Aquarius

Technical Issue Paper 2

WASH Preparedness and Response to Cholera

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They aim at providing information to assist in funding decisions and monitoring of humanitarian projects and not at providing definitive answers

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Cholera outbreaks are still a regular occurrence in many parts of the world and trends in Africa are actually increasing. Lessons learnt from responses to outbreaks in the last few years have shown that while medical responses for the clinic treatment of patients has been relatively effective, critical steps to control transmission of the disease through water, sanitation and hygiene interventions have been neglected. This paper outlines some of the good practice in preparedness and response to cholera in the Watsan sector and highlights the importance of risk reduction approaches.

Overview of the Issue

Basics on Cholera

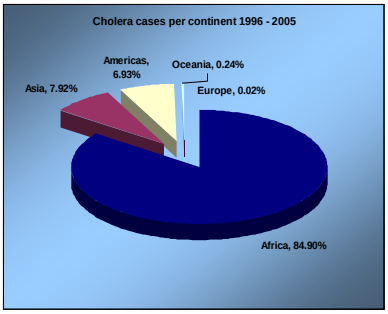
- Cholera is a diarrhoeal disease caused by infection of the intestine with the bacterium *Vibrio cholerae*. WHO suggests that 90% of episodes are of mild to moderate severity and are difficult to distinguish from other causes of diarrhoea. However, cholera can be rapidly fatal in severe cases and, if left untreated, can result in up to 50% mortality. The incubation period is very short (2 hours to 5 days) and the number of cases can rise extremely quickly.
- Cholera is transmitted via the faecal-oral route and is called the disease of the dirty hands. Lack of hygiene, poor sanitation, unsafe drinking water and contaminated food are main factors contributing to the transmission of the disease.
- Human beings are one of the main reservoirs for the vibrio which can be found in the stool, vomit and sweat of cholera patients (also in dead bodies**).** An infected person, whether ill or not can discharge the bacterium in the faeces for a period up to 14 days. First line preventive measures in treatment centres and in areas where cases have been identified are essential actions to stop the transmission.
- Symptoms of acute cases are profuse rice watery diarrhoea, vomiting and cramps. The rapid loss of body fluids leads to severe dehydration and then shock. Without treatment, death can occur within hours. According to the WHO case definition, cholera can be suspected when:
  1- a patient older than 5 years develops severe dehydration and/or dies from diarrhoea.
  2- in areas where there is a cholera epidemic, a patient aged 5 years or more develops acute watery diarrhoea, with or without vomiting.
- Epidemics generally occur in underdeveloped areas with inadequate sanitation, poor hygiene and limited access to safe water. Populations exposed to major risks are people living in poor slums (crowded urban areas with unsanitary conditions), refugee and displaced camps. Risk of transmission is lower in rural areas, but cases are more difficult to access for diagnosis and treatment. Outbreaks often occur during or after disasters and complex emergencies.
- A number of factors affect the likelihood of an outbreak of cholera including: external conditions (gatherings, migration, camps), living conditions (over-crowding, sanitation), cultural beliefs (funeral behaviour, contact with the sick), climatic conditions (seasonal rains, floods etc). Interventions to improve any of these factors can help prevent the outbreak or spread of the disease.
- Cholera has become endemic in some countries and a seasonal pattern for epidemics has been observed.
- Cholera no longer has to be compulsorily notified to W.H.O. Without an official declaration of cholera full and effective response is difficult to mobilise. However if WHO declares an outbreak this can trigger restrictions on movement of goods and people making some governments reluctant to recognize the existence of an outbreak.
- In disaster situation, the possibility of cholera frequently triggers panic, even if the actual risk of outbreak appears to the limited.

Trends in cholera outbreaks:

- Cholera is a substantial health burden on the developing world but the scale of the problem is uncertain because of limitations in surveillance and reporting (WHO acknowledges that only around 1% of cholera cases are actually reported). Therefore reports on number of deaths (e.g. WHO estimated 120.000 deaths in 2003) appear to not to be very high compared to other diarrhoeal diseases (estimated at a total of 2,85 million deaths/year). However cholera

represents the highest risk in term of acute outbreak.

- Cholera cases in Africa represent 84.9 % of the world total cases registered by WHO during the last 10 years, (Asia 7.9% and America 6.9%) and represents 94% of the total deaths (Asia and America both 3%).
- The only continent showing a trend with a steady increase in term of number of cases is Africa. Incidence of cholera outbreaks is decreasing in both Asia and America.
- There is some evidence that cholera cases are on the increase in non endemic areas as a result of global climate change



Lessons Learnt in prevention and control

Effective control measures: water and environmental sanitation actions

- Environmental health actions (water treatment and supply, hand washing) can decrease the attack rate. Key actions include; provision of safe water and sanitation, hygiene, food safety and health education. The **key message is *link environment to health***
- Cholera outbreak is a symptom of a severe problem in term of water and environmental sanitation (including hygiene)
- WASH preparedness and prevention programmes have successfully been implemented in some countries (e.g. Afghanistan, Nepal, Malawi) just before the main cholera season (when cholera is endemic and follows seasonal patterns). These included:
  - Short-term water treatment (regular or continuous chlorination of wells, rehabilitation of treatment works),
  - Hygiene campaign (using innovative and effective techniques for conveying messages and household visits)
  - Distribution of soap, water containers
  - Maintenance of Watsan facilities at health centres
- Survey and mapping of water sources and sanitation facilities before an outbreak can help in planning and implementing control measures.
- Involvement of the community in monitoring the disease and passing health & hygiene messages is critical to control of the disease.
- The identification and treatment of contaminated water sources is a critical first step in the control of cholera. Sanitary surveys can help to determine how the infection entered the water source. Water sources will be re-contaminated if the origin of the contamination is not identified quickly.
- Provision of emergency water supplies which meet Sphere standards is sometimes necessary. In some situations extraordinary control measures on local water supplies may also be necessary especially where quality of the water being supplied is questionable. However this can cause problems if control measures interfere with livelihoods of private water vendors. This can be a particular challenge in urban environments.

Luanda Cholera Outbreak 2006

In 2006 Luanda was the scene of the largest cholera outbreak ever registered in the country. The epidemic spread throughout the whole city like bush-fire and not a single corner of the vast capital was spared. More than 17,500 cases were recorded and hundreds of people died.

Whilst MSF made every effort to ensure that patients had access to treatment centres and the government with WHO put in place a limited surveillance system, there were virtually no efforts to control transmission of the disease. Without sufficient quantities of water, and given the lack of proper drainage and rubbish collection, disease is rampant in the vast slums. This disastrous water and sanitation situation made it virtually impossible to contain the rapid spread of the outbreak. The outbreak was eventually contained but MSF and others felt it could have ended earlier with better Watsan actions. Luanda remains at risk for further outbreaks.

- Household water treatment, combined with treatment of community water supplies was used to control the outbreak of cholera in South Sudan in 2006 but its effectiveness was limited by the lack of appropriate material for health and hygiene promotion and poor coordination amongst actors.
- Response to Acute Watery Diarrhoea (AWD) in a refugee camp in Thailand focused on water treatment and a campaign for promoting hand washing. This was more feasible in a camp environment that in a scattered population.
- Hygiene education programmes have to be cultural appropriate and focus on the most high risk behaviours. Cholera control in remote, traditional communities (e.g. Papua, Indonesia) has to be community based and concentrate on acceptable behaviour change.
- Sanitation practices such as pit latrines or open defecation create opportunities for disease transmission. Rapid action to provide alternative sanitation arrangements can reduce the spread of the disease.

Water and environmental sanitation actions at Diarrhoea Treatment Centres

- Response actions often include the establishment of diarrhoea treatment centres. These centres cannot be effective without adequate hygiene. Provision of adequate, safe water supplies and hygienic sanitation facilities are essential for preventing further infection of staff and visitors and to ensure effective treatment for patients.
- Chlorine solution can be used as a disinfectant at treatment centres however experience has shown that different concentrations of chlorine solution are appropriate for different types of disinfection. For example disinfection of equipment, bed linen and other items directly contaminated by faeces requires a higher concentration. This has implications for pre-positioning chlorine as a preparedness measure.

References

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For more information on cholera consult the ECHO Regional Health Coordinators and/or the WHO website: http://www.who.int/healthtopics/cholera

Recommendations for ECHO

In areas where cholera is endemic or there is a high risk of a cholera outbreak ECHO, when present, should consider funding preparedness projects integrating medical and WASH components within global plans. The aim should be to develop preventive action and prepare an effective response. WASH components should be carried out in the months before the usual cholera season and include (where appropriate):

- Joint risk analysis (medical and WASH) to identify high risk areas.
- Training of community volunteers and health staff to carry out house to house hygiene campaigns and health education. Additional campaigns should be done at public places and gatherings (markets, places of prayer etc) using culturally appropriate communication tools
- Provision of soap – preferably free of charge and in sufficient quantities for all households to use for several months. Where necessary distribution of water containers for collection and storage of safe water can also be considered
- Disinfection of existing water facilities and planning for effective chlorination (preferably continuous or daily) to maintain the necessary chlorine residual to ensure proper disinfection in the longer term. **One off chlorination is not effective**
- **Supply of chlorine (or other disinfectant) for household water treatment where proper use can be guaranteed.**
- Organisation of a programme of regular testing of water supplies and sanitary surveys for high risk areas. Water can be tested for the presence of bacteria, including *V. Cholerae,* but a simpler test is to measure the residual chlorine to determine whether the disinfection is still effective.
- Provision of new and/or temporary water supplies and sanitation facilities especially at health facilities and planned cholera treatment centres, where large quantities of safe water will be needed in case of an outbreak
- Cleaning campaigns around the affected area, including removal of solid waste and waste water
- Pre-positioning of critical hygiene items such as chlorine and soap at health facilities, schools and other public buildings.
- Development of contingency plans involving local authorities and other key stakeholders, including establishment of coordination mechanisms
- Identification of areas to place Cholera treatment centres, taking into account water and sanitation facilities.
- Reinforcement of capacities for surveillance, hygiene promotion and treatment within the community

When a cholera outbreak is confirmed or suspected ECHO should quickly release funds for Watsan control measures alongside medical interventions for treatment of patients. Components should include:

- Survey of water sources and environmental sanitation to identify contaminated sources and potential sources of contamination.
- Daily or continuous chlorination of all high risk supplies and, where possible, protection of open water sources should be started as soon as possible. Regular monitoring of water quality should be established and continued as long as possible.
- Ensuring adequate quantities of water for drinking and hygiene purposes. All households in affected areas should have access to a minimum of 15l/person/day of safe water. It may be necessary to install temporary, emergency water supplies to supply these quantities for the duration of the outbreak. Care should be taken to ensure full involvement of all actors, including private water vendors, to avoid undermining existing supply systems.
- Distribution of household water treatment can be considered but ONLY if accompanied by an effective education campaign and monitoring on proper use of treatment and treated water (see also Aquarius TIP to be issued).
- Establishment of measures for safe disposal of faeces and other waste including replacing risky practices such as bucket latrines with minimum safe sanitation facilities for each household
- Providing adequate safe water supplies, sanitation facilities and hygiene measures for diarrhoea treatment centres and other medical and education facilities where there is a high risk of disease transmission because people are gathered together in one place.