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**WHO guidance
on formulation of
national policy
on the control of
cholera**

GLOBAL TASK FORCE ON CHOLERA CONTROL



WORLD HEALTH ORGANIZATION

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This document sets out the position of the World Health Organization (WHO) in relation to a number of key areas of cholera control. It is intended to provide guidance and support for national health authorities and others in the preparation of policies for the control of cholera. It may also be useful to international, bilateral, and nongovernmental agencies when deciding on appropriate assistance to countries for controlling cholera outbreaks. Detailed guidance on cholera control is available in the *WHO Guidelines for cholera control*.¹

It was prepared by the WHO Global Task Force on Cholera Control, which was created in April 1991, and is comprised of representatives of the Diarrhoeal Disease Control Programme, the Community Water Supply and Sanitation Unit, the Food Safety Programme, the Strengthening of Epidemiological and Statistical Services Unit, the Office of Information, the Microbiology and Immunology Support Services Unit, the Office of External Coordination, the Division of Health Education, the Division of Emergency Relief Operations, and the Action Programme on Essential Drugs. A UNICEF staff member regularly contributes to the work of the Task Force.

¹ Available as WHO unpublished document WHO/CDD/SER/80.4 Rev.3 (1992). Also under preparation as a WHO publication to be issued in 1992.

WHO GUIDANCE ON FORMULATION OF NATIONAL POLICY ON THE CONTROL OF CHOLERA

I. SURVEILLANCE AND REPORTING

Adequate surveillance and reporting is essential for national and international efforts to control cholera.

Case definitions

The primary purpose of collecting and reporting information on cases of cholera is to facilitate local and national control efforts. As cholera is notifiable under the terms of the International Health Regulations, standard definitions should be used and certain information should be included in reports from all levels of the health system.

A case of cholera should be suspected when:

- *In an area where the disease is not known to be present, a patient, 5 years of age or older, develops severe dehydration or dies from acute watery diarrhoea.*
- *In an area where an epidemic is occurring, a patient, 5 years of age or older, develops acute watery diarrhoea, with or without vomiting.¹*

A case of cholera is confirmed when:

- *Vibrio cholerae O1 is isolated from any patient with diarrhoea.*

Confirmation

When cholera is newly suspected in an area, the International Health Regulations require that the diagnosis should be confirmed by laboratory investigations as soon as possible. Once the presence of cholera has been confirmed in an area, it is not necessary to confirm all subsequent cases. Neither the treatment nor the notification of suspected cases of cholera requires laboratory confirmation of the presence of *Vibrio cholerae* O1. Monitoring of an epidemic should, however, include laboratory confirmation of a small proportion of cases on an ongoing basis.

¹ For management of cases of acute watery diarrhoea in an area where an epidemic is occurring, cholera should be suspected in all cases, 2 years of age or above. However, inclusion of all acute watery diarrhoea cases in the 2-4 year age group in the reporting of cholera greatly decreases the specificity of reporting.

National reporting

The minimum information that is needed on each case for local and national surveillance and to facilitate international exchange of information is:

- age,
- geographical location/address,
- whether hospitalized or not,
- outcome.

The first suspected cases of cholera in an area should be reported by the fastest possible means. Thereafter, details of all new cases, **suspected and confirmed**, and deaths should be reported at least weekly. More detailed information on the sources and routes of transmission of infection should be sought by epidemiological investigation of outbreaks.

International reporting

The organization of international efforts to control cholera, including action to prevent undue restrictions on international movements of persons and goods and to mobilize resources for affected countries, depends on the open exchange of information about cholera. The concealment of information on cholera creates an atmosphere of distrust and anxiety.

Under the International Health Regulations, national health authorities should report the first suspected cases of cholera on their territory as rapidly as possible to the World Health Organization. Laboratory confirmation should be obtained at the earliest opportunity and reported to WHO (art. 3, §3).

*Health authorities of countries where cholera is **confirmed** to be present should make a weekly report to WHO containing, as a minimum, the numbers of new cases and deaths since the last report and the cumulative totals for the current year, recorded by region or other suitable geographical subunit. It is not necessary to make a distinction between suspected and confirmed cases; all should be reported as cholera. Information on the age distribution of cases and the number admitted to hospital is also desirable. This information should be sent simultaneously to the appropriate WHO Regional Office and to WHO Headquarters in Geneva.*

II. THE USE OF THE LABORATORY

The laboratory is required to confirm the presence of cholera in an area, characterize the organism, and determine its antibiotic sensitivity. Laboratory support is also needed for epidemiological studies to define the sources and routes of transmission of the infection and to monitor the development of the epidemic. Successful treatment of cholera does not depend on the results of laboratory examinations.

A sufficient number of stool specimens from suspected cases of cholera should be examined to identify the causative organism and test its sensitivity to antibiotics.

Once the presence of cholera is confirmed in an area, it is not necessary to examine specimens from all, or many, cases or contacts in that area; in fact this should be discouraged since it places an unnecessary burden on laboratory facilities.

The progress of an epidemic in an area should be monitored by bacteriological examination of specimens from a small sample of patients.

III. CHOLERA IMMUNIZATION

Cholera vaccines

Immunization with the currently available injectable cholera vaccine (composed of killed *Vibrio cholerae* O1 organisms) is not an effective control measure. Field trials and other studies have shown that:

- use of the vaccine does not affect the spread of cholera within or between communities, probably because it does not reduce the incidence of asymptomatic infections.
- the vaccine frequently lacks the required potency;
- even when potent, the vaccine evokes protection against illness in only about 50% of individuals immunized; protection which lasts only 3-6 months; the vaccine is even less effective in young children;

In addition, cholera immunization can create a false sense of security among those immunized and among health authorities. This may result in less effort being made to implement other, more effective, control measures. Immunization campaigns also consume scarce financial and human resources that could be used to implement effective control measures.

The World Health Organization does not recognize any situation in which the traditional cholera vaccine should be used.

Two new oral cholera vaccines are under development; one contains killed *Vibrio cholerae* O1 combined with the B subunit of cholera toxin; the other contains live attenuated *Vibrio cholera* O1 that produces only the B subunit of cholera toxin. *Neither of these is yet recommended for routine use in cholera control.*

IV. CONTROL OF INTERNATIONAL SPREAD OF CHOLERA

Cholera vaccination certificates

On the basis of the information summarized in section I above, the 26th World Health Assembly (1973) abolished the right of countries under the International Health Regulations to require from travellers a certificate of vaccination against cholera.

No country currently requires travellers entering its territory to have been vaccinated against cholera.

Cordon sanitaire, quarantine, and frontier controls

Cholera is spread from place to place largely by infected persons, most of whom have no signs of illness. These are called "healthy carriers". There is no practicable way of identifying all healthy carriers, and it is not feasible to prevent their movement by restrictive measures. Even when formal traffic across borders is controlled, informal and illegal traffic invariably continues, and cholera continues to spread. Moreover, travel restrictions are very disruptive and often have adverse economic consequences because they prevent normal trade and tourism.

The imposition of travel restrictions may also encourage the suppression of official information about an outbreak. This hampers effective collaboration on control between international agencies and countries. Additionally, measures to control the movement of individuals and populations are costly in manpower and other resources that could be used better for effective control activities.

For all of the above reasons, WHO recommends that countries should not use cordon sanitaire, quarantine, or frontier controls in their efforts to prevent the spread of cholera.

It is appropriate, however, to discourage large gatherings for events such as funerals, fairs, and markets when cholera threatens an area. Infection can spread rapidly during such events through contaminated food or water, and is then disseminated when infected persons return to their homes. It is also important, at such events, to institute measures to assure a safe supply of drinking-water, safe practices for food preparation, and sanitary disposal of excreta.

V. CHEMOPROPHYLAXIS

Mass chemoprophylaxis

Treatment of an entire community with an antibiotic, called *mass chemoprophylaxis*, has never succeeded in limiting the spread of cholera. This is because:

- infection often spreads very rapidly, before mass treatment can be organized;

- the effect of the antibiotic lasts only 1 or 2 days, after which persons are again fully susceptible to infection;
- the entire population would need to be treated simultaneously; even, this would not prevent their being reinfected from environmental sources in the community (e.g., contaminated water) or following the reintroduction of cholera into the community;
- it is difficult to persuade all members of a community to take medication, especially when most are not ill.

Mass chemoprophylaxis diverts attention and resources from effective control measures and in some countries has led to the rapid appearance of antibiotic-resistant *Vibrio cholerae* O1, thus depriving severely ill patients of a valuable aid in treatment.

WHO recommends that mass chemoprophylaxis should not be used in efforts to control cholera.

Selective chemoprophylaxis

Treatment of healthy members in the household of a cholera patient, to prevent their becoming ill, is called *selective chemoprophylaxis*. Such persons are at increased risk of developing cholera, especially from infection by the classical biotype of *Vibrio cholerae* O1. However, this risk can vary widely from place to place, depending on sanitary conditions and other factors.

WHO recommends that selective chemoprophylaxis be considered only when surveillance has shown that, on average, at least one household member in five becomes ill after the first case has appeared.

For maximum benefit, selective chemoprophylaxis must be provided promptly after the first case occurs in a household. All those who share the same food or shelter with the patient are eligible for treatment. The antibiotics and doses recommended are the same as for the treatment of cholera. Doxycycline is preferred because only one dose is needed.

VI. TOURISM IN CHOLERA-AFFECTED AREAS

The risk of cholera among tourists visiting affected areas is small, and can be virtually eliminated by following WHO recommendations concerning safe eating and drinking practices.

WHO recommends that tourism should not be restricted in cholera-affected areas.

Travellers to cholera-affected areas should be informed of the presence of cholera, but that the risk to them is very small. They should also be advised of measures they should take to reduce their risk.

These include:

- following WHO guidelines for safe eating and drinking practices for travellers;²
- seeking treatment promptly from a doctor or health facility, should diarrhoea occur;
- drinking liberal amounts of ORS solution or other fluids while travelling to the health facility.

VII. WATER SUPPLY AND SANITATION

Inadequate sanitation and lack of safe water are major causes of cholera epidemics. Therefore, greater emphasis must be paid to these issues if a sustainable solution to the threat of cholera is to be found.

Cholera can only be reliably prevented by ensuring that all populations have access to adequate excreta disposal systems and safe drinking-water.

The construction of new facilities to improve levels of coverage of sanitation and water supply may require large investments and some years to achieve. In many cases, national development policies do not give priority to these areas and, therefore, the financial resources required for long-term action are not available. Thus, a political decision should be taken to support the implementation of long-term national programmes aimed at the provision of adequate sanitation and a safe water supply to the population. These plans should deal with the following major aspects:

- achieving optimal use of existing facilities through institutional development programmes dealing with the efficient management, development of human resources, sound financial practices, and effective operation and maintenance;
- extending coverage through new installations; and
- improving installations, equipment, and operations related to water quality control.

The revision of national plans dealing with water supply and sanitation (*including waste water treatment plants, where justified*) is required for coordinated national efforts towards improved coverage with these services.

As a prerequisite for the implementation of costly activities to improve existing systems and to construct new water supply and sanitation facilities, programmes should be formulated and implemented aimed at making the best possible use of existing water/sanitation facilities.

² *A guide on safe food for travellers - How to avoid illness caused by unsafe food and drink, and what to do if you get diarrhoea.* Leaflet WHO/FOS/91.1. distributed by the WHO Distribution and Sales Office, Geneva, Switzerland.

Cholera: basic facts for travellers. Leaflet distributed by the WHO Cholera Control Task Force, and available on request from WHO, Geneva, Switzerland, and from WHO Regional Offices.

In the short term, interventions should be prioritized according to a realistic assessment of the financial and technical resources available, and in the light of the expected impact of each priority action on cholera prevention and control.

Water supply - WHO recommendations

1. *Drinking water should be adequately disinfected; procedures for disinfection in distribution systems and rural water systems should be improved.*
2. *Tablets releasing chlorine or iodine may be distributed to the population with instructions on their use.*
3. *Where chemical treatment of water is not possible, health education should stress that water for drinking (as well as for washing of hands and utensils) should be boiled before use.*
4. *Water quality control should be strengthened by intensifying the surveillance and control of residual chlorine, and the conduct and analysis of bacteriological tests, in different points in production and distribution systems.*

Sanitation - WHO recommendations

1. *Quality control in sewage treatment plants should be strengthened.*
2. *The use of treated waste water for irrigation should be carefully controlled, following national and international guidelines.*
3. *Large-scale chemical treatment of waste water is very rarely justified, even in emergencies, because of the high cost, uncertain effect, and possible adverse impact on the environment and health.*
4. *Health education should emphasize the safe disposal of human faeces:*
 - *all family members should use a latrine or toilet that is regularly cleaned and disinfected; and*
 - *faeces of infants and children should be disposed of rapidly in a latrine or toilet, or by burying them.*

VIII. CHOLERA AND FOOD: GENERAL CONSIDERATIONS

Contaminated food and/or water are the main routes of transmission of *Vibrio cholerae* O1. Most contamination arises from direct or indirect transfer of *Vibrio cholerae* O1 from the faeces of infected persons to food and water. *Vibrio cholerae* O1 may also persist in certain aquatic environments, and aquatic foods such as shellfish may be persistently or intermittently contaminated, even in the absence of recent exposure to human faecal material. Generally, large numbers of *Vibrio cholerae* O1 are needed to cause illness. Under some conditions, certain contaminated

foods may support the growth of *Vibrio cholerae* O1; others (e.g., shellfish) will accumulate the organisms.

Prevention of foodborne transmission is based on the following principles:

- avoiding faecal contamination of food and water;
- preventing multiplication of *Vibrio cholerae* O1;
- eliminating *Vibrio cholerae* O1 in food and water that has been contaminated;
- avoiding the harvesting of shellfish and edible seaweed for raw consumption from coastal waters that have been identified as environmental reservoirs of *Vibrio cholerae* O1.

Contamination of food (and water) can only be avoided if human excreta are disposed of hygienically and the rules of personal hygiene strictly observed (in particular, hand washing after anal cleaning or after contact with faecal matter, and hand washing prior to food handling).

In countries or areas where hygienic excreta disposal is not always possible, prevention of foodborne cholera is based on the second and third principles. The fourth principle should be observed in all countries where coastal waters may have become reservoirs for *Vibrio cholerae* O1.

In cholera-affected areas, certain foods present a higher risk of being contaminated:

- seafood that may have been harvested from, kept in, or washed with contaminated water; raw shellfish and undercooked crustaceans have been implicated in the transmission of cholera;
- fruits and vegetables that grow close to the soil and have been irrigated with faecally-contaminated water or top-dressed with untreated night-soil.

Refrigeration and frozen storage both limit the multiplication of the cholera organisms, but may also prolong their survival.

Undamaged fruits and vegetables from which the peel can be removed are safe to eat if hygienically handled.

Vibrio cholerae O1 can be eliminated from food by thorough cooking (core temperature ≥ 70 °C). It is essential to prevent re-contamination through contact with contaminated hands, surfaces, raw foods, or contaminated water. Reheating (core temperature ≥ 70 °C) prior to consumption is necessary if food has not been eaten immediately after its preparation.

No risk is to be expected from food where either the physical or chemical character, or the processing, are such that *Vibrio cholerae* O1 organisms are unlikely to be present.

These include:

- acid foods ($\text{pH} \leq 4.5$);¹
- irradiated foods (minimum dose ≤ 1 kGy);^{1,2}
- foods that have been subjected to a heating process, e.g., cooking, pasteurization, sterilization/canning.^{1,2}

In addition, no risk of cholera is to be expected from foods with reduced water activity (a_w). Such foods include:

- dry foods, e.g., dried vegetables, coffee beans, cereals and pulses, dried milk (also dried animal feed meals);
- salt-preserved foods, e.g., salted fish;
- sugar-preserved foods, e.g., jams and marmalades.

In the case of dried feed meals, there is an additional safety factor in that the meal is fed to poultry and livestock, which cannot be infected with *Vibrio cholerae* O1.

- *No risk of cholera is to be expected from food where either the physical or chemical character, or the processing, are such that Vibrio cholerae O1 organisms are unlikely to be present.*
- *No action to restrict the sale, transport, or use of such foods is justified as part of measures to control cholera.*

IX. CHOLERA AND INTERNATIONAL TRADE IN FOOD

The Codex Alimentarius Code of Ethics for International Trade in Food,³ adopted in 1979 by the Codex Alimentarius Commission (CAC),⁴ lays down certain principles concerning international trade in food. The Code of Ethics stipulates that "international trade in food should be conducted on the principle that all consumers are entitled to safe, sound, and wholesome food and to protection from unfair trade practices". Concerning microbiological contaminants, the Code stipulates that "all food should be free from micro-organisms and parasites in amounts harmful to man...".

¹ Handled according to the relevant Codex Alimentarius Standards and Codex Alimentarius Codes of Hygienic/Technological Practice.

² Provided that post-processing contamination is prevented.

³ Codex Alimentarius, Vol. J (CAC/RCP 20-1979, Rev. 1 (1985), issued by the Secretariat of the Joint FAO/WHO Food Standards Programme, FAO, Rome.

⁴ The Codex Alimentarius Commission is an intergovernmental body whose purpose is to implement the joint FAO/WHO Food Standards Programme to protect the health of the consumer and ensure fair practices in trade.

At the national level, Member States have the right and duty to protect their consumers from being exposed to *Vibrio cholerae* O1 via food. It should be noted that under the International Health Regulations,⁵ cargo and goods should be submitted to the health measures provided for in the Regulations only when coming from an infected area and when the health authority has a reason to believe that the cargo and goods may have become contaminated by the agent of a disease subject to the Regulations, or may serve as a vehicle for the spread of any such disease (article 46).

The 44th World Health Assembly (1990), in its Resolution WHA44.6 (operative paragraphs 4 and 5), urged Member States not to apply to cholera affected countries restrictions that cannot be justified on public health grounds, in particular as regards importation of products from the countries concerned. It also urged Member States to report immediately any occurrence of cholera in accordance with the International Health Regulations in order to facilitate global surveillance and control measures.

No specific restrictions are called for, where the physical or chemical characteristics, or the processing, of the food are such that *Vibrio cholerae* O1 is unlikely to be present, even if earlier contamination of the food cannot be excluded. Examples of such foods are given in the previous section.

In the case of fresh foods such as fish, shellfish, fruits, and vegetables, there is a possibility that they may be contaminated with *Vibrio cholerae* O1 if they are derived from, or handled in, cholera-infected areas. Importing and exporting countries may, by agreement, decide to take precautionary measures with respect to seafood if it is:

- caught/harvested in sewage-contaminated water, or
- caught/harvested in water identified as being an environmental reservoir of *Vibrio cholerae* O1, or
- suspected of not having been prepared under good manufacturing practices, potentially resulting in contamination with *Vibrio cholerae* O1.

If undamaged fresh fruits and vegetables are in transit under normal conditions of temperature and humidity for at least ten days, the probability of survival of the vibrio is low, as is the risk to health. But importing and exporting countries may agree on specific requirements concerning vegetables and fruits grown close to the soil, particularly when untreated night-soil has been used as fertilizer.

Vibrio cholerae O1 may survive in contaminated frozen foods for longer periods. Such foods pose a risk to the consumer if they are eaten raw or are allowed to contaminate other foods before being cooked.

Although there is a theoretical risk of cholera transmission associated with some food commodities moving in international trade, this has rarely proved significant and authorities should seek means of dealing with it other than by applying an embargo on importation.

⁵ *International Health Regulations (1969)*, 3rd annotated edition, World Health Organization, Geneva 1985.

X. HEALTH EDUCATION

Health education of the public is essential for cholera control. Essential messages must reach the concerned population groups and sectors through all appropriate channels, including the mass media, community leaders, schools, health and health-related workers, and social and cultural groups.

In recognition of the national importance of cholera control, those responsible for public information media should make available to the health authorities, free of charge, whatever air-time and editorial space is needed for public information and education concerning the control of cholera. Communities must also be organized and guided to take clearly defined practical measures.

Educational efforts need to be directed not only towards communities but also to concerned development sectors and organizations, so as to facilitate intersectoral involvement and ensure maximum social and political support.