Oral cholera vaccines in mass immunization campaigns

GUIDANCE FOR PLANNING AND USE

World Health Organization

Oral cholera vaccines in mass immunization campaigns

GUIDANCE FOR PLANNING AND USE

World Health Organization

WHO Library Cataloguing-in-Publication Data

Oral cholera vaccines in mass immunization campaigns: guidance for planning and use.

1.Cholera – immunology. 2.Cholera vaccines. 3.Mass immunization. I.World Health Organization.

ISBN 978 92 4 150043 2 (NLM classification: WC 262)

For further information, please contact the Global Task Force on Cholera Control **cholera@who.int** or visit our web site at **www.who.int/cholera**.

For a real life experience of a cholera mass vaccination campaign please view the WHO video "Oral cholera vaccines: a mass vaccination campaign, Zanzibar, United Republic of Tanzania, 2009" at **http://www.who.int/cholera/technical/prevention/vaccines/en/index.html**

Designed by minimum graphics
Printed in France

Contents

1. Background

1.1 Introduction

About 1.8–2.8 million people die of diarrhoea every year, representing 3.7% of the 56 million deaths recorded globally. For children under the age of 5, the percentage of deaths due to diarrhoea reaches 15–19%. In low- and middle-income countries, diarrhoea is the second killer among communicable diseases after lower respiratory infections, the seventh when considering all causes of death. DALY calculation shows that diarrhoea ranks sixth among the causes of burden of disease, third among communicable diseases.

Epidemiological trends indicate that epidemic-prone diarrhoeal diseases have been rising in recent years. Massive outbreaks of cholera, a disease representing roughly 4.2% of all epidemic diarrhoea, now affect countries that had been free of the disease for decades. Cholera remains an important public health problem for many countries, and it is estimated that the disease kills between 75 000 and 120 000 people every year. Usually-recommended prevention and control measures are efficient, and WHO recommendations in this regard have not changed. However, they often cannot be put in place with sufficient timeliness and sustainability, which is why WHO is now considering the use of new tools that may contribute to lowering the effect of cholera on at-risk populations. Among them, safe and effective oral cholera vaccines (OCV) are now available, and WHO recommendations regulating their use have recently been issued and a 3-step decision-making tool developed for crisis situations, to guide policy-makers in their decision on whether to use OCV during complex emergencies (*1*,*2*).

In this context, the Global Task Force on Cholera Control decided to issue practical information on the preparation and implementation of mass vaccination using OCV, intended for all (governments, institutions or NGOs) that might be involved in any phase of a mass vaccination campaign using OCV. This document aims to help organizers to prepare and implement campaigns in order to maximize benefits for the population.

Information given here is essentially drawn from WHO's direct experience in the use of OCV.

1.2 The disease: causative agent, clinical manifestations, prevention

Cholera is an acute enteric infection caused by the ingestion of the bacteria *Vibrio cholerae* O1 or O139.[1] Transmission of the disease occurs through direct faecal-oral contamination or through ingestion of contaminated water or food. It is characterized in its most severe form by a sudden onset of acute watery diarrhoea with or without vomiting that may lead to death in a few hours as a result of severe dehydration, acidosis, circulatory collapse, hypoglycaemia in children and renal failure. Both children and adults may be affected. The extremely short incubation period – two hours to five days – enhances the potentially explosive pattern of outbreaks, so that the number of cases rises very quickly.

The infectious agent *V. cholerae* O1 is of two biotypes – classical and El Tor – that include three serotypes (Inaba, Ogawa and, rarely, Hikojima). However, the classical biotype has not been identified since the early 1990s. *V. cholerae* O139, first identified in Bangladesh in 1992 and currently present in various areas in South Asia, possesses the same virulence factors as O1, and creates a similar clinical picture. Reservoirs are human beings and environmental pockets – brackish water and estuaries – in association with copepods and zooplankton.

During the 19th century, cholera spread repeatedly from its original reservoir in the Ganges delta to the rest of the world, before receding back to South Asia. Six pandemics were recorded, killing millions of people across Europe, Africa and the Americas. The seventh pandemic, still ongoing, started in 1961 in South Asia, reached Africa in 1971 and the Americas in 1991. It is now considered that the disease is endemic in many countries, and that the pathogen causing cholera remains in the environment. It must therefore be controlled in order to limit its impact on populations.

About 75% of cholera cases are asymptomatic. Among those presenting symptoms, 80–90% develop acute watery diarrhoea, and 10–20% of these cases develop severe watery diarrhoea with vomiting. If untreated, the case-fatality rate may reach up to 40%; with proper treatment, it should remain below 1%.

The WHO standard case definition states that cholera should be suspected when:

[1] *V. cholerae* non-O1 non-O139 can cause mild diarrhoea but do not generate outbreaks.

1. In an area where the disease is not known to be present, a patient aged 5 years or more[1] develops severe dehydration or dies from acute watery diarrhoea.
2. In an area where there is a cholera epidemic, a patient aged 5 years or more develops acute watery diarrhoea, with or without vomiting.

Diagnosis is confirmed by isolating *V. cholerae* O1 or O139 from faeces through laboratory testing. To ensure the quality of samples, Cary Blair transport medium should be used for transport and storage of rectal swabs. Laboratory testing is also required to determine antimicrobial resistance and should be performed regularly on a selected number of patients in the course of an outbreak to detect any change in antimicrobial susceptibility patterns.

1.3 Risk factors, seasonality and vulnerable groups

Cholera, a waterborne disease, is closely linked to inadequate environmental management. The absence or shortage of safe water and sufficient sanitation and, generally, poor environmental status are the main causes of spread of the disease. These factors are present in many places in the developing world, and even more acutely in overcrowded settings. Typical at-risk areas are periurban slums, where basic infrastructures are not available, as well as camps for internally displaced persons or refugees, where the minimum requirements[2] of clean water and sanitation are not met. The populations most affected are therefore those living in insalubrious conditions, where environmental safety is not ensured.

In the context of complex emergencies, it is important to stress that beliefs regarding cholera epidemics caused by dead bodies after disasters, whether natural or man-made, have been dismissed based on evidence (*3*,*4*) but uncontrolled rumours and panics are often rife. However, the consequence of a disaster – disruption of water and sanitation systems, massive displacement of populations to inadequate and overcrowded camps, etc. – may increase the risk of transmission, should the pathogen