

Prevention and control of cholera outbreaks: WHO policy and recommendations

Generalities

Cholera is an acute enteric infection caused by the ingestion of bacterium *Vibrio cholerae* present in faecally contaminated water or food. Primarily linked to insufficient access to safe water and proper sanitation, its impact can be even more dramatic in areas where basic environmental infrastructures are disrupted or have been destroyed. Countries facing complex emergencies are particularly vulnerable to cholera outbreaks. Massive displacement of IDPs or refugees to overcrowded settings, where the provision of potable water and sanitation is challenging, constitutes also a risk factor. In consequence, it is of paramount importance to be able to rely on accurate surveillance data to monitor the evolution of the outbreak and to put in place adequate intervention measures. Coordination of the different sectors involved is essential, and WHO calls for the cooperation of all to limit the effect of cholera on populations.

Cholera is characterized in its most severe form by a sudden onset of acute watery diarrhoea that can lead to death by severe dehydration. The extremely short incubation period - two hours to five days - enhances the potentially explosive pattern of outbreaks, as the number of cases can rise very quickly. About 75% of people infected with cholera do not develop any symptoms. However, the pathogens stay in their faeces for 7 to 14 days and are shed back into the environment, possibly infecting other individuals. Cholera is an extremely virulent disease that affects both children and adults. Unlike other diarrhoeal diseases, it can kill healthy adults within hours. Individuals with lower immunity, such as malnourished children or people living with HIV, are at greater risk of death if infected by cholera.

Key messages:

- cholera is transmitted through contaminated water or food.
- Prevention and preparedness of cholera require a coordinated multidisciplinary approach
- Cholera can rapidly lead to severe dehydration and death if left untreated

Diagnosis

The presence of *V. cholerae* in stools is confirmed through laboratory procedures. However, a new rapid diagnostic test (RDT), now available, allows quick testing at the patient's bedside. WHO is currently in the process of validating this RDT, to be able to include it on the list of its pre-qualified products. In the meantime, WHO suggests that all samples tested positive with the RDT are re-tested using classic laboratory procedures for confirmation. Not all cases fitting the WHO clinical case definition need to be tested. Once an outbreak is confirmed, a clinical diagnosis using WHO standard case definition is sufficient¹, accompanied by sporadic testing at regular intervals.

¹ WHO Standard case definition:

Key messages:

- Once *Vibrio cholerae* has been confirmed, the WHO clinical case definition is sufficient to diagnose cases. After that laboratory testing is required for antimicrobial sensitivity testing and for confirming the end of an outbreak.
- Rapid diagnostic tests can facilitate early warning and detection of first cases

Prevention

Measures for the prevention of cholera mostly consist of providing clean water and proper sanitation to populations who do not yet have access to basic services. Health education and good food hygiene are equally important. Communities should be reminded of basic hygienic behaviours, including the necessity of systematic hand-washing with soap after defecation and before handling food or eating, as well as safe preparation and conservation of food. Appropriate media, such as radio, television or newspapers should be involved in disseminating health education messages. Community and religious leaders should also be associated to social mobilization campaigns.

In addition, strengthening surveillance and early warning greatly helps in detecting the first cases and put in place control measures. Conversely, routine treatment of a community with antibiotics, or *mass chemoprophylaxis*, has no effect on the spread of cholera, can have adverse effects by increasing antimicrobial resistance and provides a false sense of security.

Key messages:

- Provision of safe water, proper sanitation, and food safety are critical for preventing occurrence of cholera
- Health education aims at communities adopting preventive behaviour for averting contamination

Control

Among people developing symptoms, 80% of episodes are of mild or moderate severity. The remaining 10%-20% of cases develop severe watery diarrhoea with signs of dehydration. Once an outbreak is detected, the usual intervention strategy aims to reduce mortality - ideally below 1% - by ensuring access to treatment and controlling the spread of disease. To achieve this, all partners involved should be properly coordinated and those in charge of water and sanitation must be included in the response strategy. Recommended control methods, including standardized case management, have proven effective in reducing the case-fatality rate.

The main tools for cholera control are:

- proper and timely case management in cholera treatment centres;
- specific training for proper case management, including avoidance of nosocomial infections;
- sufficient pre-positioned medical supplies for case management (e.g. diarrhoeal disease kits);
- improved access to water, effective sanitation, proper waste management and vector control;
- enhanced hygiene and food safety practices;
- improved communication and public information.

Case management

Efficient treatment resides in prompt rehydration through the administration of oral rehydration salts (ORS) or intravenous fluids, depending of the severity of cases. Up to 80% of patients can be treated

adequately through the administration of ORS (WHO/UNICEF ORS standard sachet). Very severely dehydrated patients are treated through the administration of intravenous fluids, preferably Ringer lactate. Appropriate antibiotics can be given to severe cases to diminish the duration of diarrhoea, reduce the volume of rehydration fluids needed and shorten the duration of *V. cholerae* excretion. For children up to five years, supplementary administration of zinc² has a proven effective in reducing duration of diarrhoea as well as reduction in successive diarrhoea episodes. In order to ensure timely access to treatment, cholera treatment centres should be set up among the affected populations whenever feasible.

Key messages:

- ORS can successfully treat 80% of cholera cases
- Appropriate antibiotics can reduce the duration of purging

Cholera vaccines

The use of the parenteral cholera vaccine has never been recommended by WHO due to its low protective efficacy and the high occurrence of severe adverse reactions. An internationally licensed oral cholera vaccine (OCV) is currently available on the market in limited stocks and is suitable for travellers. This vaccine was proven safe and effective and is available for individuals aged two years and above. It is administered in two doses 10-15 days apart and given in 150 ml of safe water. Its public health use in mass vaccination campaigns is relatively recent. WHO official recommendations for its use in complex emergencies have been issued, and state that:

- OCV should always be used as an additional public health tool and should not replace usually recommended control measures such as improved water supplies, adequate sanitation and health education. It needs also to be linked to strengthened surveillance and early warning.
- The current internationally available prequalified vaccine is not recommended once a cholera outbreak has started due to its 2-dose regimen and the time required to reach protective efficacy, high cost and the heavy logistics associated with its use.

Travel and trade

Today, no country requires proof of cholera vaccination as a condition for entry and the International Certificate of Vaccination no longer provides a specific space for recording cholera vaccinations. In 1973, the World Health Assembly deleted from the International Health Regulations the requirement for presentation of a cholera vaccination certificate.

Past experience clearly showed that quarantine measures and embargoes on movements of people and goods - especially food products - are unnecessary. At present, WHO has no information that food commercially imported from affected countries has been implicated in outbreaks of cholera in importing countries. The isolated cases of cholera that have been related to imported food have been associated with food which had been in the possession of individual travellers. Therefore, it may be concluded that food produced under good manufacturing practices poses only a negligible risk for cholera transmission. Consequently, WHO believes that food import restrictions, based on the sole fact that cholera is epidemic or endemic in a country, are not justified. However, countries can confiscate any perishable unprocessed foods carried by travellers.

² For children below 6 months of age, add zinc 10mg daily for 2 weeks
For children from 6 months to 12 years, add zinc 20mg daily for 2 weeks

Key messages:

- Imposing travel and trade restrictions have proven inefficient and risk to divert useful resources.
- WHO has no information that food commercially imported from affected countries has ever been implicated in outbreaks of cholera in importing countries.
- Countries have the right to confiscate any perishable and unprocessed food carried by travellers crossing borders.

WHO recommendations to unaffected neighbouring countries

Countries neighbouring an area affected by cholera should implement the following measures:

- improve preparedness to rapidly respond to an outbreak, should cholera spread across borders, and limit its consequences;
- improve surveillance to obtain better data for risk assessment and early detection of outbreaks, including establishing an active surveillance system.

However, the following measures should be avoided, as they have been proven ineffective, costly and counter-productive:

- routine treatment of a community with antibiotics, or *mass chemoprophylaxis*, has no effect on the spread of cholera, can have adverse effects by increasing antimicrobial resistance and provides a false sense of security;
- restrictions in travel and trade between countries or between different regions of a country;
- set up a *cordon sanitaire* at borders, a measure that diverts resources, hampers good cooperation spirit between institutions and countries instead of uniting efforts.

Reference documents

WHO fact sheet on cholera. Last up-date November 2008

<http://www.who.int/mediacentre/factsheets/fs107/en/>

Cholera outbreak: assessing the outbreak response and improving preparedness. WHO/CDS/CPE/ZFK/2004.4

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First steps for managing an outbreak of acute diarrhoea. WHO/CDS/NCS/2003.7.Rev.1

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Acute diarrhoeal diseases in complex emergencies: critical steps WHO/CDS/CPE/ZFK/2004.6

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