

SASMA Portal 2010

Threat of cholera outbreak in Haiti - Anna Avraham



SASMA - [Anna Avraham](#)

CHOLERA

Basic facts

Cholera is a disease manifested by acute dysentery caused by an infection deriving from eating food and drinking water contaminated by bacteria *Vibrio cholerae*.

Each year, approximately 100 000-120 000 people die because of Cholera and this number does not decrease due and stays at the same level due to indigent countries or countries touched by a catastrophe or humanitarian calamities, such as Haiti in 2010.

Short time of incubation of the disease (meaning from the moment of infection by the bacteria to occurrence of first clinical symptoms) oscillates between two hours and five days; that 'strengthens' an effect of humanitarian calamity in the area threatened by epidemic.

- Cholera is an acute dysentery disease which may kill a person within couple of hours, if it is not discovered and treated on time.
- It is estimated that annually 3-5 million cases of Cholera are being confirmed, and 100 000-120 000 people die due to Cholera that is confirmed clinically and experimentally.

- Almost 80% of cases can be successfully treated by giving hydrating salt and assuring proper hospital treatment.
- Effective controlling measures are based on prevention, preparation and answer to septic factors and secondary roots of infection.
- Assuring clean water and sanitation plays a crucial role in decreasing number of cases of Cholera and other diseases transmitted by water (drinking water, general usage water, rivers, lakes etc.)
- Serving Cholera vaccine is thought to be an additional means of controlling the disease; however, it should not substitute traditional means of control in the form of maintaining hygiene and proper quality of health drinking water.

Symptoms:

Cholera is a very malicious bacteria and a peccant disease.

This problem concerns both children and adults attacking within several hours from eating improper food and drinking infected water.

An interesting fact is that for approximately 75% of infected people *V. cholerae* does not cause any symptoms, though bacteria is present in excrements for 7-14 days after infecting, and may 'come back' to environment in an active form posing potential infections of many people.

Among people with clinical symptoms, 80% of them has mild or moderate symptoms; however, approximately 20% has acute dysentery with hard dehydration. This may lead to death, if the disease is not properly treated.

In case of people with low immunity, e.g. malnourished children, people with HIV, people with high stress level, elderly people, pregnant women, there exists high risk of death, if they will be infected.

The History

In the 19th century Cholera spreading was noted in the whole World, which came from an original reservoir in Ganges delta in India. Six successive pandemics killed millions of people on all continents. At present, (the seventh) explosion of pandemic began in Southern Asia in 1961 and it came to Africa in 1971 and to America in 1991. Cholera is, in many countries, an endemic disease that is why it is worth to get acquainted with its existence and history before travelling to exotic countries.

Vibrio cholerae: strains

Two serogroups of *V. cholerae* – strain O1 and strain O139. *V. cholerae* strain O1 is the cause of the majority of diseases; strain O139 – for the first time was indentified in Bangladesh in 1992 – and its occurrence is limited only to South-Eastern Asia (many epidemiologists are of the opinion that due to conditions in Bangladesh, such as the largest number of people and the fact that animal bacteria may spread to people and form new, unknown, disease units). Strains non-O1 and non-O139 of *V. cholerae* may cause mild dysenteries but they do not cause epidemics. Recently, new strains of this bacteria were discovered in various parts of Asia and Africa. Observations indicate that this strains may cause serious Cholera disease, meaning higher rate of death. Each country should implement actions for epidemiological monitoring of spreading strains, what is recommended by WHO.

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The main origin of *V. cholerae* infections are people and watercourses, mainly river mouths connected with alga bloom. Recent research shows that global warming creates beneficial conditions for existence and development of this bacteria.

Risk factors and disease burden

Cholera in industrial areas is strictly connected with improper management of environment protection. Typically threatened areas are suburban slums, where infrastructure is not available, and camps for internal refugees or refugees, in which minimum requirements of clean water and sanitation are not fulfilled.

Results of calamities – such as disturbance of water-sewage systems or movement of people to camps, which are not adjusted for such a population; improper and overcrowded buildings in warm and humid climate – may increase the risk of carrying Cholera bacteria.

It is worth noting that, as it was confirmed, epidemic never began as a result of improper treatment of corpses and human remains.

Cholera is still a global threat to public health and is a major indicator of lack of social development. Recently, another appearance of Cholera has been noted simultaneously with increased level of population living in insanitary conditions in some countries.

The number of Cholera cases reported and confirmed is still growing. From 2004 to 2008 the number of cases increased by 24% in comparison to the period of 2000-2004. In 2008 were, in total, 190 130 reported cases (from 56 countries), including 5 143 deaths. Other cases were not noted due to limits in inspections and for fear of losing goods exchange rights and travel

sanctions (profits from tourism). The real scope of this disease is estimated to embrace statistically 3-5 million cases and 100 000-120 000 deaths annually.

Prevention and control

It needs a multidisciplinary approach based on prevention, preparation, reaction, and efficient controlling system. All elements have a crucial meaning for soothing results of Cholera epidemics, and controlling of this phenomenon in the endemic areas, as well as, decrease of the number of deaths.

Treatment

Cholera is an easily treated disease. Even 80% of infected people may be easily treated by fast administering hydrating salt orally. Very much dehydrated people need administering salt intravenously.

Such people also need proper antibiotics in order to shorten the time of dysentery existence, decrease the amount of needed hydrating fluids and shorten the time of duration of *V. cholerae* infection.

Administering mass antibiotics is not recommended since it has no influence on Cholera spreading and it increase immunity to antibiotics in a very short time.

In order to assure a fast access to treatment it is crucial to open Cholera treatment centres (CTC). Due to proper treatment the number of deaths should stay under 1%.

Answers to „Outbreak”

After an outbreak and confirmation of Cholera the usual intervention strategy is decreasing the number of fatal cases and providing a fast access to treatment in order to control spreading of Cholera through clean water, proper sanitations and health education, which should bring improvement of hygiene and security of food and improvement of personal activities of the society of the increased risk.

Providing clean water and sanitation is a huge challenge but still is a crucial factor needed for decreasing Cholera results.

Administering Cholera vaccine

There exist two types of safe and efficient oral vaccines protecting against Cholera, which are available on the market.

Both of them are created from whole cells of killed strains, one from combined B-sub units and the other without it.

Both of them increase the level of protection by more than 50%, which lasts 2 years. One vaccine (DUKORAL) is qualified and licenses in more than 60 countries by WHO. DUKORAL guarantees a short-term protection support by 85-90% against V. cholerae O1 for all age groups but not before 4-6 months after vaccination.

Other vaccine (SACHANOL) is currently in pre-qualification done by WHO and assures a long-term protection against *V. cholerae* O1 and O139 for children under 5 years.

Both vaccines are administered in two doses at intervals of 7 days to 6 weeks. A vaccine of subunit B (DUKORAL) is administered in dilution of 150 ml of clean water.

WHO recommends vaccination using currently available Cholera vaccines but due to their incomplete protection they should be used in combination with most commonly recommended protection measurements in the areas where Cholera is an endemic disease, as well as, in the areas of active disease centre. Vaccines guarantee a short-term effect that is why it should be remembered that in case of long-term perspective of dwelling in endemic environment one should focus on basic hygiene rules, reliable water-sewage system and efficient sewage system, and, most of all, on common sense.

Usage of vaccines should be administered to threatened groups of people living in the areas of high risk and should not disturb serving other activities in order to control or prevent Cholera epidemic.

Using a parenteral vaccine against Cholera is not recommended by WHO due to a low level of protection efficiency and a high level of prevalence of tough side effects.

Travelling and trade

Currently, no country demands a proof of having a Cholera vaccine, what might be a condition for entering a country. Hitherto experience indicates that measurements undertaken within a quarantine and embargo on flow of people and goods are not needed. Single cases of Cholera connected with infections of imported food resulted from infected food possessed by individual travelers. In connection to this, restriction of import of food produced, within good practice production (GMP) and good hygiene practice (GHP), on the basis of hygiene process is futile.

Countries neighbouring areas infected by Cholera are encouraged to strengthen control of diseases and implement national readiness systems (National System for Fast Reaction) in order to detect and react fast to Cholera epidemic. Moreover, information on potential risk

and symptoms of Cholera should be delivered for travelers and society together with rules how to avoid Cholera infection, and where and when to register cases of Cholera infections.

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