

# Water-borne and Vector- borne diseases

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# Epidemiology

- Globally, cholera cases have increased steadily since 2005 and the disease still occurs in many places including [Africa](#), [Southeast Asia](#), and [Haiti](#).
- An estimated 2.9 million cases and 95,000 deaths occur each year around the world.
- CDC responds to cholera outbreaks across the world using its [Global Water, Sanitation and Hygiene \(WASH\)](#) expertise.





# Epidemiology

- Modern sewage and water treatment have effectively eliminated cholera in most countries.
- Countries affected by war, poverty and natural disasters have the greatest risk for a cholera outbreak.

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# Etiologic Agent

- Cholera is an acute, diarrheal illness caused by infection of the intestine with the toxigenic bacterium *Vibrio cholerae* serogroup O1 or O139.

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# Etiologic Agent

- Gram negative, curved bacteria
- Resembling letter “V”



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# Mode of Transmission

- Cholera germs are found in the feces (poop) of infected people.
- Cholera is spread when feces (poop) from an infected person gets into the water people drink or the food people eat.

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# Mode of Transmission

- Cholera is most likely to be found and spread in places with inadequate water treatment, poor sanitation, and inadequate hygiene.





# Clinical Signs and Symptoms

- Profuse watery diarrhea, vomiting and leg cramps
- Look like cloudy rice water
- Can cause death from dehydration (rapid loss of water and salts from the body) within hours if not treated.

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# Supportive Management

- If you have oral rehydration solution (ORS), start taking it now; it can save your life.
- Go immediately to the nearest health facility.
- Continue to drink ORS at home and while you travel to get treatment.
- Continue to breastfeed your baby if they have watery diarrhea, even when traveling to get treatment.

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# Prevention and Control

- Drink and use safe water.
- Safe water is water that is bottled with an unbroken seal, has been boiled, or has been treated with a chlorine product.
- Wash hands often with soap and safe water.

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# Prevention and Control

- Use latrines or bury your feces (poop), do not defecate in any body of water.
- Cook food well (especially seafood), eat it hot, keep it covered, and peel fruits and vegetables.
- Clean up safely—in the kitchen and in places where your family bathes and washes clothes.

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# Protect Yourself from Cholera

## 1) Drink and use safe water.\*

- Bottled water with unbroken seals and canned/bottled carbonated beverages are safe to drink and use.
- Use safe water to brush your teeth, wash and prepare food, and to make ice.
- Clean food preparation areas and kitchenware with soap and safe water and let dry completely before reuse.

\* Piped water sources, drinks sold in cups or bags, or ice may not be safe and should be boiled or treated with chlorine.



# Protect Yourself from Cholera

**To be sure water is safe to drink and use:**

- Boil it or treat it with a chlorine product or household bleach.
  - If boiling, bring water to a complete boil for at least 1 minute.
  - To treat your water with chlorine, use one of the locally available treatment products and follow the instructions.
  - If a chlorine treatment product is not available, you can treat your water with household bleach. Add 8 drops of household bleach for every 1 gallon of water (or 2 drops of household bleach for every 1 liter of water) and wait 30 minutes before drinking.
- Always store your treated water in a clean, covered container.

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# Protect Yourself from Cholera

## 2) Wash your hands often with soap and safe water.

- Before you eat or prepare food.
- Before feeding your children.
- After using the latrine or toilet.
- After cleaning your child's bottom.
- After taking care of someone ill with diarrhea

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# Protect Yourself from Cholera

## 3) Use latrines or bury your feces (poop); do not defecate in any body of water.

- Use latrines or other sanitation systems, like chemical toilets, to dispose of feces.
- Wash hands with soap and safe water after defecating.
- Clean latrines and surfaces contaminated with feces using a solution of 1 part household bleach to 9 parts water.

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# What if I don't have a latrine or chemical toilet?

- Defecate at least 30 meters (98 feet) away from any body of water and then bury your feces.
- Dispose of plastic bags containing feces in latrines, at collection points if available, or bury it in the ground. Do not put plastic bags in chemical toilets.
- Dig new latrines or temporary pit toilets at least a half-meter (1.6 feet) deep and at least 30 meters (98 feet) away from any body of water.

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## 4) Cook food well, keep it covered, eat it hot, and peel fruits and vegetables.\*

- Boil it, Cook it, Peel it, or Leave it.
- Be sure to cook seafood, especially shellfish, until it is very hot all the way through.

\* Avoid raw foods other than fruits and vegetables you have peeled yourself.

## **5) Clean up safely— in the kitchen and in places where the family bathes and washes clothes**

- Wash yourself, your children, diapers, and clothes, 30 meters (98 feet) away from drinking water sources.

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