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Controlling Cholera

A Checklist for Planners

 **BASICS**

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(Basic Support for Institutionalizing Child Survival)
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Controlling Cholera A Checklist for Planners

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Introduction

This checklist is for people who plan and implement activities to control cholera. The checklist identifies what should be done in advance so that health workers can respond more effectively and efficiently to an outbreak of cholera. This guide may be useful to:

- **Coordinating committees** that develop national or sub-national plans for controlling diarrhea epidemics. The checklist identifies the components that might be included in a plan.
- **Program managers** who manage and coordinate primary health care programs. The checklist identifies key elements of an epidemic preparedness plan, many of which can be linked with routine diarrheal disease control program activities.
- **Technical consultants** who review national or sub-national plans. The checklist serves as a reminder of components that should be included and the tasks to be done.
- **Health administrators** who need to define the types of technical assistance appropriate for their countries to deal with diarrhea epidemics.
- **Students of public health** for whom the checklist can serve to illustrate the multifaceted nature of epidemic diarrhea and the activities involved in controlling an epidemic.

In many countries, the most efficient way to deal with a cholera epidemic is through a coordinating committee whose members are drawn from different programmatic areas of the Ministry of Health, related Ministries, and the private sector. The roles of these committees, which might be formed at national or sub-national levels, include all aspects of epidemic planning and response. The topics dealt with in this checklist are:

- Planning, management, and administration
- Case management
- Epidemiology and surveillance
- Training of health professionals
- Water and sanitation

- Laboratory services
- Logistics and supplies
- Information, education, and communication

Some tasks on this checklist are immediately lifesaving. Others contribute to longer-term benefits to the nation's health. Tasks may need to be placed in priority order according to the immediacy of an anticipated epidemic, the possible effect of the task on reducing mortality, and the available resources.

How to use the checklist: The checklist consists of a list of tasks under each area of planning. For some tasks, there are questions to assess the current state of the efforts to control cholera. If information is not available, a decision regarding the importance of collecting this information should be taken. If a given task is not a priority, efforts should be focused on other tasks to be done. Any priority tasks that have been overlooked should be included in the national plan.

Additional information for implementing the plan: For guidance on implementing a national plan that has been developed with this checklist, please refer to the following publications from the World Health Organization (WHO).

- *Guidelines for Cholera Control*, Geneva, WHO (1993).
- *WHO Guidance on Formulation of National Policy on the Control of Cholera*, Geneva, WHO (1992).

For more information, see the publications listed in the bibliography.

Planning, management, and administration

The coordinating committee is usually responsible for formulating a strategy for controlling cholera, preparing a realistic plan with a budget, and gathering needed resources from within the country and from donor agencies. The following tasks are important for effective planning and management of cholera control activities:

- Establish a coordinating committee for cholera. *If one has been established, how often does it meet? Does it need to be reactivated? Does it include members from relevant sectors of the government? Does it include members of relevant United Nations agencies (e.g., WHO and UNICEF), as well as governmental and nongovernmental organizations working in the health sector? Is its role clearly defined? Has a chairperson been appointed? Is it clear to whom the committee reports?*
- Formulate a national policy for cholera. *If a policy exists, does it need to be updated, for example, with recent information on which antibiotics are recommended and who should receive them? Does it include policies on measures that should not be taken? (See *Ineffective control measures for cholera*, p. 18.)*
- Disseminate national policies. *Are there plans to publish and effectively disseminate national policies?*
- Formulate a national plan. *If a plan exists, does it have a stated, realistic goal? Does the goal have measurable outcomes? What components, identified in this checklist, need to be completed or revised?*
- Develop a potential budget. *If resources are limited and the budget must be cut, what activities can be scaled back or eliminated?*
- Obtain technical guidelines on cholera from WHO. *Who will need these guidelines, and how many copies will be needed? How will copies be distributed (e.g., national and regional coordinating meetings and clinical courses for senior health personnel)? Order guidelines on the case management of diarrhea, if required.*
- Establish channels of communication with possible donors and other sources of technical assistance. *Consider inviting United Nations and bilateral assistance agencies to join the committee, either as full members or as interested observers.*

Case management

The medical system must be able to give lifesaving care during cholera epidemics, and people must have access to this care. The delivery of quality care for cholera depends on the ability of health personnel to rehydrate patients rapidly and, when appropriate, to give an effective antibiotic. Health personnel need to be trained in case management and have the necessary treatment supplies available.

Unfortunately, most diarrhea deaths occur among people who do not have ready access to care. Poor access, resulting in delayed treatment, is usually related to geographic distance from health facilities. Access to care may also be related to social distance due to language, ethnic, or socioeconomic separation. Subgroups within urban or rural areas that are at highest risk may also have poor access. These groups need to be specially targeted for treatment.

Ability to provide correct case management

- Consider designating specific hospitals and diarrhea treatment centers for the treatment of cholera.
- Prepare and distribute case management charts for cholera to medical staff in the designated facilities. *If charts exist, do they identify the type and volume of fluids needed, and currently effective antibiotics and their doses?* (Case management charts and guidelines are available from WHO.)
- Distribute oral rehydration salts (ORS) and supplies to designated health facilities. *If ORS is available, does it conform to the WHO formula? Are sufficient supplies (e.g., cups, spoons, and mixing containers) accessible to meet the demands of an epidemic? Are centers identified where additional "buffer stocks" can be maintained?*
- Ensure that an intravenous polyelectrolyte solution and infusion sets are available at health facilities. *If an IV solution is available, is it an appropriate one (e.g., Ringer's lactate solution or Hartmann's solution)? Are sufficient supplies available to meet the demands of an epidemic, especially to treat dehydration from cholera?* (WHO epidemic cholera guidelines summarize supplies required to treat 100 patients with cholera; see page 19.)

- Provide cholera cots to each hospital and designated health facility.
- Provide training in clinical case management for all health workers who are to treat cholera patients. *(See Training of health professionals, page 8.)*

Accessibility to correct case management

- Formulate plans to reach households that are located at a distance from a diarrhea treatment facility, and prepare rapid-response teams to serve the remote areas. *What proportion of households are located more than two hours away from a facility, and where are they located? What has been done and remains to be done to provide medical care to these household groups?*
- Identify groups that may have poor access because of other barriers, such as language, culture, ethnic or political migration, or poverty and formulate plans to reach these groups. *Where are these groups located? What has been done and remains to be done to provide them with medical care? What can be done to improve coordination with nongovernmental organizations and others providing health services to these groups?*
- Formulate and prepare cholera supply kits for use by rapid-response teams and others providing emergency care. *What supplies are needed, and how many people can be treated with each kit? What is the system for distributing the kits?*

Epidemiology and surveillance

Cholera tends to strike populations at high risk. Populations at higher risk may include those with limited supplies of clean water, poor food handling and storage systems, and crowded living conditions. An adequate disease surveillance system facilitates the early detection of an outbreak so that resources can be mobilized for more rapid interventions where needed. For example, health education messages can be targeted to warn the population against specific foods or water sources, and medical care can be directed toward assisting high-risk groups.

Identifying and reporting complications and deaths can also provide an index of the quality of care. If cholera cases are well-managed, the case-fatality ratio should be 1 percent or less. Higher rates signal the need to improve treatment strategies.

- Formulate and distribute a case definition for cholera. The WHO definition is as follows: *A cholera case should be suspected when: 1) a person older than 5 years develops severe dehydration from acute watery diarrhea (usually with vomiting), or 2) any person older than 2 years has acute watery diarrhea in an area where there is an outbreak of cholera. Laboratory diagnosis of cases is usually only required to confirm the outbreak and to periodically monitor the outbreak over time.*
- Establish a monitoring system for counting and mapping cholera cases. *How can a small number of cholera cases be sampled for laboratory confirmation?*
- Identify a system for reporting surveillance information to the medical community. *How is surveillance information distributed within the country to the coordinating committee, government, and other health personnel? Consider establishing a mechanism for reporting cases to WHO so that it can monitor outbreaks globally.*
- Identify high-risk vehicles of transmission for cholera in the country. *What foods, sources of water, and social practices (e.g., funeral rites) are likely to be involved in the transmission of cholera? If time and resources permit, it might be useful to conduct a study to identify high-risk activities or vehicles of transmission. More important, potentially lifesaving measures should not be set aside for epidemiological studies. Should a study be contemplated, is a protocol already written and approved by appropriate authorities?*

- Form a rapid-response team that is trained to investigate, as well as treat, outbreaks of cholera. *What defines the type of outbreak that would stimulate an investigation by the rapid-response team? What instrument exists for the collection of data by the team?*
- Prepare a handout for travelers to areas where cholera is endemic to advise them to report to a treatment facility if they develop diarrhea, and develop a strategy for distributing this information.

Training of health professionals

The quality of care for patients with cholera depends on the knowledge and skills of health personnel. The training of a health staff can be achieved in many ways. Frequently, workshops and clinical courses are supplemented by job aids, take-home messages, and regular supervisory visits that reinforce and upgrade what has been learned. For clinical tasks, supervised hands-on management of patients is usually considered to be indispensable. For cholera treatment, where the principal medical intervention is oral rehydration therapy, this kind of training is particularly important. The hands-on clinical management of patients, under supervision, is an especially important component of training; using this training technique, health personnel can learn to distinguish among different types of diarrhea and their different treatments.

- Distribute WHO guidelines on the treatment of cholera (or comparable locally adapted guidelines) to physicians, nurses, and other health workers in health facilities.
- Establish national and regional training centers for conducting clinical courses on diarrhea. *Are the training sites located in facilities where sufficient numbers of diarrhea cases can be seen? Are they minimally equipped with treatment and other supplies to be used in training?*
- Conduct national, district, and municipal clinical courses on cholera for physicians, nurses, and other health workers. *Do the courses stress hands-on practice managing cases of diarrhea? Is there a schedule for training as many health staff (physicians, nurses, or other appropriate health workers) as possible?*
- Provide regular reports on the cholera situation, with updates on effective treatment, to health personnel at all levels of the health system.

Water and sanitation

Because cholera is principally transmitted by water or food, simple measures to improve water quality, sanitary facilities, food preparation and distribution, and basic hygiene practices can control transmission of the disease. The following areas should be considered: personal and family hygiene; municipal water supplies; other water supplies; solid waste; disposal of excreta and treatment of waste water; hospital sanitation; and long-term plans for improving water and sanitation.

Personal and family hygiene

- Gather available information on current personal and family hygiene knowledge and practices. *Simple observations of hygiene and sanitation practices, including the storage and handling of water in the home and excreta disposal practices may be obtained by a few site visits to selected areas.*
 - Hand washing
 - Defecation
 - Bathing
 - Selection of water sources
 - Water handling
 - Disposal of excreta, including the stools of infants and children
 - Disinfection or boiling of household water
 - Disposal of solid waste
- Identify how families without piped-in water supplies store and transport water inside and outside of the home. *Are there small-scale improvements to decrease the contamination of water, such as spigots on tanks? Do people use narrow-necked, covered containers to transport and store water in the house?*
- Identify how to collect information on current personal and family hygiene, if it is not available. *What information is needed? What resources are available to gather information?*
- Determine whether hand soap is available. *How widely is it available? Is it affordable? Is it practical to consider distributing soap in an emergency?*

Municipal water supplies

- Identify which municipalities have chlorination facilities. *Is the chlorination equipment in working order?*
- Determine the quantity of chlorine available. *What are the current stocks of chlorine countrywide? How could supplies be increased? What are the obstacles to increasing supplies (e.g., foreign exchange, budget for the water authority, tariffs, and lack of storage facilities)?*
- Establish a system to monitor chlorine levels. *If a system exists, where are levels monitored (e.g., at the treatment plant, at various points in the distribution system, or at the tap)? Are records of levels available? How are these data used to adjust chlorine levels?*
- Make provisions for conserving water, including preparing messages to be used for public education and developing a rationing system to go into effect during water shortages.

Other water supplies

- Determine the proportion of households that use other non-municipal water sources, by type if possible (e.g., protected wells with pumps, unprotected wells, surface water sources, and tanker trucks). *What proportion use water sources located farther than 150 meters from the house? Which types of non-municipal water sources are, or could be, chlorinated? Is the volume of water available adequate (at least 20 liters/person/day)?*
- Prepare messages and identify ways to disseminate information on how to chlorinate or otherwise disinfect water from non-municipal supplies. *Are sufficient affordable materials available for chlorinating these water supplies (e.g., household bleach)? Is boiling drinking water a reasonable alternative?*
- Increase access to potable water immediately (e.g., improve the system of distributing water by tanker trucks, dig new wells, protect existing wells, and tap springs). *What local resources (technical and financial) are available to complete these small-scale projects?*

Solid waste

- Identify how communities dispose of solid waste. *Do practices create risks for the transmission of cholera? Do people dispose of fecal matter (e.g., disposable diapers and toilet paper) in solid waste?*
- Prepare a public education campaign regarding solid waste. *If such a campaign exists, is it appropriate and based on knowledge of community practices? Is it targeted to particular populations (e.g., children who scavenge in dumps or mothers who throw diapers in the trash)? Does it provide a realistic, practical alternative to current practices?*
- Determine the location of solid waste disposal sites. *Are they appropriate? Are they located at safe distances from population centers?*
- Explore alternatives to solid waste disposal that can be used in the short-run (e.g., burning or burying waste on a community level).

Disposal of excreta and treatment of waste water

- Determine the percentage of population covered by appropriate sanitation methods. *What percentage of the households have toilets or latrines? What percentage of households use off-site disposal methods (e.g., septic tanks and sewers)? Which populations are at greatest risk because of poor sanitation facilities (e.g., those living in urban slums)?*
- Gather available information on the availability and use of latrines. Site visits to a few locales will allow essential observations to be made. *Are latrines built correctly? Are they located where they avoid contaminating the water supply? Are they used correctly? In what ways do adults and children use latrines differently?*
- For off-site sanitation, identify where the waste goes and how the waste water is treated. *What government body is responsible for waste water treatment? Is there a program to reuse waste water? What regulations exist for using waste water on crops? Are they enforced? What are the short-term priorities for treating waste water?*
- Review the state of the sewer system. *Is there cross-contamination of water supplies? What system exists for detecting problems and repairing the sewer system?*

- Prepare messages and identify ways to disseminate information on subjects such as the building, maintenance, and use of latrines. *If messages and public awareness campaigns exist, are they culturally and technically correct?*
- Identify and prepare teams to provide technical assistance on how to dispose of waste in emergency situations (e.g., in displaced persons' camps).

Hospital sanitation

- Establish guidelines for disposing of human feces from people known to be or suspected of being infected. *If guidelines exist, are they realistic? Have they been distributed to hospitals and other designated health facilities where cholera patients will be treated?*
- Review the sewage systems at hospitals to determine whether they are adequate. *Do the hospitals have a plan for disposing of solid waste contaminated with cholera?*
- Distribute sanitation guidelines to hospitals and designated health facilities. These guidelines should include how to disinfect soiled linens.

Long-term plans for improving water and sanitation

- Maintain municipal water systems. *What information is available on the percentage of water loss in municipal systems? What plans exist to identify leaks and repair them? Is there constant positive water pressure in municipal systems? If not, how often is pressure down or negative?*
- Extend the coverage of potable water and sanitation systems to more households and institutions. *Does a plan exist? What capital funds are available? Does the institutional capacity exist to increase water and sanitation coverage, if capital funds are available? What could be done in five years? in ten years?*
- Improve water tariff systems. *Are current systems effective? Are they enforced? Is there a plan to improve tariff systems?*
- Propose legislation to regulate water quality, solid waste disposal, waste water disposal, and reuse of waste water. *What legislation exists and are current standards appropriate? How are they enforced? What changes need to be made?*

- Explore needs and opportunities to develop and introduce new technologies, such as:
 - Latrines that consume less water
 - Low-cost sanitation and sewage systems
 - Alternative methods of collecting and distributing water
 - Alternative technologies for treating waste
 - Exploiting new water sources (e.g., rainwater harvesting)

Laboratory services

Ideally, programs should have the laboratory capability to confirm cholera cases and monitor the course of the epidemic. When laboratories are equipped and adequately staffed, it is not difficult or expensive to detect *Vibrio cholerae* 01 and 0139.

Policies are needed, however, to identify which specimens to test and the optimal media and methods to use. It is not necessary to test specimens from every patient with suspected cholera. Specimens should be tested, however, to confirm initial cases in a new area and, periodically, to monitor the epidemic as it continues. The effectiveness of antibiotics can change, so laboratories should also periodically test the sensitivity of samples to various antibiotics.

- Establish a system for collecting samples of fecal specimens. *Does a written policy exist on which samples will be collected and which tests will be done? Is Cary Blair medium being used to transport samples from suspected cholera cases? Are adequate supplies of transport media available?*
- Establish laboratory procedures for testing specimens to confirm cases. *Does a specimen get plated within 24 hours of collection? Does the laboratory use TCBS agar and alkaline peptone enrichment for specimens from suspected cholera cases? Does the laboratory report cholera results to the national authorities on at least a monthly basis? Is it feasible for local lab staff to routinely confirm cholera cases at the beginning of epidemics? How will laboratory staff be trained?*
- Establish laboratory procedures for antibiotic-sensitivity testing. *Is a laboratory designated for conducting the tests, and is it adequately supplied with materials and trained staff? Which tests should be completed and how often?*
- Select a reference laboratory to confirm a portion of cases.

Logistics and supplies

Effective care depends on the availability of supplies and equipment. The supply system must ensure that rehydration fluids, antibiotics, and other supplies are ready when needed. The system must also be cost effective. Overstocking of supplies should be avoided, and supplies should be purchased at reasonable prices. In the midst of epidemics, panic frequently results in unwise purchases, inefficient planning, and blockages in a system that cannot handle the increased demand.

- Estimate the expected number of cholera cases and when they can be expected.
- List the supplies needed for treating cases and setting up emergency facilities for providing services. *(See WHO guidelines for cholera control, page 19.)*
- Procure supplies for the estimated number of cases. *What information is available on current stocks of supplies used in treating cholera? What supplies can be procured locally, and which ones from international sources? Is there a list of vendors and their prices? Are the best prices secured from reputable suppliers? How long in advance do supplies need to be ordered?*
- Establish a reliable system for distributing supplies to centers around the country. *What existing distribution systems are most effective, and which ones need to be improved? Are renewable buffer stocks in place in anticipated epidemic areas to absorb sudden increases in demand?*
- Coordinate the logistics for procuring and distributing epidemic supplies with those established for other programs. *How can the systems be shared more efficiently among programs? Are the logistics requirements sustainable within the control of diarrheal diseases or Essential Drugs Programs?*

Information, education, and communication

Educating the public is an important component of a control strategy. A public education campaign can help families to avoid high-risk behaviors and encourage them to seek medical care when appropriate. Common mistakes need to be avoided, including raising the awareness of dangers without providing information on how cholera can be prevented; delivering mixed or conflicting messages; and providing too much information so that the critical messages do not have the required impact. Epidemics often stimulate rumors. Educational messages are needed to correct misunderstandings about cholera transmission, symptoms, and treatment. An educated public is also more likely to demand needed services and press for appropriate public policies.

- Consider establishing a communication coordinating committee with representatives from the ministry of health, private voluntary organizations, churches, and the food and tourist industries. Collaborating partners may be able to contribute resources, manpower, and expertise, which will facilitate the development of public health education strategies.
- Formulate a communication plan. *If a plan exists, does it state realistic goals that are appropriate for the country? Are the specific objectives consistent with current national policies (e.g., to promote prevention of diarrhea and effective case management)?*
- Identify groups that can assist in implementing the communication plan. *What major agencies are involved in developing and implementing information, education, and communication (IEC) programs, and what resources are available to them? When is the most appropriate time to implement communication activities in relation to the anticipated epidemic and other important events (e.g., holidays and festivals)?*
- Identify specific target groups (e.g., special-risk groups, health personnel, and community leaders) for different communication activities. *What specific behaviors are to be changed for each target group? What research has been done on these groups' knowledge, attitudes, and practices related to cholera?*
- Develop an estimated budget. *What are the costs for completing each of the planned activities (e.g., brochures, radio spots, and posters)? If resources are limited and the budget must be cut, which activities can be scaled back or eliminated?*

- Prepare messages stressing food safety and safe drinking water. *Can particular food and water sources be identified as contributing to the spread of disease? What are the best ways to communicate with households, street vendors, and others involved in the preparation of food? How can households prepare safe drinking water?*
- Prepare communication materials with appropriate messages for each of the target groups. *Are the contents of all materials consistent with national policies and appropriate for the target groups, based on understanding of their knowledge, attitudes, and practices? How will materials be pretested with the specific target audience?*

Ineffective control measures for cholera

Countries sometimes take measures that are ineffective or counterproductive. For example, the injectable cholera vaccine is no longer recommended, yet a few border stations still require it for travelers crossing borders. Indiscriminate use of antibiotics leads to the emergence of strains resistant to antibiotics. Nonspecific and ineffective antidiarrheal drugs have been used and can be dangerous, especially to children.

Each of these measures diverts resources and manpower from the effective treatment of cases and other useful control activities. When an epidemic threatens, however, pressure to use inappropriate measures to control cholera may come from a frightened public or from uninformed officials. Policies against the use of these measures, therefore, need to be developed before an outbreak occurs. Policies included in the national plan should address the following issues:

- A cholera vaccine should not be used for outbreak control. Vaccinations should not be required for travelers at the airport or other border crossings.
- Prophylactic antibiotics should not be given.
- Antidiarrheal and corticosteroid drugs should not be used.
- Unnecessary precautions, such as the routine use of gowns, gloves, and masks by health personnel and the isolation of patients, are not required.
- Quarantine is not an effective control measure.

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This document summarizes the similarities and differences of the features of cholera and epidemic dysentery in several areas: case management, prevention, epidemiology and microorganism, physiology, and laboratory diagnoses. It is based on the guide described below, *Strategic Response to Epidemic Dysentery in Africa* by Claudine Cobra, M.D. and David A. Sack, M.D.

BASICS. *Management of the patient with diarrhea, including cholera and dysentery*. BASICS, Arlington, Va., 1994 (USAID contract).

This pocket guide expands the *WHO Case Management of the Patient with Diarrhoea* to include information from the *WHO Guidelines for Cholera* (1993) and *Guidelines for Control of Epidemics Shigella Dysenteriae Type 1* (1993).

Cobra, Claudine, M.D., and Sack, David A., M.D. *Strategic Response to Epidemic Dysentery in Africa*. PRITECH, Arlington, Va., 1994 (USAID contract).

This paper reviews the history in Africa of epidemic dysentery, describes its characteristics, proposes specific control measures aimed at dysentery, and links these measures to those that are also effective in controlling cholera. The checklist in this booklet was adapted from information in this paper.

World Health Organization. *Guidelines for Cholera Control*. Geneva: WHO, 1993

World Health Organization. *Guidelines for Control of Epidemics Shigella Dysenteriae Type 1*. Geneva: WHO, 1995, WHO/CDR/95.4.

The two preceding guides provide information on how to manage cases of cholera and dysentery, and include instructions for ensuring safe water and food supplies, developing health education messages, laboratory procedures, and other measures identified in this checklist to control the spread of epidemics.

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