Operational guideline for Cholera epidemic response in Afghanistan, 2012

<table>
<thead>
<tr>
<th>Staff category</th>
<th>Number of beds</th>
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</tr>
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<td>Triage nurse/Staff</td>
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<td>2</td>
</tr>
<tr>
<td>Staff nurses</td>
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<td>4</td>
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\[
AR = \frac{C \times 100}{P} \\
C = \frac{P \times AR}{100} \\
\text{Number of beds needed} = \frac{P \times AR}{7000}
\]
Operational guideline for Cholera epidemic response
In Afghanistan

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Acknowledgement

The present document has been developed by the Ministry of Public Health (MoPH) of Afghanistan, the World Health Organization (WHO), and other collaborative partners. The currently available guiding documents and standards of MoPH-Afghanistan, WHO, UNICEF and MSF for cholera outbreak control have been used as reference to frame the present document. This publication, brings together the existing relevant guidelines, fills knowledge and operational gaps un-addressed before, and adapts the information and operational needs to the specific features of Afghan context. The ultimate result is a much needed, ready-to-use and user-friendly guidance on cholera outbreak management.

We hope the document will be of value by providing quick reference and guidance for field epidemic control teams, namely, clinicians, nurses, vaccinators, and surveillance focal points of health facilities, along with the members of the Provincial Emergency Response teams. Ultimately, it will serve to strengthen the Emergency Preparedness and Response (EPR) capacity of all health sector partners for the benefit of all men, women, and children of Afghanistan.

I am grateful to all team members who joined and shared their expertise to develop these guidelines. Particularly, I would like to thank the MoPH team, WHO and other health cluster partners who added their valuable comments and contributions to the draft and shaped the final document.

In addition, special thanks to the EPR Department and EPR Advisor of MoPH and WHO/EHA/Health Cluster who initiated and led the process, and; the General Directorate of Preventive Medicine/Communicable Diseases Control, EPI, DEWS, Environmental Health, and Health Promotion departments that provided substantial technical support throughout the process.

I would also like to extend my sincere gratitude to the funding partners supporting the multiple EPR interventions for health. My particular thanks go to the European Commission Humanitarian Office (ECHO) for its contribution to make these guidelines become possible.

Sincerely,

Dr Suraya Dalil,
Minister of Public Health - Afghanistan

Oct 13, 2012
<table>
<thead>
<tr>
<th>Acronym</th>
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<td>Attack Rate</td>
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<td>ARCS</td>
<td>Afghanistan Red Crescent Society</td>
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<tr>
<td>AWD</td>
<td>Acute Watery Diarrhea</td>
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<tr>
<td>BPHS</td>
<td>Basic Package Of Health Services</td>
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<tr>
<td>CDC</td>
<td>Communicable disease Control</td>
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<td>DEWS</td>
<td>Disease Early Warning System</td>
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<tr>
<td>ERP</td>
<td>Emergency Response and Preparedness</td>
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<tr>
<td>HF</td>
<td>Health Facilities</td>
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<td>HMIS</td>
<td>Health Management Information System</td>
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<td>Human Resource</td>
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<td>HTH</td>
<td>High Tech Hypo Chloride</td>
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<tr>
<td>IADDK</td>
<td>Inter-Agency Diarrheal Disease Kid</td>
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<td>Intra Venous</td>
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<tr>
<td>MOPH</td>
<td>Ministry of Public Health</td>
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<td>M’edicins San Frontie‘res</td>
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<tr>
<td>ORS</td>
<td>Oral rehydration salt</td>
</tr>
<tr>
<td>PHC</td>
<td>Primary Health Care</td>
</tr>
<tr>
<td>PHD</td>
<td>Provincial Health Department</td>
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<tr>
<td>RDT</td>
<td>Rapid Diagnostic Test</td>
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<td>RRD</td>
<td>Rural Rehabilitation Department</td>
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<td></td>
<td>Outbreak investigation and early</td>
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<tr>
<td>SOP</td>
<td>Standard of Procedures</td>
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<td>TOR</td>
<td>Terms of Reference</td>
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<tr>
<td>UN</td>
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Quick guide

While you are reading through the guideline the following icons will help you to make a quick reference of relevant topic of interest.

= Background information

= Objectives

= Definition

= Alerts

= Warning

= Intervention guidelines and procedures at facility level

= Provincial surveillance Officer/Focal point

= Intervention Guidelines and procedures for field Intervention teams

= necessary tools for the intervention procedures

= Guidance for Management team

= Go to

Words described in glossary are printed in *Blue bold italic* fonts
1. Introduction

1.1. Worldwide case load and burden due to Cholera

Every year, there are an estimated 3–5 million cholera cases and 100 000–120 000 deaths due to cholera\(^1\). The \textit{epidemic} trend of cholera is on increase in the world for the past few years.

Since 2000, the \textit{incidence} of cholera has increased steadily, and reached 317 534 reported cases worldwide \textit{(pandemic)} in 2010, including 7543 deaths. Majority of the cases and deaths are reported from Developing countries of African and Asian continents\(^2\) where the disease is \textit{endemic}.

One of the significant features of the disease is that, it affects all ages and could even kill a healthy young adult in few hours. The challenging and threatening effect of cholera epidemic is its rapid spreading nature, which make a panic amongst the public and service providers as well.

The epidemics of cholera not only affect the population under in the epidemic prone regions and local health system but also might affect the whole sector by thrust them in a dread situation which in turn might wreck all the routine activities of the region and the country as well.

1.2. Current context of Cholera outbreaks/epidemics control activities in Afghanistan

Existing information of reported cholera \textit{outbreaks} and epidemics in Afghanistan would give an idea about progress of cholera outbreaks in Afghanistan;

- In August 1998; there were 1728 Suspected Cholera cases reported in Kabul and Bamyan provinces with 28 related deaths\(^3\).
- There were 1604 cases and 19 deaths reported in Northern, Southern and Western regions of Afghanistan during August 2000\(^4\).

\begin{table}
\centering
\begin{tabular}{|c|c|c|c|}
\hline
\textbf{Year} & \textbf{Number of AWD with dehydration cases reported by HMIS (Number of reported sites are)} & \textbf{Number of AWD cases reported by DEWS (No. Of Reported sites)} & \textbf{Number of cholera cases reported by DEWS(No of outbreak Sites)} \\
\hline
2008 & 154304 & 51,955\(^{12}(130)\) & 5,246(26)\(^{12}\) \\
2009 & 157064 & 57,905\(^{12}(177)\) & 1,721(43)\(^{12}\) \\
2010 & 202365 & 66011( 245 ) & 2369( 17 )\(^7\) \\
2011 & 287636 & 105722(288) & 3733(73)\(^*\) \\
\hline
\end{tabular}
\end{table}

While we are looking at the figures; it’s clearly shows that, the number of cases and outbreaks are on the increasing trend it might be due to improving \textit{surveillance} systems or real increase in outbreaks and it might end up with epidemics in future.

*Unpublished DEWS annual report 2011
Under the current health care system in Afghanistan; primary health care facilities (Mobile clinics, Health posts, sub health centers, and Comprehensive Health Centers), District, Provincial and regional public health hospitals and Private hospitals are endow with the health needs of the communities.

The health facilities are governed by the Provincial Health Directorate (PHD) at provincial level and Ministry of Public Health (MoPH) at national level with the assistance of national and international contracted out agencies. The current curative health services are not up to the regional health service standards and afflicted with inadequate resources and inadequate quality assurance.

The PHDs have a reasonable information sharing system listed as below:

**Codan unit** is collecting daily update on cases, deaths, injuries and type of emergencies from all the Provincial hospitals. These daily reports are received from 34 provinces by central codan office and a summary report is shared with MoPH on daily basis.

Disease Early Warning System (DEWS) is one of the existing Surveillance system which collects weekly incidence of highly infectious diseases from well distributed 288 sentinel sites across the country with coverage of more than 70% districts public health facilities. It also target to increase representation of private sector and introducing community based surveillance in Afghanistan. Under the system the data is analyzed weekly at regional and central level of the country. Weekly morbidity and mortality data and detail outbreak investigation and response reports are shared at provincial, regional and central level with all stakeholders including NGOs, donors, UN organization, coalition forces and WHO Eastern Mediterranean Regional Offices.

Health Management Information System (HMIS) unit collect and prepare reports on all relevant health related events from all the Public health facilities to the provincial directorate of health on monthly basis and a quarterly report is forwarded to the MoPH from all the provinces. Although there is a provision for facility based instant notification of six notifiable diseases; the system failed to do so and monthly reporting at provincial level might not help to quickly detect the outbreaks.
Based on the formal and informal information, alerts are detected and disease outbreaks are verified with preliminary investigation and identified after laboratory confirmation. Immediate control measures are carried out by Provincial outbreak investigation and response teams. But still there are some setbacks with some coordination and communication hiccups. On top of it security threats and natural barriers hamper the activities. This might lead to a hazardous situation during large epidemics and other natural disasters.

1.3. Importance of preparedness and development of an operational guideline for Cholera epidemic response

Currently there is a functional system for detection and control of Cholera outbreaks and epidemics in Afghanistan with some guiding instruments. At the same time there were several constraints identified regarding the response to epidemics in general and cholera outbreaks in particular; that can be attributed to:

- Improper planning due to lack of analysis and integration of different sources of epidemiological data,
- Lack/difficult access of MOPH staff in insecure area
- Poor capacity for outbreak investigation amongst field staffs,
- Poor case management skills and facilities at the field level
- Poor and inconsistent integration of outbreak response plans into the BPHS planning combined with lack of clear strategy for resource mobilization.
- Insufficient intra and inter-sectoral coordination.

On the other hand poor living conditions majority of the communities with extreme poverty, low literacy rate and lack of community participation should also be considered as a limitation for control of Cholera outbreaks and epidemics.

For the first time in 2011 provincial and national contingency plans for response to AWD outbreaks were compiled by the MoPH and health implementers, and contingency stock were prepositioned in risk areas with the technical support of WHO and health cluster. A multi-sectoral National Task Force was established and is chaired by the Deputy Minister of Health. However, still the response to outbreaks largely depends on external support and the efforts for strengthening the national Emergency Preparedness and Response (EPR) mechanism should be intensified.

While we are appreciating the excellent job done by the health service providers who controlled the cholera outbreaks and prevented disastrous epidemics in the past; we have to evaluate and strengthen the system as well.

In 2010 initiatives for strengthening the surveillance system were started with “road map for strengthening the system capacity to responds to epidemics” and development of operational guidelines was defined as an integral part of this initiative aiming to provide a practical guiding document for the health managers and field health staff in Afghanistan.

This operational guideline is trying to strengthen the health system of Afghanistan to efficiently manage outbreaks of cholera through pragmatic guidance to the health managers and field staff. This might help us to prevent and efficiently control cholera epidemics in future.
1.4. Objectives of the operational guidelines for Cholera epidemic response

- To briefly describe the basic facts, risks, burden and preventable nature, *morbidity* and *mortality* trends of Cholera
- To operationally guide the epidemic management teams to prepare, detect, report, verify, identify and control Cholera epidemics in time
- To improve the capacity of health service providers to efficiently manage cholera epidemics
- To guide the health service providers on prevention of spread of cholera epidemics and creation of community awareness
- To improve the technical capacity of managerial level staffs of MOPH of Afghanistan through providing necessary technical guidance, in order to efficiently manage and coordinate the epidemics of cholera with available resources
- To guide the epidemic control teams to capitalize the lessons learned from the epidemic and improve their future plans and activities
- To guide all the health stakeholders to clearly understand their responsibilities during an epidemic and cooperate and collaborate with the national coordination mechanism

1.5. Key facts of Cholera

- Cholera is a prime *quick* killer disease among the common epidemic prone diseases in the world, it could affect any healthy personal, thus it needs immediate control action
- It has become *endemic* in several developing countries including Afghanistan and always there is a threat of large epidemics due to *complex emergency* situation.
- It has been the second leading cause of outbreaks, among the epidemic prone diseases in Afghanistan (next to ARI), consumes lots of resources and make the people panic during outbreaks and epidemics.
- About 75% of people infected with *V. cholera* remain *asymptomatic* and shed bacteria in their feces for 7–14 days after infection, this can lead the epidemic containment teams in to a puzzled situation
- The disease could be prevented through maintenance of good water and sanitation standards among the communities by adopting simple cost effective procedures
- More than 80% of the cases could be treated and saved with proper Oral Rehydration alone
1.6. Causative organism and communicability of Cholera

Cholera is an acute diarrheal infection caused by ingestion of food or water contaminated with the bacterium; “Vibrio cholerae”. The short incubation period of the causative organism (two hours to five days) enhances the potentially explosive pattern of outbreaks⁴.

Cholera is an extremely virulent disease. It affects both children and adults and can kill within hours. In an endemic area (Open settings) the attack rate can be 0.2% and it might be as high as 5-8% in camp setting with malnutrition⁶. Attack rates could be differ between urban and rural settings as well.

Only 25% among the infected persons develops symptoms with the abrupt onset of copious watery diarrhoea, classically rice-water stools, with or without vomiting. Among people whom develop symptoms, 80% (i.e. 20% of total infected persons) have mild or moderate symptoms, while around 20% (i.e.: 5% of total infected) develop acute watery diarrhea with severe dehydration leads to loss of skin turgor, malaise, tachypnoea and hypotension which can lead to death; if untreated⁷.

Figure-1
Distribution of asymptomatic, symptomatic and severe cases among people infected with Vibrio Cholera

Most of the time moderate and severe cases are the one which reach health facilities, among them up to 80% shall be categorized by the clinicians as severely dehydrated cases⁷.
Two **sero-groups** of *V. cholerae* – O1 and O139 are causing major outbreaks, epidemics and pandemics. *V. cholerae* O1 caused majority (6) of the pandemics, while O139 – first identified in Bangladesh in 1992 – is mostly confined to South-East Asia. All other serogroups are categorized into Non-O1 and non-O139 *V. cholerae*; it can cause mild diarrhoea but do not generate epidemics.

The serogroups of vibrio are classified into classic and Eltor **biotypes**, among them Eltor is comparatively virulent. The biotypes further classified into Ogawa, Inaba and Hikojima **serotypes**. “In Afghanistan, Ogawa was the leading cause of Cholera and other strains including Inaba and Hijikoma also identified in the past”.

Recently, new variant strains have been detected in several parts of Asia and Africa. Observations suggest that these strains cause more severe cholera with higher **case fatality rates**. Careful epidemiological monitoring of circulating strains is recommended. The main reservoirs of *V. cholerae* are people and aquatic sources such as brackish water and estuaries, often associated with **algal blooms**. Recent studies indicate that global warming creates a favorable environment for the bacteria.

**Risk factors that are facilitating cholera outbreaks and epidemics**

The mode of transmission of Cholera is **fecal-oral** hence is closely linked to poor living conditions with inadequate water and sanitation management. Typical at-risk areas include peri-urban slums, where basic infrastructure is not available, as well as camps for internally displaced people or refugees, where minimum requirements of clean water and sanitation are not met.

The consequences of a disaster, such as disruption of water and sanitation systems, or the displacement of populations to inadequate and overcrowded camps can increase the risk of cholera **transmission**. If the bacteria has been endemic in the new location or introduced via the water or food sources; there will be outbreaks of Cholera and might end up with Epidemics as well. Although there is a high potency of **infectivity** from the dead bodies of cholera patients; epidemics have never arisen from them.
2. Guidelines for routine and emergency Cholera surveillance

Early detection of outbreaks with an efficient surveillance system is the corner stone of epidemic control.

As mentioned above; currently, DEWS has a reasonable capacity to detect the outbreaks and Epidemics at early with its regular reporting from sentinel sites. There is a structure and trained staff to do analysis of the surveillance data and to start rapid response initiatives at provincial and national levels.

Guidelines for routine surveillance and early warning of cholera epidemics could be expounded through sets of definitions, standards and procedures. The following sub topics try to guide us to understand the steps of surveillance activities, detection of epidemics and control measures from the health facility to Provincial Health Directorate (PHD).

2.1. Case definition

For any surveillance system there should be a defined uniform case definition to detect the cases. The case definition for Cholera in Afghanistan is defined by Disease Early Warning System is as follow\(^{10}\).

**Case definition for suspected Cholera\(^{10}\)**
- In an area where there is a cholera epidemic: acute watery diarrhea, with or without vomiting in a patient aged two years or more should be considered as suspected Cholera case

- In an area where the disease is not known to be present: severe dehydration or death from acute watery diarrhea in a patient aged 5 years or more will be considered as suspected Cholera case\(^{10}\)
  
  NB: cholera should be suspected in all patients with any extend of watery diarrhea in an area where there is an epidemic.

**Case definition for Confirmed Cholera\(^{10}\)**
Any suspected case confirmed by laboratory investigation through isolation of Vibrio cholerae (01 or 0139) from stool sample of the case.
Flow of surveillance cycle at provincial level

The following guidelines give operational guides to the field staff from sentinel surveillance focal points and clinicians to provincial emergency preparedness and response committee

2.2. Guideline for surveillance focal points of sentinel sites and clinicians/ primary health care service provider

Objective: to ensure that, the quality data is produced and promptly notified from health facility

- Ensure that you and your team has clear understanding on case detection, notification and diagnosis of Cholera based on the standard case definition above in 2.1
- Regularly maintain daily incidence data (among the cases attended to the health facility) of new cases acute watery Diarrhea with dehydration on daily incidence charts and carefully observes the changes of case trends.

Be aware of alert threshold of Cholera cases.

Alert threshold for cholera
Even a single case of suspected cholera should be considered as an alert for cholera outbreak and to be notified immediately

- Be aware of importance of notification of suspected outbreaks of AWD with severe dehydration or suspected Cholera cases
- Be familiar with notification modes, alert forms and weekly reporting forms

Annex: B1, 2&3 Daily AWD with dehydration incidence chart, Alert notification format and DEWS weekly reporting format
• If you observe a **doubling trend of AWD with severe dehydration and clinically suspect any single case of Cholera** and if you have **Rapid Diagnostic test** (RDT) kits for Cholera; then do a rapid diagnostic test.

See annex C for more information on RDT procedures

• If the Rapid Diagnostic test for Cholera is positive or If you do not have RD kits and you are strongly suspecting the case as cholera; immediately notify to the **surveillance focal point** (of the facility / agency surveillance and outbreak control focal point / provincial outbreak investigation and control team) by SMS/phone call/HF radio or any other possible communication means

Annex-D updated details of provincial surveillance focal point

• A hard copy of the notification form should be sent to the surveillance focal point as early as possible
• Also recheck and confirm that, the notification reached the surveillance focal point
• Take stool samples from all suspected cases (including RDT positive cases) before giving any antibiotics and properly dispatch them for confirmatory bacteriology tests.

**Standards of Procedures (SOPs) of sample collection and transport**

- Preferably a stool specimen otherwise a rectal swab should be collected and send for culture, isolation and identification of Vibrio cholera strains.
- The specimen should be obtained before the patient has received antibiotics.
- If a stool specimen is collected, it should be fresh stool, not from a bucket or bedpan, where it may be mixed with disinfectant.
- Around 25 grams (4-5 teaspoon/2-3 table spoon) of stool sample is sufficient, collected in a sterile cup with a screw top lid.
- If the laboratory is more than 30 minutes away, dip a sterile cotton swab into the stool and place it firmly down into **Cary-Blair transport medium** for transport to the laboratory.
- Snap off the top of the swab stick, screw the top off of the Cary Blair tube, and label the tube with the patient’s name, date of collection, and facility name.
- For rectal swab samples, insert the sterile cotton swab into the anus, rotate it, be sure that it has fecal matter, and insert into Cary-Blair, and label as above.
- Transport at room temperature or below.

• In addition to the notification procedure; If the findings are more towards a cholera case, actively try to find out any related cases and alert all the clinical and Para-clinical staff of all the sections of the facility and prepare the facility to manage more cases (Details in section 3)
2.3. Guideline for Provincial surveillance focal point (DEWS/Contracted out agency)

Objective: to ensure efficient surveillance activities in the province to detect outbreaks and epidemics

- Ensure as a provincial surveillance focal point, you are well capacitated with surveillance procedures, computerized analyzing techniques and sound knowledge on communicable disease control activities
- Train all clinicians and surveillance focal points of the health facilities on case definition, health facility based new case recording, daily summarization and maintenance of daily new case summary chart and proper notification methods
- Ensure all the tools and supplies (Updated Case definitions, Manuals, guidelines, Forms, Charts with median trend curves for each year, records/registers, Rapid testing kits and carrier mediums, cool boxes) for diagnosis, notification, sample testing and collection are available at each facility
- Update them with on job trainings and regular mentoring during supervision visits
- Ensure regular notifications are received from all facilities under the province, if not remind, visit and rectify the issues related to notification
- Regularly compile the data collected from the surveillance focal points or the clinician or the health care provider of the health facilities and analyze (by time, place and person) to detect any alerts or outbreaks or epidemic alerts at provincial level
- If any significant alerts are detected during data analysis; clearly verify the same from the source of data
- Timely share the compiled data and weekly analysis reports and any alert notification with provincial emergency preparedness and response committee.
- Forward the same to MOPH in time as softcopy and all hard copies to be filed at provincial surveillance office
- Take the lead and provide necessary technical guidance to the rapid outbreak investigation and control team of the provincial emergency preparedness and response committee under the instruction of Provincial Health Director.

2.4. Guideline for Provincial Emergency (Health) Preparedness and Response Committee (ERP)

Objective: to assess and guide on enhanced surveillance case investigation and response of outbreak and epidemics

Once the Provincial Surveillance focal point shared the details (Time, place and person) of the suspected alert or outbreak or Epidemic with the provincial emergency response committee (see table 7/ chapter 6); it should call for an emergency meeting and plan its activities with the following steps.

- Deploy a pre trained Outbreak investigation and early response team (For the composition of the team; see table 7 of Chapter 6 ) with necessary investigation tools and
emergency response supplies to visit and investigate relevant sites (Health facility, households of the cases and water sources and waste management sites etc) to verify surveillance data and find out the source and nature of the alert or outbreak

- Get the daily feedback from the Outbreak investigation and early response team and do an epidemiological analysis

- If the morbidity and mortality are on the rise; enhance the surveillance activities through the available surveillance system and relevant control activities of outbreak investigation and early response team

- Update the MOPH regularly on progress

- If the situation is out of control of provincial Emergency preparedness and Response Committee, then call for national assistance and the situation might be handled by national cholera epidemic task force, on the contextual based expert committee advice.

2.5. Guideline for outbreak investigation and early response team

Objective: To verify the outbreak, enhance surveillance and control of cholera outbreaks

- The team should verify the alerts with the help of alert verification form and also examine the suspected cases; collect necessary information from cases, care takers or family members, villagers and clinicians.

Annex-E sample case investigation form

Before visit to the location for rapid assessment and response;

- be clear about the alert message
- Plan and collect all the contacts to be met and investigated
- Organize all necessary logistic arrangements including appropriate transport and communication facilities
- Prepare and take necessary investigation (forms, sample collection materials, water testing kits) and control materials with you (soap, water purification tablets, chlorine stock solution and a megaphone, necessary IEC materials, necessary emergency medicine supplies for health facilities where there are no prepositions)

During visit to the suspected source of infection and households of the suspected cases and health facilities;

- Collect evidence of water source, quality, sanitation facilities and food handling habits of the cases
- Treat the suspected water sources,
- Collect stool samples from suspected cases and water samples from their house hold water storage containers and water sources
➢ Provide health education and necessary hygiene promotion supplies, to the family members and neighbors who share the water source and sanitation points (The details of prevention of spread are described in chapter-5)

➢ In the health facilities; check diagnostic criteria in use (case definition), classification of cases (This would improve the quality of data from the facilities) and case management procedures (Details of case management procedures are mentioned in chapter-3)

➢ Also find out about any shortages of medical supplies and support the clinical teams with urgent supplies.

After visit, when you are back from the field

➢ Send the samples to the laboratory as early as possible and track the progress according to scheduled time period

➢ Never suspend/await the outbreak response and control operations until receiving the lab results

From your confirmed findings: line list the cases according to the standard format given in annex B 3, summarize the relevant findings related to time place and person and identify the clustering of cases and sources

NB: Here specific details of dehydration level, suspected source of infection would help to identify the seriousness of the outbreak and the source of outbreak

➢ Discuss the findings with the (provincial) emergency preparedness and response committee and make a preliminary decision until the laboratory report arrives.

➢ Send the feed back to the facility within 24 hours with instructions of standard case management, control measures with necessary supplies.

➢ Keep in touch with the facility and gather updated morbidity and mortality data and also implement an enhanced surveillance with the help of community based focal points/organizations via daily SMS reporting of above details needed for line listing

➢ If the team recognizes the outbreaks are grouping into an epidemic or the spread is immense (acute increasing number of cases and deaths from different locations); inform and request ERP to mobilize more resources based on the attack rate and from far provinces and establish CTCs (details under chapter 4) and make revisits

During re-visit

➢ Assist the facility to organize ORT corners in the facilities, and prepare locations to establish CTC (If necessary prepare the neighboring facilities and districts as well)

➢ Plan and implement an intensive community hygiene promotion program which would help for enhanced surveillance as well

Follow up

➢ Once the laboratory confirmation is available and still the cases and deaths are on rising trend; then the situation should be discussed with the provincial emergency response committee and expanded control measures should be taken by strengthening HR (bringing in experts and case management specialists) and supplies.
3. Guidelines for management of cholera patients

In Health facilities and Cholera Treatment Centres (CTCs)

3.1. Case registration, classification and management

- During a suspected outbreak/Epidemic of Cholera; the suspected cases should be received through a special emergency entrance (see the CTC layout given in chapter 4.2.2) with the help of trained volunteers with adequate personal protection facilities.

- The cases should be directed to a special counter organized with a separate registering volunteer/staff and register to gather specific information about suspected cholera cases.

Annex- E sample of a Cholera case register format for health facilities and CTCs

- Allocate triage nurses to assess and categorize the cases into mild (A), moderate (B) and severely dehydrated (C) and refer them to the appropriate treatment site for observation and further treatment.

- Rehydrate immediately according to the dehydration level (See rehydration flow chart given below with standard assessment and treatment protocols).

- Regularly monitor the cases (every 30 to 60 minutes) for their improvement or worsening of the frequency and amount of stools, symptoms, and signs.

- Continue to rehydrate the cases accordingly and transfer the cases to the appropriate management site.
Assessment of dehydration level and rehydration flow chart

Classification of Dehydration

- If the patient has the following signs:
  - Well, alert
  - Normal eyes
  - Drinks normally, not thirsty
  - Skin pinch\(^d\) goes back quickly
  - No signs of dehydration

- If the patient has two or more of the following signs:
  - Restless, irritable
  - Sunken\(^d\) eyes
  - Thirsty, drinks eagerly
  - Skin pinch\(^d\) goes back slowly
  - Some dehydration

- If the patient has two or more of the following signs:
  - Lethargic\(^\text{a}\) or unconscious
  - Sunken\(^e\) eyes
  - Drinks poorly, or not able to drink
  - Skin pinch\(^d\) goes back very slowly
  - Severe dehydration

Treatment plan A
- Give ORS solution
- After each stool:
  - < 24 months: 50-100 ml (1/4-1/2 cup)
  - between 2 and 9 years: 100-200 ml (1/2-1 cup)
  - > 10 years: as much as wanted

Treatment plan B
- Give ORS solution
- In the first 4 hours:
  - < 4 months, < 5 kg: 200-400 ml
  - 4-11 months, 5-7.9 kg: 400-600 ml
  - 12-23 months, 8-10.9 kg: 600-800 ml
  - 2-4 years, 11-15.9 kg: 800-1200 ml
  - 5-14 years, 16-29.9 kg: 1200-2200 ml
  - > 15 years, > 30 kg: 2200-4000 ml

Treatment plan C
- Give IV fluids (Ringer lactate)
- Children < 1 year:
  - 100 ml/kg in 6 hours
  - Start rapidly:
    - 30 ml/kg within the first hour and then slow down
- Children > 1 year and adults:
  - 100 ml/kg in 3 hours
  - Start rapidly:
    - 30 ml/kg within the first 30 min and then slow down

See detailed treatment plan A, B&C in Annex F
3.2. Role of antibiotics in management of Cholera cases

Antimicrobial therapy is very helpful in severe cases of cholera, but is not required for treatment of all the cases. Hydration is the mainstay of treatment. Antimicrobials reduce the total volume of fluid lost, shorten the duration of diarrhea, and reduce the length of carriage of cholera in the feces – all of which optimize resource utilization in an outbreak setting.

An antibiotic given orally will reduce the volume and duration of diarrhea in cholera patients. Treatment with antibiotics is recommended for:

- **moderately and severely dehydrated** patients,
- patients who continue to pass large volume of stools during rehydration treatment, and
- **all hospitalized patients**. Do not give antibiotics to asymptomatic persons. The use of antibiotics as prophylaxis for cholera has been shown to increase the risk of antibiotic resistance and has not been effective in preventing cholera transmission. Zinc given orally, though not an antibiotic can reduce the duration of most infectious diarrhea in children. No drugs besides antibiotics and zinc for treatment of diarrhea or reduction of duration of symptoms and carriage of vibrio should be given.

- For severe cases treat with the following antibiotic regime given in table 1.
- Always check the updated national advice based on antibiotic sensitivity test.

### Table: 1

<table>
<thead>
<tr>
<th>Patient classification</th>
<th>First choice</th>
<th>Second choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults (non-pregnant)</td>
<td>Doxycycline: 300 mg by mouth in one dose</td>
<td>• Azithromycin: 1 gram in a single dose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tetracycline: 500 mg 4 times a day for 3 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Erythromycin: 500 mg 4 times a day for 3 days</td>
</tr>
<tr>
<td>Pregnant women</td>
<td>Azithromycin: 1 gram in a single dose</td>
<td>• Erythromycin: 500 mg 4 times a day for 3 days</td>
</tr>
<tr>
<td>Children ≥12 months old and capable of swallowing pills or tablets</td>
<td>Azithromycin: 20 mg/kg in one dose</td>
<td>• Tetracycline: 12.5 mg/kg 4 times a day for 3 days</td>
</tr>
<tr>
<td></td>
<td>• Erythromycin: 12.5 mg/kg 4 times a day for 3 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Doxycycline: 2-4 mg/kg in a single dose**</td>
<td></td>
</tr>
<tr>
<td>Children &lt;12 months old and others unable to swallow pills or tablets</td>
<td>Azithromycin oral suspension: 20 mg/kg in a single dose</td>
<td>• Tetracycline oral suspension: 12.5 mg/kg 4 times a day for 3 days</td>
</tr>
<tr>
<td></td>
<td>• Erythromycin oral suspension: 12.5 mg/kg 4 times a day for 3 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Doxycycline oral suspension: 2-4 mg/kg in a single dose**</td>
<td></td>
</tr>
</tbody>
</table>

**Doxycycline is safe for treatment of cholera in children at the recommended dose. The Pan American Health Organization recommends doxycycline as a second-line choice because of limited regional availability and to avoid future resistance in children.**
3.3. Management of complications of Cholera

- Regularly monitor the symptoms and signs for any complications due to dehydration or over hydration and treat appropriately.
- Precautions to be taken on malnourished children, elderly, disabled, mentally retarded and drug addicts, these patients are vulnerable to develop complications, enhanced spread of disease thus become a reason for increased morbidity and mortality of the epidemic.
- So that, special care should be given to the vulnerable groups (See Table: 2).

Table: 2. Management of complications of Cholera

<table>
<thead>
<tr>
<th>Common complications, reason and symptoms</th>
<th>Desired treatment modifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypoglycemia due to diminished food intake and presents with lethargy, rolled back eyes, and convulsions</td>
<td>Give ORS as early as possible, assess the glucose level and give IV Dextrose infusion (1ml of 50% dextrose/1Kg body weight)</td>
</tr>
<tr>
<td>Hypo-kalaemia may develop with managing the patient with homemade sugar and salt solution alone or inappropriate IV transfusion with Normal saline alone, The patient might present with pain full body cramps probably 24hrs after the diarrheal management</td>
<td>Depending on the dehydration level; give adequate ORS or Ringer lactate</td>
</tr>
<tr>
<td>Acute pulmonary edema is related to over hydration from excessive IV rehydration. Use of sodium chloride 0.9% instead of Ringer’s Lactate Solution can also contribute to this condition. <strong>Oral rehydration does not cause pulmonary edema.</strong> Pulmonary edema may present with dry cough, dyspnoea, puffy eyelids in children, bulging fontanelle in infants, edema of the lower limbs, and crepitations on auscultation of chest.</td>
<td>Put patient in a half-sitting position, legs hanging out of the bed. Slow down infusion rate as much as possible. Administer furosemide (by slow IV injection in a dose of 1mg/Kg body weight If needed, repeat the same dose after 15 minutes, according to the patient’s condition(can be monitored by auscultation of lungs)</td>
</tr>
<tr>
<td>Acute renal failure is a rare complication in Cholera patients and occurs when shock is not rapidly corrected. Urine output will go extremely lower than the minimum expected urine output for the child(&lt;0.5ml/Kg/hour)</td>
<td>Carefully rehydrate the child and observe for the urine output. If there is no improvement in urine output within 6hrs; try furosemide 1mg/kg IV under close medical supervision. Patients should be checked for urine output before discharge from the cholera treatment center (CTC).</td>
</tr>
</tbody>
</table>

3.3.1. Common complications among malnourished children and management

- Children with severe malnutrition are at high risk for complications from heart, kidney, and electrolyte abnormalities, and typical signs of dehydration are often unreliable.
- Except in cases of circulatory shock, IV hydration should be avoided because of a high risk of fluid overload. Children receiving oral rehydration must also be monitored carefully for signs of cardiac failure.
- These children should be sent to a specialized malnutrition center as soon as they have been rehydrated.
The following flow chart guides to manage malnourished children with diarrheal disease.

### Prevention and treatment of dehydration in severely malnourished children

1. **Is the child severely malnourished?**
   - Yes: Continue breastfeeding and offer ORS in small sips or by spoon. If child cannot drink adequately, refer to specialized center for further management.
   - No: Continue feeding and offer ORS to replace ongoing losses.

2. **Is the child dehydrated?**
   - Yes: Continue breastfeeding and offer ORS to replace ongoing losses. Refer to specialized center for further management.
   - No: Continue feeding and offer ORS to replace ongoing losses.

3. **Is the child thirsty?**
   - Yes: Continue breastfeeding and offer ORS to replace ongoing losses. Refer to specialized center for further management.
   - No: Continue feeding and offer ORS to replace ongoing losses.

4. **Are the child’s eyes newly sunken?**
   - Yes: Refer to specialized center for further management. ORS intake may be increased.
   - No: Continue feeding and offer ORS to replace ongoing losses.

5. **Is the child urinating normally?**
   - Yes: Continue feeding and offer ORS to replace ongoing losses.
   - No: Continue feeding and offer ORS to replace ongoing losses. Refer to specialized center for further management.

### Treatment for non-dehydrated children

1. **Vitamin A.**
   - Age 6-12 months: give 100,000 IU in 1 drop by mouth.
   - Age 1-14 years: give 500,000 IU in 1 drop by mouth.

2. **Zinc.**
   - Age 6-12 months: give 20 mg by mouth for 10-14 days.
   - Age ≥13 months: give 20 mg by mouth for 10-14 days.

Note: Low blood volume can coexist with oedema. Don’t use the IV route for rehydration except in cases of shock and then do so with care, infusing slowly to avoid flooding the circulation and overloading the heart.
3.3.2. Prevention and treatment of dehydration in severely malnourished children

Note:
Low blood volume can coexist with oedema. Don't use the IV route for rehydration except in cases of shock and then do so with care, infusing slowly to avoid flooding the circulation and overloading the heart.

Treatment:
The standard oral rehydration salts solution (90 mmol sodium/l) contains too much sodium and too little potassium for severely malnourished children. Instead give special Rehydration Solution for Malnutrition (ReSoMal).

Recipe for ReSoMal oral rehydration solution

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water (boiled &amp; cooled)</td>
<td>2 litres</td>
</tr>
<tr>
<td>WHO-ORS</td>
<td>One 1 litre-packet</td>
</tr>
<tr>
<td>Sugar</td>
<td>50 g</td>
</tr>
<tr>
<td>Electrolyte/mineral solution (see below)</td>
<td>40 ml</td>
</tr>
</tbody>
</table>

ReSoMal contains approximately 45 mmol Na, 40 mmol K and 3 mmol Mg/litre.

Recipe for Electrolyte/mineral solution (used in the preparation of ReSoMal and milk feeds)

Weigh the following ingredients and make up to 2500 ml.
Add 20 ml of electrolyte/mineral solution to 1000 ml of milk feed.

<table>
<thead>
<tr>
<th>Electrolyte compound/salt</th>
<th>quantity in gram</th>
<th>Quantity in molar content of 20 ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Chloride: KCl</td>
<td>224</td>
<td>24 mmol</td>
</tr>
<tr>
<td>Tripotassium Citrate: C₆H₇K₃O₇.H₂O</td>
<td>81</td>
<td>2 mmol</td>
</tr>
<tr>
<td>Magnesium Chloride: MgCl₂.6H₂O</td>
<td>76</td>
<td>3 mmol</td>
</tr>
<tr>
<td>Zinc Acetate: Zn(CH₃COO)₂.2H₂O</td>
<td>8.2</td>
<td>300 μmol</td>
</tr>
<tr>
<td>Copper Sulphate: CuSO₄.5H₂O</td>
<td>1.4</td>
<td>45 μmol</td>
</tr>
<tr>
<td>Water</td>
<td>make up to 2500 ml</td>
<td></td>
</tr>
</tbody>
</table>

Note:
Add selenium if available (sodium selenate 0.028 g, NaSeO4 10H2O) and iodine (potassium iodide 0.012g, KI) per 2500 ml.
It is difficult to estimate dehydration status in a severely malnourished child using clinical signs alone. So assume all children with watery diarrhea may have dehydration and give:
- ReSoMal 5 ml/kg every 30 min. for two hours, orally or by nasogastric tube, then
- 5-10 ml/kg/h for next 4-10 hours: the exact amount to be given should be determined by how much the child wants, and stool loss and vomiting. Replace the ReSoMal doses at 4, 6, 8 and 10 hours with F-75 (therapeutic milk)
- if rehydration is continuing at these times, then continue feeding starter F-75
During treatment, rapid respiration and pulse rates should slow down and the child should begin to pass urine.

Monitor progress of rehydration:
Observe half-hourly for two hours, then hourly for the next 6-12 hours, recording:
- Pulse rate
- Respiratory rate
- Urine frequency
- Stool/vomit frequency
- Return of tears, moist mouth, eyes and fontanelle appearing less sunken, and improved skin turgor, are also signs that rehydration is proceeding.
- It should be noted that many severely malnourished children will not show these changes even when fully rehydrated.
- Continuing rapid breathing and pulse during rehydration suggest coexisting infection or overhydration.
- Signs of excess fluid (overhydration) are increasing respiratory rate and pulse rate, increasing oedema and puffy eyelids. If these signs occur, stop fluids immediately and reassess after one hour.

Prevention:
To prevent dehydration when a child has continuing watery diarrhoea:
- Keep feeding with starter F-75
- Replace approximate volume of stool losses with ReSoMal. As a guide give 50-100 ml after each watery stool. (Note: it is common for malnourished children to pass many small unformed stools: these should not be confused with profuse watery stools and do not require fluid replacement)
- If the child is breastfed, encourage to continue

Correction of electrolyte imbalance

All severely malnourished children have excess body sodium even though plasma sodium may be low (giving high sodium loads will kill). Deficiencies of potassium and magnesium are also present and may take at least two weeks to correct. Oedema is partly due to these imbalances. Do NOT treat oedema with a diuretic.

Give:
- Extra potassium 3-4 mmol/kg/d
- Extra magnesium 0.4-0.6 mmol/kg/d
- When rehydrating, give low sodium rehydration fluid (e.g. ReSoMal)
- Prepare food without salt

The extra potassium and magnesium can be prepared in a liquid form and added directly to feeds during preparation. Adding 20 ml of combined electrolyte/mineral solution to 1 litre of feed will supply the extra potassium and magnesium required. The solution can also be added to ReSoMal.
4. Guidelines for establish and manage Oral Rehydration Points (ORPs) and Cholera Treatment Centres (CTCs)

For better management of cholera epidemics; all the identified health facilities in potentially cholera epidemic prone provinces should have annually revised contingency plan to establish necessary number of Oral Rehydration points (ORPs) and cholera treatment centers (CTCs) in appropriate locations.

4.1. Oral Rehydration points (ORPs) at community level

- ORPs are simple case registration and ORS distribution points, which can be managed by trained volunteers or community health workers, where the cases with mild symptoms and the convalescence patients can get their ORS.
- In addition to CTCs; Organize ORPs in identified peripheral locations with the help of trained community health workers or volunteers or community organizations. It will prevent unnecessary congestion of mild cases in CTCs.
- It’s not necessary to have a special building for ORP
- It can be organized in a popular place (Mosques/community centers as well as in all PHC health facilities in epidemic area) of the village/town
- Each ORP should manned by one or two trained volunteer or health worker and can be operated over 12hours or 24hours depending on the need
- Train all ORP health workers or volunteers, to register the cases, prepare and supply standard Oral Rehydration Solutions and spread necessary hygiene promotion messages to the community
- The ORP has to be provided with a register, pen, adequate number of ORS sachets, Clean water supply, Containers to mix and dispense ORS,
- Here the hygiene should be maintained well using soaps and chlorine stock solution for hand washing and disinfection with clean water supply, clean containers and ORS dispensers
- Any moderate to severe cases identified by the health worker in ORP should be referred to CTC
- All ORPs should be regularly supervised and necessary items should be supplied by the nearby health facility or CTC

4.2. Cholera Treatment Centres

As cholera is a highly contagious diseases and the case load can suddenly surge up and create a chaotic situation in the health facilities; it’s better to establish special cholera treatment centers with special separate observation and treatment rooms, controlled flow of personals and better infection control arrangements. While we are established and manage a CTC; we have to consider the following factors.

4.2.1. Site

- A proper site should be selected during the cholera preparedness planning particularly not close to public places like market, schools and residential areas.
- The site shall be preferably within the compound of the health facility (to easily manage the human resource, supply and management) if not possible; a site should be selected close
Operational guideline for Cholera epidemic response in Afghanistan

**Attack rate (AR) = Number of cases over the period (C) x 100**

Population under risk in the same period (P)

Number of cases (Expected) C= \( \frac{P \times AR}{100} \)

If 30% of the cases are admitted to the health facility within the first week (critical admission period);

Expected number of cases during the first 7 days = \( \frac{P \times AR \times 30}{100 \times 100} \)

= \( \frac{P \times AR \times 3}{1000} \)

So expected cases per day = \( \frac{P \times AR \times 3}{1000 \times 7} \)

If we say the average hospital stay is 2 days,

Then the number of beds needed will be = \( \frac{P \times AR \times 3 \times 2}{1000 \times 7} \)

= \( \frac{P \times AR \times 6}{7000} \)

For example; If the estimated population of a district is 100,000 and the initial attack rate of an endemic area is 0.2%; then

Number of beds needed = \( \frac{P \times AR \times 3 \times 2}{1000 \times 7} \)

= \( \frac{0.2 \times 100000 \times 3 \times 2}{1000 \times 7} \)

= 17.14

= 18 beds/ 100,000 population/0.2 attack rate

**4.2.2. Size**

- The size of the CTC shall be decided on the expected case load of the facility
- There are no hard and fast rules to calculate the case loads
- As we are considering Afghanistan as a Cholera endemic country, initial estimation of required number of beds can be calculated according to the expected attack rate for an endemic area (i.e. 0.2% symptomatic cases)

The number of bed for a CTC has to be calculated according to the existing situation

But we can make tentative calculations of required number of bed at the start as follow,

\[
\text{Number of beds needed} = \frac{P \times AR \times 3 \times 2}{1000 \times 7} = \frac{P \times AR \times 6}{7000}
\]

Very rough estimate of required number of beds can be made by multiply the AR/100,000 population by 100 (No. Bed=AR x100)
Note that all suspected cholera cases admitted to the health facility can have profuse watery diarrhea and practically all the cases may need a cholera bed for even during observation time.

- On an average estimation, we have to plan for 10m²/area/bed for all the components of a CTC (Beds for triage, observation, oral rehydration, IV rehydration and Recovery also for latrines, wash room, Pharmacy and Neutral area as well)
- Each bed shall need 2m² area with 2m² space around each bed for access (i.e. totally 4m²)
- So the minimum required size of the CTC for 100,000 populations will be 18X10= 180m² or around 12X15 m structure.

Even though we are discussing about establishing ideal CTCs; emergencies might not be easy to manage without necessary resources and implementation constrains. Sometime we might end up with very temporary materials even huts, plastic sheets, mats and few health staff but we have to always follow the layout structures with proper water sanitation measures, infection control measures and case management procedures.

### 4.2.3. Layout and compartments/rooms of CTC

- The CTC should have a layout that could prevent cross infections among the patients, staff and care takers, so that the spread of Cholera from CTC might be well prevented.
- Controlled flow of personal including patient, caretakers and staff with necessary disinfection procedures will prevent such cross infections.

As per the estimation of number of required bed and space elaborated in chapter 4.2.2;
No. of beds needed for CTC for a population of 70,000 at an attack rate of 0.2% will be = 12

Then the average required space will be 12m x 10m = 120m²

The following sketch shows an ideal plan of a CTC for approximately 70,000 populations in a cholera endemic area.

The water points, Oral Rehydration Corners (ORCs), Waste collection areas, are marked with appropriate icons. Separate male female latrines and wash rooms are necessary in Afghani context and details are discussed under 4.2.10

The sketch does not represent real scales but describing the layout of necessary components. During an extended epidemic the same layout could be used for organizing large CTCs using tents or any other temporary or semi-permanent structures. The sites marked with beds could be replaced by tents or wards.
when the attack rate is shooting up (May be around 5% -8% or more or 25-40 times higher than the endemic situation) we have to be ready to expand the CTC size/ number of beds by the approximate fold of increase of attack rate, but still we have to maintain the same layout and structures.

As always there is potential risk of surging attack rate; it's better to plan CTC/CTCs for the population at risk and establish the Water point, sanitation facilities and morgues, kitchen along the outer boundary lines of the compartments and wards from the middle.
It’s better to establish optimum sized CTCs (60 -80 beds) than a single large CTC (>100 beds)
If we have enough human resource and supplies; it’s better to establish CTCs in prioritized and isolated outbreak locations, which would reduce the patient transport time so that the early intervention might reduce the case fatality ratio.

### 4.2.4. Floor, partition, roof and ventilation and spacing requirements

- The floor of the CTC should be washable with minimum crypts or grooved surface
- The partitions should be washable and as high as 8 feet for privacy
- Roof should be higher than 12 feet for good ventilation and insulated to prevent extreme temperatures and rain leaks
- Ventilation should be adequate for each compartment and its better to keep the severe cases on the end of wind direction
- All windows, doors and eaves should be prevented with fly proof nets
- Each bed should have at least 1 meter away from other bed side by side to pass a stretcher or wheeled chair to change or move the patients
- The aisle also should be minimum 2m for the same reason

### 4.2.5. Human resource for CTC

The CTC should be staffed by health workers (physicians, nurses, and auxiliary nurses) who have been trained in the case management of diarrhea. In addition to clinical staff, the CTC will need non-clinical staff such as clerks, cleaners, crowd controller/sprayers, health educators, and stock-keeper etc. We have to plan to have enough staff to cover at least two shifts per day with weekly rest days.

To have a better care and infection control there should be adequate number of staffs and volunteers with only one care taker for each patient.

Table: 3 describe an estimated optimum number of clinical staffs and assistance needed for the range of 12-72 bedded CTC (For two shifts)

<table>
<thead>
<tr>
<th>Staff</th>
<th>Number of beds</th>
<th>Number of staff needed for 2 shifts</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTC manager/Team leader</td>
<td>12-72</td>
<td>1</td>
</tr>
<tr>
<td>Physicians</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Infection control nurses</td>
<td>12-36</td>
<td>1</td>
</tr>
<tr>
<td>Triage nurse/Staff</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Staff nurses</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>Attendants</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>Pharmacist/Dispenser</td>
<td>12-72</td>
<td>1</td>
</tr>
<tr>
<td>Stock keeper</td>
<td>12-72</td>
<td>1</td>
</tr>
<tr>
<td>Hygiene promotion officer</td>
<td>12-72</td>
<td>1</td>
</tr>
<tr>
<td>Outdoor Patient carriers/Volunteers</td>
<td>12-36</td>
<td>4</td>
</tr>
<tr>
<td>Patient registrar</td>
<td>12-72</td>
<td>2</td>
</tr>
<tr>
<td>Indoor patient carriers/Volunteers</td>
<td>12-36</td>
<td>4</td>
</tr>
<tr>
<td>Disinfection and crowd controller</td>
<td>12-36</td>
<td>6</td>
</tr>
<tr>
<td>Cleaners/Laborers</td>
<td>12-36</td>
<td>6</td>
</tr>
</tbody>
</table>
4.2.6. **Medical and General material supplies for CTC**

The key principle is to avoid any shortage.

- Determine a detailed list of supplies per patient load to obtain estimates for your facility. Expected number of cases and delays in supply accessibility should be considered in this estimate.
- A supply of excess essential supplies or contingency supplies, also known as buffer stock, (for 3-14 days) in case of surges of cases or re-supply issues should be on-site at all times.
- Supplies include medical material for rehydration and other treatments, personal, protection equipment, laboratory supplies (rapid testing kits) water facilities, chlorine for disinfection, and all logistic material needed to equip a CTC.
- From the past experiences the estimated supplies have been developed into Inter Agency Diarrheal Disease Kit (IADDK) by W.H.O and the composition of the kit is listed in Annex H.

See Annex H for Inter Agency Diarrheal Disease Kit (IADDK)

**Initial Supply of IADDK**

One diarrheal disease kit provides treatment for 100 severe cases of cholera (IV fluids and antibiotics for initial treatment and ORS for the recovery phase); 400 mild or moderate cases of cholera in a CTC and 100 adults and 100 children affected by other infectious causes of diarrhea.

The kit contains four separate modules. For preparedness, a full kit should be ordered. Each module can also be ordered separately, depending on the local availability of the different components.

**Basic module:**

- **Drugs**
  - ORS, as well as Ringer’s lactate for 10 severe cases only (with an average of 8 liters per patient)
  - Antibiotics for Cholera: doxycycline (65 adults), erythromycin (60 children), Ciprofloxacin; zinc tablets (250 children)
  - Disinfectant
- **Renewable supplies, including culture swabs**
- **Equipment**
- **Documents on diarrheal disease management in emergencies**
- **In addition, stationery, registers, and other supplies are needed, as well as bags and linen for the bodies of deceased patients.**

**ORS module:** Consists ORS for 400 cholera patients with no or moderate dehydration.
Calculation of needed supplies of essential material for case management in CTCs/HFs

The estimated needs of medical and other essential materials for a CTC for different populations are listed below in Table 4, for minimum expected attack rate of 0.2%

Expected number of cases in your area could be calculated by the following formula

\[
\text{Number of cases (Expected)} = \frac{\text{AR} \times \text{P}}{100}
\]

(A R is attack rate and P is population of the area)

Now you can calculate the amount of the item needed for your CTC or health facility according to the number of population or population range

For example if your area population is approximately 200,000;
Then your expected number of cases for the attack rate of 0.2% is \( \approx 400 \)
ORS need for 100 cases is \( \approx 650 \)
So the need of ORS for 400 cases will be \( 4 \times 650 = 2600 \)
In the similar way, you can calculate your need of items according to your population and attack rate at any time of the outbreak or Epidemic

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Population (+ numbers expected to fall ill)</th>
<th>Your area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 000</td>
<td>10 000</td>
</tr>
<tr>
<td></td>
<td>(10)</td>
<td>(20)</td>
</tr>
<tr>
<td>Rehydration supplies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORS packets (for 1 litre each)</td>
<td>65</td>
<td>130</td>
</tr>
<tr>
<td>Nasogastric tubes (adults) 5.3/3.5 mm (16 flack) 50 cm</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Nasogastric tubes (children)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Ringer lactate bags, 1 litre, with giving sets</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Scalp vein sets</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Antibiotics
Maintaining supplies beyond the initial kit
To avoid supply shortages, there are several key principles:

- **Assessing storage capacity:**
The physical space that is available for storage determines the CTC/CTU storage capacity. When building/designing a CTC/CTU, keep in mind the amount of space needed to store supplies (including the initial stock, re-supply, and a buffer stock for 3-14 days). Storage areas must be kept secure from crime and weather.

- **Monitoring inventory (i.e. counting supplies periodically):**
Personnel to regularly perform an inventory of supplies, especially critical supplies, are necessary. Stock and bin cards and tracking sheets of critical supplies will help the CTC to maintain adequate supplies.

- **Rate of consumption:**
The rate of consumption (i.e. the number of key supplies used per day) should be determined on a regular basis. Important information to monitor includes:
  - Number of inpatients treated per day
  - Number of outpatients treated per day
  - Number of ORS packets used per day
  - Number of Ringer lactate bottles used per day
  - Number of antibiotic doses used per day

- **Time needed to re-supply:**
The time required for a supply order to arrive at the CTC/CTU after an order is requested is referred to as the ‘time needed to resupply’. This time varies by supplier and/or the type of supply needed and also may vary during times of political unrest, bad weather conditions, or nation-wide stock-outs. Supply ordering and communication protocols with suppliers should be understood by the logistician/person in charge of supply. Thus, the calculation of expected needs based on the attack rate and a buffer stock is important to avoid stock outs and too many orders from supplier.
- **Surge capacity:**
  CTCs/CTUs should anticipate that they may have sudden increases (surges) in the number of patients seeking care. Monitoring trends (Attack rates) over time of the number of patients seen daily and the rate of consumption of critical supplies may help the CTC/CTU identify patient surges. If the trends suggest that the CTC/CTU is treating more patients, then supply ordering can be adjusted.

- **Critical Supplies:**
  Critical supplies - without which the medical care of patients will be significantly impaired - should be monitored closely. Ideally, a CTC should not run out of critical supply items. All critical supplies can be stored at room temperature for 2 years. Critical supply items include:
  - Ringer’s Lactate
  - IV infusion sets
  - IV cannulae in different sizes
  - Oral Rehydration Salt
  - Doxycycline
  - Erythromycin/Azithromycin
  - Zinc
  - Aquatabs
  - HTH (High Tech Hypo chloride)
  - Disinfectant (iodine/Hibidane etc)
  - Antiseptic soap (Carbolic/Detol)
  - Latex/Nitrile gloves
  - Naso-gastric (NG) tubes
  - Adhesive tape rolls
  - Body bags
  - Cotton balls

- **Buffer stock:**
  Buffer stock is an excess of essential supplies or contingency supplies stored at the CTC/CTU or provincial health warehouse depending on the storage capacity of each CTC. The buffer stock assures that the CTC can provide adequate care for patients in the event of a sudden patient surge or a problem with delivery or acquisition of critical supplies. The amount of buffer stock necessary ranges from supplies for 3-14 days, depending on the frequency of re-supply, time needed to re-supply, and storage capacity.

- **Dependent units:**
  CTC must account for the supply needs of ORPs or other facilities nearby, those are depend on the CTC for supplies. Logisticians/stock-keepers should receive inventory and rate of consumption data from ORPs frequently. A buffer stock and stock in case of patient surge should be maintained for these facilities at the CTC.

4.2.7. **Water supply for CTC**

**Water quantity**

- Patients need average of 40–60 liter of treated water / patient / day for drinking (ORS preparation), cleaning, bathing, and washing clothes.
• Caregivers need at least 15 liters of treated water/caregiver/day is needed.
• So estimated minimum daily CTC water needs would be 60-75lit/patient/day
• In principle, the quantity of water stored in a CTC should be sufficient for 3 days.

**Water quality**

• All drinking-water should be treated with appropriate chlorine product (Aqua tabs/Chlorine stock solution)

The Table: 5 adopted from the field manual of communicable disease control in emergencies\(^16\); describes the needed dose of Chlorine for different grade of contaminated water.

<table>
<thead>
<tr>
<th>Table: 5</th>
<th>Optimum dose of Aquatabs(^R) for treatment of water from different source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of water and source</strong></td>
<td><strong>Volume of water treated per tablet (litres)</strong></td>
</tr>
<tr>
<td>Clear piped water</td>
<td>Protected tube wells, ring wells, clear rainwater</td>
</tr>
<tr>
<td>8.5 mg</td>
<td>5</td>
</tr>
<tr>
<td>17 mg</td>
<td>10</td>
</tr>
<tr>
<td>67 mg</td>
<td>39.41</td>
</tr>
<tr>
<td>340 mg</td>
<td>200</td>
</tr>
<tr>
<td>500 mg</td>
<td>294</td>
</tr>
</tbody>
</table>

Chlorine stock solutions of different percentages (concentrations) or a mechanical chlorinato
can be used to treat the water source or reservoir tank, which would be cheap and reliable
method for ensured safe drinking water in CTCs.

• Levels of chlorine should be tested regularly
• Water for consumption in a CTC should be chlorinated to give a residual of either/or:
  0.2–0.5 mg/l where pH <8
  0.4–1 mg/l where pH is ≥8
• Water can only be effectively chlorinated if turbidity (cloudiness of fluid) is <5
  Nephelometric Turbidity Units (NTU) and up to 20 NTU for minimum periods in times of emergency (NTUs are measured by a calibrated nephelometer).
• Quantity of chlorine per patient per day for all needs (including storage/preparedness) is approximately 1g of HTH/patient/day.

**Drinking water storage**

Drinking water should be stored separately from water for other uses. If drinking water is stored in containers, only safe containers should be used. The following characteristics of a water storage container will provide physical barriers to recontamination and render the container safe to store water:

• Contains a small opening with a lid or cover that discourages users from placing potentially contaminated items such as hands, cups, or ladles into the stored water.

• Has a valve or small opening to allow easy and safe access to the water without requiring the insertion of hands or objects into the container.
• Size of the opening should be appropriate for the water treatment method, with permanently attached instructions for using the treatment method and for cleaning the container.
• If containers with these characteristics are not available, efforts should be made to educate health care workers to access the water by pouring from the containers rather than dipping into it with a possibly contaminated objects

**Oral Rehydration Corners**
In addition to drinking water facility; the CTCs should have Oral Rehydration Corners (ORC) in each compartmentalized wards. This is the place where promptly prepared ORS solution is kept with a safe dispensing system. This would enable the care takers to be accessible to adequate ORS at any time and enable them to care their patients by providing ORS according to the instructions and compensate the loss of body fluid through diarrhea.

### 4.2.8. Food preparation handling and serving instructions for CTC Kitchen
- For CTCs or health facilities with kitchens, strict rules should be set for preparing and serving food including:
  - The kitchen should be in the neutral area with well protected (Fly prove) design, necessary supply route, water supply and drainage system
  - Only kitchen staff is allowed inside the kitchen.
  - The kitchen staff should strictly follow the disinfection and personal hygiene procedures
  - Upon entering the kitchen (each time), hands must be washed.
  - All the food materials used for cooking should be contamination free well cleaned and properly stored in the kitchen storage room
  - Cooks and kitchen staff should take all precautions to prevent the contamination of cooked food with raw materials and untreated water.
  - Well cooked food should be served as early as possible in plates and cutleries which were soaked in 0.2% Chlorine solution for 5 minutes or well washed in boiling water.
  - Only kitchen staff or specially assigned staff who did not handle any ward activity should serve food after proper disinfection and hand washing procedures
  - Food provided by relatives should be avoided if allowed it should be handled following the same hygiene criteria.

### 4.2.9. Hygiene and personal protection of the staff and care takers
Hygiene should be promoted among staff to keep everyone aware of the rules related to hygiene and the dangers of not adhering to them. Promotion should concentrate on:
- How to clean the patient bed and other surfaces (floor, walls, buckets, etc) that have been soiled with excreta or vomit
- Hand-washing after dealing with each patient or after handling contaminated items
- Hand-washing after defecation Hand-washing before handling or eating food
- Changing into protective clothing when entering the area.
- When leaving, protective clothing should be removed in the CTC for washing on site and not taken home
Protective clothing
Protective clothing should be made available for all staff working in the center, including boots and protective clothing like aprons and gowns or coats that can be easily removed before leaving the center. Gloves should also be made available for those manipulating blood, excreta, chlorine, and chlorinated solutions. (Most of the protective clothes are included in the basic cholera kit except boots)

4.2.10. Sanitation facilities for CTC
The goal of a sanitation program is to develop physical barriers against the transmission of disease, in order to protect the health of the emergency-affected population. These barriers include both engineering measures and personal hygiene measures. Providing latrines and developing methods of waste disposal are essential to the sanitation program.

Cholera beds
Cholera beds are special beds with a hole for passage of stool.
- Cover the bed with plastic sheeting or reinforced plastic mats.
- It is possible to use natural mats, but they would be difficult to clean after each patient.
- One bucket should be placed underneath the bed to collect stool and another bucket by the patient’s side to collect vomit.

Buckets for cholera beds
- Because most of the hospitalized patients will not be able to use a latrine, buckets (10–15 liters) should be placed under the hole in the cholera bed and at the bedside for vomit.
- The bucket can be raised on a block to prevent splashing of the surrounding area.
- A number of buckets should also be provided for the Observation area.
- Approximately 1 cm of 2 % chlorine solution should be put into the bucket before it is placed under the bed.
- The bucket may be emptied into the toilet/latrine, as long as while being transported for disposal it does not go thru a “safe” area and risk infection to other areas of the site.
Latrines
- There should be minimum one for every 20 persons, plus one or two in the neutral area for the staff. There must be separate latrines for males and females in each compartment (Mild/Moderate/Severe cases and neutral area) particularly for big CTCs with more than 60 beds.
- All liquid human waste is disposed of in a toilet, flush pit, latrine, or is buried.
- Soak-away pit (for most soils) must be located at least 30 meters from any groundwater source and the bottom of any latrine is at least 1.5 meters above the water tables.
- Semi-solid waste is incinerated where possible.
- Plastic slabs are useful in an emergency because installing them is quick and they are easy to clean.
- Toilets should be independent and not connected to the main sewer system, which helps contain the cholera.

Showers/Washing areas
- There should be one shower area per 25 people (male and female).
- There should be a minimum of two shower rooms (male and female) for staff in neutral areas.
- Bathing areas should be connected to a grease trap and a soak-away pit that is contained inside the CTC.
- Soak-away pits (for most soils) must be located at least 30 meters from any groundwater source and the bottom of any latrine is at least 1.5 meters above the water tables.
- The patient shower areas should be big enough for a minimum of two people (caregiver and patient). Using a sprayer and initially soaking clothes in 0.5% chlorine solution on arrival may aide in the effectiveness of cleaning patients.
- Care must be taken to preserve the dignity of patients during this process.

Hand-washing area
- Located at all latrines, all tents (patient and administrative), kitchen, mortuary, waste area
- Concentration: 0.05% chlorine solution
- Soak-away pit (for most soils) must be located at least 30 meters from any groundwater source and the bottom of any latrine is at least 1.5 meters above the water tables.
- All staff, patients and caretakers and visitors have convenient, visible facilities for washing their hands with soap, or special chlorine solution
- All patients, caretakers, and visitors are taught and encouraged to wash their hands
- All staff must wash their hands before and after examining patients
- Staff and patients must wash their hands when exiting the latrines and treatment areas

4.2.11. Proper waste disposal and disposal of dead bodies

Although Cholera is a fecal- orally transmitted disease; we have to be aware of vomit, other soft wastes and dead bodies of Cholera patients which can also be a source of spread of organism and transmission of the disease.
So we have to consider proper disposal of stool, clinical wastes, vomit and dead body of the Cholera patients. This would prevent the chance of contamination of these wastes with all the transmission routes particularly contamination of the field/soil and surface water sources.

To establish a proper waste management system; the following factors should be taken into account

**Separation and storage**

Different types of waste are produced in the CTC that need to be disposed of correctly, in order to reduce transmission of cholera and other diseases related to medical waste.

Waste can be divided for segregation and disposal purposes into three categories:

- **Soft wastes**: cottons, gauze, plastics, syringes, paper (waste—contaminated or uncontaminated that can be burned)
- **Organic wastes**: food residues, human tissue (waste that cannot be burned)
- **Sharp wastes**: needles, lancets, ampoules, glass (waste that can cause injury and transmit disease if not disposed of properly)

Therefore there should be three different types of containers assigned and labeled for the different type of waste:

- Soft waste can be discarded in a bin or drum.
- Organic waste can be disposed in a washable waste bin with a lid.
- Sharp waste should be disposed in a puncture-proof plastic container with a lid, with “V” shaped opening (e.g., empty tablet plastic container). Once the container is full; it has to be collected for incineration and replaced by a new one.
- Safety boxes can also be used to collect sharps and syringes with needles (no need to separate). The safety box, when full, should be incinerated on top of a grill, placed on the sharp pit to allow all remaining metals and ashes to fall through into the pit. Safety boxes should not be incinerated into a drum burner.

**Waste zone and its components**

A waste area has to be planned within the CTC and comprises:

- A drum burner (with a dry area to store the bins)—to burn soft waste
- An organic pit (with a lid to prevent flies/mosquitoes)—for organic waste and the ash produced from the burner. Check that access to pit is restricted. Care must be taken to ensure that the pit (for most soils) must be located at least 30 meters from any groundwater source and that the bottom of any latrine is at least 1.5 meters above the water tables.
- Drainage around the pit must be adequate to ensure that no contamination of surface water occurs.
- A sharps pit to receive the containers collecting the needles, lancets, ampoules, and similar items.
- The pit ideally should be lined so that it is fully enclosed. If safety boxes are used, a grill should be placed on the top of the pit.

Upon closure of the CTC, the organics pit should be backfilled and the sharps filled with concrete or similar material to encapsulate the sharps and to protect future users of the land.
Waste water management
The most contaminated waste water will come from the mortuary, showers, laundry, and kitchen washing area. Waste water from this area must, therefore, be disposed of in soak pits after first going through grease traps (so that the soak pit does not become clogged). Soak away pits (for most soils) must be located at least 30 meters from any groundwater source and the bottom of any latrine is at least 1.5 meters above the water tables.

Site drainage facility
If possible, the CTC should be located on a slight incline, so that rainfall can be easily drained from the area. Drains should be constructed around the outside of each of the structures in the center to canalize rainfall and drain out of the CTC. Although rainwater run-off may contain some contamination, it is considered to be of low risk. It is not usually feasible to dispose of all water from a rainfall event; therefore arrangements must be made to collect rainwater from the CTC and drain out, where possible, to an existing drainage system.

Care full handling of dead bodies
Bodies of deceased cholera patients must be disinfected with a 2% chlorine solution. People who wash and prepare the body of a deceased patient must:
- Wear gloves, an apron, and a mask.
- Clean the body with chlorine solution inside the mortuary with 2% chlorine solution.
- Fill the mouth and anus of the body with cotton wool soaked with 2% chlorine solution as soon as possible.
- Bandage the head to keep the mouth shut.
- Do not empty the intestines.
- Where many bodies must be stored, quicklime (calcium oxide) can be used to dry up and neutralize liquids and reduce the odors produced.

If possible, physical contact between the family and the body should be prevented. If this is not possible, the family must be made aware of the need to:
- Wash hands with soap after touching the body.
- Avoid putting hands in the mouth after touching the body.
- Disinfect the deceased patient’s clothing and bedding by stirring in boiling water for 5 minutes or by drying them thoroughly in the sun before and after normal washing.
- Avoid conducting a wake.
- Recommend immediate burial.
- Family members who handle the body should not prepare food for 24 hours.

Transporting of bodies
- Body-carriers should wear gloves.
- Bodies should be carefully wrapped.
- The body should be moved as soon as possible to the mortuary because fluids will start to evacuate the body.
- Where body bags are available, they should be used to transport the body for burial. If not available, the body can be wrapped in a cloth sheet soaked in 2% chlorine.
**Mortuary**
The mortuary should be located alongside the waste zone. A closed tent (plastic, material) should be designated for deceased persons’ bodies to prevent access to bodies. The mortuary structure should enable effective cleaning inside, with drainage canals that flow into a soak pit (body fluids are likely to be highly contaminated). It should have an entrance from inside the CTC and an exit to allow collection of the body. If a CTC is not able to build a morgue, rapid burial is recommended. The body should be prepared following the same criteria as above.

**4.2.12. Power supply**
While water supply and sanitation facilities are the critical gears of CTCs; power supply is vital for proper maintenance of water supply and sanitation. There are no hard and fast rules to calculate the need of power to a CTC, but we might need 150-200 Watts of power per/patient for lighting, water supply, maintenance of sterile techniques, and use of medical equipments etc.

**4.2.13. Infection control**
- The foremost important measure to prevent spread from the CTC is to have a standard infection control plan and consistent implementation of the plan until closure of the CTC.
- A standard infection control plan should have control measures to prevent spills and spread of Vibrio Cholera organism through direct contact, water and food.
- To prevent such spread, we have to appropriately disinfect hands and feet of all the patients, care takers and staff with chlorine solution and soap water.
- All the staff and care takers minimum wear protective aprons, shoes and gloves.
- All patients should be provided with comfortable and culturally acceptable clothing to change during admission and replace according to the needs.
- The Floors, walls, beds and other articles used in the CTC should be regularly disinfected.
- Chlorine is the simple cost effective chemical that suitable for Cholera epidemic control activities and freely available in the market.

Chlorine stock solutions can be prepared according to the standards given in Table:6.
Table: 6. Chlorine solution preparation and storage for hand washing and disinfection

<table>
<thead>
<tr>
<th>Chlorine Product</th>
<th>Hands, Skin, Bedding and Laundry</th>
<th>Floors, surfaces, equipment.</th>
<th>Corpses and Body fluids** (Diarrhea, Vomit in large containers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household bleach (5% active)</td>
<td>0.1 liters of bleach to 9.9 liters of water (WRITE: 0.05%)</td>
<td>1 liter of bleach mixed with 10 liters of water (WRITE: 0.5%)</td>
<td>4 liters of bleach mixed with 6 liters of water (WRITE: 2%)</td>
</tr>
<tr>
<td>Household bleach (30% active chlorine)</td>
<td>Add 16 grams or 1 tablespoon to 10 liters of water (WRITE: 0.05%)</td>
<td>16 grams or 1 tablespoon to 1 liter of water (WRITE: 0.5%)</td>
<td>64 grams or 4 tablespoons to 1 liter of water (WRITE: 2%)</td>
</tr>
<tr>
<td>Calcium hypochlorite powder or chlorine granules (70% active chlorine)</td>
<td>7 grams or 1/2 a tablespoon to 10 liters of water (WRITE: 0.05%)</td>
<td>7 grams of 1/2 a tablespoon to 1 liter of water (WRITE: 0.5%)</td>
<td>28 grams or 2 tablespoon to 1 liter of water (WRITE: 2%)</td>
</tr>
</tbody>
</table>

* ALWAYS label the solutions with a permanent marker.
** Note that if chlorine is limited, body fluids can be treated with a final concentration of 0.5% chlorine, but the fluids must be held and occasionally stirred for at least 6 HOURS before dumping.

- Only one person should be in charge of preparing the different chlorine solutions per shift.
- Often 125 liter containers with taps are used in the centers. These should be clearly marked with the solution that it is used for, to avoid accidents.
- Different colored containers can also be used to call attention to the different concentrations.
- Additional quantities of all the solutions are stored in a neutral area.
- Solution for disinfect the personals entering in to the CTC should wash their hands with the 0.05% chlorine solution kept at the entrance then their foot have to be sprayed with 0.05% chlorine solution by the spray man and if there is adequate changing gumboots; they have to remove their own and change the gumboots for the inward use.
- All the entrance and exits (including latrines and washing areas) should have foot bath (A 10-15 cm depth and minimum 90cmX60cm sized container/structure with linen soaked in 0.05% chlorine solution) and all the personals passing from one area to other should step through the foot path and wash their hands as well.
- Use 0.5 % chlorine solution for cleaning of floor, surfaces and equipments
- Use 2% chlorine solution to disinfect the large spills and collection of stool or vomit and for corpuses of diseased personal.
4.2.14. Maintenance and management of CTC

CTC management team and overall TORs of the groups
Maintenance and management of CTCs plays a vital role during a cholera epidemic control. Better management of CTC can be well done by an established CTC management team consist of Physicians, surveillance focal point of the facility or CTC, infection control Nurses, Hygiene promotion and communication officer, Pharmacist, Store keeper, cook and other assisting staffs. In addition to the CTC staff; it's better to include some local leaders, administrators and business men into the team as patrons and emergency resource providers.

Team leader
Preferably the physician of the CTC can take the lead and manage all the groups of the team. The team leader has to take care of human resource with the help of an admin officer. Human resource should be strengthened by reinforcing the team according to extent of the epidemic. The team has to be well trained to ensure that the cases are managed according to the standard protocols and the CTC is managed according to the guidelines and based on the context of the epidemic.

Supplies group
The supplies should be secured to have a smooth function of the CTC; it should be ensured by the pharmacist and store keeper

Surveillance group
Case registration, data collection and daily analysis should be regularly done by the surveillance focal point with the help of registrar/Registration clerk/volunteer

Infection control group
Daily supervision and implementation of all necessary infection control activities to be done by the infection control nurse with the help of relevant staffs.

Hygiene promotion group
Hygiene promotion officer should ensure that, proper information is given to the patients, care takers and the community as well. Proper written, verbal and displayed instructions to be given to patients, Care takers and staff regarding prevention of spread of cholera by communication and hygiene promotion officer. On top of the hygiene promotion activities the officer should organize public awareness campaigns in collaboration with public health officers and communicate necessary information to the public

Management team meetings
The management team has to hold daily meeting to review the gaps and improvements regarding,

- Case load, case management, case fatality rates and spread or controlled nature of the epidemic.
- Stock in hand, HR issues,
- Infection control and hygiene promotion issues.
- Constrains faced by the patients, care takers and community

At the end of the meeting there should be some temporary and later on permanent arrangements made, to fill the gaps in a productive manner and the meeting minutes to be circulated to the relevant authorities.
4.2.15. Closure of CTCs and ORPs

- Success full management of outbreak or epidemic of cholera will be reflected on the lowering case load and case fatality rates that can be managed under regular health facility management set up.
- Once we reached such situation and the situation has been confirmed by the provincial emergency response committee; then we can prepare the CTC closure procedures under the instruction of the committee.
- Firstly we have to ensure the case management and isolation arrangement in the health facility and direct the new suspected cases to the facility.
- If the facility needed any resources including human resources and supplies; that has to be fulfilled from the CTC.

**Before the closure of the CTC**

- Disinfect all the reusable mackintosh, Bed sheets and other linen in 0.5% Chlorine solution and dry it under sun.
- Disinfect all the permanent structures and reusable materials of the CTC with 0.2% chlorine.
- This can be done by thorough spraying of all walls, floors, doors, windows and beds etc with 0.2% chlorine solution and wash the surfaces with clean water after 10 – 15 minutes.
- Thoroughly clean and spray all the toilets, wash rooms, beds and buckets with 2% Chlorine solution and wash after 10 minutes.
- While spraying and washing wear proper personal protective equipments.
- After properly disinfect the reusable items let them to dry under sun and take back to separate storage area.
- Properly disinfect or treat and completely close or cover all temporary latrines, water points, waste collection points, pits and drainage canals with uncontaminated soil.
- Burn all the hazardous wastes in incinerators and non hazardous wastes in burning pit.
- The pits used for dumping of burned sharps should be covers with concrete.
- If the land used for CTC was a bear land; level it protect it from public access for at least a month.
5. Prevention of spread of Cholera epidemic at community level

Cholera is a fecal - orally transmitted disease. The figure 2 here describes the F- diagram\textsuperscript{17} of disease transmission and control elaborated by Wagner& Lanoix, which would simply describe the ways of prevention of the spread of Cholera.

Figure: 2

Spread of fecal-oral transmission could be simply prevented by blocking the above transmission routes.

The following sub topics describe the control of spread of cholera at community level.

**HOW DIARRHEAL DISEASE IS SPREAD**
5.1. Safe disposal of human waste
The first and foremost important way of fecal-oral route transmission control is proper disposal of feces. This could be achieved by,
- Using proper construction use and maintenance of latrines.
  
  See annex J
  - In case there is no standard latrines; public has to be advised to select a suitable plateau area minimum 50 meter away from the water source and dump the fecal matter beyond 30cm/1feet depth under the ground
  - We can also advise the public to use trench latrines prepared in similar location and use soil or ash or lime to cover the fecal matter on daily basis

5.2. Ensure proper hand washing habit
Proper hand washing habit and techniques are the next most important intervention to prevent contamination of Feces, vomit, other soft waste and dead bodies of diseased to fingers of adults and children who live in the house hold or in the neighborhood. The simple act of washing hands with soap at critical moments – such as after using the toilet or before handling food – is an easy and affordable intervention that can reduce the incidence of diarrhoea among children under five by almost 50 per cent"
The ideal way of proper hand washing can be done if there is running water system (either piped or container with tap) with controlling valves and antiseptic soaps

But it can be adopted in any situation with availability of reasonably clean water, any soap or ash or any traditionally used and scientifically acceptable cleaning agent

**Steps to encourage hand washing habit among the community**

- First of all every one should be aware of germs/organisms
- Then they should be aware of Cholera and other important and fatal fecal orally transmitted organisms
- They should be aware that, the final route of contamination of these organisms to the food is hand (In Afghani context)
- They should be informed that, hands are the dirtiest part of the body that touch everywhere and get contaminated
- They should be informed that, the dangerous organisms can contaminate their hands from the fecal matter, from soil, contaminated water and environment and wastes of a diseased person
- So they have to properly wash their hands with soap/ash/any locally used and effective cleaning agent,
  ✓ after defecation and cleaning of the anus of a person him/her self and after cleaning a child
  ✓ Before eating/drinking any food/drink item by hand (particularly drinking water/any drinks from a hand pump/tap/bucket using the hands as a scoop)
  ✓ Before cooking
  ✓ Before feeding the children
  ✓ Always after play (particularly in grounds/soil)
  ✓ Always after contamination of any dirt or handling the items left open in the environment (particularly in public places)

While people are washing their hands; most contaminated portions of hands are missed. Taylor (1978) identified that 89% of the hand surface was missed and that the areas of the hands most often missed were the finger-tips, finger-webs, the palms and the thumbs.

So understanding and spreading of messages on proper hand washing technique is much important than simply advice the people to wash their hands.
Proper hand washing procedures

- Always use clean water for washing your hands, (the good and cheap way of ensuring clean water for washing purpose is chlorination see table: 5 for water purification)
- Wet and wash your hands with clean water
- Then always use soap or any locally accepted relevant detergent agent to enhance the effect of hand washing
- Thoroughly apply the hand washing agent to all the surface of hand
- Scrub all the surfaces, particularly tips, webs and mid palm using the other hand or using locally available and clean scrubs/brush
- Thoroughly wash your hands again with clean water and dry up with a clean and dry towel/cloth or let it to dry under air

5.3. Water safety at household and community level

Water safety or prevention of contamination of water/Drinking water becomes an issue in developing countries, due to lack of sanitation, personal hygiene and water quality. Water quality depends on water source safety, collection mechanism, storage and handling practice. Simple techniques for treating water at home and storing it in safe containers could save huge number of lives each year<sup>19</sup>. Recent evidence suggests that “point-of-use” water quality improvements alone result in a one-third or greater reduction in diarrheal disease morbidity.
In most of the developing countries there are few standard public water supply systems operated particularly in townships. Public are not in a situation to develop and maintain safe water collection and supply schemes due to poverty, ignorance and giving low priority. Majority of the public are rely on public water points or wells, rivers, streams, ponds or private wells as their water source. Therefore they might face all the problems of water quality. This issue could be addressed by efficient community awareness programs and community based water supply and management schemes. But at household level follow the following steps to ensure drinking safe water

- Identify and use clean water source
- Do not drink any untreated water
- Use regularly cleaned containers for water collection and storage
- Use detergents or chlorine or locally accepted safe and effective substance for cleaning the containers
- Once the water is collected and brought to home; leave the water undisturbed for more than two hours for sedimentation (Overnight sedimentation is better)
- Filter the water through clean clothe/filter or through any accepted filtering mechanism
- Then treat the water under Sun (UV treatment) or boil it or treat with appropriate chemical (Chlorine tablets or solution)
- Store the amount of water needed for 48hrs in a clean container with lid and a simple dispensing valve or small dispensing hole
- Always properly wash hands before handling the drinking water
- Follow the same steps every day

Proper waste management at household and community levels

- Control of breeding of flies is the effective way to prevent contamination and breeding of flies on the human waste and other domestic wastes
- For that we have to properly collect and cover until disposal of the wastes
- In addition to proper human waste management; proper household solid and water waste management would prevent breeding of flies
- Covering the food with fly proof lids and covering all ventilation routes with fly proof net would prevent contact of the flies with the food.

5.4. Domestic waste management and fly control

- Flies are easily bred from wet domestic wastes.
- Any wet organic waste left open for more than 24hours will become a breeding place for house flies
- So all the organic wet, solid wastes should be kept in perfectly closed bins and disposed on daily basis (Dumping)
- Special care to be taken about proper disposal of any domestic animal waste (Daily collection and dumping).
- All the waste water from the kitchen and dining area should be collected in a container and disposed in a covered soakage pit or directed in to a covered soakage pit.
• Waste water from bathing area and hand washing area also has to be directed into a covered soakage area
The same principles have to be followed at community level to control the breeding of flies, and to control the contamination of flies with dirt and food.

5.5. Safe food handling, storage and consumption
To ensure the food safety; care must be taken on food handling and consumption habits at household and community level. The following practices would reduce the contamination of the food with Cholera organism during outbreaks
• Avoid salads during the outbreaks or Epidemics of cholera
• Avoid aquatic food item during outbreaks or Epidemics of Cholera, or take high precaution, clean well and cook well before eating
• Ensure all the refrigerated food preparations are prepared with clean water
• All raw vegetables, greens, fruits, and meat of fish must have cleaned with clean and safe water and appropriately covered by a transparent cover to display
• All sweets and ready to eat preparations should be well covered and displayed for sale
• Wash the ingredients, cooking utensils and hands well with clean water before starting to cook
• All food vendors must prepare only the amount of food they can market per each food session, If they keep for long time they have to keep it in a food warmer or refrigerator
• Eat thoroughly cooked foods only, eat fresh and well cooked food while it’s warm
• While storing or refrigeration the food items never mix the cooked and non-cooked items together
• Wash and peel off the skin of the fruits before eat them
• After cooking and while keeping the food outside/ on dining table/mat or in a display area in a restaurant/ cafeteria; keep them in well covered (transparent) containers
• Every time before handling the food; thoroughly wash hands with soap and water
• Use clean serving and eating utensils to handle the food

5.6. Health education and behavioural change
Behavior is the way in which a person behaves in response to a particular situation or living environment. This is determined by several factors, among them preemptive perception of the situation and the sense of experience are much influential. If we wanted to make aware of water and sanitation we have to spread the knowledge of water and sanitation through simple and culturally acceptable mode or media.

• This can be made through child hood or community education or dramas, songs or posters and Media programs and announcements.
• Once the knowledge is repeatedly spread through appropriate Medias among the community it will process into attitude change in the community.
• If the environment is conducive for practicing the knowledge it would make a change in their practice and behavior. (E.g. Outbreaks of diseases and adequate supply of water and soap might improve the hand washing habit)
• Children, women and sensible community members will follow the practice first, and ultimately majority will adopt the healthy habits
To encourage the community on waste disposal, hand washing and water safety; we have select some very important messages and formulate them into attractive messages/posters/songs/dramas and publish among right people at right time.

**Right message** through **right media** at **right place** among **right people** at **right time** will make a reasonable behavioral change

5.7. **Use of Cholera vaccine during epidemics to enhance immunity and reduce infectivity**

**Cholera vaccine**

Oral cholera vaccine is only recommended for populations at **immediate** risk of a cholera epidemic.

Vaccination to **prevent** cholera outbreaks should be undertaken only in concert with other prevention and Control measures currently recommended by WHO including; education, safe water and sanitation.

Vaccination is not recommended to **control** ongoing outbreaks.
6. Coordination and Management of Cholera epidemics

6.1. Management and coordination structures and governance
Under the current coordination system in Afghanistan, Cholera epidemics within the provinces could be managed by provincial emergency response and preparedness committee. The organizational structure of national, provincial and field level epidemic control task force is described here with two way communication (command and feedback) channels this would prevent duplication of commands and feedbacks during epidemics in figure 3.

Legend:  
\[\text{---} \] = Command line  
\[\text{\rightarrow\leftarrow} \] = communication line

Members of the National and Provincial emergency response committee, and Outbreak investigation and early response team are summarized in table 7.

<table>
<thead>
<tr>
<th>Position</th>
<th>National emergency response and preparedness commission</th>
<th>Provincial emergency response and preparedness committee</th>
<th>Outbreak investigation and early response team</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairman</td>
<td>Deputy minister of health</td>
<td>Director of Provincial Health Department</td>
<td>DEWS/ CDC officer</td>
</tr>
<tr>
<td>Committee members</td>
<td>ERP directorate</td>
<td>Provincial DEWS officer or CDC officer</td>
<td>One Medical doctor from the health facility</td>
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<tr>
<td></td>
<td>Director of DEWS</td>
<td>NGOs (BPHS implementer)</td>
<td>One Nurse from HF</td>
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<td></td>
<td>Preventive medicine directorate</td>
<td>UNICEF</td>
<td>One Lab technician</td>
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<tr>
<td></td>
<td>Curative medicine directorate</td>
<td>WHO (regional health coordinator, regional health cluster coordinator or provincial polio officer)</td>
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</tr>
<tr>
<td></td>
<td>Relevant units of WHO/UNICEF and NGOs</td>
<td>ARCS</td>
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<tr>
<td></td>
<td>RRD and other related ministries</td>
<td>RRD and other related directorate</td>
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</tbody>
</table>
6.2. Steps of epidemic response

- Rapid assessment and reporting by the outbreak investigation and early response team
  For the assessment use the standard rapid assessment tool and gather the necessary information from appropriate sources.
  Particularly relevant information about all the suspected or confirmed cholera cases from the health facility and then detailed case history from the cases and their contact is important to detect the affected persons, place, time of onset and the source of infection
- Identify the constrains and shortages regarding management of the cases (including transportation, human resource and their capacity and supplies)
- Analyze the situation, Identify who, where, when and how affected by the epidemic and prioritize necessary interventions and immediate support needed
- Reinforce the response team with necessary, leadership, HR with specific TORs and supplies (Adequate prepositioning of Cholera kits) and logistic support
- Define a target and timeline for the intervention
- Implement the plan with close monitoring
- Regular review of interventions and outcome (preferably daily for Cholera epidemic control) with a response matrix update

Sample emergency response committee management response matrix

<table>
<thead>
<tr>
<th>Problem</th>
<th>Recommendations of the Rapid assessment</th>
<th>ERC’s comments/amendments</th>
<th>Action to be taken</th>
<th>Responsible person/unit</th>
<th>Resources needed and provided</th>
<th>Time frame</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

- Communicate the updates and outcome of the epidemic control activities to the higher authorities and the public through appropriate channels

**NB:**
You can find a simulation exercise of a practical cholera epidemic control activity in Chapter 6 of training module for cholera epidemic control 2012
7. Post epidemic activities

7.1. Continuation of enhanced surveillance and health awareness activities

It’s mandatory to continue the enhanced surveillance until complete control of epidemic

The health awareness creating teams should continue to make awareness among the community on control of transmission of Cholera.

7.2. Actions to be taken from the lessons learned

Once the epidemic is under control we have to review all our activities under each management level and consolidate information about constrains faced by our teams and gaps they observed at the field level.

The constrains and gaps should be thoroughly discussed by technical teams and means of preventing such constrains and filling the gaps should be identified and recommendation to be given to the appropriate authorities dealing with such epidemics in future

The gaps and weakness of resources should be identified and capacity building programs should be prioritized to successfully face epidemics in future

The lessons learned could be used to establish a better epidemic control mechanism in country as well as in countries under similar context

The identified gaps and recommendations could be used to bring the focus of the donors towards the practical constrains and gaps and plan a better epidemic control mechanism in future

Long term plans should be developed from the lessons learned, particularly to improve healthy living standards in Cholera epidemic prone areas with better water and sanitation standards

Based on the practical legal issues, recommendations to be made to strengthen the current legislation and regulation of food handling establishments/vendors with regular implementation mechanism

Continue with regular evaluations and strengthen surveillance, prevention, preparedness and control mechanism,
## Annex A: Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>age specific attack rate</strong></td>
<td>The proportion of an age group in a study population that experiences the outcome under study over a given period.</td>
</tr>
<tr>
<td><strong>Acute pulmonary oedema</strong></td>
<td>Quickly developing swelling of lung tissue.</td>
</tr>
<tr>
<td><strong>Alert threshold</strong></td>
<td>A pre-determined number of reported cases or a reported incidence rate of a disease, above which the situation is defined as an alert. It can be differ depending on the context of the disease burden of the location.</td>
</tr>
<tr>
<td><strong>Algal bloom</strong></td>
<td>Rapid growth of Algal layer.</td>
</tr>
<tr>
<td><strong>altered consciousness</strong></td>
<td>The state of disturbed conscious that could be observed with abnormal drowsiness/sleepiness and behavioral abnormalities.</td>
</tr>
<tr>
<td><strong>Angulo-Stomatitis</strong></td>
<td>Inflammation of the mucous membrane of the mouth particularly observed at the angle of the mouth.</td>
</tr>
<tr>
<td><strong>Asymptomatic</strong></td>
<td>Producing or showing no symptoms.</td>
</tr>
<tr>
<td><strong>Attack rate</strong></td>
<td>The proportion of a group that experiences the outcome under study over a given period.</td>
</tr>
<tr>
<td><strong>Basic reproductive rate</strong></td>
<td>Number of cases reproduced by a single infected person or case in a susceptible population.</td>
</tr>
<tr>
<td><strong>Biotypes</strong></td>
<td>A group of organism with identical genetics.</td>
</tr>
<tr>
<td><strong>Brackish water</strong></td>
<td>Slightly salt water.</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>A set of criteria (not necessarily diagnostic criteria) that must be fulfilled in order to identify a person as representing a case of a particular disease.</td>
</tr>
</tbody>
</table>
| **Case fatality rate** | The proportion of cases of a specified condition that is fatal within a specified time.  
   \[
   \text{Case fatality rate} = \frac{\text{number of deaths from a disease(in a given period)}}{\text{number of diagnosed cases of that disease(in same period)}} \times 100\% 
   \] |
<p>| <strong>Cary Blair transport medium</strong> | A medium used for transport of stool samples. |
| <strong>Circulatory shock</strong> | Shock due to low blood volume. |
| <strong>clustering</strong> | A closely grouped series of events or cases of a disease or other health-related phenomena with well-defined distribution patterns in relation to time or place or both. |
| <strong>Codan unit</strong> | A wireless communication system used in Afghanistan for communicating daily health emergency information from provinces to central health department. |
| <strong>Complex emergency</strong> | Situations of war or civil strife affecting large civilian populations with food shortages and population displacement, resulting in excess mortality and morbidity. |
| <strong>Contagious</strong> | A disease spread by direct or indirect contact of people or organisms. |
| <strong>Contracted out</strong> | Arrange for work to be done by another organization. |
| <strong>Dyspnoea</strong> | Labored or difficult breathing. |</p>
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrolyte abnormalities</td>
<td>Abnormal levels of electrolytes in blood</td>
</tr>
<tr>
<td>Encephalitis</td>
<td>Inflammation of the brain.</td>
</tr>
<tr>
<td>Endemic disease</td>
<td>The constant presence of a disease or infectious agent within a given geographic area or population group</td>
</tr>
<tr>
<td>Epidemic</td>
<td>The occurrence of an illness or cases, specific health-related behavior, or other health-related events in a community or region of clearly in excess of normal expectancy</td>
</tr>
<tr>
<td>Epidemiology</td>
<td>The study of the occurrence and distribution of health-related states or events in specified populations, including the study of the determinants influencing such states, and the application of this knowledge to control the health problems</td>
</tr>
<tr>
<td>Estuaries</td>
<td>River mouth</td>
</tr>
<tr>
<td>Hypo glycaemia</td>
<td>Low glucose level in blood</td>
</tr>
<tr>
<td>Hypo kalaemia</td>
<td>Low potassium level in blood</td>
</tr>
<tr>
<td>immuno-compromised</td>
<td>Having an impaired immune system.</td>
</tr>
<tr>
<td>Incidence</td>
<td>The number of instances of illness commencing, or of persons falling ill, during a given period in a specified population</td>
</tr>
<tr>
<td>incidence rate</td>
<td>The rate at which new events occur in a population. The numerator is the number of new events that occur in a defined period or other physical span</td>
</tr>
<tr>
<td>Incubation period</td>
<td>The time interval between invasion by an infectious agent and appearance of the first sign or symptom of the disease in question</td>
</tr>
<tr>
<td>index case</td>
<td>The first case in a family or other defined group to come to the attention of the investigator</td>
</tr>
<tr>
<td>Infectivity</td>
<td>The characteristic of the disease agent that embodies capability to enter, survive, and multiply in the host</td>
</tr>
<tr>
<td>Informal information</td>
<td>Facts from an informal source that have not been arranged and/or transformed to provide the basis for interpretation</td>
</tr>
<tr>
<td>Morbidity</td>
<td>A measure of a sickness measured by the number of affected person, the illnesses experienced by the persons and the duration of the illness</td>
</tr>
<tr>
<td>Mortality</td>
<td>numbers of deaths and/or rates by age, sex, cause, and sometimes other variables</td>
</tr>
<tr>
<td>Notifiable diseases</td>
<td>A disease deemed of sufficient importance to the public health to require that its occurrence be reported to health authorities</td>
</tr>
<tr>
<td>Outbreak</td>
<td>An epidemic limited to localized increase in the incidence of a disease, e.g.in a village, town, or closed institution;</td>
</tr>
<tr>
<td>Outbreak investigation</td>
<td>The investigation procedure undertaken by trained staffs to detect the persons, time, place and source of the outbreak in order to implement an effective control mechanism</td>
</tr>
<tr>
<td>outbreak threshold</td>
<td>The outbreak threshold is a pre-determined number of reported measles cases or a reported incidence rate above</td>
</tr>
</tbody>
</table>
which the situation is defined as an outbreak

<table>
<thead>
<tr>
<th><strong>Pandemic</strong></th>
<th>An epidemic occurring worldwide or over a very wide area, crossing international boundaries, and usually affecting a large number of people</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prevalence</strong></td>
<td>A measure of disease occurrence: the total number of individuals who have an attribute or disease at a particular time (it may be a particular period) divided by the population at risk of having the attribute or disease at that time or midway through the period</td>
</tr>
<tr>
<td><strong>secondary cases</strong></td>
<td>The number of cases of an infection that occur among contacts within the incubation period following exposure to a primary case</td>
</tr>
<tr>
<td><strong>Sentinel surveillance</strong></td>
<td>Surveillance based on selected population samples chosen to represent the relevant experience of particular groups</td>
</tr>
<tr>
<td><strong>Sero-groups</strong></td>
<td>Groups of organism based on their Sero-Types</td>
</tr>
<tr>
<td><strong>Sero types</strong></td>
<td>Serologically distinguished strains of an organism</td>
</tr>
<tr>
<td><strong>Surveillance</strong></td>
<td>Systematic and continuous collection, analysis, and interpretation of data, closely integrated with the timely and coherent dissemination of the results and assessment to those who have the right to know so that action can be taken</td>
</tr>
<tr>
<td><strong>Surveillance focal point</strong></td>
<td>The person assigned to do the surveillance activity within an area or an institution</td>
</tr>
<tr>
<td><strong>Transmission</strong></td>
<td>Any mechanism by which an (infectious) agent is spread from a source or reservoir to another person</td>
</tr>
<tr>
<td><strong>Virulent</strong></td>
<td>Extremely severe or harmful in its effects/highly infective (particularly a pathogen, especially a virus)</td>
</tr>
</tbody>
</table>
Operational guidelines for cholera epidemic response in Afghanistan

Annex B1: Sample AWD with dehydration incidence chart

Annex B2: Sample Alert notification form

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Address</th>
<th>Complaints/signs and symptoms</th>
<th>Suspected disease</th>
<th>Date of onset</th>
<th>Outcome *</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tbody>
</table>
Annex B3: DEWS Weekly reporting format

Surveillance Reporting Form for Morbidity (Diseases) and Mortality (death)
Bring to PHD office on every Saturday

Province Name/Code: District Name/Code: 
Town/Village/Camp: Facility Name/Code: NGO/Donor: 

Epidemiological Week ___ from Saturday ____/____/2011 to Friday ____/____/2011
Name & phone #:............

<table>
<thead>
<tr>
<th>Events Under Surveillance</th>
<th>Male/Less than 5 years old</th>
<th>Female/Less than 5 years old</th>
<th>Male/5 years old and over</th>
<th>Female/5 years old and over</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cases</td>
<td>Deaths</td>
<td>Cases</td>
<td>Deaths</td>
</tr>
<tr>
<td>1  ARI- Cough and cold</td>
<td></td>
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<tr>
<td>2  ARI- Pneumonia</td>
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<tr>
<td>3  Acute Diarrhoea</td>
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<tr>
<td>4  Bloody Diarrhoea</td>
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<tr>
<td>5  AWD w Dehydration</td>
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<tr>
<td>6  Suspected Meningitis (SIC)</td>
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<tr>
<td>7  Susp. Acute Viral Hepatitis</td>
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<tr>
<td>8  Suspected Measles</td>
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<tr>
<td>9  Suspected Pertussis</td>
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<tr>
<td>10 Probable Diphtheria</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>11 Tetanus/ Neonatal Tetanus</td>
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</tr>
<tr>
<td>12 Acute Flaccid Paralysis</td>
<td></td>
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<tr>
<td>13 Suspected Malaria</td>
<td></td>
<td></td>
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<tr>
<td>14 Suspected Typhoid Fever</td>
<td></td>
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<tr>
<td>15 Susp. Hemorrhagic Fever</td>
<td></td>
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</tr>
<tr>
<td>16 Pregnancy-related deaths</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>DEWS Disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL New Clients/ Deaths</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

- Please include only those cases that were examined / admitted during the surveillance week and deaths that occurred during the surveillance week. Each case should be counted only once.
- Write “0” (zero) if you had no case or death of any of the Health Events listed in the form.
- Deaths should be reported only under “Deaths”, NOT under “Cases”, and please fill the following table for each reported death.

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Cause</th>
<th>Residence/ Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>2</td>
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</tr>
</tbody>
</table>

Investigate with history and lab specimen single cases of suspected avian influenza, cholera, measles, pertussis, diphtheria, AFP, meningitis and hemorrhagic fever and search for other cases. Similarly, investigate clusters of pneumonia, bloody diarrhea, hepatitis, malaria, and typhoid and increasing trends of ARI and diarrhea.

Operational guidelines for cholera epidemic response in Afghanistan
Annex C: Rapid Diagnostic Test for cholera

Rapid Diagnostic Testing Kits are now available with many health agencies that are contracted out the health care services. This can be used to detect *Vibrio cholerae* antigen from stool specimens and allows quick testing at the patient’s bedside. WHO is currently in the process of validating this RDT, to be able to include it on the list of its pre-qualified products24. But, RDTs for cholera can be used in the early stages of a cholera outbreak to confirm the etiology10.

**Procedure of Rapid Diagnostic test for cholera**

- Collect fresh liquid stool from the suspected case in clean container with tight-fitting, leak-proof lids.
- Transfer the stool (about 2ml) into a small (10ml) test tube and dip in the sample pad of the dipstick into the stool sample.
- Test results are available in 15–20 minutes. (Figure: 8)

Figure: 8. Sample features of Dipstick rapid diagnostic test for Cholera
### Annex D: Surveillance focal points by Regions, Provinces and Districts (To be updated)

<table>
<thead>
<tr>
<th>Name</th>
<th>Post Title</th>
<th>Provinces</th>
<th>District</th>
<th>Contact No</th>
<th>E-Mail Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>1   Dr. Bashir Noormal</td>
<td>General Director APHi</td>
<td>Kabul</td>
<td>Kabul</td>
<td>700281134</td>
<td><a href="mailto:noormalb@yahoo.com">noormalb@yahoo.com</a></td>
</tr>
<tr>
<td>2   Dr. Mir Ismal Sayed</td>
<td>Surveillance DEWS Director</td>
<td>Kabul</td>
<td>Kabul</td>
<td>700290955</td>
<td><a href="mailto:km_islam2001@yahoo.com">km_islam2001@yahoo.com</a></td>
</tr>
<tr>
<td>3   Dr. Naqibullah Ziar</td>
<td>Deputy, Surveillance Direct</td>
<td>Kabul</td>
<td>Kabul</td>
<td>7999001491</td>
<td><a href="mailto:nziarhaleem@gmail.com">nziarhaleem@gmail.com</a></td>
</tr>
<tr>
<td>4   Mr. M. Ershad Bayani</td>
<td>Data Manager</td>
<td>Kabul</td>
<td>Kabul</td>
<td>799226429</td>
<td><a href="mailto:ershadbayani@yahoo.com">ershadbayani@yahoo.com</a></td>
</tr>
<tr>
<td>5   Ms. Rashida Bano</td>
<td>Epidemiologist/TO DEWS</td>
<td>Kabul</td>
<td>Pol-e-Charkhi</td>
<td>708811856</td>
<td><a href="mailto:banor@afg.emro.who.int">banor@afg.emro.who.int</a></td>
</tr>
<tr>
<td>6   Dr. Ahmad Farid Ghiassi</td>
<td>National Technical Officer</td>
<td>Kabul</td>
<td>Pol-e-Charkhi</td>
<td>700602174</td>
<td><a href="mailto:ghiasia@afg.emro.who.int">ghiasia@afg.emro.who.int</a></td>
</tr>
<tr>
<td>7   Dr. Nawid 'Musarat'</td>
<td>Regional DEWS Officer</td>
<td>Kabul</td>
<td>Kabul</td>
<td>799413160</td>
<td><a href="mailto:nawidmusarat@gmail.com">nawidmusarat@gmail.com</a></td>
</tr>
<tr>
<td>8   Dr. Aimal Alkozai</td>
<td>Regional DEWS Officer</td>
<td>Nangarhar</td>
<td>Jalalabad</td>
<td>700606303</td>
<td><a href="mailto:aimal.alkozai@gmail.com">aimal.alkozai@gmail.com</a></td>
</tr>
<tr>
<td>9   Dr. Naeem</td>
<td>Regional DEWS Officer</td>
<td>Balkh</td>
<td>Mazar</td>
<td>789469 627</td>
<td></td>
</tr>
<tr>
<td>10  Dr. Aminullah Dr Mohd Sarwar Firozi</td>
<td>Provincial DEWS Assistant</td>
<td>Balkh</td>
<td>Mazar</td>
<td>786720019</td>
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</tr>
<tr>
<td>11  Dr. Zarif Ahmad Akbaryan</td>
<td>Regional DEWS Officer</td>
<td>KDH</td>
<td>Shar e Naw</td>
<td>703009008</td>
<td><a href="mailto:sarwarfirozi@gmail.com">sarwarfirozi@gmail.com</a></td>
</tr>
<tr>
<td>12  Dr. M. Afzal Khosti</td>
<td>Regional DEWS Officer</td>
<td>Paktia</td>
<td>Gardiz City</td>
<td>700933102</td>
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</tbody>
</table>
### Sample case/cluster investigation form

<table>
<thead>
<tr>
<th>Province:</th>
<th>Date/time of first report:</th>
<th>Who Reported?</th>
</tr>
</thead>
<tbody>
<tr>
<td>District:</td>
<td>Village/town:</td>
<td></td>
</tr>
<tr>
<td>Date of investigation:</td>
<td>Distance from Center of Province:</td>
<td></td>
</tr>
<tr>
<td>Name of the nearest health facility:</td>
<td>Total population of the area:</td>
<td></td>
</tr>
<tr>
<td>Name of the team leader:</td>
<td>Number at risk:</td>
<td></td>
</tr>
<tr>
<td>Telephone number:</td>
<td>DPTHH coverage of the area:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OPV3 coverage:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Measles Coverage of the area:</td>
<td></td>
</tr>
</tbody>
</table>

#### Health event/suspected disease
(tick one box only)

- □ Acute diarrhoea
- □ Acute bloody diarrhoea
- □ Suspected cholera
- □ Suspected measles
- □ Suspected rubella
- □ Suspected pertussis
- □ Suspected diphtheria
- □ Suspected meningitis
- □ Acute lower respiratory infection
- □ Acute jaundice syndrome
- □ Hepatitis
- □ Acute hemorrhagic fever syndrome
- □ Acute flaccid paralysis (suspected poliomyelitis)
- □ Suspected malaria
- □ Adult tetanus
- □ Typhoid fever
- □ Unexplained fever
- □ Unexplained cluster of health events
- □ Other (specify): ________________

#### Symptoms and signs
(several boxes can be ticked)

- □ 3 or more loose stools per 24 hours
- □ loose stools with blood
- □ fever
- □ rash
- □ other skin lesion
- □ cough
- □ vomiting
- □ yellow eyes and/or skin
- □ neck stiffness
- □ convulsions or seizures
- □ muscle weakness
- □ increased secretions (e.g. sweating or drooling)
- □ altered level of consciousness
- □ other (specify): ________________

#### GPS

- Ev: ________________
- N: ________________
- L: ________________

Team Members:
Total number of cases reported:  
Total number of cases investigated:  
Total number of deaths reported:  

Response:  

<table>
<thead>
<tr>
<th>Name</th>
<th>Direction</th>
<th>Population</th>
</tr>
</thead>
</table>

**Surrender Villages**  

<table>
<thead>
<tr>
<th>Province: _______________ District: ______________ Village: ______________</th>
</tr>
</thead>
</table>

Estimated population__________ Informant: _________________________  
Nearest health facility______________________  

<table>
<thead>
<tr>
<th>No</th>
<th>Full Name</th>
<th>age</th>
<th>sex</th>
<th>Symptoms and signs</th>
<th>Date of onset</th>
<th>Treatment given</th>
<th>history of disease contact or travel or source*</th>
<th>Outcome **</th>
<th>If died; Date of death</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

*= Any relevant case/contact/travel history or suspected source suggested by the informant  
**= Sick/Recovered/Died
Information collected from the health facility registration books on the suspected disease

<table>
<thead>
<tr>
<th>Number of the cases this week</th>
<th>Total</th>
<th>Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of the cases for the last week</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of the cases in the same week of the last year (☼)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of the cases for the last 3 years</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

☼ please mention if there was an outbreak of the disease in the same weeks of last year

Outbreak investigation (information recorded from the village’s graveyard visit)

<table>
<thead>
<tr>
<th>Number of the new children graves:</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of the new adult graves:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Death cases confirmed by the village Mullah Imam in last 2 weeks

<table>
<thead>
<tr>
<th>Number of new children deaths:</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of the new adults deaths:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Draw Map of the Area below:
Annex F: Detailed treatment plan A, B & C

TREATMENT PLAN A: TO TREAT DIARRHOEA AT HOME

Use this plan to teach the mother to:
- Continue to treat at home her child’s current episode of diarrhoea,
- Give early treatment for future episodes of diarrhoea.
- Explain the three rules for treating diarrhoea at home.

1. Give the child more fluids than usual to prevent dehydration
   - Use recommended home fluids. These include: ORS solution, food-based fluids (such as soup, rice water and yoghurt drinks) and plain water. Use ORS solution as described in the box below.
   - Give as much of these fluids as the child will take. Use the amounts shown below for ORS as a guide.
   - Continue giving these fluids until the diarrhoea stops.

2. Give the child plenty of food to prevent under nutrition
   - Continue to breastfeed frequently.
   - If the child is not breastfed, give the usual milk.
   - If the child is 6 months or older, or already taking solid food:
     - also give cereal or another starchy food mixed, if possible, with pulses, vegetables and meat or fish; add one or two teaspoonfuls of vegetable oil to each serving;
     - give fresh fruit juice or mashed banana to provide potassium;
     - give freshly prepared foods; cook and mash or grind food well;
     - encourage the child to eat: offer food at least six times a day;
     - give the same food after diarrhoea stops, and give an extra meal each day for 2 weeks.

3. Take the child to the health worker if he/she does not get better in 3 days or develops any of the following:
   - many watery stools • eating or drinking poorly
   - repeated vomiting • fever
   - marked thirst • blood in the stool

Children should be given ORS solutions at home if:
- they have been on Treatment Plan B or C;
- they cannot return to the health worker if the diarrhoea gets worse; or
- if it is national policy to give ORS to all children who see a health worker for diarrhoea.

If the child is to be given ORS solution at home, show the mother how much ORS to give after each loose stool and give her enough packets for 2 days.

<table>
<thead>
<tr>
<th>Age</th>
<th>Amount of ORS to be given after each loose stool</th>
<th>Amount of ORS to provide for use at home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 2 years</td>
<td>50–100 ml</td>
<td>500 ml/day</td>
</tr>
<tr>
<td>2–10 years</td>
<td>100–200 ml</td>
<td>1000 ml/day</td>
</tr>
<tr>
<td>10 years or more</td>
<td>as much as wanted</td>
<td>2000 ml/day</td>
</tr>
</tbody>
</table>

- Describe and show the amount to be given after each stool, using a local measure.

Show the mother how to mix and to give ORS
- Give a teaspoonful every 1–2 minutes for a child under 2 years.
- Give frequent sips from a cup for older children.
- If the child vomits, wait 10 minutes. Then give the solution more slowly (for example, a spoonful every 2–3 minutes).
If diarrhoea continues after the ORS packets are used up, tell the mother to give other fluids as described in the first rule above or return for more ORS.

**TREATMENT PLAN B: TO TREAT DEHYDRATION**

Table A12.2 Approximate amount of ORS solution to give in the first 4 hours

<table>
<thead>
<tr>
<th>Age*</th>
<th>Weight (kg)</th>
<th>ORS solution (ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 4 months</td>
<td>0 ≤ 5 kg</td>
<td>200–400</td>
</tr>
<tr>
<td>4–11 months</td>
<td>5–7.9 kg</td>
<td>400–600</td>
</tr>
<tr>
<td>12–23 months</td>
<td>8–10.9 kg</td>
<td>600–800</td>
</tr>
<tr>
<td>2–4 years</td>
<td>11–15.9 kg</td>
<td>800–1200</td>
</tr>
<tr>
<td>5–14 years</td>
<td>16–29.9 kg</td>
<td>1200–2200</td>
</tr>
<tr>
<td>15 years +</td>
<td>30 kg +</td>
<td>2200–4000</td>
</tr>
</tbody>
</table>

*a Patient’s age, only when you do not know the weight. The approximate amount of ORS required (in ml) can also be calculated by multiplying the patient’s weight (in grams) times 0.075

- If the child wants more ORS than shown, give more.
- Encourage the mother to continue breastfeeding.
- For infants less than 6 months who are not breastfed, also give 100–200 ml clean water during this period.

Observe the child carefully and help the mother give ORS solution.

- Show her how much solution to give the child.
- Show her how to give it – a teaspoonful every 1–2 minutes for a child under 2 years, frequent sips from a cup for an older child.
- Check from time to time to see if there are problems.
- If the child vomits, wait 10 minutes and then continue giving ORS, but more slowly, for example, a spoonful every 2–3 minutes.
- If the child’s eyelids become puffy, stop the ORS and give plain water or breast milk. Give ORS according to Plan A when the puffiness is gone.

After 4 hours, reassess the child using the assessment chart, then select Plan A, B or C to continue treatment

- If there are no signs of dehydration, shift to Plan A. When dehydration has been corrected, the child usually passes urine and may also be tired and fall asleep.
- If signs indicating some dehydration are still present, repeat Plan B but start to offer food, milk and juice as described in Plan A.
- If signs indicating severe dehydration have appeared, shift to Plan C.

If the mother must leave before completing Treatment Plan B:

- Show her how much ORS to give to finish the 4-hour treatment at home.
- Give her enough ORS packets to complete rehydration, and for 2 more days as shown in Plan A.
- Show her how to prepare ORS solution.
- Explain to her the three rules in Plan A for treating her child at home:
  - to give ORS or other fluids until diarrhoea stops,
  - to feed the child,
  - to bring the child back to the health worker, if necessary.
TREATMENT PLAN C: TO TREAT SEVERE DEHYDRATION QUICKLY

Follow the arrows. If the answer is “yes” go across. If “no” go down.

Can you give intravenous (IV) fluids immediately? YES

Start IV fluids immediately. If the patient can drink, give ORS by mouth while the drip is set up. Give 100 ml/kg Ringer’s lactate solution (or if not available, normal saline), divided as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>First give 30 ml/kg in:</th>
<th>Then give 70 ml/kg in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants (&lt;12 months)</td>
<td>1 hour*</td>
<td>5 hours</td>
</tr>
<tr>
<td>Older</td>
<td>30 minutes*</td>
<td>2 1/2 hours</td>
</tr>
</tbody>
</table>

* Repeat once if radial pulse is still very weak or undetectable.

- Reassess the patient every 1–2 hours. If hydration is not improving, give the IV drip more rapidly.
- Also give ORS (about 5 ml/kg bw per hour) as soon as the patient can drink; usually after 2–4 hours (infants) or 1–2 hours (older patients).
- After 6 hours (infants) or 3 hours (older patients), evaluate the patient using the assessment chart. Then choose the appropriate Plan (A, B or C) to continue treatment.

Is IV treatment available nearby (within 30 minutes)? YES

- Send the patient immediately for IV treatment.
- If the patient can drink, provide the mother with ORS solution and show her how to give it during the trip.

Are you trained to use a nasogastric tube for rehydration? YES

- Start rehydration by tube with ORS solution: give 20 ml/kg bw per hour for 6 hours (total of 120 ml/kg bw).
- Reassess the patient every 1–2 hours:
  - if there is repeated vomiting or increased abdominal distension, give the fluid more slowly;
  - if hydration is not improved after 3 hours, send the patient for IV therapy.
- After 6 hours, reassess the patient and choose the appropriate treatment plan.

Can the patient drink? YES

- Start rehydration by mouth with ORS solution, giving 20 ml/kg/hour for 6 hours (total of 120 ml/kg).
- Reassess the patient every 1–2 hours:
  - if there is repeated vomiting, give the fluid more slowly;
  - if hydration is not improved after 3 hours, send the patient for IV therapy.
- After 6 hours, reassess the patient and choose the appropriate treatment plan.

NO

Urgent: send the patient for IV or nasogastric treatment.
Annex G: Cholera case registration format

Daily Case reporting format for Cholera (To be used by health facilities/CTC)

District: ______________________  Reporting Unit / Agency: _________________________________

Reporting date: ______________________  Name of reporting / focal person: _________________________________

Phone No of reporting / focal person: _________________________________

<table>
<thead>
<tr>
<th>S No</th>
<th>Full Name / Father’s name</th>
<th>Age</th>
<th>Sex</th>
<th>Complete address</th>
<th>Water source type and location</th>
<th>Date / Time of onset</th>
<th>New / Follow up</th>
<th>Presenting Symptoms</th>
<th>Dehydration*</th>
<th>Treatment</th>
<th>Outcome **</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tbody>
</table>

* N= No dehydration  A= Mild Dehydration  B= Moderate Dehydration  C= Severe Dehydration

** A= Admission  O= Outpatient  R= Refer  D= Death

Name and contact number of surveillance focal point: ____________________________________________________

Operational guidelines for cholera epidemic response in Afghanistan  Page 67
### Interagency Diarrhoeal Disease Kit

For 100 severe cholera cases (cholera treatment unit), plus 400 moderate cholera cases (oral rehydration unit), and 100 adults plus 100 children affected by Shigella dysentery.

#### Basic module

<table>
<thead>
<tr>
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</thead>
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<td>Ringer lactate, 1 litre bag/pouch, with infusion set</td>
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<td>Doxycycline 100mg tablets, box of 1000</td>
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<td>3</td>
</tr>
<tr>
<td></td>
<td>ERYTHROMYCIN 250mg tablets, box of 1000</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>CIPROFLOXACIN 500 mg tablets</td>
<td>1000</td>
<td>5</td>
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<td></td>
<td>Zinc 20mg tablets, blister of 10</td>
<td>350</td>
<td>6</td>
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<tr>
<td></td>
<td>NaDCC 1.67g &quot;multipurpose&quot; tablets**, box of 200</td>
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<td>7</td>
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<tr>
<td></td>
<td>Cetrimide 15% + Chlorhexidine 1.5%, 1 litre bottle</td>
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#### 2. Renewable supplies

<table>
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</thead>
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<tr>
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<td>Cannula IV short 16G, sterile, disposable</td>
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<td>Cannula IV short 16G, sterile, disposable</td>
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<td>Cannula IV short 22G, sterile, disposable</td>
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<tr>
<td></td>
<td>Cannula IV short 24G, sterile, disposable</td>
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<td>Needle, scalp vein, 21G, sterile, disposable</td>
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<td>Needle, scalp vein, 25G, sterile, disposable</td>
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<tr>
<td></td>
<td>Safety box fused syringes/needles 50/BOX-25</td>
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<td>15</td>
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<tr>
<td></td>
<td>Bandage, gauze, 8cmx4m, roll</td>
<td>24</td>
<td>16</td>
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<td></td>
<td>Cotton wool, 50g, non-sterile, roll</td>
<td>5</td>
<td>17</td>
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<tr>
<td></td>
<td>Tape, adhesive, zinc oxide, 2.5cmx5m, roll</td>
<td>20</td>
<td>18</td>
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<tr>
<td></td>
<td>Compress, gauze, 10x10cm, non-sterile/PAC-100</td>
<td>3</td>
<td>19</td>
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<td></td>
<td>Gloves, examination, latex, large, disposable/BOX-100</td>
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<tr>
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<td>Gloves, examination, latex, medium, disposable/BOX-100</td>
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<td>21</td>
</tr>
<tr>
<td></td>
<td>Gloves, examination, latex, small, disposable/BOX-100</td>
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<td>22</td>
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<td></td>
<td>Gloves, surgical, 7.5, sterile, disposable/pair</td>
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<td>23</td>
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<tr>
<td></td>
<td>Gloves, surgical, 8.5, sterile, disposable/pair</td>
<td>100</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Apron, protection, plastic, disposable</td>
<td>100</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Tube, feeding, CH09, 140cm, luer tip, sterile, disposable</td>
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<td>26</td>
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<tr>
<td></td>
<td>Tube, feeding, CH09, 140cm, luer tip, sterile, disposable</td>
<td>10</td>
<td>27</td>
</tr>
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<td>Tube, feeding, CH10L, 125cm, conical tip, sterile, disposable</td>
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<td></td>
<td>Tube, feeding, CH12L, 125cm, conical tip, sterile, disposable</td>
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<td></td>
<td>Tube, feeding, CH16L, 125cm, conical tip, sterile, disposable</td>
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<td>Syringe, feeding, 50ml, luer tip, sterile</td>
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</tr>
<tr>
<td></td>
<td>Syringe, feeding, 50ml, conical tip, sterile</td>
<td>10</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Culture swab, Cary Blair, pure viscos, tip, peel pouch</td>
<td>10</td>
<td>33</td>
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</table>

#### 3. Equipment

<table>
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<th>Item</th>
<th>Quantity</th>
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</thead>
<tbody>
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<td>Scissors, Deaver, 140mm, straight, s/b</td>
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<td>Forceps, artery, Kocher, 140mm, straight</td>
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<td>Basin, kidney, stainless steel, 825ml</td>
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<td>Tray, dressing, stainless steel, 300x200x30mm</td>
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<td>Tourniquet, rubber band, 1.8cmx1m</td>
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<td></td>
<td>Stethoscope, binaural, complete</td>
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<td>Sphygmomanometer, (adult), aneroid</td>
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<td>Thermometer, clinical, digital 32-43C</td>
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<td>Brush, hand, scrubbing, plastic</td>
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<td>Soap, toilet, bar, approx. 100g, wrapped</td>
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<td>Bag, body, plastic, 220cm, zipped</td>
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<td>Blanket, survival, 220x140cm</td>
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#### 4. Documents

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<td></td>
<td>Information Note (1 French and 1 English)</td>
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<td>First steps for managing an acute diarrhoea (10 French and 10 English)</td>
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<tr>
<td></td>
<td>Critical steps in decision making for preparedness and response (5 French and 5 English)</td>
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<tr>
<td></td>
<td>Assessment of cholera outbreak (1 French and 1 English)</td>
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### ORS Module

<table>
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<tr>
<td></td>
<td>Information Note (1 French and 1 English) 2</td>
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<td>Oral rehydration salts, sachet for 1 litre 1600</td>
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<td></td>
<td>Jerican, plastic, 20 litres, with tap 4</td>
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<tr>
<td></td>
<td>Ladle, 250ml 4</td>
</tr>
<tr>
<td></td>
<td>Cup, 250ml, plastic, graduated 100</td>
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<tr>
<td></td>
<td>Soap 100g, bar 2</td>
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<tr>
<td></td>
<td>First steps for managing an outbreak of acute diarrhoea (2 French and 2 English) 4</td>
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### Infusions Module

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<tr>
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<tr>
<td></td>
<td>Ringer lactate, 1 litre bag/pouch, with infusion set 720</td>
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### Support Module

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<td>Bucket, plastic, 15 litres, graduated 40</td>
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<td>Jerican plastic with tap, 20 litres 5</td>
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<td></td>
<td>Ladle, 250ml 4</td>
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<td></td>
<td>Container, plastic, 125l 10</td>
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<tr>
<td></td>
<td>Cup, 250ml, plastic, graduated 40</td>
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<tr>
<td></td>
<td>Chlorine test kit, range 0.1-2.0 mg/l for 100 tests 4</td>
</tr>
<tr>
<td></td>
<td>Gloves, cleaning, reusable, large 100</td>
</tr>
</tbody>
</table>

-> 4L/patient

-> 8L/person

(+ 10 patients in basic module)

-> patient and cleaning

-> for ORS
Annex I

Experimental Method to define the optimum chlorine dose for a well and disinfect the water using 1% stock solution

To produce an initial chlorine concentration sufficient to leave a free residual chlorine concentration of 0.4–0.5 mg/litre after 30 minutes:

1. Prepare a 1% chlorine solution. (15gm or 1table spoon HTC in 1liter water)

2. Take 4 non-metallic water containers (e.g. 20-litre plastic buckets) and put 10 litres of the water to be chlorinated in each one.

3. Use a syringe; add progressively greater doses of 1% chlorine solution to the containers:
   – 1st container: 1 ml
   – 2nd container: 1.5 ml
   – 3rd container: 2 ml
   – 4th container: 5 ml

4. Wait for 30 minutes, then use a comparator or test strip to measure the residual free chlorine concentration.

5. Choose the sample containing 0.4–0.5 mg/litre of free residual chlorine.

6. Calculate the amount of 1% chlorine solution needed for the quantity of water to be treated using the following formula

\[ V = \pi D^2 h / 4 \]

Where

\[ V \] = volume of water in the well (m³ or 1000liters)
\[ D \] = diameter of the well (m)
\[ h \] = depth of water (m)
\[ \pi \] = 3.142

For example if the diameter (D) of the well is 1m, depth of water (h) is 2m, then the volume of water;

\[ V = \pi D^2 h / 4 \]
\[ = 3.142 \times 1^2 \times 2/4 \]
\[ = 3.142 \times 1 \times 0.5 \]
\[ = 1.571 \text{m}^3 \text{ or 1571liter} \]

If the third container had the optimum residual chlorine; then we need 2ml 1% chlorine solution to treat 10liter of the particular well. Then the 1% chlorine solution needed for treating the well with 1571 liter water will be;

\[ 2/10 \times 1571 = 314.2 \text{ml} \]

1% chlorine solution to be added to the well

Fill the bucket (20lit capacity) with clear water from the well. Add the calculated amount of 1% chlorine solution/ HTC to the water, mix well and drop the mixed water into the bottom of the well, shake thoroughly and leave for 30min. Now the water is ready for consumption.
Annex J: Technical options for excreta disposal

Operational guidelines for cholera epidemic response in Afghanistan
ground to reach the designated area (Figure 14.2). They can be improved by digging shallow trenches along the centre of each strip and piling the excavated soil to one side. Users are encouraged to defecate in the trench and then cover their waste with the soil piled beside it.

Defecation fields have a short life and are difficult to manage. They should be replaced with more sustainable solutions as soon as possible.

**Shallow family latrines**

Providing each family with its own latrine has many advantages and must always be the ultimate goal of any sanitation programme. In the first few days of an emergency, this can be a simple structure such as shown in Figure 14.3. A key advantage is that providing the affected community with tools to build and maintain the latrines is practically the only input required.

If family latrines are not possible (for example, because of the lack of space) then some form of communal latrines will have to be provided.

**Shallow trench latrines**

Trenches around 0.2m to 0.3m wide, 1.5m deep and 4.0m long are surrounded by a temporary screen (Figure 14.4). Users defecate by squatting across the trench. After use, users cover their faeces with some of the soil dug out of the trench using the spade provided. If the ground is wet or soft, a piece of wood can be laid along each side of the trench. Some trenches should be dug narrower so that they can be used by small children and the elderly.

Shallow trench latrines can quickly become smelly, especially in hot and humid climates. All faeces must be covered at least once a day and trenches closed when the contents reach 0.3m from the ground surface.

**Deep trench latrines**

A trench 0.8m to 0.9m wide, 6.0m long and at least 2.0m deep is covered by a wooden or plastic floor and divided into six cubicles (Figure 14.5). The top 0.5m of the trench walls should be lined with plastic sheeting for ease of cleaning and to prevent the sides from collapsing. The cubicles and privacy screen can be made of plastic sheeting on a light wooden frame. A roof can be provided if necessary. A drainage ditch should be dug around the latrine to divert surface water.

Each day the contents of the trench are covered by a layer of soil approximately 0.1m deep. This will reduce the smell and prevent flies from breeding in the trench.
When the bottom of the trench has risen to within 0.3m of the surface, the trench is filled with soil and the latrine is closed.

A trench latrine system is very labour-intensive and requires constant supervision. Not only must the contents of each latrine be covered each day, but new latrines must be prepared, old ones filled in, and regularly-used latrines must be cleaned. Close supervision is essential. A poorly-maintained latrine will quickly become offensive to the community and will not be used.

**Making use of existing facilities**

In urban areas, it may be possible to make use of existing facilities such as sewers, public toilets, bucket latrines, or stormwater drains. Temporary latrines, such as the one shown in Figure 14.6, can be constructed over a sewer or drain. Additional water may be required to carry the wastes through the system.

**Mobile latrine blocks**

In Europe and North America, mobile latrine blocks are common. Typically, these contain a number of toilet cubicles, sometimes provided with urinals and handwashing facilities. A tank is provided for clean water and another to collect waste. The waste tank is emptied using a portable vacuum tanker.

The deployment of mobile latrine blocks is not limited to industrialized countries. Provision for the ultimate disposal of the waste must, however, be part of their deployment.

**Borehole latrines**

In areas with deep soil, many borehole latrines can be built in a short time using hand augers. The holes are usually 0.3m to 0.5m in diameter and 2.0m to 5.0m deep (Figure 14.7). The top of each hole is lined with a pipe, and two pieces of wood are provided for footrests. Borehole latrines should be closed when the contents are 0.5m from the surface.

Figure 14.5. Deep trench latrines

Figure 14.6. Temporary toilet over a sewer

Figure 14.7. A borehole latrine
Packet and plastic bags
If the affected population is on the move, or if it is not possible to construct any form of latrine (such as in a flooded area), a simple plastic bag may be the only disposal option. The bags should be strong, water-tight and have a sealable top. Users should defecate directly into the bag and then seal it. The bags need to be collected regularly and taken away for burial. Biodegradable bags are preferred for their limited impact on the environment.

Chemical toilets
Portable chemical toilets have been used in emergencies in South and Central America. Typically, they are lightweight portable cubicles fitted with toilet seats and sealed holding tanks below. To reduce the smell, the tank is partially filled with chemicals before use. The holding tank must be emptied regularly.

Overhung latrines
Overhung latrines are an option in flood situations as long as water is flowing. A simple wooden structure, either built over the water (Figure 14.8) or floating on the water, allows users to defecate directly into the flowing water. This is rarely a major health problem as the volumes of water involved are large. Besides, the water is likely to be polluted already!

Raised latrines
If the ground is rocky or the water table is high, many of the options described will be unsuitable because they depend on deep pits. An alternative is to raise the pit above ground level (Figure 14.9).

The walls of the pit can be extended above ground level using local materials such as wood, bamboo or stone. The lining is then surrounded by a bank of soil to prevent it collapsing and to support the toilet cubicle. In practice, it is normally only possible to raise latrines about 1 to 1.5m above ground level. Higher latrines are rarely acceptable to users.

Figure 14.9. A raised latrine

Long-term solutions
Most of the options in this note are only temporary. As soon as it becomes obvious that the community is likely to remain in their new location for any length of time then longer-term solutions should be sought. In most cases, some form of on-site sanitation will be most appropriate. Details of the design and construction of longer-term options are given in the references below.

Further information

http://wedc.lboro.ac.uk/publications/

World Health Organization
Water, Sanitation, Hygiene and Health Unit
Avenue Appia 20
1211 Geneva 27
Switzerland

Telephone: +41 22 791 2111
Telephone (direct): +41 22 791 3555/3590
Fax (direct): +41 22 791 4159
Email Coordinator: bosr@who.int
URL: www.who.int/water_sanitation_health
## Annex K: Broad TORs of stakeholders before during and after epidemics

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Responsibility</th>
<th>Before epidemic</th>
<th>During epidemic</th>
<th>After epidemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gov. Health department</td>
<td></td>
<td>1. Develop an Epidemic preparedness plan and ensure all the resources(Money, man, Material and Management with regular pre seasonal review) are arranged from community to national level,</td>
<td>1. Efficiently manage the resources allocate and mobilize according to the priorities</td>
<td>1. Reorganize the resources and withdraw excess from the affected site or utilize them for long term sustainable solutions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Ensure routine surveillance system is efficiently functional (train, implement and regularly M&amp;E the process of notification, analysis, alert Investigation and outbreak control activities)</td>
<td>2. Ensure fully functional enhanced surveillance is in place in all affected areas and relevant areas under risk</td>
<td>2. Continue enhanced surveillance until complete control is observed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Ensure adequate prepositioning of necessary emergency supplies according to the expected incidence</td>
<td>3. Ensure necessary supplies and buffer stocks are reached to the affected sites in time</td>
<td>3. Keep an emergency stock at risk locations and withdraw back the balance to the provincial stores</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Ensure existence and functional standard laboratory investigation net working</td>
<td>4. Ensure quick access to sample transport and feedback from laboratory are reached the field in time</td>
<td>4. Maintain a laboratory investigation data base for future reference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Train all the clinicians on standard Case management and technical support</td>
<td>5. Review the case management issues and rectify accordingly and enhance the referral system as well</td>
<td>5. Identify the practical issues faced by the clinical staff on case management and plan to rectify them in future</td>
</tr>
<tr>
<td>Gov. Education department</td>
<td></td>
<td>1. Participate and contribute to emergency/epidemic preparedness</td>
<td>1. Hygiene promotion campaigns in the school and surrounding community</td>
<td>1. Continue the regular hygiene promotion, WATSAN and environmental health activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Hygiene promotion through regular education system and special campaigns</td>
<td>2. Volunteer service provision to the health facilities and community</td>
<td>2. Participate and contribute in emergency/epidemic review and planning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Establish better water and sanitation facilities in the schools</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Ensure food hygiene in the school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gov. Environmental department</td>
<td></td>
<td>1. Ensure at least basic water and sanitation facilities are available for all urban and rural epidemic prone communities through community based water supply and sanitation schemes</td>
<td>1. Quickly identify the contaminated sources in the epidemic area and find the root causes of such gaps</td>
<td>1. Maintain the water and sanitation activities until complete control of the epidemic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Well maintain the public water supply schemes</td>
<td>2. Fill the gaps of safe water and sanitation facilities in epidemic areas with temporary and long term measures</td>
<td>2. Properly train the local authority or community and ensure a sustainable mechanism to maintain WATSAN project in the area and hand over</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Prevent pollution of all water sources and treat all drinking water sources</td>
<td>3. Take over, maintain and train the local authorities to ensure safe water and sanitation facilities in the area</td>
<td>3. Closely monitor and evaluate the project</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Preserve natural water sources</td>
<td>4. Launch additional WASH promotion activities</td>
<td>4. Capitalize the epidemic and get funds to fill the gap and make necessary improvements to the WATSAN system in the area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Enforce all available legislatives to control the malpractices and strengthen the legislations</td>
<td>5. Provide emergency hygiene promotion kits(household storage containers, water purification tablets, chlorine stock solutions, soaps etc)</td>
<td></td>
</tr>
<tr>
<td>Gov. Housing and infrastructure development</td>
<td>1. Plan, implement and maintain basic housing facilities and road network with prioritize</td>
<td>1. Ensure functional waste management structures and road net works in epidemic locations</td>
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<td>1. Identify the gaps during epidemic management and rectify them with appropriate measures</td>
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<td>2. During planning and constructing public structures like markets, sports complexes, schools and hospitals; Pay attention on waste management system and disease specific treatment units</td>
<td>1. Support hygiene promotion activities, safe water supply and food handling through the established community organizations</td>
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<td>1. Support the communities in epidemic prone areas with micro financing/revolving funds to construct their latrines and safe water supply system</td>
<td>1. Identify the gaps in the activities and develop appropriate plans to rectify them</td>
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<td>Private business community, funding agents and financial supporters</td>
<td>2. Support the small scale food and drinks producers to maintain minimum standard procedures of food handling Support community based hygiene promotion activities and trainings</td>
<td>3. Support community based hygiene promotion activities and trainings</td>
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<td>3. Support community based hygiene promotion activities and trainings</td>
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