

When to Consider Cholera

Cholera epidemics provide stark reminders of the challenges that arise in the absence of the infrastructure and institutions that most of us take for granted.^[1] On October 23, 2010, an outbreak of cholera was reported about 700 miles off the coast of Florida in the Caribbean nation of Haiti -- a country that has long lacked clean, safe water. When cholera struck, it moved easily from sewage to drinking water sources and within 2 months, spread to all areas of the country, sickening more than 170,000 people and killing more than 3600 by December 31, 2010.^[1]

Now, nearly a year later, the death rate has dropped, and more people have access to safe water, but cholera is still spreading. Cases associated with the outbreak in Haiti have been reported in the neighboring Dominican Republic, where indigenous transmission is now occurring, and in other countries, including Canada, France, and the United States.

Hello, I am Dr. Rob Quick, a medical officer in the [Waterborne Diseases Prevention Branch](#) at the Centers for Disease Control and Prevention (CDC). I am pleased to speak with you today as part of the [CDC Expert Video Commentary Series](#) on Medscape.

At a time when global travel is on the rise, cases of cholera will likely be imported into the United States from countries such as Haiti and Cameroon, where outbreaks have occurred and where medical and relief personnel are travelling back and forth. Since the emergence of cholera in Haiti, 33 cholera cases have been identified in the United States among people who had travelled to Hispaniola or consumed seafood brought back from Hispaniola to the United States.

It is important that clinicians are aware of the possibility of imported cholera in the United States. We are making the following suggestions to help clinicians with timely diagnosis and therapy, and to help keep everyone safe.

Why Think Cholera?

Cholera is the most severe of the diarrheal diseases. It is caused by strains of the bacterium *Vibrio cholerae* that produce the cholera toxin. Within 12 to 24 hours after swallowing contaminated water or food, the toxin causes an acute, profuse watery diarrhea that quickly leads to profound loss of fluid and electrolytes, acidosis, and shock. The acidosis causes vomiting, and low potassium levels cause painful leg cramps. Within hours, a person can become severely dehydrated and may lose more than 10% of his or her body weight, go into hypovolemic shock, and die. Older patients and those with low gastric acid production are particularly at risk.

No one should die of cholera. With prompt medical care and treatment, most patients can be treated with oral rehydration solution, which replaces electrolytes and makes the gut absorb fluid. Those more severely affected may need many liters of Ringer's lactate solution, given rapidly through several intravenous lines.

The World Health Organization estimates that 3-5 million cases of cholera occur annually, with 100,000-120,000 deaths. In the United States, 1-8 cases of cholera are diagnosed each year among people returning or coming from cholera-affected areas.

Some strains of the cholera bacterium live naturally in the warm and brackish waters along the Gulf Coast. These strains are occasionally found in filter feeding shellfish, like oysters and crabs, usually during the warmest months of the year. Every year, 1-2 people in the United States are diagnosed with cholera after eating raw oysters or lightly cooked crabs.

What Should You Do if Cholera Is Suspected?

- Consider cholera as a possibility in patients in whom severe diarrhea and vomiting developed within a few days of a trip to a country where cholera is common or who have recently eaten raw shellfish from warm waters;
- When cholera is suspected, assess the patient immediately for dehydration and begin rehydration therapy if indicated;
- Send a stool sample to the laboratory and specifically request that it be cultured for *vibrios*; cholera is diagnosed by isolating the *V. cholerae* bacteria from the patient's stools, and then testing it for the cholera toxin;
- If the patient is well enough to be sent home with oral rehydration solution, advise the patient to return or call 911 if the diarrhea or vomiting worsens;
- Antibiotics should be used to treat severe cholera, and most strains are susceptible to fluoroquinolones such as ciprofloxacin; and
- Call your local health department to report a suspected case; a public health official will talk to the patient about how they may have acquired the infection, and a sanitarian will visit the home to make sure sanitary conditions will prevent further spread of cholera.

What Can Be Done to Prevent Cholera?

The long-term solution is safe drinking water systems and sewage treatment plants. Until water and sewage systems are safe, people can treat water in their homes. The CDC has been involved in cholera detection, outbreak response, and prevention for decades, to help people

in the developing world live healthier lives. If you are consulted by someone who is about to travel to a country with cholera, you can advise them about how they can stay healthy:

- Drink only water that has been boiled, carbonated, or disinfected, and avoid ice;
- Eat food that has been well cooked, and eat it hot;
- Eat only fruits and vegetables that you peel yourself;
- Avoid fresh salads and raw seafood;
- Don't bring back food in luggage, especially seafood; and
- In other words, "Boil it, cook it, peel it, or forget it."

If you are working overseas and think you will be seeing cases of cholera, CDC, the World Health Organization, and other partners have [health promotion materials](#) developed for these settings.

This epidemic in Haiti reminds us that if people do not have clean water to drink, they are at risk for cholera as long as it persists anywhere in the world. You could be the key to diagnosis and prevention in the United States or abroad.

Web Resources

- [CDC. Cholera: General Information](#)
- [CDC. Cholera: Health Promotion Materials.](#)
- [CDC. Cholera: Treatment](#)
- [CDC. Haiti Cholera Outbreak](#)
- [CDC: Traveler's Health](#)
- [CDC. Traveler's Health: Safe Food and Water](#)
- [Emerging Infectious Diseases - Theme Issue: Cholera November, 2011](#)

Robert E. Quick MD, MPH, is a Medical Epidemiologist with the Waterborne Disease Prevention Branch, US Centers for Disease Control and Prevention, in Atlanta, Georgia. Dr. Quick is responsible for supervising outbreak investigations and developing strategies to reduce the impact and occurrence of waterborne and intestinal infections around the world. Dr. Quick received his bachelor's degree from Stanford University, his Masters of Public Health from Berkeley and his MD from the University of California in San Francisco. He completed his clinical training in family practice at the University of South Carolina in Charleston. He began his career as a doctor in the Indian Health Service in 1986, and joined the CDC in 1990, first as an Epidemic Intelligence Service Officer, and then as a staff epidemiologist. His professional interests include prevention and control of waterborne and intestinal diseases domestically and internationally.

Reference

1. [Dowell SF, Tappero JW, Frieden TR. Public health in Haiti - challenges and progress. N Engl J Med. 2011;364:300-301.](#)