70% Ethanol solution (for disinfection, 30% water). Alternatively, rubbing alcohol (70% isopropanol, 30% water) can be used as a disinfectant.
- Tincture of iodine
- Swab sticks
- Disposable gloves
- Liquid hand soap
- Bleaching powder (or other bleach product)
- 250 Plastic buckets (for patients)
- 150 Vomit basins
- 100 Cots
- 200 Plastic cot covers
- 2 Book registers
- 50 Pens
- Food to feed all patients and 1 caregiver per patient
- Mops
- Refrigerator of an appropriate size for any supplies that need to be refrigerated

What to use for disinfection*:

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COTS Program Outpatient Worker Pocket Card

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Remember that traffic accidents are the number one cause of death for aid workers.

1. Drive safely.

2. Always wear a seatbelt.

3. Wash your hands thoroughly before and after contact with sick people, their belongings, or bodily fluids/samples.

4. Travel with another person if possible, especially in remote or hostile areas.

5. Inform others about your trip and try to take a mobile phone or radio with you.

6. For long trips with sick patients bring a doctor, nurse, or other medical personnel as well as adequate supplies for the trip.

Be prepared:

1. Fuel vehicles after use.

2. Keep all vehicles operational and safe.

3. Communicate with the supply manager if ambulances need stocking, or if other medical supplies are needed.

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VIRTUAL HOSPITAL

COTS Program
Patient transporter
Pocket Card

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  - o After disposing of children's feces
  - o Before preparing food
  - o Before eating
  - o 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 10ºC)
- All food should be cooked thoroughly to at least 70ºC
- 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

Assist the patients:

• If a patient has an IV line, be careful with that line during transport.

• Ensure that the patient's belongings are transported to the patient's bedside.

• Transport the admission sheet and any other paperwork with the patient and deliver to the nurse/doctor.
• Wash your hands before and after every patient transport.

• Once the patient is in the proper section, ensure that that patient begins receiving care. STAY involved until a nurse/doctor is treating the patient.

• Do not be afraid to notify healthcare personnel (doctors and/or nurses) if a patient you are transporting, or pass by, looks like they are doing worse.

Techniques for carrying patients:

TWO-HANDED SEAT: This technique is for carrying patients with two transporters and no equipment.

1. Have both transporters squat down on either side of the patient.

2. Reach under the patient's shoulders and knees.

3. Grasp the other transporter's wrists.

4. Stand up from the squat using the power of your legs.

5. Walk in the direction that the patient is facing.

IMPROVISED STRETCHER: This technique requires at least two shirts or two gunny sacks, and two poles/pipes strong enough to support a patient's weight.

1. All buttons should be buttoned on the two shirts.

2. Run the poles through the bottom of the first shirt and out the sleeves on the other end or through a gunny sacks. Make sure the front of the shirt with the buttons is facing up.

3. Repeat step two with another shirt or gunny sack so that the ends are touching.

BLANKET STRETCHER: This technique requires two poles and a blanket.

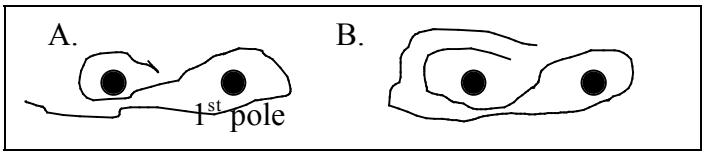
1. Place the blanket down on the ground.

2. Place one pole near the middle of the blanket.

3. Fold the short end of the blanket over the first pole (pole on right in figure A).

4. Place a second pole one body width from the first pole (Pole on left in figure A).

5. Fold both halves of the blanket over the second pole (figure B).



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 ½ a tablespoon to 10 liters of water (WRITE: 0.05%)	7 grams or ½ 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.

FULLY BEAT A CHOLERA OR SHIGELLOSIS OUTBREAK!

PROPER SANITATION IS THE ONLY METHOD TO SUCCESS

COTS Program Transport Manager Pocket Card

WHO messages to avoid diarrhea:

- Wash your hands with soap:
  - o After using toilets/latrines
  - o After disposing of children's feces
  - o Before preparing food
  - o Before eating
  - o Before feeding children
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Remember that traffic accidents are the number one cause of death for aid workers.

1. Drive safely.

2. Always wear a seatbelt.

3. Wash your hands thoroughly before and after contact with sick people, their belongings, or bodily fluids/samples.

4. Travel with another person if possible, especially in remote or hostile areas.

5. Inform others about your trip and try to take a mobile phone or radio with you.

6. For long trips with sick patients bring a doctor, nurse, or other medical personnel as well as adequate supplies for the trip.

Be prepared:

1. Fuel vehicles after use.

2. Keep all vehicles operational and safe.

3. Communicate with the supply manager if ambulances need stocking, or if other medical supplies are needed.

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