



WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health

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Cholera – Are We at Risk?

Background

Enteric or diarrhoeal diseases are the second leading cause of mortality in children less than five years of age, with an estimated 2.5 billion cases and 1.5 million deaths each year. Among them, Cholera, Typhoid fever and Rotavirus remain a major public health issue in several developing countries of Asia, Africa, and South America. It causes painless watery diarrhoea that is very profuse which can rapidly lead to severe dehydration and electrolyte disturbances leading to death within hours if left untreated.

Agent

Cholera is caused by the bacteria *Vibrio cholerae*, which is a facultative anaerobic organism. It is a Gram-negative, comma-shaped bacterium with a flagellum.

Disease burden

The global burden of cholera is estimated to be around 3 to 5 million new cases reported each year, leading to 100,000 to 120,000 deaths. Cholera is still a neglected and under-reported disease in some countries.

It occurs endemically in south and south-east Asia and in Africa, but may also cause major outbreaks, resulting in thousands of deaths in a short period of time. The recent increase in the number and frequency of outbreaks is a major concern as well as the emergence of multi-drug resistant strains.

Global situation

Cholera remains a major public health problem and represents an important threat in almost every developing country, especially in areas of poor sanitation such as slums or refugees camps. The disease is endemic to parts of Africa, Asia (including India and Bangladesh), the Middle East and South America. Since 2009, the number of cholera cases reported has increased by 50%. Large outbreaks are common after natural disasters or in populations displaced by war, where there is inadequate sewage disposal and contaminated water.

Situation in Asia

The reported number of cases from Asia contrasts with the large number of cases of acute watery diarrhoea, of which a significant proportion are caused by *V. cholerae*. Some of the cholera cases are not reported owing to serious limitations in surveillance systems in a large part of Asia.

Situation in Sri Lanka

Although cholera is not reported in Sri Lanka since 2003, it is a notifiable disease in our country and surveillance is continued. With the recent increase in the number and frequency of outbreaks of Cholera in south and south-east Asia, Sri Lanka is also at increased risk. There is a possibility for the disease to be imported to Sri Lanka via illegal immigrants.

Clinical Features of Cholera

After a 24- to 48-hour incubation period, it produces an enterotoxin that causes painless watery diarrhoea which is often followed by vomiting. The patient may experience accompanying abdominal cramps, probably from distention of small bowel loops as a result of the large volume of intestinal secretions. Fever is rare and usually found only in children.

However, most *Vibrio cholerae* infections are asymptomatic; and mild to moderate diarrhoea due to *V. cholerae* infection may not be clinically distinguishable from other causes of gastroenteritis. An estimated 5% of infected patients will develop severe form of cholera with voluminous rice water stools, vomiting, and dehydration (which is also known as cholera gravis).

Diagnosis

The diagnosis is confirmed by the isolation of *V. cholerae* serogroup O1 or O139 from faeces. A presumptive diagnosis can be made by visualization by dark field or phase microscopy of *V. cholerae*'s characteristic motility, specifically inhibited by preservative-free serotype-specific antiserum.

Treatment

Replacement of lost fluids, salts and replacement of ongoing losses by Oral Rehydration

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Solution (ORS) is the mainstay of treatment and cholera can kill a person within hours if left untreated. 80% of cholera cases can be treated using Oral Rehydration Solution only and most people recover in three to six days.

If the infected person becomes severely dehydrated, intravenous fluids can be given. Ringer's Lactate solution is preferred over isotonic sodium chloride solution because of the inability of saline to correct metabolic acidosis.

Use of Antibiotics

An effective antibiotic can reduce the volume of diarrhea in patients with severe cholera and shorten the period during which *V. cholerae* is excreted. In addition, it usually stops the diarrhoea within 48 hours, thus shortening the period of hospitalization. Whenever possible, antibiotic therapy should be guided by susceptibility reports.

Antimicrobial agents typically are administered for 3-5 days. However, single-dose therapy with tetracycline, doxycycline, furazolidone or ciprofloxacin has shown to be effective in reducing the duration and volume of diarrhea.

Communicability

Persons are infectious during the acute stage and for few days after recovery. By the end of the first week, 70% of patients are non-infectious and by the end of the third week, 98% are non-infectious. Occasionally the carrier state may persist for months and chronic biliary infection with intermittent shedding of organisms may last for years.

Mode of transmission

Transmission occurs through ingestion of contaminated water and food. Sudden large outbreaks are usually caused by a contaminated water supply. Raw or undercooked seafood may be a source of infection in areas where cholera is prevalent and sanitation is poor. Transmission due to direct person to person contact is rare.

Incubation period

Incubation period is usually between few hours to 05 days. Most people get symptoms after two to five days.

Cholera prevention and control

The current high risk situation of disease toward Sri Lanka highlights the need for additional measures to prevent Cholera. Being a faecal-oral highly transmissible water-borne disease, water sanitation including clean water supply, sewage treatment, other sanitation infrastructures and awareness and adoption of hygienic practices are the necessary steps for its elimination.

Basic Cholera Prevention Measures

1. Drinking and using safe water-Boiled water or water treated with chlorine, bottled water with unbroken seals are considered as safe and canned/bottled carbonated beverages are also safe to drink. Safe water has to be used for brushing teeth, washing and preparing food as well. Treated water has to be stored in a clean, covered container. Kitchenware and food preparation areas have to be cleaned with soap and safe water and should be allowed to dry completely before reuse.

2. Washing hands with soap and safe water-It is important to wash hands with soap and safe water before eating or feeding children, before preparing food, after using the toilet and after taking care of a household with diarrhea.

3. Using latrines-Using latrines and disposal of faeces of children into toilets are essential and it is advised to clean the la-

trines using bleach or any suitable disinfectant.

4. Consuming safe food-It is advised to cook food thoroughly with heat, to keep cooked food covered, to consume freshly prepared food while it is hot, avoid consumption of raw food except vegetables and fruits that can be peeled off and to avoid consumption of raw or undercooked seafood.

5. Cleaning up safely-Bathing areas should be at least 30 meters away from drinking water sources.

Vaccination

Eventually, vaccination will also become an option for populations living in high-risk areas in a situation of an epidemic. Immunization of the entire population is not justifiable and focus should be done on at-risk populations such as young children, or vulnerable people such as pregnant women and HIV positive persons. However, massive vaccination campaigns might be needed to prevent and/or control epidemics.

The WHO recommends that immunization be used with other prevention and control strategies in areas where the disease is endemic and in areas at risk of outbreaks

Use of Oral Cholera Vaccine in epidemics

Experience gained from different mass vaccination campaigns in Mozambique, Indonesia, Sudan and Zanzibar highlighted the need for careful planning and prior preparation. Guinea Cholera Campaign in 2013 was reported as the first large - scale use of oral cholera vaccine as an outbreak control measure in Africa and the campaign was well accepted by the population.

Oral Cholera Vaccine

Oral Cholera Vaccine is safe and effective and was added to WHO recommendations in 2010 for cholera outbreak control. However, doubts about feasibility, timeliness and acceptability by the population and the fear of diverting resources from other preventive interventions have discouraged its use during epidemics.

Currently, there are two oral cholera vaccines available, one (Dukoral) is World Health Organization (WHO) prequalified and licensed in over 60 countries, and the other vaccine (ShanChol) is licensed in India and is pending WHO prequalification. For adults and children from 6 years of age, two doses of the vaccine have to be administered and the interval between two doses should be one to six weeks. If more than 6 weeks have elapsed between doses, the primary immunization course should be re-started and the immunization should be completed at least 1 week prior to potential exposure.

Because the vaccine is a two dose vaccine, multiple weeks can elapse before person receiving the vaccine is protected and the currently available vaccines offer incomplete protection for a relatively short period of time. In addition, CDC does not recommend cholera vaccines for most travellers, nor is the vaccine available in the US. Therefore, vaccination should be considered only as an additional preventive measure and should not replace the standard prevention and control measures.

Sources

Oral cholera vaccines (WHO), available from <http://www.who.int/cholera/vaccines/en/>
Prevention and Control of Cholera (CDC), available from <http://www.cdc.gov/cholera/pdf/Five-Basic-Cholera-Prevention-Messages.pdf>
Initiative against Diarrheal and Enteric diseases in Africa and Asia (IDEA), available from <http://www.idea-asia.info>

Compiled by Dr. H. A. Shanika Rasanjalee of the Epidemiology Unit

Table 1: Selected notifiable diseases reported by Medical Officers of Health 28th - 03rd Janu 2014 (01st Week)

RDHS Division	Dengue Fever		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Chickenpox		Meningitis		Leishmaniasis		WRCDC			
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**		
Colombo	244	244	2	2	1	1	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	1	1	0	0	77	23
Gampaha	103	103	4	4	0	0	2	2	0	0	0	0	0	0	2	2	0	0	0	0	2	2	5	5	1	1	87	13
Kalutara	48	48	2	2	0	0	1	1	1	1	4	4	0	0	0	0	0	0	0	0	0	0	1	1	0	0	69	31
Kandy	16	16	1	1	0	0	0	0	0	0	1	1	2	2	1	1	0	0	0	0	0	0	0	0	0	0	87	13
Matale	8	8	0	0	0	0	0	0	0	0	3	3	0	0	1	1	0	0	0	0	0	0	0	0	0	0	69	31
NuwaraEliya	8	8	3	3	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	2	2	1	1	0	0	85	15	
Galle	17	17	1	1	1	1	0	0	0	0	9	9	3	3	0	0	0	0	0	4	4	0	0	0	0	79	21	
Hambantota	13	13	5	5	0	0	1	1	0	0	4	4	2	2	0	0	0	0	0	1	1	6	6	10	10	100	0	
Matara	10	10	4	4	0	0	6	6	0	0	1	1	1	1	2	2	0	0	0	3	3	3	3	3	3	100	0	
Jaffna	43	43	11	11	0	0	9	9	5	5	1	1	27	27	1	1	0	0	0	2	2	1	1	0	0	100	0	
Kilinochchi	1	1	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	75	25	
Mannar	1	1	2	2	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	
Vavuniya	1	1	2	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	50	50	
Mullaitivu	3	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	80	20	
Batticaloa	5	5	4	4	0	0	2	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	79	21	
Ampara	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71	29	
Trincomalee	3	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67	33	
Kurunegala	25	25	2	2	1	1	1	1	0	0	1	1	1	1	1	1	0	0	0	5	5	0	0	1	1	89	11	
Puttalam	22	22	3	3	0	0	0	0	1	1	2	2	0	0	0	0	0	0	0	2	2	0	0	0	0	77	23	
Anuradhapura	3	3	6	6	0	0	0	0	0	0	2	2	1	1	0	0	0	0	1	1	1	1	1	2	2	74	26	
Polonnaruwa	9	9	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	71	29	
Badulla	11	11	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	1	1	0	0	71	29	
Monaragala	5	5	2	2	0	0	0	0	0	0	2	2	2	2	4	4	0	0	1	1	1	0	0	1	1	82	18	
Ratnapura	12	12	4	4	0	0	2	2	0	0	13	13	0	0	2	2	0	0	1	1	1	0	0	0	0	78	22	
Kegalle	18	18	1	1	0	0	1	1	0	0	3	3	0	0	2	2	0	0	4	4	1	1	1	1	1	100	0	
Kalmune	5	5	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	1	1	0	0	77	23
SRILANKA	634	634	66	66	3	3	29	29	8	8	51	51	43	43	17	17	0	0	33	33	23	23	20	20	82	18		

Source: Weekly Returns of Communicable Diseases (WRCDC).

*T=Timeliness refers to returns received on or before 03rd January, 2014. Total number of reporting units 337. Number of reporting units data provided for the current week: 275. C**-Completeness. A = Cases reported during the current week. B = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

28th – 03rd Janu 2014 (01st Week)

Disease	No. of Cases by Province									Number of cases during current week in 2014	Number of cases during same week in 2013	Total number of cases to date in 2014	Total number of cases to date in 2013	Difference between the number of cases to date in 2014 & 2013	
	W	C	S	N	E	NW	NC	U	Sab						
AFP*	00	00	00	00	00	00	00	00	00	00	00	00	00	00	%
Diphtheria	00	00	00	00	00	00	00	00	00	00	-	00	-	%	
Mumps	04	01	02	01	01	01	01	00	02	13	19	13	19	-31.6%	
Measles	10	00	15	00	02	08	08	01	11	55	02	55	02	+2650.0%	
Rubella	00	00	00	00	00	00	00	00	00	00	-	00	-	%	
CRS**	00	00	00	00	00	00	00	00	00	00	-	00	-	%	
Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	%	
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	-	00	-	%	
Japanese Encephalitis	00	00	00	00	00	00	00	00	00	00	-	00	-	%	
Whooping Cough	00	00	00	00	01	00	00	00	00	01	04	01	04	-75%	
Tuberculosis	179	23	05	28	08	09	06	12	57	327	126	327	126	+159.5%	

Key to Table 1 & 2

Provinces: W: Western, C: Central, S: Southern, N: North, E: East, NC: North Central, NW: North Western, U: Uva, Sab: Sabaragamuwa.
 RDHS Divisions: CB: Colombo, GM: Gampaha, KL: Kalutara, KD: Kandy, ML: Matale, NE: Nuwara Eliya, GL: Galle, HB: Hambantota, MT: Matara, JF: Jaffna, KN: Killinochchi, MN: Mannar, VA: Vavuniya, MU: Mullaitivu, BT: Batticaloa, AM: Ampara, TR: Trincomalee, KM: Kalmunai, KR: Kurunegala, PU: Puttalam, AP: Anuradhapura, PO: Polonnaruwa, BD: Badulla, MO: Moneragala, RP: Ratnapura, KG: Kegalle.

Data Sources:
 Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,
 Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis
 CRS** =Congenital Rubella Syndrome
 AFP and all clinically confirmed Vaccine Preventable Diseases except Tuberculosis and Mumps should be investigated by the MOH

Dengue Prevention and Control Health Messages

Look for plants such as bamboo, bohemia, rampe and banana in your surroundings and maintain them

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Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to chepid@sltnet.lk. Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication

ON STATE SERVICE

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