



A BRIEF REVIEW ON CHOLERA DISEASE (CAUSES, TREATMENT, DIAGNOSIS)

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Abstract:

The disease is most common in places with poor sanitation, crowding, war, and famine. Common locations include parts of Africa, south Asia, and Latin America. If you are traveling to one of those areas, knowing the following cholera facts can help protect you and your family.

Key Words: Disease & Part

Introduction:

Cholera is an infectious disease that causes severe watery diarrhea, which can lead to dehydration and even death if untreated. It is caused by eating food or drinking water contaminated with a bacterium called *Vibrio cholerae*.

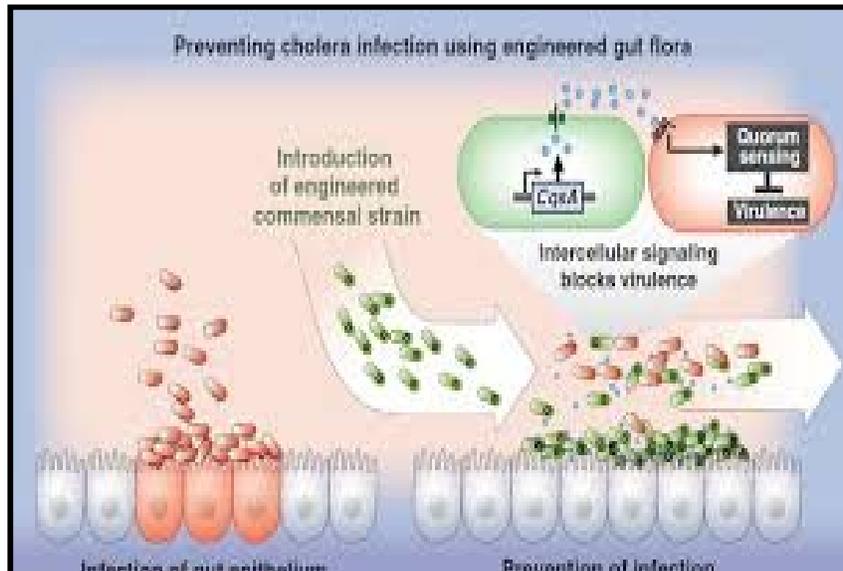


Cholera Causes:

Vibrio cholerae, the bacterium that causes cholera, is usually found in food or water contaminated by feces from a person with the infection. Common sources include:

- Municipal water supplies
- Ice made from municipal water
- Foods and drinks sold by street vendors
- Vegetables grown with water containing human wastes
- Raw or undercooked fish and seafood caught in waters polluted with sewage

When a person consumes the contaminated food or water, the bacteria release a toxin in the intestines that produces severe diarrhea. It is not likely you will catch cholera just from casual contact with an infected person.



Recently, new variant strains have been detected in several parts of Asia and Africa. Observations suggest that these strains cause more severe cholera with higher case fatality rates. Careful epidemiological monitoring of circulating strains is recommended.

The main reservoirs of *V. cholerae* are people and aquatic sources such as brackish water and estuaries, often associated with algal blooms. Recent studies indicate that global warming creates a favourable environment for the bacteria.

Cholera transmission is closely linked to inadequate environmental management. Typical at-risk areas include peri-urban slums, where basic infrastructure is not available, as well as camps for internally displaced persons or refugees, where minimum requirements of clean water and sanitation are not met.

The consequences of a humanitarian crisis – such as disruption of water and sanitation systems, or the displacement of populations to inadequate and overcrowded camps – can increase the risk of cholera transmission should the bacteria be present or introduced. Dead bodies have never been reported as the source of epidemics.

Cholera remains a global threat to public health and a key indicator of lack of social development.

The number of cholera cases reported to WHO continues to be high. During 2013, a total of 129 064 cases were notified from 47 countries, including 2102 deaths. The discrepancy between those figures and the estimated burden of the disease is due to the fact that many cases are not recorded for due to limitations in surveillance systems and fear of trade and travel sanctions.

Treatment:

There are several points along the cholera transmission path at which its spread may be halted

- **Sterilization:** Proper disposal and treatment of infected fecal waste water produced by cholera victims and all contaminated materials (e.g. clothing, bedding, etc.) are essential. All materials that come in contact with cholera patients should be sanitized by washing in hot water, using chlorine bleach if possible. Hands that touch cholera patients or their clothing, bedding, etc., should be thoroughly

cleaned and disinfected with chlorinated water or other effective antimicrobial agents.

- **Sewage:** antibacterial treatment of general sewage by chlorine, ozone, ultraviolet light or other effective treatment before it enters the waterways or underground water supplies helps prevent undiagnosed patients from inadvertently spreading the disease.
- **Sources:** Warnings about possible cholera contamination should be posted around contaminated water sources with directions on how to decontaminate the water (boiling, chlorination etc.) for possible use.
- **Water Purification:** All water used for drinking, washing, or cooking should be sterilized by either boiling, chlorination, ozone water treatment, ultraviolet light sterilization (e.g. by solar water disinfection), or antimicrobial filtration in any area where cholera may be present. Chlorination and boiling are often the least expensive and most effective means of halting transmission. Cloth filters or sari filtration, though very basic, have significantly reduced the occurrence of cholera when used in poor villages in Bangladesh that rely on untreated surface water. Better antimicrobial filters, like those present in advanced individual water treatment hiking kits, are most effective. Public health education and adherence to appropriate sanitation practices are of primary importance to help prevent and control transmission of cholera and other diseases.

Methods of Treatment:

Cholera is an easily treatable disease. Up to 80% of people can be treated successfully through prompt administration of oral rehydration salts (WHO/UNICEF ORS standard sachet). Very severely dehydrated patients require the administration of intravenous fluids. These patients also need appropriate antibiotics to diminish the duration of diarrhoea, reduce the volume of rehydration fluids needed, and shorten the duration of *V. cholerae* excretion. Mass administration of antibiotics is not recommended, as it has no effect on the spread of cholera and contributes to increasing antimicrobial resistance.

In order to ensure timely access to treatment, cholera treatment centres (CTCs) should be set up within the affected communities. With proper treatment, the case fatality rate should remain below 1%.

Antibiotics:

Antibiotic treatments for one to three days shorten the course of the disease and reduce the severity of the symptoms. Use of antibiotics also reduces fluid requirements. People will recover without them, however, if sufficient hydration is maintained. The World Health Organization only recommends antibiotics in those with severe dehydration.

Doxycycline is typically used first line, although some strains of *V. cholerae* have shown resistance. Testing for resistance during an outbreak can help determine appropriate future choices. Other antibiotics proven to be effective include cotrimoxazole, erythromycin, tetracycline, chloramphenicol, and furazolidone. Fluoroquinolones, such as ciprofloxacin, also may be used, but resistance has been reported.

In many areas of the world, antibiotic resistance is increasing. In Bangladesh, for example, most cases are resistant to tetracycline, trimethoprim- sulfamethoxazole, and erythromycin. Rapid diagnostic assay methods are available for the identification of

multiple drug-resistant cases. New generation antimicrobials have been discovered which are effective against in *in vitro* studies.

Antibiotics improve outcomes in those who are both severely and not severely dehydrated. Azithromycin and tetracycline may work better than doxycycline or ciprofloxacin.

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