



FEDERAL MINISTRY OF HEALTH
NIGERIA CENTRE FOR DISEASE CONTROL

Preparedness and Response to Acute Watery Diarrhoea Outbreaks

A GUIDE FOR HEALTH WORKERS AND AUTHORITIES IN NIGERIA

Prepared by the
Federal Ministry Of Health
Nigeria Centre for Disease Control
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About NCDC

Nigeria Centre for Disease Control (NCDC) is Nigeria's national public health institute with the mandate to provide a healthier and safer Nigeria through the prevention and control of diseases of public health importance. It is focused on protecting the health of Nigerians through evidence based prevention, integrated disease surveillance and response activities, using a one health approach, guided by research and led by a skilled workforce.

NCDC operations and activities are guided by five key goals:

- Accurately measure the burden of infectious diseases in Nigeria
- Ensure Nigeria is able to meet its international obligations as a member of the World Health Assembly
- Develop a Public Health laboratory service network to support the detection, prevention and response to critical infectious diseases
- Reduce the adverse impact of predictable and unpredicted public health emergencies
- Create an efficiently managed and evidence based organisation with a clear focus of health promotion and disease prevention.

NCDC operates through five directorates: Surveillance and Epidemiology, Public Health Laboratory Services, Emergency Preparedness and Response, Prevention and Programmes Coordination and Administration.

NCDC is the host for the ECOWAS Regional Centre for Disease Control (RCDC) and the regional hub for the Africa Centres for Disease Control (ACDC).



Foreword

Cholera is a global threat to public health and a key indicator of slow social development. The disease is very common in developing countries, including Nigeria.

Cholera can be linked to the lack of clean and safe water supply, poor sanitation practices and poor infection prevention and control measures in health facilities across the country.

As Cholera is a preventable and treatable disease, it is unfortunate that so many people die from the disease yearly in Nigeria. The lack of resources, infrastructure and preparedness plans in the country has contributed to this.

With the aim of minimising the number of people who are infected or die from this infection in Nigeria, this document has been developed to provide clear guidance to health care workers and health authorities involved in patient care and management as well as the public health response to Cholera outbreaks in Nigeria.

It is my sincere belief that the concerted adherence by health care workers to the principles detailed in this document would go a long way in ensuring that Nigeria turns the curve towards elimination of Cholera.

I commend this guideline to health care workers.

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Finally, special thanks to all the health workers at the frontline of public health response in Nigeria

Acronyms

ACDC	Africa Centre For Disease Control
ACSM	Advocacy, Communication And Social Mobilization
AWD	Acute Watery Diarrhoea Disease
AR	Attack Rate
AST	Aspartate Aminotransferase
CFR	Case Fatality Rate
CTC	Cholera Treatment Centre
CTU	Cholera Treatment Unit
DSNO	Disease Surveillance And Notification Officer
EOC	Emergency Operation Centre
EHO	Environmental Health Officer
IMS	Incidents Management System
IM	Incident Manager
IDSR	Integrated Disease Surveillance And Response
IPC	Infection Prevention And Control
IR	Incidence Rate
MSF	Médecins Sans Frontières
MoU	Memorandum Of Understanding
NCDC	Nigeria Centre For Disease Control
NGO	Non-Governmental Organization
ORPS	Oral Rehydration Points
OCV	Oral Cholera Vaccine
ORT	Oral Rehydration Therapy
ORS	Oral Rehydration Solution
ORP	Oral Rehydration Points
PCR	Polymerase Chain Reaction
PPE	Personal Protective Equipment
RCDC	Regional Centre For Disease Control
RDT	Rapid Diagnostic Test
RRT	Rapid Response Team
SMART	Sensitive Membrane Antigen Rapid Test
UNICEF	United Nations International Children's Emergency Fund
US CDC	United States Centers For Disease Control and Prevention
WHO	World Health Organization
WaSH	Water Sanitation And Hygiene



Overview

Diarrhoea is usually a symptom of gastrointestinal infection, which can be caused by bacterial, viral or parasitic organisms. Infection is spread through contaminated food or water, or from person to person as a result of poor hygiene. According to the World Health Organisation (WHO), diarrhoeal disease is the second leading cause of death in children under five years old.

In communities where there is poor sanitation and hygiene practice, outbreaks of acute watery diarrhoea are likely to occur. In Nigeria, cholera is endemic, with acute watery diarrhoea as the presenting symptom. Cholera is the most important cause of acute watery diarrhoea from a public health perspective because of its potential to cause large outbreaks with a high associated mortality.

This document is a guide for health workers on the management of outbreaks of acute watery diarrhoea in Nigeria. It is directed at State Departments of Public Health, including State Epidemiologists and State Disease Surveillance and Notification Officers, as well as their counterparts in the Local Government Areas. Health workers in any organisation with the responsibility of preventing, detecting and responding to outbreaks of diarrhoeal illness will also find it useful.

This guide emphasises the three core strategies in the control of acute watery diarrhoea outbreaks which are; Infection prevention and control, Surveillance and Care and treatment

The guidance document outlines the actions that should be taken by health officers and public health authorities for each of the strategies with the aim of reducing the morbidity and mortality of acute watery diarrhoea diseases in Nigeria by:

- Building the capacity of health workers and community members to identify suspected cases of acute watery diarrhoea;
- Enhancing the capacity of public health workers to investigate outbreaks of acute watery diarrhoea;
- Building laboratory capacity for prompt and correct diagnosis of diseases causing acute diarrhoea;
- Enhancing the capacity of LGA and States to prepare for, and respond to outbreaks of acute watery diarrhoea.

1

Introduction

Acute watery diarrhoea (AWD) is defined as the passage of three or more loose or liquid stools within 24 hours (or more frequent passage than is normal for the individual). AWD can last from hours to days, and is a leading cause of morbidity and mortality. Both children and adults are affected by this condition but the risk of fatal outcomes is higher in children.

AWD is usually a symptom of an infection in the intestinal tract caused by a variety of bacteria, viral and parasitic organisms, though it can also be associated with other non-infectious conditions. Infection is spread through the ingestion of contaminated food or water or from person-to-person.

AWD is reportable under the Nigerian surveillance system: Integrated Disease Surveillance and Response (IDSR); as the following priority diseases:

- Cholera
- Diarrhoea with blood caused by *Shigella*

Diarrhoea in children less than five years caused by *Rotavirus*, *Escherichia Coli*, *Salmonella*.

- Food Borne Illnesses

AWD is likely to occur in various settings, but the surveillance systems should be able to rapidly detect an increase in reported cases. Such an increase should trigger efforts to determine the source of transmission, the microbial etiology and ensure the implementation of control measures in the affected area. Early detection, correct diagnosis and effective management of cases are essential for an effective public health response.

2

Common Acute Watery Diarrhoea Diseases

2.1 CHOLERA

Cholera is an illness which presents as profuse watery diarrhoea caused by *Vibrio cholerae* serogroups O1 or O139. Humans are the main reservoir of *vibrio cholera* but water, mollusc, fish and aquatic plants are potential reservoirs. *Vibrio cholerae* causes rapidly progressive outbreaks and can cause pandemics. Sporadic cases and small outbreaks may also occur in endemic areas.

Cholera can be predicted, prevented, and treated. Areas with poor sanitation, limited access to safe water and deficient hygiene practices are considered at high risk for cholera infection. In addition, limited access to health care facilities and inadequate treatment of cases are factors associated with high cholera-related mortality. Long term multi-sectoral prevention and control strategies to ensure adequate access to water and sanitation, social mobilisation for health and hygiene promotion, immunization, surveillance, and rapid adequate case management, are essential for reducing the morbidity and mortality from cholera in endemic and epidemic contexts.

Transmission

The bacteria is transmitted mainly through the faecal-oral route via ingestion of contaminated food or water. Major vehicles of transmission include:

- Fecally contaminated food or water;
- Human to human (e.g. dirty hands);
- Corpses of infected patients;
- Cholera treatment centres with insufficient hygiene measures.

Signs and symptoms

Cholera which has an incubation period of between two hours and five days is asymptomatic or mild in 80% of cases. Severe cases which can lead to death within hours due to dehydration. Cholera is characterised by rapid onset of profuse watery diarrhoea (rice water stools), with or without vomiting. It is usually not associated with fever, and is highly contagious. Case fatality ratios can be up to 50% especially in people without access to treatment but drops to 1% with adequate treatment.

2.1.1 Some Cholera definitions

Cholera-endemic area

An area where locally-transmitted confirmed cholera cases are detected in the last three years. The area can be defined as any subnational administrative unit including State, LGA or smaller localities.

Note: any country that contains one or more subnational administrative units that are endemic, as defined above, is considered a cholera-endemic country. This makes Nigeria an endemic nation having reported outbreaks in various LGAs and States over many years.

Cholera hotspot

A geographically limited area (e.g. LGA, ward or settlement) where environmental, cultural and/or socioeconomic conditions facilitate the transmission of the disease and where cholera persists or re-appears regularly. Hotspots play a central role in the spread of the disease to other regions or areas.

Cholera outbreak

A cholera outbreak is defined by the occurrence of at least one confirmed case of

cholera and evidence of local transmission. Outbreaks can also occur in areas with sustained (year-round) transmission, and are defined as an unexpected increase of suspected cases over two consecutive weeks of which some are laboratory confirmed.

Cholera alert

A cholera alert is defined by the detection, from the same area within one week, of a cluster of persons aged ≥ 2 years with acute watery diarrhoea and severe dehydration or dying from acute watery diarrhoea.

OR

One death from severe acute watery diarrhoea in persons aged ≥ 5 years

OR

One case of acute watery diarrhoea testing positive for cholera by rapid diagnostic test (RDT) in a location (including those at risk for extension from a current outbreak) that has not yet detected a confirmed case of cholera.

Cholera elimination

Any country that reports no confirmed cases with evidence of local transmission for at least three consecutive years and has a well-functioning epidemiologic and laboratory surveillance system able to detect and confirm cases.

2.2 DIARRHOEA WITH BLOOD CAUSED BY SHIGELLA (SHIGELLOSIS)

Shigellosis is a gastrointestinal illness caused by *Shigella*, a Gram-negative, non-motile bacillus belonging to the family *Enterobacteriaceae*. There are four species of *Shigella* including *S. dysenteriae*, *S. flexneri*, *S. boydii*, and *S. sonnei*. *S. sonnei* and *S. boydii* usually cause relatively mild illness in which diarrhoea may

be watery or bloody. *S. flexneri* is the chief cause of endemic shigellosis. Humans and a few primates are the only reservoirs of *Shigella*

Transmission

Shigella is spread by direct contact with an infected person, or by eating contaminated food or drinking contaminated water. Infected food handlers and flies are also recognised agents of transmission. Some people who are infected may have no symptoms at all, but may still pass the *Shigella* bacteria to others. The infectious dose for shigellosis is very small (less than 200 organisms) thereby facilitating the spread as seemingly minor breaches in hygiene can also result in outbreaks.

Clinical signs and symptoms

Incubation period

The symptoms of shigellosis usually appear within one to three days of infection, but may range from 12 to 96 hours. These include the following:

- Mild to severe watery diarrhoea with or without blood
- Dehydration
- Acute fever
- Abdominal pain

Diagnosis

Confirmatory diagnosis is either by isolation of *Shigella* from faeces or rectal swab or by PCR.

Period of infectivity

Shigella can be spread for as long as the organism can be isolated from a person's stool, which is up to four weeks.

**2.3
DIARRHOEA
WITH
DEHYDRATION
IN CHILDREN
LESS THAN FIVE
YEARS OF AGE**

Diarrhoea with dehydration in under-fives is a priority disease reportable under the IDSR strategy. This condition which represents one of the leading causes of death among children is usually due to gastrointestinal infections with Rotavirus, Escherichia coli, Salmonella, Shigella, Campylobacter and Yersinia. Different Epidemiological patterns are observed for the various pathogens.

These are reported monthly but an unusual increase or suspected outbreak should be reported immediately following the IDSR strategy.

**2.4
FOOD BORNE
ILLNESS**

Foodborne illness is considered to be any illness that occurs among two or more people within a short period of time after sharing the same food or drink. Symptoms of food borne illness may include:

- Acute/ prolonged watery diarrhoea leading to dehydration
- Vomiting
- Severe abdominal pain
- Fever
- Neurologic involvement, such as paresthesia, motor weakness, and cranial nerve palsies.

These symptoms are caused by the variety of organisms that may have contaminated the food and drink, as well as their toxins or by chemical contaminants.

Health care workers may suspect a foodborne illness either because of the organism involved or because of other available information, such as several ill patients who have eaten the same food. Such information should be reported to surveillance officers at the LGA/State epidemiology departments.

DISEASE	CAUSATIVE ORGANISM/AGENT	INCUBATION PERIOD	MODE OF TRANSMISSION	SIGNS AND SYMPTOMS	DIAGNOSIS
Cholera	Vibro cholerae	2-5days	Ingestion of contaminated item	Watery diarrhoea ± Vomiting Dehydration	Watery diarrhoea ± Vomiting Dehydration
Shigellosis	Shigella. dysenteriae, S. flexneri, S. boydii, S. sonnei	12-95hours	Ingestion of contaminated item	Watery diarrhoea with blood Abdominal pain Vomiting	Isolation of Shigella from faeces or rectal swabs
Diarrhoea in children under five years of age	Rotavirus, E. coli, Salmonella, Shigellae, Campylobacter, Yersinia		Ingestion of contaminated item	Watery diarrhoea, Vomiting, Dehydration	Identification of causative agent from faeces or rectal swabs
Food borne diarrhoea	Variety of organisms, Toxins, Chemicals		Ingestion of contaminated item	Watery diarrhoea Vomiting, Dehydration Multiple persons who eat from same source affected	Identification associated with food and the causative agent

Table 2.1 Common causes of Acute Watery Diarrhoea

3

Acute Watery Diarrhoea Outbreak Preparedness and Response Coordination

2.1 CHOLERA

An AWD outbreak is a public health emergency, which calls for an immediate response and requires the rapid mobilisation of Public Health and Water and Sanitation (WaSH) resources.

A response should take place at the lowest jurisdictional level for the affected areas. For example, an AWD outbreak occurring at a LGA should lead to an immediate response by the LGA public health team and WaSH personnel. Depending on the severity of the outbreak, the response effort may be scaled up to include direct involvement, technical assistance or resource support from the State and/or National level. Preparedness activities will include prepositioning of case management supplies and equipment, as well as identifying treatment facilities or isolation wards well in advance of any AWD outbreak.

Consequently, advance planning, coordinating and preparing for an AWD outbreak response should take place at all governing levels. Specifically, routine surveillance and risk- or needs-based assessments of AWD outbreaks should take place at the Local government level and State and National levels. In addition to public health efforts in combating AWD outbreaks, WaSH protocols must be implemented before, during and after an outbreak episode to prevent the (re) occurrence, control further transmission, and recover from an AWD outbreak.

Most importantly, State Ministries of Health and Epidemiologists, as well as other stakeholders, should work closely with NCDC to adopt and implement the Incident Management System (IMS) to coordinate the much needed multi-sectoral preparedness and response when outbreaks happen.

The IMS is led by an assigned Incident Manager (IM) who oversees the

preparation, planning, resource management, and overall operation of an emergency response. The IM should be vested with appropriate legal and policy authorities to respond to the emergency, as well as financial and other resource support from the State government.

The key pillars within the IMS structure include:

- Surveillance/epidemiology
- Laboratory diagnosis
- Case management
- Risk communication/social mobilisation, and
- Water Sanitation and Hygiene (WaSH).

The IMS staff should conduct its preparedness and response activities from the Emergency Operation Centre (EOC). The EOC can be any available structure where meetings can be held and decisions made.

The following individuals/offices should be involved in the coordination, preparedness and response activities. This is not an inclusive list.

3.1.1 National Level

- Nigeria Centre for Disease Control
- Federal Ministry of Water Resources
- Federal Ministry of Environment

3.1.2 State Level

- State Ministry of Health
- Director of Primary Health Care/Public Health/ Hospital Services
- State Epidemiologist
- Medical Laboratory Scientist
- Public Health Nurse
- Environmental Health Officer (EHO)

- Health Education Officers
- Disease Surveillance and Notification Officer (DSNO)
- State Ministry of Water Resources
- State Ministry Of Environment

3.1.3 LGA Level

- Chairman, Supervisory Council for Health, MoH/PHC Coordinator
- DSNO
- Health Educators
- Community Physician Pharmacist
- Public Health Nurse
- EHO
- Laboratory Scientists/Technicians
- Community Leaders
- Schools
- Police Officers

3.1.4 External Partners and Non-Governmental Organisations

- WHO
- UNICEF
- US CDC
- AFENET
- MSF
- Rotary International
- Others

**3.2
COORDINATING
ACUTE WATERY
DIARRHOEA
OUTBREAK
PREPAREDNESS
ACTIVITIES**

3.2.1 National Level

- Provide AWD-specific risk assessment tool that includes agreed mechanisms for collecting data addressing risk factors (e.g. age, malnutrition, gender, social and economic status), AWD case-mapping (location and existing public health and sanitation practices), and environmental AWD mapping
- Provide AWD-specific guidelines/tools to States/LGAs on surveillance and epidemic activities (e.g. case definition and reporting forms/methods) in accordance with the national IDSR guidance
- Develop and distribute treatment protocols to States/LGAs for further distribution
- Develop and distribute AWD-specific rapid assessment tool for AWD that can be readily deployed and adopted by States/LGAs
- Assist States/LGAs in adopting and exercising the rapid assessment tool to ensure adequate technical capacity, supplies and equipment are readily available to support a rapid assessment of suspected cases/outbreaks
- Assist States/LGAs in monitoring and evaluating preparedness and response activities, such as providing an external evaluation to determine any gaps in response activities or an after-action review during the early-recovery phase of an outbreak
- Conduct nation-wide, response capacity and risk assessment in collaboration with 36 States and the FCT, and share the findings and recommendations with the States and FCT
- Assess resource availability (i.e. healthcare workers, laboratory supplies, and equipment) based on the outcome of the risk assessment, and preposition to address gaps

- Map out resources on geographical basis (including assistance that may be provided by external partners in coordinating response activities and responding to AWD outbreaks) and share information with States and LGAs
- Stockpile supplies and equipment necessary for AWD response
- Assist States/LGAs in planning the strengthening and coordination of activities supporting surveillance/epidemiology, laboratory diagnosis, case management pillars
- FMWR and FMEnv to assist States to strengthen WaSH activities
- Develop a model incident action plan for activating EOC and the deployment of IMS team or Rapid Response Team (RRT) personnel
- Regularly conduct exercises in accordance with the incident action plan to identify areas for improvement or sustainment
- Coordinate a consortium of external partners/NGOs that have the requisite resources and expertise in supporting AWD outbreak preparedness and response activities
- Assist States/LGAs in identifying possible AWD isolation wards and treatment centers, in collaboration with external partners/NGOs, if necessary
- Coordinate with partners to conduct nation-wide disease surveillance training for frontline healthcare workers and advance epidemiology training to develop IDSR workforce capacity at the State/LGA level
- Develop training for frontline healthcare workers and laboratory technicians on IPC, waste management, case management, and identification and confirmation of AWD cases

- Develop a coordinated, multimedia platform for public education campaigns with key messages for promoting safe water handling, food safety, ensuring proper waste disposal, and reducing, preventing and controlling AWD

3.2.2 State Level

- State Epidemiology team to review, adopt, and implement the AWD-specific risk assessment tool to determine hotspots throughout the State and LGAs
- Review and implement AWD-specific guidance (e.g., case definition and reporting forms/methods) at the State, LGA and healthcare facility-level on surveillance and epidemic activities in accordance with the national IDSR guidance
- Participate actively in implementing outbreak prevention and control strategies with multi-sectoral partners
- Build the capacity of staff to respond to outbreaks
- Pre-emptively target hotspots and their neighboring at-risk areas with public health promotion and WaSH support in collaboration with the State WaSH team and Ministry of environment, Ministry of Information and other stakeholders.
- Conduct risk assessments regularly and communicate the findings and recommendations to the appropriate stakeholders . Ensure the implementation of recommendations through a multi-disciplinary and multi-sectoral approach
- Identify and designate appropriate AWD isolation wards and treatment centres with capacities reflective of the outcome of a risk assessment

- Conduct an inventory (i.e. resource mapping) of AWD outbreak response resources (e.g., personnel, supplies and equipment) regularly and maintain sufficient stockpiles of response resources
- Map out geographical distribution of available resources (including assistance that may be provided by external partners in coordinating response activities and responding to AWD outbreaks; share information with NCDC and LGAs
- Preposition and identify resources (i.e., healthcare workers, lab, supplies, and equipment) availability based on the capacity gaps and the outcome of the risk assessment
- Develop logistics (e.g., dispatching pillar teams/personnel, maintaining stockpiles, MOUs for emergency procurement, transportation of stockpiles to the affected areas) to reach affected LGAs as soon as possible upon notification
- Develop mutual assistance compacts, with bordering States, if necessary and conduct joint exercise to ensure timely sharing of information and resources
- Review and adapt the national incident action plan to suit State peculiarities and regularly exercise the plan to identify areas for improvement or sustainment
- Collaborate with external partners/NGOs in order to leverage their resources and expertise to supplement State/LGA's response capacity
- Conduct regular training for frontline healthcare workers and laboratory technicians on IPC, waste management, case management, and identification and confirmation of AWD cases
- Conduct locally acceptable means of communication to promote water and food hygiene, and hand washing to food stall owners, market workers, food vendors, and for food provision at funeral gatherings

- NCDC to conduct periodic meetings with multi-sectoral, multi-disciplinary stakeholders in the run-up to the rainy season when cases are increased, to share data, pool resources and identify gaps

3.2.3 LGA Level

- Adopt and implement AWD-specific guidance (e.g., case definition and reporting forms/methods) at the LGA and healthcare facility-level on surveillance and epidemic activities in accordance with the national IDSR guidance
- Implement outbreak prevention and control strategies with multi-sectoral partners
- Coordinate with the State Epidemiologist/DSNO on conducting risk assessment routinely and communicating the findings and recommendations to the appropriate State/LGA Ministries
- Implementing recommendations from the routine risk assessment with a multi-disciplinary and multi-sectoral approach
- Identify and designate appropriate AWD isolation wards and treatment centres with capacities reflective of the outcome of a risk assessment
- Conduct inventory (i.e., resource mapping) of AWD outbreak response resources (e.g., personnel, supplies and equipment) and maintain sufficient stockpiles of response resources
- Map out resources (including assistance that may be provided by external partners in coordinating response activities and responding to AWD outbreaks) to capture geographical distribution of resources; share information with States and NCDC

- Preposition and identify resources (i.e., healthcare workers, lab, supplies, and equipment) availability to response to a suspected case, as well as a confirmed outbreak
- Work with State Ministry of Health, Epidemiologist, DSNO and the EOC in implementing logistical plans, such as, dispatching pillar teams/personnel, maintaining stockpiles, MOUs for emergency procurement, transportation of contingency stockpiles to the affected areas, to reach affected LGAs as soon as possible upon notification
- Participate in joint exercises with State EOC to ensure timely sharing of information and executing of response activities
- Collaborate with external partners in order to leverage on resources and expertise to supplement LGA capacity
- Conduct training regularly for frontline healthcare workers and laboratory technicians on IPC, waste management, case management, and identification and confirmation of AWD cases
- Routine evaluation of water quality at source, safe excreta disposal, and proper waste management in hotspot areas
- Conduct locally acceptable means of communication to promote water and food hygiene, and hand washing to stall owners, market workers, food vendors, and food provision at funeral gatherings

3.2.4 Healthcare Facility Level

- Adopt and implement AWD-specific guidance (e.g., case definition and reporting forms/methods) at the healthcare facility on surveillance and epidemic activities in accordance with the national IDSR guidance

- Build the capacity of staff to responds to outbreaks
- Conduct training regularly for frontline healthcare workers and lab technicians on IPC, waste management, case management, and identification and confirmation of AWD cases.
- Preposition and identify resources (i.e. healthcare workers, laboratory supplies, and equipment) available to response to a suspected case, as well as a confirmed outbreak
- Promote and practice safe water handling and waste segregation with routine evaluation of water quality at source, medical/non-medical waste disposal, and sanitation staff capacity
- Participate in specific trainings and exercises designed for sanitation staff on mixing and using chlorinated water, segregating hospital reusable linens, food handling, and basic level IPC practices, such as donning and doffing PPE

3.3
COORDINATING
RESPONSE
ACTIVITIES

3.3.1 National Level

The NCDC will coordinate activities and collaborate with Federal Ministries of Water Resources and Environment, relevant agencies and development partners to ensure a multi-sectoral response to outbreaks through the following:

- Provide technical or/and other assistance to the affected States/LGAs during an outbreak (e.g. technical or direct assistance in the areas of surveillance/epidemiology, laboratory diagnosis, case management, risk communication/social mobilisation and WaSH)
- Assist States/LGAs in strengthening surveillance and reporting from affected areas

- Analyse case information from States; distribute data and analysis and maintain information exchange with States and other stakeholders
- Assist the affected States/LGAs with emergency procurement and mobilisation of resources during an outbreak
- Assist States/LGAs in monitoring and evaluating response activities, such as providing situation awareness assessment, or an after-action review during the early-recovery phase of an outbreak
- Assist States/LGAs in analysing data to improve understanding of AWD sources and deploying effective interventions
- Disseminate AWD outbreak or case information among States/LGAs and stakeholders with coordination with the affected or reporting States/LGAs
- Assist States/LGAs in coordinating with external partners for technical, resources or direct assistance to States/LGAs
- Assist States/LGAs in improving linkage of laboratory data to epidemiologic data, as well as translating such data for decision making to support response activities
- The NCDC will regularly produce national surveillance updates and disseminate to stakeholders

3.3.2 State Level

The State team led by the State Ministry of Health will carry out the following:

- Ensure protocol is in place for immediate reporting to the National level i.e the

Nigeria Centre for Disease Control

- Activate State Rapid Response Team (RRT) to assist LGAs in conducting rapid assessments to verify reported cases or a suspected outbreak
- Utilise technical experts embedded within the RRT to assist the LGA in case investigation and to determine the point-source of transmission (e.g. a contaminated water source or food)
- Support LGAs in setting up treatment centers and oral rehydration points (ORPs) at key locations
- Formulate and disseminate key messages to encourage early health-seeking behavior at health facilities, promote hygienic practices, and minimise large group gatherings involving food or food preparation
- Collect case information from LGAs and report regularly to NCDC, and maintain information exchange with the NCDC and other stakeholders
- Assist healthcare facilities and LGAs in sample collection, handling and transportation to a designated laboratory for confirmatory testing
- Activate EOC with necessary IMS pillars to assist the LGA response to the AWD outbreak or cases
- State WaSH team to support the LGA WaSH colleagues to ensure water quality testing and provision of immediate and long term solution to water and sanitation problems in affected and high-risk areas
- Coordinate the receipt of technical support and resources in key areas with external partners.

3.3.3 LGA Level

- Conduct rapid assessments of suspected cases in order to verify if an AWD outbreak is indeed in progress; report findings immediately to the State Epidemiologist
- Collect case information from healthcare facilities and report at a frequency that depends on the severity of the outbreak (e.g. daily, weekly, etc.) to the State Epidemiologist, and maintain information exchange with the State Epidemiologist and other stakeholders
- Map the pattern of the epidemic, with disaggregated data to capture geographic distribution of cases, at-risk population or high-risk areas, case fatality rate and/or weekly incident rate, demographic data, case dispersal pattern, and routes of transmission
- Implement IPC at points of care to eliminate nosocomial transmission
- Implement IPC through LGA WaSH activities at cholera treatment centres
- Identify the point-source of transmission and deploy intervention strategies for decontamination and to eliminate person-to-person transmission
- Collaborate with healthcare facilities and/or external partners/NGOs in establishing isolation wards or treatment centres
- Set up oral rehydration points (ORPs) at key locations
- Assist healthcare facilities in accessing and transporting specimens to the network of laboratories with capacity for sample testing
- Engage affected communities, civil and religious organisations in exercising hand-washing and other hygienic activities at funerals, civil, and religious gatherings

- Provide soap or chlorinated water for handwashing and at emergency latrine facilities, as appropriate
- Implement water quality monitoring plan and chlorination strategy, as well as provision of clean water

3.3.4 Healthcare Facility Level

- Immediately activate case management protocol and utilize standardized case definition for identification, treatment and reporting
- Report suspected cases that meet the case definition to the LGA DSNOs and maintain information exchange with DSNOs
- Conduct active case monitoring to include taking samples (e.g. rectal swabs) from suspected cases
- Refer and transport samples to the nearest, designated laboratory for confirmation of *Vibrio cholerae* species
- Set up oral rehydration points (ORPs) at key points of care
- Segregate suspected cases in an isolation ward or treatment centre, deploy IPC activities (e.g. soap, chlorinated handwashing stations, etc.) and Personal Protective Equipment (PPE) for healthcare workers, utilize sanitation measures to ensure proper waste segregation and safe disposal (e.g. burying or burn pit)
- Implement IPC at points of care to eliminate nosocomial transmission
- Implement IPC through LGA WaSH activities at cholera treatment centres or isolation wards

- Deploy contingency AWD medical stockpile as needed; request additional support from LGA, as needed
- Work with the State in setting up treatment centres as needed

4

Surveillance and Outbreak Investigation

4.1 SURVEILLANCE AND REPORTING OF AWD DISEASES

An effective surveillance system is needed to provide reliable and timely data to detect outbreaks in both endemic and non-endemic areas, monitor morbidity and mortality trends, and identify hotspots in areas where cholera disease is endemic, in order to implement adequate control measures to minimise the impact of the disease in the population.

Surveillance for acute watery diarrhoeal diseases is a collective responsibility of the community, health care workers, LGAs, States and NCDC surveillance officers. Cases should be identified according to the case definitions and reported to the appropriate level immediately.

As soon as there is a suspicion of an acute watery diarrhoea outbreak, an outbreak investigation should commence immediately in order to verify the existence of an outbreak, confirm the causative agent, describe the outbreak and initiate a prompt response to a confirmed outbreak.

Key factors needed for effective surveillance include the existence of a standard case definition, simple data collection tools, clear reporting procedures, analysis plans, rapid diagnosis of suspected cases and laboratory confirmation, routine feedback of surveillance data, and appropriate coordination at all levels (i.e. community, health facility, LGA, national, and international levels).

In this line, activities for strengthening and improving the surveillance of AWD in a specific area or country should focus on providing to health professionals, clear guidance on standard case definitions, data collection and reporting procedures, ensuring laboratory capacity to detect and confirm relevant diseases, and involving all key actors and the community for effective early detection and response to outbreaks.

**4.2
STANDARD CASE
DEFINITIONS OF
AWD**

DISEASE	COMMUNITY CASE DEFINITION	ACTION TO BE TAKEN
Acute Water Diarrhoea	Any person with 3 or more loose stools within the last 24hours and a danger sign* or dehydration. *Danger signs include lethargy/ weakness, unconsciousness, vomiting everything, convulsion, and in children less than 5years, inability to drink or breast-feed	Refer persons with signs to health facility for treatment or call/report to the LGA or State DSNOs OR call NCDC call centre. (Calls - 080097000010 WhatsApp - 07087110839 SMS - 08099555577)
Cholera	Any person 2years and above with lots of watery diarrhoea	Refer persons with signs to health facility for treatment or call/report to the LGA or State DSNOs OR call NCDC call centre. (Calls - 080097000010 WhatsApp - 07087110839 SMS - 08099555577)
Shigellosis	Any person with diarrhoea and visible blood in the stool	Refer persons with signs to health facility for treatment or call/report to the LGA or State DSNOs OR call NCDC call centre. (Calls - 080097000010 WhatsApp - 07087110839 SMS - 08099555577)
Diarrhoea in children less than 5years of age	Any child aged less than 5 years with three or more watery stools in the past 24hours with or without dehydration.	Refer persons with signs to health facility for treatment or call/report to the LGA or State DSNOs OR call NCDC call centre. (Calls - 080097000010 WhatsApp - 07087110839 SMS - 08099555577)

Table 4.1: Community case definitions

DISEASE	SUSPECTED CASE DEFINITION	CONFIRMED CASE DEFINITION	ACTION TO BE TAKEN
Cholera	Any patient aged ≥ 2 years presenting with acute watery diarrhoea and severe dehydration or dying from acute watery diarrhoea with or without vomiting. In areas where a cholera outbreak is declared, any person presenting with or dying from acute watery diarrhoea with or without vomiting.	A suspected case in which <i>Vibrio cholerae</i> O1 or O139 has been isolated in the stool.	Call/Report to LGA DSNO immediately.
Shigellosis	A person with acute diarrhoea with visible blood in the stool	A suspected case with stool culture positive for <i>Shigella dysenteriae</i> type 1	Call/Report to LGA DSNO immediately.
Diarrhoea in Under-Fives	Passage of three or more loose or watery stools in the past 24 hours with or without dehydration Signs of Dehydration <i>Some dehydration:</i> two or more of the following signs: restlessness, irritability; sunken eyes; thirst; loss of skin turgor (skin pinch goes back slowly) <i>Severe dehydration:</i> two or more of the following signs: lethargy/ unconsciousness; sunken eyes; inability to drink or drinking poorly; loss of skin turgor	Suspected case with stool culture positive for a known enteric pathogen.	Call/Report to LGA DSNO immediately.
Food Borne Illness	Two or more people who consumed common food or drink presenting with similar symptoms.	Laboratory confirmed case of a particular agent linked to a common food or drink source	Call/Report to LGA DSNO immediately.

Table 4.2: Standard case definitions for use by health workers

4.3 SOURCES OF SURVEILLANCE DATA DURING AWD OUTBREAK

- Routine reports of clinical cases from health facilities
- Laboratory reports
- The general public
- Restaurants and Food Vendors
- The media
- Community informants

4.4 REPORTING AND FLOW OF INFORMATION

The reporting of cases/outbreaks of AWD should be based on IDSR standard case definitions and should follow the Nigeria reporting system /flow.

The total number of cases and deaths registered at both the health facility and occurring in the community by age group and other data as captured in the line list should be reported to the LGA DSNO, State Epidemiology department and the NCDC using the IDSR tools through the disease surveillance information flow as shown in Figure 4.1 below. The data should be analysed in order to monitor trends, identify populations at risk, and initiate or adjust response interventions. In cases of suspected or confirmed outbreak an immediate reporting to the next level using telephone or the fastest means possible should be done.

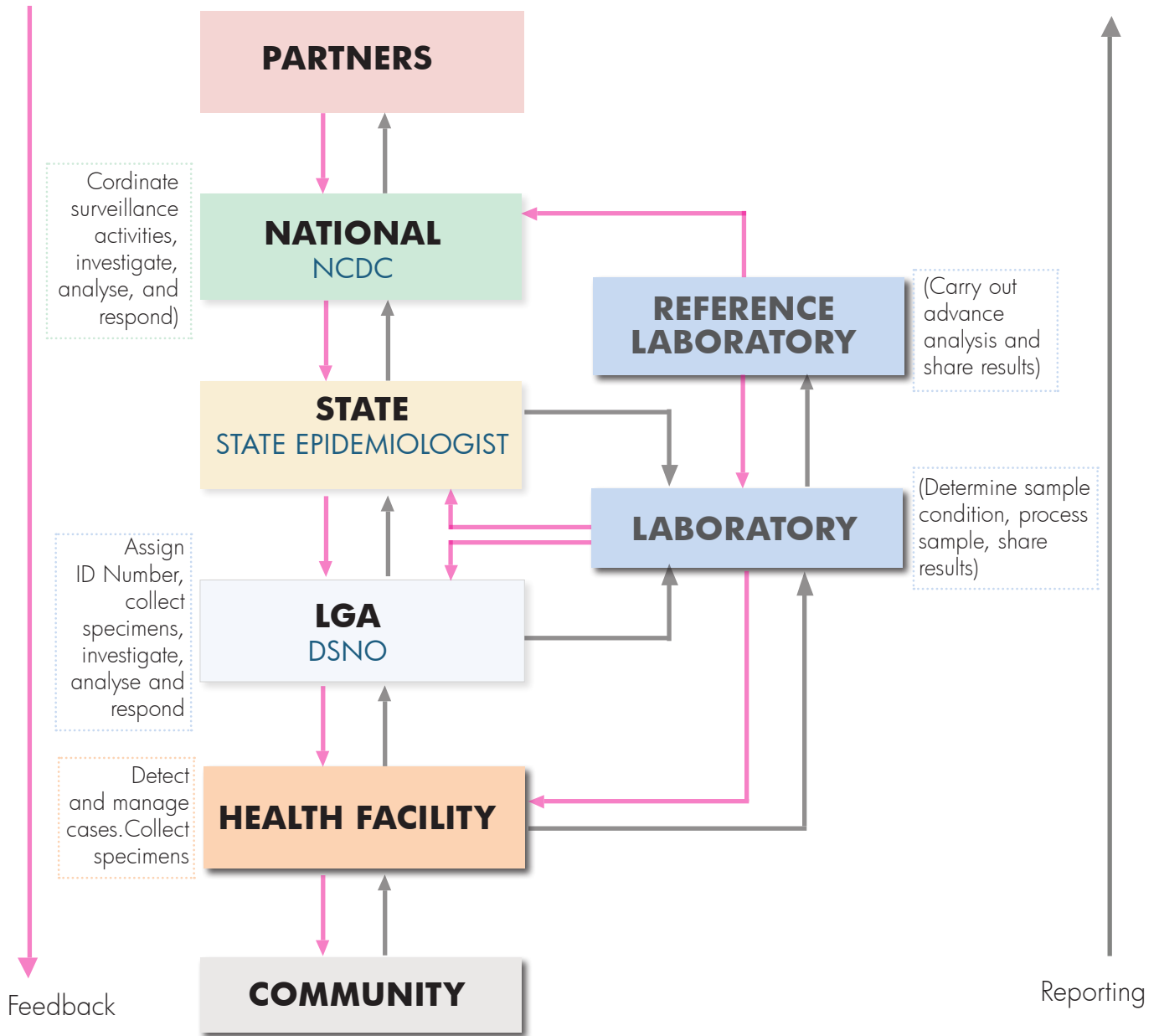


Figure 4.1: Surveillance Data Flow In Nigeria

4.4.1 Reporting Forms/Tools (See annex for copies)

IDSR 001A Form – For immediate reporting of a suspected outbreak

IDSR 001B Form – For Laboratory investigation

IDSR 001C Form - For line listing of all cases seen during the outbreak

IDSR 002- For routine weekly reporting, including Zero reporting

IDSR 003 – For routine monthly reporting of all priority diseases including diarrhoea diseases

4.4.2 Periodicity of reporting

Epidemic prone diseases like cholera is routinely reported weekly including zero reporting . In a previously unaffected area or area with no recent reported cases, any cholera alert should be immediately reported (within 24 hours) to the next higher level health authorities.

In an area where an outbreak is declared, the number of cases and deaths -both registered at the health facility and occurring in the community- need to be reported on a daily basis to monitor the occurrence of disease, mortality, case fatality ratio, in order to adjust prevention and case management interventions. The total number of cases per epidemiology week should also be reported on the routine weekly report. The laboratories should also report to the affected State Epidemiologist and NCDC, the number of samples received, number of samples tested and the positive samples by area. Additionally, information regarding the antimicrobial susceptibility profile should also be reported to guide the case management and treatment of the patients.

Acute Watery Diarrhoea Diseases Thresholds and Responses at Various Levels

DISEASE	ALERT	RESPONSE	EPIDEMIC	RESPONSE
Cholera	A suspected case of cholera	<p>Health facility level (Focal Person)</p> <ol style="list-style-type: none"> 1. Report immediately to LGA using IDSR 001A Form, (Annex 5A) and other means of communications within 24 hours to 48 hours of detection/reporting 2. Manage and treat the patient as stated in this guideline 3. Enhance strict hand-washing 4. Isolate patient 5. Obtain stool specimen from 5 suspected patients within 5 days of onset of acute watery diarrhoea, and before antibiotic treatment is commenced. <p>LGA Level (DSNO)</p> <ol style="list-style-type: none"> 1. Report immediately to State 2. Conduct active case search to identify similar cases not previously reported <p>State Level (Epidemiologist)</p> <ol style="list-style-type: none"> 1. Report immediately to the national level 2. Preposition supplies and Support LGA level <p>National Level (NCDC)</p> <ol style="list-style-type: none"> 1. Preposition supplies and support State level 	A confirmed case of Cholera with evidence of transmission	<p>Health facility (Focal person)</p> <ol style="list-style-type: none"> 1. Report immediately to LGA using IDSR 001A Form, (Annex 5A) and other means of communications within 24 hours to 48 hours of detection/reporting 2. Report Daily and weekly using the line list IDSR 001C and continue with zero reporting for 3 consecutive weeks <p>LGA Level (DSNO)</p> <ol style="list-style-type: none"> 1. Report immediately to State. Conduct active case search to identify similar cases not previously reported 2. Record cases on Line List and assign Epidemiological number 3. Strengthen case management 4. Mobilise community early to enable rapid case detection and treatment 5. Survey the availability of clean drinking water 6. Work with community leaders to limit the number of funerals or other large gatherings for ceremonies or other reasons 7. Reduce sporadic and outbreak-related cases through assuring continuous access to safe water, promoting safe preparation of food (especially seafood, fruits, and vegetables) and promoting safe disposal of human waste <p>State Level (Epidemiologist)</p> <ol style="list-style-type: none"> 1. Report immediately to the national level 2. Preposition logistic supplies 3. Provide technical support to affected LGA DSNO <p>National Level (NCDC)</p> <ol style="list-style-type: none"> 1. Support affected States 2. Coordinate and support epidemic response activities of affected State/ LGA

DISEASE	ALERT	RESPONSE	EPIDEMIC	RESPONSE
Shigellosis	Increase in the number of cases or deaths over a period of time	<p>Health facility level (Focal Person)</p> <ol style="list-style-type: none"> 1. Report immediately to the LGA using IDSR 001A Form, (Annex 5A) and other means of communications within 24 hours to 48 hours of detection/reporting 2. Obtain stool or rectal swab specimen for confirming the SD1 outbreak 3. Treat the suspected cases with oral rehydration and antibiotics based on recent susceptibility results <p>LGA Level (DSNO)</p> <ol style="list-style-type: none"> 1. Report immediately to State Epidemiologist. 2. Investigate the case to determine risk factors that may have contributed to transmission. 3. Conduct active case search to identify similar cases not previously reported <p>State Level (Epidemiologist)</p> <ol style="list-style-type: none"> 1. Report immediately to the national 2. Preposition supplies and support LGA level <p>National Level (NCDC)</p> <ol style="list-style-type: none"> 1. Preposition supplies and Support State level 	If a suspected case is confirmed	<p>Health facility (Focal person)</p> <ol style="list-style-type: none"> 1. Report immediately to LGA using IDSR 001A Form, (Annex 5A) and other means of communications within 24 hours to 48 hours of detection/ reporting 2. Report weekly using the line list IDSR tools(001C and 002)and continue with zero reporting for 3 consecutive weeks 3. Establish treatment Centre in locality where cases occur. Treat cases onsite rather than asking patients to go to standing treatment centres elsewhere <p>LGA Level (DSNO)</p> <ol style="list-style-type: none"> 1. Report immediately to State Epidemiologist 2. Conduct active case search to identify similar cases not previously reported 3. Strengthen case management 4. Mobilise community early to enable rapid case detection and treatment 5. Identify high risk populations using person, place, and time data 6. Reduce sporadic and outbreak-related cases by promoting hand-washing with soap or ash and water after defecating and before handling food, strengthening access to safe water supply and storage, and use of latrines and safe disposal of human waste. <p>State Level (Epidemiologist)</p> <ol style="list-style-type: none"> 1. Report immediately to the national level - NCDC 2. Preposition logistic supplies 3. Provide technical support to affected LGA DSNO <p>National Level (NCDC)</p> <ol style="list-style-type: none"> 1. Preposition logistic supplies Coordinate and support epidemic response activities of affected State/ LGA.

DISEASE	ALERT	RESPONSE	EPIDEMIC	RESPONSE
Diarrhoea in Under-Fives	Increase in the number of cases or deaths over a period of time	<p>Health facility level (Focal Person)</p> <ol style="list-style-type: none"> 1. Report immediately to LGA using IDSR 001A Form, (Annex 5A) and other means of communications within 24 hours to 48 hours of detection/reporting 2. Manage and treat the patient as stated in this guideline. Encourage home-based therapy with oral rehydration 3. Obtain stool specimen from five patients within five days of onset of acute watery diarrhoea, and before antibiotic treatment is commenced <p>LGA Level (DSNO)</p> <ol style="list-style-type: none"> 1. Report immediately to State Epidemiologist 2. Investigate the cause for the increased number of cases or deaths and identify the problem. 3. Conduct active case search to identify similar cases not previously reported <p>State Level (Epidemiologist)</p> <ol style="list-style-type: none"> 1. Report immediately to the National <p>National Level (NCDC)</p> <ol style="list-style-type: none"> 1. Preposition supplies and Support State level 	If the number of cases or death increase to two times the usually seen number in a similar period in the past	<p>Health facility (Focal person)</p> <ol style="list-style-type: none"> 1. Report immediately using IDSR 001A Form, (Annex 5A) and other means of communications within 24 hours to 48 hours of detection/ reporting 2. Report weekly using the line list IDSR 001C and continue with zero reporting for 3 consecutive weeks 3. Establish treatment Centre in locality where cases occur. Treat cases onsite rather than asking patients to go to standing treatment centres elsewhere 4. Teach mothers about home treatment with oral rehydration. <p>LGA Level (DSNO)</p> <ol style="list-style-type: none"> 1. Report immediately to State Epidemiologist. 5. Conduct community education about boiling and chlorinating water, and safe water storage and preparation of foods. 6. Conduct active case search to identify similar cases not previously reported <p>State Level (Epidemiologist)</p> <ol style="list-style-type: none"> 1. Report immediately to the national level 2. Preposition logistic supplies 3. Provide technical support to affected LGA DSNO <p>National Level (NCDC)</p> <ol style="list-style-type: none"> 1. Preposition logistic supplies 2. Coordinate and support epidemic response activities of affected State/LGA

DISEASE	ALERT	RESPONSE	EPIDEMIC	RESPONSE
Food Borne Illness	If observed that ≥ 2 people are ill and have eaten food from a common source	<p>Health facility level (Focal person)</p> <ol style="list-style-type: none"> 1. Report immediately to LGA using IDSR 001A Form, (Annex 5A) and other means of communications within 24 hours to 48 hours of detection/reporting 2. Manage and treat the patient as stated in this guideline 3. Collect specimens for laboratory confirmation from patients and from the suspected food items and drinks <p>LGA Level (DSNO)</p> <ol style="list-style-type: none"> 1. Report immediately to State Epidemiologist 2. Conduct outbreak investigation 3. Collect specimens for laboratory confirmation from patients and from the suspected food items and drinks 4. Conduct active case search to identify similar cases not previously reported <p>State Level (Epidemiologist)</p> <ol style="list-style-type: none"> 1. Report immediately to the national level <p>National Level (NCDC)</p> <ol style="list-style-type: none"> 1. Preposition supplies and Support State level 	If the number of cases or death increase to two times the usually seen number in a similar period in the past	<p>Health facility (Focal person)</p> <ol style="list-style-type: none"> 1. Report immediately to the LGA using IDSR 001A Form, (Annex 5A) and other means of communications within 24 hours 2. Manage and treat the patient as stated in this guideline <p>LGA Level (DSNO)</p> <ol style="list-style-type: none"> 1. Report immediately to the State Epidemiologist using IDSR 001A Form, (Annex 5A) and other means of communication within 24 hours to 48 hours of detection/reporting 2. Eventually call for in-depth investigation of the food chains that may be associated with the outbreak 3. Remove food items from which evidence of unsafe food may be obtained. 4. Reduce sporadic and outbreak-related cases by promoting handwashing with soap and water after defecating / urinating and before food handling/ meals; strengthen access to safe water supply and storage, use of latrines and safe human waste disposal 5. Search for additional cases in locality of confirmed cases 6. Strengthen case management and treatment 7. Identify high risk groups <p>State Level (Epidemiologist)</p> <ol style="list-style-type: none"> 1. Report immediately to the national level 2. Scale-up food inspection activities Preposition logistic supplies 3. Report to NAFDAC. Provide technical support to affected LGA DSNO <p>National Level (NCDC)</p> <ol style="list-style-type: none"> 1. Preposition logistic supplies 2. Coordinate and support epidemic response activities of affected State/ LGA

If a restaurant or other food service establishment is identified as the source of the outbreak, health officers should work to correct inadequate food preparation practices. If the home is the likely source of the contamination, health officers should institute public education about proper food handling practices.

Reporting may lead to the identification of a previously unrecognized agent of foodborne illness. Reporting also may lead to identification and appropriate management of human carriers of known foodborne pathogens, especially those with high-risk occupations for disease transmission such as food workers

4.5

ENVIRONMENTAL SURVEILLANCE

Acute Watery Diarrhoeal Diseases are primarily water-borne diseases where sewage-contaminated water sources, such as municipal water supplies, rivers, streams, or wells, are the principal route of disease transmission. Various biological and physicochemical factors, such as nutrient content, salinity, temperature, and pH, may influence the growth, survival, and distribution of bacteria in aquatic environments. Contact with contaminated food can also spread the diseases. In an epidemic setting, water and food are usually contaminated by human faeces. *Vibrio cholerae* can survive in aquatic environments for extended periods, especially in estuarine and saline waters. Monitoring the presence of *Vibrio cholerae* in specific environmental water sources may help with early detection of Cholera and other AWD transmission in some areas and to identify the sources or vehicles for infection.

Isolation of *Vibrio cholerae* in water sources

All water specimens should be collected in sterile containers and transported to the laboratory for isolation. Generally, the larger the water sample, the greater the chance of isolating *Vibrio cholerae*. Selection of the isolation method should depend on the type of water sample to be cultured (sewage waters, marine, estuarine, lakes, rivers, streams, wells, etc.).

Isolation of *Vibrio cholerae* from food, and other environmental samples

In addition to water, contaminated food can also serve as a vehicle for the transmission of cholera. Foods commonly associated with cholera transmission have included fish (particularly shellfish harvested from contaminated waters), milk, cooked rice, lentils, potatoes, kidney beans, eggs, chicken, and vegetables. Sediment, aquatic plants, plankton, and other environmental specimens should be also sampled to identify and monitor for *Vibrio* and to determine the risk of the transmission in the population.

4.6 DESCRIPTIVE ANALYSIS

- Register all cases
- Count all cases and deaths
- Analyse cases in person, time and place
- Calculate incidence rate, attack rate, case fatality rate

4.6.1 Description of cases by time, place and person

By person: Number of cases and deaths by age (<5 and ≥ 5 years) in a State, LGA, Ward settlement over time should be recorded and analysed to identify areas and populations at risk. Also attack rates by type of activity/profession, hospitalization rates, proportion of cases by level of dehydration (or treatment plan applied) and proportion of cases with a laboratory confirmation should be calculated to monitor the disease spread

By time: Description of cases and deaths over time helps to monitor the evolution and magnitude of the epidemic: usually through a histogram (“epidemic curve”) plotting the number of cases by date of onset (or date of consultation/admission).

By place: The geographic distribution of cases by place of residence (per village,

district, province and region) can be used to identify affected areas at higher risk and to monitor outbreak extension. Settlements, markets, schools, water sources, health facilities and major transportation routes can also be described. If possible, GPS coordinates should be collected from the patients' households to create accurate maps and spatial analysis.

4.6.2 Surveillance indicators

Once collected and organised, data must be analysed in order to obtain essential surveillance indicators: incidence rate (IR), case-fatality ratio (CFR) and attack rate (AR).

Incidence Rate (IR)

Incidence shows the rate at which new cases occur within a given period of time (usually per week) in a given area. Incidence can be expressed per 100 (percentage), 1,000, 10,000 persons, or even more in case of small numbers. Incidence rate indicates the evolution of the epidemic and the rapidity of its spread. It can be compared between groups and with other areas since incidence is adjusted by population.

$$IR = \frac{\text{Number of cases in one week}}{\text{Population}} \times 10,000$$

Example;

WEEK	NUMBER OF CASES	POPULATION	IR (X1000) PER WEEK
Week 1	5	1200	4.2
Week 2	2	1195	1.7
Week 3	1	1193	0.8

Case-Fatality Rate (CFR)

CFR is the proportion of disease related deaths among total cases within a specified period of time, expressed in percentage.

CFR is an indicator of adequate case management and access to the treatment centre.

High CFR (above 1%) is mainly due to one or a combination of different factors:

- poor access to the health treatment facilities: patients arriving in severe conditions;
- Inadequate case management: health professionals not properly trained, lack of supplies, poor infection prevention and control measures, overwhelmed facilities, etc.);
- bias of surveillance where deaths are better recorded than cases.

In this situation, an assessment of the treatment units should be conducted to identify the causes and implement corrective measures.

$$CFR = \frac{\text{Number of deaths}}{\text{Number of cases}} \times 100$$

Example;

AREA	NUMBER OF DEATHS	NUMBER OF CASES	CFR (%)
LGA 1	1	54	1.9
LGA 2	1	23	4.3
LGA 3	3	128	2.3
Total	5	205	2.4

Attack Rate (AR)

AR is the cumulative incidence of cases over a defined period of time (e.g. one year, or the whole duration of the epidemic) in a defined area and population. AR is usually expressed as a percentage and can be calculated by age, sex and area. AR indicates the impact of the epidemic in the population.

$$AR = \frac{\text{Number of cases reported}}{\text{Population}} \times 100$$

Example;

AREA	CUMULATIVE NUMBER OF CASES	POPULATION	ATTACK RATE (%)
LGA 1	54	2300	2.3
LGA 2	23	1125	2.0
LGA 3	128	3150	4.1
Total	205	6575	3.1

4.6.3 Other indicators

Other indicators and information can also be collected or obtained to describe the situation, identify the capacity and resources available and to determine the risk for cholera transmission based on the context and exposure.

4.6.3.1 Laboratory indicators

- Number of operational laboratories in the State/ country capable of performing culture and/or PCR
- Number of trained microbiologists to perform culture or PCR

- Number of samples sent to the laboratory for testing
- Number of samples processed per week
- Number of positive samples by Rapid Diagnostic Test, culture and PCR

4.6.3.2 Water and Sanitation and Hygiene indicators

- Proportion of households with access to improved sources of safe water: piped water into dwelling, public tap, borehole, protected dug well, protected spring, rainwater collection, water treatment plants, etc.
- Mean of walking time to the nearest improved sources of safe water
- Proportion of households with access to improved sanitation: flush toilets, piped sewer system, septic tanks, flush to pit latrine, ventilated improved pit latrine, composting toilet.
- Proportion of population with access to soap for hand washing
- Proportion of households practicing water treatment
- Access and quality of health care services
- Number of operational Cholera Treatment Centres (CTC) and oral rehydration points (ORPs) available during a cholera outbreak
- CTC adequately equipped to treat patients using the cholera case management guidelines
- Communities with ambulance/transport available
- Local context information
- Population density (number of habitants / km²)

- Oral Cholera Vaccine (OCV) vaccination campaigns previously conducted in the area
- Description of the weather, seasons and geographical conditions, topography, mountains, lakes and rivers' flow
- Location, transit of people or influx of travellers: crossed by big roads, railways junctions, markets, harbours, agricultural practices.

5

Laboratory Investigations

Acute watery diarrhoea can manifest as rice-water stool or visible blood in stool. In both cases, a laboratory diagnosis strengthens surveillance by:

- Isolating the causative organism
- Determining the most susceptible antibiotic for the organism
- Monitoring the antibiotic resistance profile in long-term community treatment following an outbreak.

A priority action during a case of AWD is to identify the causative agent. For instance, a single Cholera case confirmation in a laboratory should trigger treatment and control measures in an outbreak situation. This underlines the importance of laboratory confirmation in public health management of acute watery disease. Hence laboratory diagnosis must be:

- Sensitive and specific enough to detect epidemic *Vibrio cholera* 01 or 0139, epidemic dysentery causing *Shigella dysenteriae* type 1 as well as other causative organisms for AWD
- Timely (turnaround time of 2-24 hours while ensuring immediate feedback)

At least one laboratory in the every State should be operational and capable of isolating and identifying causative agent of acute watery diarrhoea by culture -or PCR and performing antibiotic susceptibility testing.

Before an outbreak, public health practitioners should always

- Keep a stock of sample transport medium (Cary Blair medium etc.)

- Learn how to collect, package and transport specimen.
- Have a plan for specimen transportation
- Identify a laboratory for testing of stool samples

**5.1
HOW TO
COLLECT
SAMPLES FOR
LABORATORY
INVESTIGATION**

During an outbreak of AWD, stool testing should be done for a batch of 10-20 suspects who:

- Have watery diarrhoea or bloody diarrhoea
- Have an onset of illness less than four days before sampling
- Have not received antibiotic treatment for the current illness

Procedure for sample collection for Cary Blair Transport Medium

Swab a freshly passed stool specimen (< 1 hr old) or swab the patient's rectum.

- If collecting from a stool specimen, insert the tip of the swab into the stool and remove; examine the swab to ensure that it has become stained with stool
- If collecting directly from the rectal contents (rectal swab), dip a swab into the Cary-Blair medium first, in order to moisten it, then insert the swab 2½ to 3½ centimeters (1-1½ inches) into the rectum and rotate it gently, then remove the swab and examine it to be sure the cotton tip is stained with stool.
- If possible, collect two samples per patients to increase the chance of isolation of organism.

Bury sample swab in a Cary-Blair transport medium that has been refrigerated to

maintain a cool medium.

Break off and discard the top part of the sticks, tightening the screw top firmly.

Options for collecting Samples for Cholera (only) when Cary-Blair transport medium is unavailable.

- Use alkaline peptone water medium but sample must be processed within 24hours of collection.
- Collect rectal swab or liquid stool in a sterile screw cap bottle (without any transport medium) if sample is processed within two hours
- Blotting paper soaked in liquid stool and placed in sealed plastic bags to prevent drying when refrigerated, can be processed within two days.

5.1.1 Options for collecting samples other than for Cholera

- Collect rectal swab or watery stool in a sterile screw cap bottle (without any transport medium) if samples is processed within two hours

5.2 HOW TO LABEL SAMPLE

Label the specimen with the specimen number on the case investigation form IDSR 001A, and include the following information:

- Patient's name
- Age/Gender
- Date of collection.

Assign numbers to the specimens in consecutive order

Add/or attach IDSR 001B (Laboratory case based form) form to sample collected

Always write the numbers on the frosted portion of the specimen tube, using an indelible marker pen. If there is no frosted area, write the information on a piece of first-aid tape and fix this firmly on the specimen container.

5.3 HOW TO TRANSPORT SAMPLE

Sample transport is as important as its collection in the achievement of quality result.

5.3.1 Transport of Suspected Cholera stool samples

- This should be done in a leak proof cold box with ice packs (preferred) or without ice
- Sample bottles should be protected from spillage and breakage on transit with cotton/paper padding (Triple Packaging)
- Unrefrigerated samples in transport medium at ambient temperature can stand up to 7 days
- Unrefrigerated sample not stored in transport medium should be processed immediately
- All data sheet necessary for recording information should be properly filled for each sample

5.3.2 Transport of Suspected Shigellosis Dysentery sample

- Dysentery specimen must be refrigerated after they are collected because *Shigella* spp. are heat sensitive
- Ship them in a well-insulated box with frozen refrigerant packs or wet ice
- Pathogens can be recovered from samples in refrigerated transport medium up to seven days after collection; yield decreases after the first two days.

- If the specimens will be processed within two days, it is enough to keep them at +4°C.

The laboratory to which specimens are sent to must be informed when specimens are on the way. It is necessary to know the title and the names of the responsible laboratory staff. When specimens are sent, it is important to make sure that they arrive when the laboratory has personnel to receive it.

5.4 DIAGNOSIS OF ACUTE WATERY DIARRHOEA

There are several gastrointestinal conditions that can present as diarrhoea. There are various ways of testing to identify or isolate the causative organism in these cases.

5.4.1 Rapid diagnostic test (RDT).

- Commercial rapid test strips for diagnosis of Cholera and other Gastroenteritis infection in human samples with up to 90% sensitivity are available.
- The Sensitive Membrane Antigen Rapid Test (SMART) is an example of a rapid test used for the specific detection of Cholera O:1 serogroup.
- The rapid tests are more commonly applied in field testing, in outbreak situations prior to sample culture and susceptibility testing.
- RDTs are intended to be used at primary health care level for surveillance purposes: for early outbreak detection, as a tool for initial alert
- RDT is not a confirmatory test.

5.4.2 Stool Microscopy/Culture/Sensitivity

- **Macro and Microscopic examination**

- Culture in an appropriate selective medium based on suspected diagnosis.
- Conduct AST based on antibiogram panel and protocol for isolated organism.

5.4.3 Polymerase Chain Reaction

This is a preferred test as its more sensitive.

Testing strategy when a cholera outbreak is declared

- Once an outbreak is declared, any person presenting with or dying from acute watery diarrhoea should be registered and reported as a suspected cholera case.
- There is no need to laboratory confirm all suspected cases. The clinical management of cases does not require laboratory confirmation as it is primarily guided by the degree of dehydration of the patient.
- For each new area (LGA/State) affected by the outbreak, laboratory confirmation by culture or PCR of cholera suspected cases should be conducted to ascertain the presence of cholera in this new area.
- Continuous sampling and testing on suspected cases should be performed to monitor the outbreak, to determine the antibiotic susceptibility profile and to carry out continuous monitoring of strains. If RDT is available, send the RDT positive samples to the laboratory.
- Ideally, a minimum of five samples (from suspected cases and, when available, pre-selected by a positive RDT) per week per health facility should be sent for laboratory confirmation and antimicrobial susceptibility testing. In a situation of large or nation-wide outbreak or a limit in laboratory capacity, a representative number of CTC (sentinel system) can be established for collection and shipment

of samples for testing.

Testing strategy towards the end of the outbreak

- When the number of suspected cases in the epidemic area significantly declines and all samples from all AWD cases test negative by RDT, culture or PCR for a minimum period of two weeks, the outbreak can be considered ended.

Conduct laboratory testing in suspected cases, as part of routine surveillance.



Case Management

Proper management of cases during an epidemic is very crucial, otherwise high case fatality and spread of the infection with increase in number of cases will result. The same basic principles of management apply to AWD regardless of the cause. The standard treatment protocol is simple and is focused on early and rapid rehydration with oral rehydration solutions and intravenous fluids (Ringers lactate solutions).

6.1 CASE MANAGEMENT OF ACUTE WATERY DIARRHOEA

When AWD cases are suspected or detected, health workers need to start treatment as early as possible to reduce morbidity and mortality and to prevent contamination of the environment. Less severe cases can be managed on an outpatient basis with oral rehydration. Hospitalization with standard infection prevention and control is desirable for severely ill patients.

Diarrhoea and vomiting leads to dehydration, acidosis and potassium depletion as a result of loss of water and salts. It is therefore essential that all cases be rehydrated.

6.1.1 General Principles of Clinical Management of Cholera

- The goal of treatment is to rehydrate patients and replace electrolytes lost in stool and vomitus.
- 80% - 90% of cholera patients can be rehydrated with Oral Rehydration Therapy (ORT) alone.
- Severely dehydrated patients require rapid fluid replacement with intravenous fluids.

- Continue Oral Rehydration Solution (ORS) with IV fluids as long as patient can tolerate it.
- Ringer’s lactate is the preferred intravenous solution because it contains an electrolyte composition appropriate for treating cholera patients.
- For the severely dehydrated patient, antibiotics can reduce the volume and duration of diarrhoea, and shorten the period of infectivity.

The case-fatality rate in untreated cholera cases is between 30-50%. Treatment is straightforward and, if applied appropriately, should keep case-fatality rate below 1%.

The following are priority interventions to reduce CFR:

- During large outbreaks, designate treatment facilities or set up cholera treatment structures and decentralise them. The number of cases per location will determine priority areas where treatment centres will be set up.
- Ensure availability of case management protocols and train health personnel on its implementation. Ensure all treatment centres have this this guideline and any other simplified treatment protocols. Train the health workers on its use.
- Community health workers and primary health care workers must be trained and equipped to assess dehydration levels, start oral rehydration protocols, and organise quick referral of severe cases.
- Continuous availability of all the supplies required for the treatment of cholera cases is critical. Planning and requesting for more supplies before they run-out of stock is one way of ensuring their availability.

Effective case management of AWD requires systematic and stepwise approaches.

The steps are:

- Assess the patient's level of dehydration.
- Rehydrate the patient according to the level of dehydration (mild, moderate and severe).
- Monitor the patient frequently, and reassess their hydration status at recommended intervals recommended. Follow treatment guidelines for the newly assessed level of dehydration.
- Collect stool sample or rectal swab sample from suspected cholera patients seen at the health facility.
- Give an oral antibiotic to patients with severe dehydration.
- Allow the patient to resume feeding if vomiting has stopped.
- Continue monitoring the patient and replacing fluid losses until the diarrhoea stops.
- Give the patient a two-day supply of ORS for home use and instructions on homecare.
- Advise the family on follow up and preventive actions from cholera

6.2 ASSESSMENT FOR LEVEL OF DEHYDRATION

The severity or degree of dehydration in patients with acute watery diarrhoea is graded according to symptoms and signs that reflect the amount of fluid lost. The table below shows the clinical signs and symptoms useful for detecting dehydration and assessing its degree.

STATUS	NO DEHYDRATION	MILD DEHYDRATION	SEVERE DEHYDRATION
Check for pulse	Present Rapid	Weak (Thready)	No pulse
General condition of the patient	Well alert	Restless irritable*	Lethargic or unconscious*
Eyes	Normal	Yes (sunken)	Yes (very sunken and dry)
Mouth and Tongue	Moist	Dry	Very dry
Thirst	Drinks normally	Drinks eagerly	Drinks poorly or Not able to drink
Skin pinch**	Goes back quickly	Goes back slowly	Goes back very slowly (> 2 seconds)
Decide	The patient has no signs of dehydration	If the patient has 2 or more signs there is moderate dehydration	If the patient has 2 or more signs there is severe dehydration
Treat	Maintain Hydration PLAN A	Oral Rehydration PLAN B	IV + ORS + Antibiotic PLAN C

* Patient should be offered fluid to observe for this sign

** Abdominal skin has to be pinched and released to observe for this sign.
 Note: In adults and children older than five years, other signs for severe dehydration are absent. The skin pinch may be less useful in patients with marasmus (severe wasting) or kwashiorkor (severe malnutrition with edema), or obese patients.

Table 6.2 : Classification of degree of dehydration

6.3 TREATMENT OF DEHYDRATION

6.3.1 Plan A: Oral rehydration therapy for patients with no dehydration

Patients should receive ORS after each loose stool to maintain hydration until diarrhoea stops. Because clinical status may deteriorate rapidly, these patients may initially need to be kept under monitoring, especially when they live far from the treatment centre or when correct home treatment cannot be guaranteed. These patients may be sent home with a 2-day supply of ORS and instruct them to take ORS solution according to the schedule in the table.

AGE	AMOUNT OF SOLUTION TO TAKE AFTER EACH LOOSE STOOL	ORS SACHETS NEEDED	CFR (%)
Less than 2 years	50 – 100 ml	1 sachet per day for 2 days	1.9
2 to 9 years	100 – 200 ml	1 sachet per day for 2 days	4.3
10 years and above	As much as wanted	2 sachets per day for 2 days	2.3

Table 6.3: Plan A: Oral rehydration solution requirement for mild or no dehydration by age.

Instruct the patient or caregiver to prepare the ORS solution with clean water. Also advise patients or caregivers to come back immediately if there is repeated vomiting, if the number of stools increases or if the patient is drinking or eating poorly which are signs of worsening conditions. Patient should then be re-assessed to ascertain hydration status and managed as appropriate

6.3.2 Plan B: Oral rehydration therapy for patients with moderate dehydration

Patients must be admitted to the treatment centre, receive oral rehydration solution as indicated below and be monitored until diarrhoea/vomiting stops. Cholera

patients with some dehydration do not need IV fluid replacement. The amount of ORS required in 4 hours depends on the weight of the patient (75ml/kg in 4 hour).

AGE	<4 MONTHS	4-11 MONTHS	12-23 MONTHS	2-4 YEARS	5-14 YEARS	15 YEARS OR OLDER
Weight (kg)	<5	5-7.9	8-10.9	11-15.9	16-29.9	30kg or more
ORS solution in ml	200-400	400-600	600-800	800-1200	1200-2200	2200-4000

**Use age only when the patient's weight is not known. If the weight is known, calculate the amount of ORS by multiplying the patient's weight in kg by 75.*

Table 6.3.1 Plan B: Oral rehydration solution REQUIREMENT in moderate dehydration by age.

6.3.3 Plan C: Intravenous rehydration for patients with severe dehydration

Start the intra-venous treatment immediately, to restore normal hydration within **three to six hours**. Hang the infusion bag as high as possible to facilitate rapid flow. Large caliber cannulas (16G, 18G) should be used. If large catheters cannot be placed, two parallel IV lines can be used, to ensure rapid administration of IV fluids.

- Ringer's lactate is the IV fluid of choice.
- If Ringer's lactate is not available, normal saline or 5% D/S can be used.
- Plain 5% glucose solution is NOT RECOMMENDED.

On the average, a severely dehydrated adult patient needs 8-10 liters of Ringer's Lactate and 10 liters of ORS for a full course of treatment. Give Ringer's Lactate a total of 100ml/kg divided into two periods as indicated in the table below

(estimate 1 ml = 18 drops). If the patient can drink, you can also give ORS 5ml/kg/ hour simultaneously with the IV fluids.

If a patient is in severe dehydration and fluid cannot be given through intravenous route, give ORS through a nasogastric tube. The amount of ORS is 20ml/kg over 6 hours. Reassess every 1-2 hours: if there is repeated vomiting or increasing abdominal distension give the fluid more slowly.

AGE	FIRST GIVE 30ML/KG IV IN	THEN GIVE 70ML/KG IV IN
Infants (< 1 year)	1 hour	5 hours
1 year old and above	30 minutes	2 ½ hour

Table 6.4: Plan C: The amount of fluid required to rehydrate severely dehydrated patients by age

Monitor the overall response to the treatment. Some of the issues you need to look at are:

- Monitor the patient frequently to ensure that ORS solution is taken satisfactorily. If the patient vomits, wait 10 minutes, and continue slowly.
- Check signs of dehydration as indicated in the assessment chart, at least every hour in the first two hours, or more frequently if the clinical condition requires
- If there are no signs of dehydration after the first four hours of treatment, then follow Treatment Plan A.
- If there are still signs of moderate dehydration after the first four hours, then repeat Treatment Plan B for four hours and reassess.
- If at any time signs of severe dehydration appear or if the patient becomes confused or disorientated or if frequent, severe vomiting occurs, and then shift immediately to Treatment Plan C (IV therapy).

- If patient cannot drink and IV therapy is not possible at the facility, then rehydrate the patient using nasogastric tube.

6.5 ANTIMICROBIAL TREATMENT MODALITY

In severe cases, antibiotics can reduce the volume of diarrhoea and carriage time of *Vibrio*, but they are known to induce a false sense of security, leading to underestimation of rehydration needs. Most cholera patients are cured by rehydration and do not need antibiotics. Antibiotics are indicated only for patients with severe dehydration and are given after IV rehydration.

Antibiotic choice should be based on sensitivity test.

6.5.1 Setting Up of Treatment Units or Centres

Cholera and shigellosis are highly contagious, therefore patients suffering from these illnesses should be isolated immediately even without laboratory results. The use of isolation wards, treatment centres or treatment units are essential during an outbreak of these diseases to limit the spread of infection and reduce morbidity and mortality. Treatment centres are hospital structures where specialised care is given while treatment units are smaller facilities which could be temporary structures where patients are isolated and managed during an outbreak. Oral rehydration points (ORP) could also be set up within a community where patients can easily access oral rehydration fluids. Treatment centres and units should function 24hours a day.

- A treatment centre/unit for contagious acute watery diarrhoea outbreak should be set up within 24hours.
- A CTC should be located inside an existing health facility but be clearly separated and isolated from the other departments, to avoid contamination of

non-cholera patients. If the hospital compound is not suitable, another site must be found but must be demarcated from other public spaces.

- It is preferable to have one single CTC and several ORPs rather than multiple CTCs.
- When affected areas are too far from the CTC, access can become a problem. Ambulances can be provided for referral, or a CTU may be established as an intermediate structure. Use of public transport should be discouraged given the high contamination risk during the journey.

CHOLERA PATIENTS SHOULD NOT BE MANAGED WITH NON CHOLERA CASES IN A HEALTH FACILITY

Organisational Requirements for a Cholera Treatment Centre

Staff providing care for cholera patients must be trained in:

- The case definitions, assessment of dehydration and appropriate treatment protocols for intravenous rehydration and oral treatment with ORS and zinc, including monitoring of patients during treatment. Staff should also be trained to identify patients with complications or co-morbidities (e.g. malnutrition) who should be transferred once they no longer have cholera.
- Prevention of cholera in order to protect themselves, prevent transmission at the treatment site and to provide information on prevention of cholera to patients and their care givers.
- Collection of stool samples, safely packaging and adequately labelling them for transport to a laboratory. Significant amounts of clean water must be provided at this type of structure to prepare ORS, for infection control, laundry and general

cleaning.

- Preparation of ORS safely, having access to clean water or provided with the means to make safe water (disinfection tablets, filters or other sources of clean water).
- Adequate means for infection control including hand washing, safe excreta disposal, cleaning and laundry must be available.

Cholera cots or beds should be available at treatment centres to enhance both patient care and infection control. As patients will be provided 24-hour care, power supply must be available in the structure. Food is an essential part of patient care and must be safely available for patients.

Individual patient records should be kept at this level, staff should be trained to keep a register of patients, on appropriate recording of individual data and on reporting for epidemiological purposes and stock management.

Additional support staff such as cleaners are required.

Design of a treatment centre/unit:

The basic principle in design of a treatment centre or unit includes isolation of the treatment from other public structure and separation of the patient area (contaminated area) from the non-contaminated area.

The figure below (Figure 6.5) illustrates a simple design of a treatment centre with the separation of patients or contaminated area (in red) from the “neutral area” not contaminated (in green).

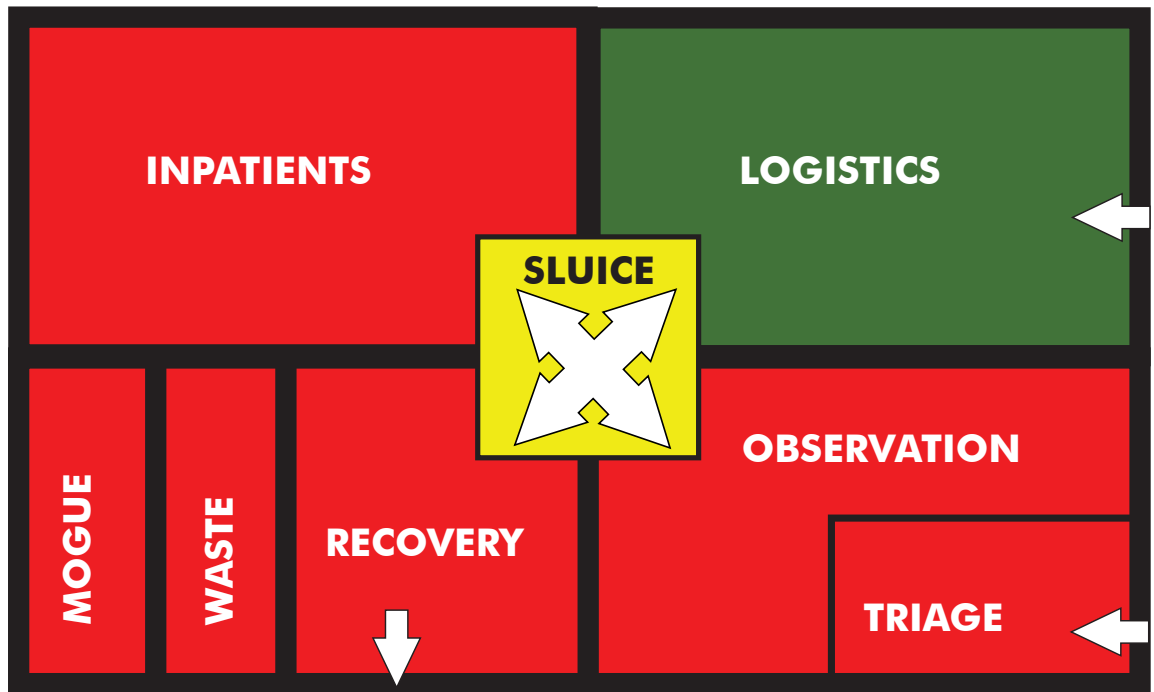


Figure 6.5: An example of a Cholera Treatment Centre design

6.6 MANAGEMENT OF FOODBORNE ILLNESS

Selection of appropriate treatment depends on the identification of the responsible pathogen (if possible) and determining if specific therapy is available. Many episodes of acute gastroenteritis are self-limiting and require fluid replacement and supportive care. Oral rehydration is indicated for patients who are mildly to moderately dehydrated; intravenous therapy may be required for more severe dehydration as described above. Routine use of antidiarrhoeal agents is not recommended because many of these agents have potentially serious adverse effects in infants and young children.

Choice of antimicrobial therapy should be based on

- Clinical signs and symptoms;
- Organism detected in clinical specimens;
- Antimicrobial susceptibility tests; and
- Appropriateness of treating with an antibiotic (some enteric bacterial infections are best not treated).

Knowledge of the infectious agent and its antimicrobial susceptibility pattern allows the physician to initiate, change, or discontinue antimicrobial therapy. Such information also can support public health surveillance of infectious disease and antimicrobial resistance trends in the community. Antimicrobial resistance has increased for some enteric pathogens, which dictates judicious use of this therapy.

Suspected cases of botulism are treated with botulinum antitoxin. Equine botulinum antitoxin for types A, B, and E can prevent the progression of neurologic dysfunction if administered early in the course of illness.

7

Infection Prevention and Control, and Wash Actions

Infection Prevention and Control (IPC) during an outbreak aims to prevent new infections and also control an ongoing infection in order to limit the spread in the community and at health facilities or treatment centers. Prevention is the most important outbreak control strategy. Although infectious and non-infectious agents can cause symptoms, all cases of gastroenteritis should be considered as potentially infectious until a microbiological cause has been excluded.

Diarrhoea diseases are highly transmissible because watery stools are more likely to contaminate hands and the environments with this being worsened during an outbreak where the risk of environmental contamination is high.

Termination disease transmission can be achieved through provision of safe water supply, sanitation and hygiene (WaSH) practices and infection prevention and control at home and at health care facilities. Some of the WaSH actions in control of cholera and other acute watery diarrhoea diseases are stated in Table 7.2 (on Page 70)

IPC of AWD involve both the community and health care facilities. Constituents of this include:

1. Routine infection control practices
2. Community based IPC practices and interventions
3. Availability of adequate quantity and quality water
4. Good waste management practices
5. Health education

**7.1
ROUTINE
INFECTION
CONTROL
PRACTICES**

7.1.1 Hand washing

Scrupulous hand washing with soap (preferably liquid) under running water, and thorough drying (ideally with disposable hand towels), is the single most important factor in preventing the spread of gastrointestinal (and many other) infections

Patients and their caregivers should also be advised in particular, to wash hands:

- After using or cleaning the toilet
- After attending to anyone with diarrhoea or vomiting
- After touching articles contaminated by diarrhoea or vomiting
- After handling contaminated clothing or bedding (including nappies)
- After handling household and garden waste or rubbish
- After touching or handling pets or other animals
- On return to the house having been working in the garden/farm
- Before handling, preparing, serving, or consuming food or drink after going to the toilet or changing babies' nappies
- Before preparing or serving food or eating meals

7.1.2 Improve access to safe water

Containers that hold drinking water can be the vehicle for disease outbreaks including Cholera, Typhoid Fever, Shigellosis and Hepatitis. Make sure the community has an adequate supply of safe water for drinking and other uses. The daily water needs per person during non-outbreak situations are shown below.

Water needs are much higher during an outbreak situation, especially outbreaks of diarrhoea diseases

DAILY WATER NEEDS PER PERSON		
	Non-outbreak situation	During outbreak of diarrhoea disease
Home use	20 litres per day	50 litres
Health care setting	40 to 60 litres per day	50 litres in wards 100 litres in surgery 100 litres in kitchen

Table 7.1: Daily water requirement

7.1.3 Safe sources of drinking water include:

- Piped chlorinated water
- Chlorination at point-of-use to ensure safe drinking water
- Protected water sources (for example, closed wells , rain water collected in a clean container)
- Boiled water from any source

If no local safe water sources are available, during an emergency, water supply may need to be brought in by truck. However, transporting water is expensive and difficult to sustain.

To make sure that families have *safe drinking water* at home (even if the source is safe) provide:

- Community education on how to keep home drinking water safe.
- Containers that prevent contamination of water. For example, provide containers with narrow mouths so that people cannot contaminate the water by putting their hands into the container
- Location site for defecation at least 30 metres or more away from sources of water

PUBLIC/COMMUNITY LEVEL	POTENTIAL ACTIONS
WATER SUPPLY	
Existing Water Supply	Repair pipelines/tap stands
Systems	In-line chlorination; batch chlorination Additional temporary water points
Protected hand-pumps/	Repair hand pump/pipe
Springs	Repair/ensure sanitary seal
(wells/boreholes lined)	Bucket chlorination of water to reduce secondary contamination in the home due to poor hygiene practices
Existing Trucking Systems	Chlorination of tankers; training in chlorination; quality monitoring; Improve efficiency, capacity and/or management of system
Unprotected Water Sources	
(stream, well, spring etc)	Bucket chlorination Protect fully the spring/well
Where no water supply exists nearby (or not treatable)	Transport/trucking of water and chlorination
HYGIENE	
Water	<ul style="list-style-type: none"> • Distribution of appropriate water storage containers (narrow neck or tap) • Promotion of correct drinking water storage • Promotion of use of highest quality of water available • Promotion of boiling water if appropriate • Bring water access closer to population
Food	<ul style="list-style-type: none"> • Cooking – eat well cooked food and serve hot • Storage – protect from contamination/flies • Handling – hand-washing before preparation/eating • Washing – promote safe dishwashing after eating (3 bucket system) • Distribution of soap for hand-washing
Excreta Disposal	<ul style="list-style-type: none"> • Promotion of containment in existing or temporarily provided facilities/sites • Promotion of hand-washing with soap (or other) after defecation • Distribution of soap
SANITATION	
Excreta Containment	Assign defecation areas to ensure containment in one area

Table 7.2: WaSH Actions

SOURCE: CHOLERA GUIDE; MSF 2004 (MODIFIED)

7.1.3 Ensure safe disposal of human excreta

To make sure that human excreta is disposed safely to avoid secondary infections due to contact with contaminated substances:

- Assign teams to inspect local areas for human waste disposal. Safe practices include disposal of faeces in a latrine or burying them in the ground more than 10metres from water supply
- If unsafe practices are found, provide information to the community
- Encourage residents to construct latrines appropriate for local conditions with the cooperation of the community
- Conduct community education on sanitation practices

7.1.4 Spillages management and decontamination

Any spillage of vomit or faeces should be cleaned immediately after spraying with 5% hypochloride solution, absorbing any excess with disposable paper towels or by scraping into a toilet and then thoroughly cleaning the area with hot water and detergent or 5% hypochloride spray. Soft furnishings should be cleaned with hot water and detergent or with a steam cleaner if available.

As it may not be possible for a toilet to be identified for the sole use of the infected individual, it is important that:

- The toilet area be kept clean, including areas that are frequently touched by hand (e.g. flush handles, toilet seats, taps, light switches, toilet door handles).
- Cleaning should be carried out at least daily – more often depending on use.
- Hot water and detergent should be used.
- Commercial sanitizers, wipes or a dilute bleach solution may also be used (in accordance with the manufacturer's instructions), once all visible soiling has

been removed.

- Disposable gloves, aprons and cloths should be used when cleaning, and hygienically discarded following use.
- Hands should be washed thoroughly after cleaning with 0.05%.

CHLORINE 0.05%	CHLORINE 0.2%	CHLORINE 2%
Bare skin (e.g hand washing, bathing a soiled patient) less than 2 years	<ul style="list-style-type: none"> • Floors • Spraying patient's home • Spraying beds • Foot sprayers or foot baths • Disinfection of clothes: rinsing and washing afterwards 	<ul style="list-style-type: none"> • Vomit / faeces • Corpses

Table 7.3: Sodium hypo chloride solutions for use in acute watery diarrhoea treatment centres/units

TARGET SOLUTION	FORMULA	BLEACH	WATER
0.05%	$\frac{3.5\%}{0.05\%} - 1 = 70 - 1 = 69$	1	69
0.2%	$\frac{3.5\%}{0.2\%} - 1 = 17.5 - 1 = 16.5$	2	33
0.5%	$\frac{3.5\%}{0.5\%} - 1 = 7 - 1 = 6$	1	6
2.0%	$\frac{3.5\%}{2.0\%} - 1 = 1.75 - 1 = 0.75$	4	3

Table 7.4 How to prepare chlorine solution from common household bleach (3.5%)

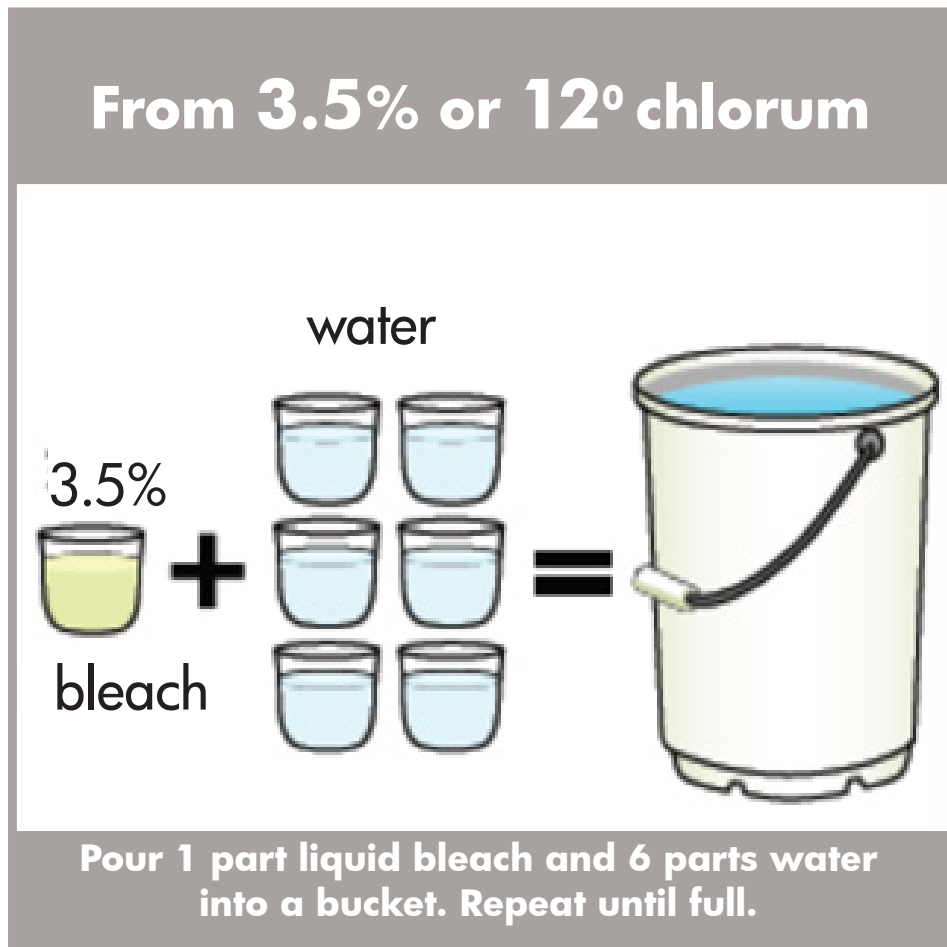


Figure 7.4 How to prepare 0.5% Solution

The state and the LGA should ensure that people in their homes, restaurants, food vending settings and factories handle food safely. Refer to the National established standards and controls for handling and processing of food.

To ensure food hygiene:

- Conduct community education on food hygiene practices for the general public and those in the food industry
- Visit restaurants, food vendors, food packaging factories and so on to inspect food-handling practices. Look for safe practices such as proper hand-washing, cleanliness and adherence to National standards
- Close restaurants, vending areas or factories if inspection results show unsafe food handling practices
- Strengthen National controls as necessary

8

Logistics and Supplies

INTER-AGENCY DIARRHOEAL DISEASE KITS

8.1 BACKGROUND

Logistics team in disease outbreak response coordinates the supply chain and manages strategic stockpiles to support response teams. Logistics is a critical aspect of technical assistance during outbreak of diseases in public health. This is because it facilitates key processes for the inventory management of medicines, equipment, renewables and other health commodities.

For several years “cholera kits”, each composed differently, were used in outbreak situations. The kits, therefore varied in the content of one module or more. At field level, during diarrhoeal disease outbreaks, this variety of kits could create confusion among the healthcare and logistic staff. In an effort to provide clarity and cooperation, the current Inter-agency Diarrhoeal Disease Kit has now been developed by the stakeholders coordinating AWD outbreak responses.

8.2 STRUCTURE AND CONTENT

The kit contains four separate modules (Figure 8.2).

For preparedness, it is advisable to order a full kit, although each module can also be ordered separately, according to the local availability of the different components.

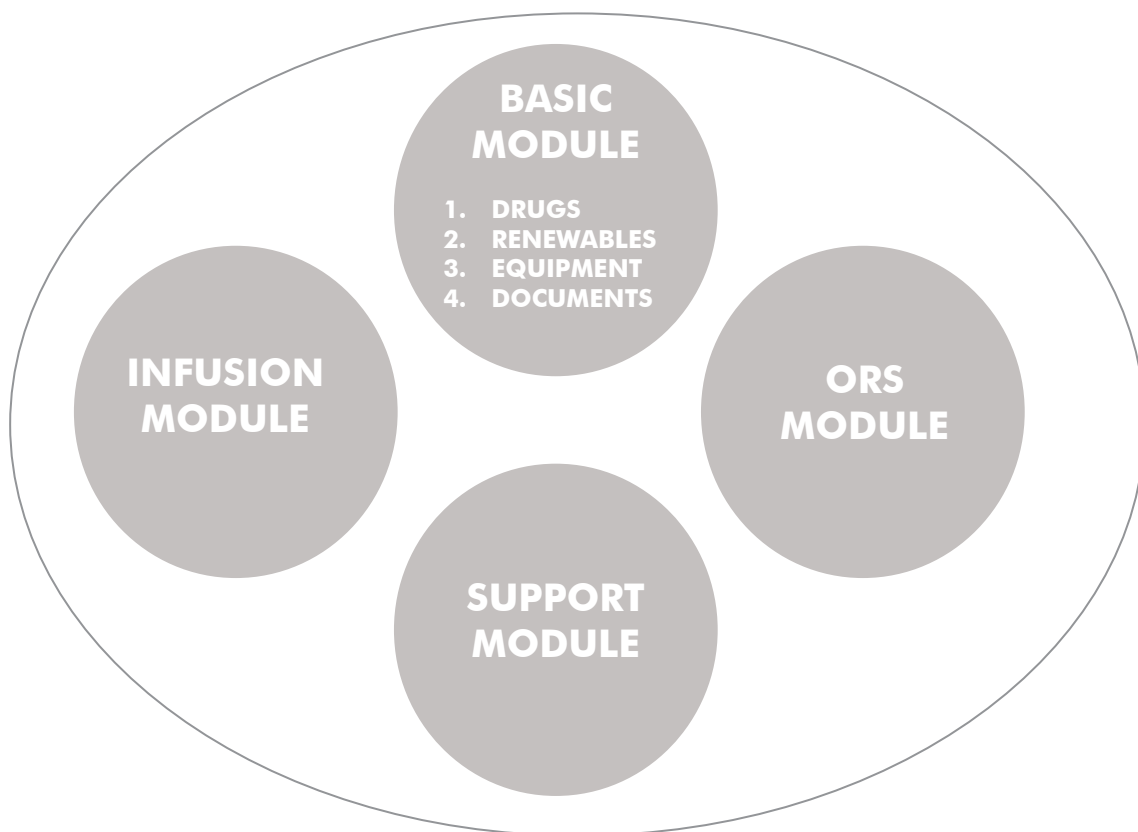


Figure 8.2 The four different modules of the Diarrhoeal Disease Kit

The full kit provides treatment for:

- 100 severe cases of cholera in a Cholera Treatment Centre (CTC) taking into account that patients with severe dehydration need IV fluids and antibiotics at the beginning of the treatment and oral rehydration salts (ORS) during the recovery phase. The drugs consist of: IV fluids for 100 severe adult cases, and antibiotics for 65 adults and 60 children.

- 400 mild or moderate cases of cholera in an oral rehydration point (ORP).
- 100 adults and 100 children affected by Shigella dysentery.

Note:

- This kit does NOT include sprayers for disinfection and chlorine.
- This kit does NOT contain the material to physically set up a CTC and equip the staff.

Breakdown per module

Basic module:

Rationale for 'Infusion' and 'ORS' modules

The proportion of severe cases among cholera patients is 20%: out of 500 cholera patients, 100 are severe cases who need IV treatment in a CTC. The remaining 400 patients are mild or moderate cases and are treated as outpatients in an ORP.

- i. Drugs
 - a. ORS, as well as Ringer Lactate for ten severe cases only (with an average of eight litres per patient)
 - b. Cholera: Ciprofloxacin or Erythromycin (65 adults), Erythromycin (60 children); zinc tablets (250 children)
 - c. Shigella: Ciprofloxacin (100 adults and 100 children); zinc tablets (100 children)
 - d. Disinfectants.
- ii. Renewable supplies, including culture swabs
- iii. Equipment

iv. Documents (guidelines) on diarrhoeal disease management in emergencies.

ORS module:

- ORS for 400 cholera patients with no - or with moderate - dehydration. This material covers the needs for two ORUs.

Infusion module:

- Ringer's Lactate with IV giving sets for 90 severe cholera cases (with an average of eight litres per patient)
- In case of local purchase, infusions AND giving sets have to be ordered.

Support module:

- Non-medical items necessary for running a Cholera Treatment Centre (CTC).
- The shelf life of all components of the kit is about three years, except for culture swabs with Cary Blair. No cold chain is required.
- Soap can usually be purchased on the local market: one bar of soap (100g) per patient should be foreseen.
- The full inventory list can be found in the Annex section.

This kit does not contain any supplies for bacteriology except culture swabs. A specific enteric disease bacteriology kit has been developed and should be ordered separately, provided there is a laboratory with existing capacities to use the supplies efficiently. The enteric disease bacteriology kit contains material for collection and transport of stool specimens and laboratory reagents for diagnosis of outbreak-prone enteric pathogens. Delivery time for the entire disease bacteriology kit is approximately 6 weeks. Furthermore, a new immunochromatographic dipstick test for the rapid diagnosis of cholera, to be used in field conditions, is now available on the market.

8.3
NCDC
ACUTE WATERY
DIARRHOEA
PREPAREDNESS
KIT

50 patients with cholera, (20 severe cases at peak of outbreak); 50 adults affected by Shigellosis; 50 Children affected by Shigellosis			
	CHOLERA KIT ITEM	PREFERRED PRESENTATION	QUANTITY REQUESTED PER KIT
S/N	DESCRIPTION	UNIT	QUANTITY
1	ORS (Oral rehydration salts)	1 Sachet	200
2	Paracetamol tablet 500mg	Tablet	900tabs
3	Ringer lactate	500ml	480bags
	Glucose 10%, injection solution	500ml	20bags
4	Glucose 50%, injection solution(hypertonic)	100ml/pack	20packs
5	Water purification tablet (NaDCC 67mg)	Tablet	1400tabs
6	Zinc sulphate dispersable tablet 20mg	Tablet	500tabs
7	Potassium chloride 100mg/ml, 10ml	Amp	50amps
8	povidone iodine 10%	bottle 200ml	2bottles
9	Erythromycin 250mg tablets	Tablet	600tab
10	Ciprofloxacin 500mg tablet	Tablet	250tabs (for 25 patients)
11	Azithromycin powder for suspension	1 bottle	50 bottles
12	Tetracycline 250 mg	Tablets	1000tabs (for 25 patients)
RENEWABLE SUPPLIES MODULE			
13	Cannular, IV short, 16G strile single use	Unit	8
14	Cannula, IV short, 16G strile single use	unit	22
15	Cannular, IV short, 18G strile single use	Unit	22
16	Cannular, IV short, 22G strile single use	Unit	8
17	Cannular, IV short, 24G strile single use	Unit	8
18	Infusion giving set	Unit	90
19	Catheter, Foley, CH12, Strile, single - use	Unit	5
20	Catheter, Foley, CH14, Strile, single - use	Unit	5
21	Catheter, Foley, CH18, Strile, single - use	Unit	10

	CHOLERA KIT ITEM	PREFERRED PRESENTATION	QUANTITY REQUESTED PER KIT
S/N	DESCRIPTION	UNIT	QUANTITY
RENEWABLE SUPPLIES MODULE CONT'D			
22	Urine, bag, collecting , 200ml	unit	20
23	Gloves, examination, nitril, large, single-use	unit	200
24	Gloves, examination, nitril, Medium, single-use	unit	350
25	Gloves, examination, nitril, small, single-use	unit	200
26	Gauze bandage, 8cmx 4m, individually packed	unit	12
27	Gloves, surgical, 6.5, sterile, single-use	unit	5
28	Gloves, surgical, 7.5, sterile, single-use	unit	20
29	Gloves, surgical, 8.5, sterile, single-use	unit	5
30	Safety box for used syringes/needles, 5litres	unit	4
31	cotton wool 500g, roll, non sterile	unit	3
32	Tape adhesive, zinc oxide, 2.5cm x 5m	unit	10
33	Syringe, feeding, 50ml, catheter tip, sterile	unit	6
34	Compress, gauze, 10x 10cm, nonsterile	unit	150
35	Syringe, single-use, 10ml, 2ml, 5ml sterile	unit	100
36	Tourniquet	Unit	5
OTHER HEALTH COMMODITIES – (EQUIPMENT) LOGISTICS			
37	Drum of 125 litres with cover for chlorine solution	Unit	5
38	Apron, reusable - Universal size-heavy duty non-woven	Unit	10
39	Sprayer 12L	Unit	2
40	Chlorine test tablets DPD1	Unit	100
41	Boot, rubber- small	Unit	5

	CHOLERA KIT ITEM	PREFERRED PRESENTATION	QUANTITY REQUESTED PER KIT
S/N	DESCRIPTION	UNIT	QUANTITY
OTHER HEALTH COMMODITIES – (EQUIPMENT) LOGISTICS CONT'D			
42	Boots, rubber-medium	Unit	5
43	Boots, rubber-large	Unit	5
44	Jerican, plastic, 20 litres with tap	Unit	4
45	Cup 20ml, plastic, graduated	Unit	50
46	Ladle, 250ml	Unit	4
47	Soap 100g	Unit	2
48	Chlorine test kit, range 0.1-2.0mg/l for 100 test	Unit	4
49	Container, plastic. 1.25L	Unit	10
50	Scissors, Deaver, 140mm, straight, s/b	Unit	5
51	Forceps, artery, Kocher, 140mm, straight	Unit	5
52	Basin, kidney, stainless steel, 825ml	Unit	5
53	Tray, dressing, stainless steel, 300x200x30mm	Unit	5
54	Tourniquet, rubber band, 1.8cmx1m	Unit	10
55	Stethoscope, binaural, complete	Unit	2
56	Sphygmomanometer, (adult), aneroid	Unit	2
57	Thermometer, clinical, digital 32-43C	Unit	5
58	Brush, hand, scrubbing, plastic	Unit	5
59	Blanket, survival, 220x140cm	Unit	5
60	Scrubs (trousers and shirt)- small, woven, scrub, reusable, worn underneath the coveralls or gown	Unit	10
61	Scrubs (trousers and shirt)- medium, woven, scrub, reusable, worn underneath the coveralls or gown	Unit	10
62	Scrubs (trousers and shirt)- large, woven, scrub, reusable, worn underneath the coveralls or gown	Unit	10

8.4
NCDC
CHOLERA
INVESTIGATION
KIT

	CHOLERA KIT ITEM	PREFERRED PRESENTATION	QUANTITY REQUESTED PER KIT
S/N	DESCRIPTION	UNIT	QUANTITY
1	Specimen collection swab, Cary-Blair Agar, single swab	Unit	20
2	Faeces container, 60ml, diam 39mm, with a screw cap and spoon	Unit	20
3	Bio Pack II	Unit	5
4	Rapid Diagnostics test Cholera: Crystal VC Dipstick Cholera Rapid Test kits of 10 tests. Note should say: Contact WHO for reference of recommended test.	Unit	10
5	Patient information note(ID card)	Unit	50
	Immediate/case-based surveillance reporting form IDSR001A	Unit	50
	Zinc sulphate dispersable tablet 20mg	Tablet	500tabs
	IDSR cased based laboratory reporting form	Unit	50
	Line list-Reporting from health facility to LGA and for use during outbreak	Unit	10
	Weekly reporting of new cases of epidemic prone diseases and other public health evenys/ conditions under surveillance	Unit	5
6	Examination gloves, size large, ambidextrous, blue nitrile	Unit	50
7	Permanent marker ink(with fine tip)	Unit	2
8	Dressing forceps, 13cm, spring type, serrated rounded tips, stainless steel grade	Unit	3
9	Filter paper, disk, not impregnated. 06mm	UNIT	20
10	Microtubes, 2ml, PP, flat, assembled cap, sterile	Unit	20
11	Sodium chloride 0.9%, 10ml plastic ampoules BP	Unit	20
12	BAG, plastic, 10cm x 10cm	Unit	20
13	Applicator, 150 x 2.2mm, wooden stick, cotton tip. BG/1001	Unit	20

9

Risk Communication and Report Writing

An epidemic of acute watery diarrhoea can be prevented or more quickly controlled when the public understands how to prevent the infection and help to limit the spread when it occurs. The importance of health education before and during outbreak of AWD outbreak cannot be over emphasised. It ensures full participation of the community.

Before an outbreak, the populace must be well informed of preventive measures needed to protect against infection and its spread through continuous education and risk communication.

During an outbreak, the population must be informed of the epidemic and measures to be taken, including the importance of early case detection as well as knowledge that treatment can be easily accessed. Consult local authorities to adapt the messages to the local context, dispel rumors about superstitious beliefs claimed to have caused the outbreak

The communication function should be managed by the Risk Communication/ Health Education department at the State Ministry of Health and nationally at the Nigeria Centre for Disease Control. States should coordinate the Advocacy, Communication and Social Mobilisation activities around AWD outbreaks through their respective Social Mobilisation Committees.

9.1 TARGET AUDIENCE

- a. Healthcare workers
- b. Community members

- c. Community Influencers: Community Leaders, Religious Leaders, Traditional Healers
- d. Policy Makers:
- e. Journalists and Civil Society Organisations
- f. MDAs: Environment, Water Resources, Agriculture and Rural Development (LG), FMoH, Education, NOA, Information, NYSC, NCC etc.

9.2 TECHNIQUES OF COMMUNICATING DURING AWD OUTBREAK

- Communication through radio, television, posters, talks, in the local language.
- Give clear information – but not too many messages.
- Adapt messages to the social, cultural, and economic circumstances of the community and to its ability to cope with a change of behavior
- Organise talks in places where people are usually waiting (health care facilities, market places, churches, mosques)
- New Media (Social Media, SMS, Blogs, Web posts e.t.c.)
- Create a matrix of target audience and relevant technique of communication during AWD. Use Annex (Matrix: Target audience and technique of communication)

9.3 RECOMMENDED KEY MESSAGES TO GIVE TO THE COMMUNITY

This is specific for cholera but can be adapted for all acute watery diarrhoea diseases.

- **Community case definition:** Any person with three or more loose/watery

stool within the last 24 hours. They may also have the following danger signs: dehydration, weakness, unconsciousness, vomits everything, convulsion, and inability to drink or breast feed in children less than five years.

Refer persons with signs to health facility for treatment or call/ report to the LGA or state DSNOs

- Cholera is a treatable disease when managed by qualified health workers. The chance of survival is high with prompt treatment.
- The majority of people can be treated successfully through prompt administration of oral rehydration solution (ORS) or intravenous fluid at the health facility.
- To prepare ORS, the WHO/UNICEF ORS standard sachet is dissolved in 1 litre (L) of clean water.
- People with cholera should be treated by trained clinicians in a health facility who will also institute measures to prevent the spread of the disease.

Basic hygiene/ hand washing

Cholera can be prevented by the observation of basic hygienic behaviors including hand-washing with soap after defecation and before handling food or eating.

Proper handwashing requires soap and running water which can be achieved by pouring water from a basin or other container (where a tap is not available)

Proper handwashing steps:

- Wet hands
- Cover wet hands with soap
- Scrub all surfaces, including palms, back of the hands, between the

fingers, and under the fingernails for about 20 seconds

- Rinse well with running water
- Dry on a clean cloth or by waving in the air

Use and drink clean and safe water

- Use water from safe sources e.g bore hole or tap water
- Boil water and bring to complete boil for at least one minute before cooling
- Store water in cover and narrow neck containers
- Treat water with water treatment products provided by health authorities

Safe preparation and conservation of food can help prevent cholera

- Wash food properly with clean water before eating
- Eat food hot and wash/peel fruit and vegetables yourself before eating
- Cook food well for at least 30 minutes and covered
- Cover food to prevent flies from perching on it as flies can carry cholera germs from faeces to the food

Care of residential area

- Clear all waste around residential areas
- Report any break in water pipes to the appropriate authority
- Do not defecate in the open

Waste Disposal

- Open defecation should not be practiced but collectively banned in the communities. It is a major risk factor for cholera.
- Use of latrines and toilets. If latrines or toilets are unavailable, bury faeces 30 metres (98ft) away from any body of water.
- Toilets and latrines should site at least 30meters away from water sources such as well, bore hole or any body of water
- Facilities such as bucket latrines, public or shared latrines, and trenches should be replaced as soon as possible by improved and longer term sanitation facilities, after a cholera outbreak.
- Use appropriate disposal bags to gather waste before disposal.
- Dumping site should be as far away as possible residential areas
- Increase access to improved sanitation facility e.g. connection to a public sewer, connection to a septic tank, simple pit-latrines, and ventilated improved latrine

Review outbreak, through state Social Mobilisation Committee and define key messages to other target audiences

9.4 REPORTS OF OUTBREAK INVESTIGATION AND RESPONSE

After an outbreak of acute watery diarrhoea has taken place, the LGA and State staff that led the investigation should prepare a report. The purpose of the report is to document how the problem started, how it was identified, investigated, responded to, what the outcome was, decisions taken, challenges encountered and recommendations made.

Report of an outbreak comes in four stages which are:

9.4.1 Phase One: Preliminary report

This is the initial report written by the outbreak investigation team during the outbreak. It provides the situation analysis of the outbreak **and it should be available within 24-48 hours the next level of health authority. (in accordance with IHR rules as adapted by NCDC).**

The following information is provided in the preliminary report:

- Source of information of the outbreak
- Brief initial descriptive epidemiology of the outbreak of AWD
- Initial response
- Number of cases
- Number of deaths
- Initial line-listing of cases
- Initial investigations conducted

9.4.2 Daily Situation Report (SitRep)

This is a daily situation and activity report of the outbreak. This should be shared with authorities at various level and stakeholders. The information contained in the Sitrep include:

- Updated line-listing of cases
- Number of new cases on daily basis
- Number of deaths
- Attack rate and case fatality rate

- Interventions done on daily basis
- Daily work-plan
- Challenges in the field

9.4.3 Debriefing

This is a meeting between the response team and the stakeholders at intermittent intervals based on the scale of the outbreak and information need of stakeholders. There should also be a final debriefing at the end of the outbreak investigation and response. It is an opportunity to pass information to the stakeholders about:

- a. the cause of the outbreak
- b. how resources were mobilised
- c. interventions done
- d. finding
- e. challenges and recommendations

It also provides the opportunity to identify strengths and weaknesses in the outbreak investigation.

9.4.4 Final report

The final report is an important document that summarizes the outbreak. Reliable, complete information about outbreaks contributes to understanding the trends and causal factors in disease incidence, and to detecting and evaluating new diseases and risks. The outbreak report of AWD should contain the following components:

- Summary (similar to an abstract)

- Introduction
- Background information
- Objective
- Methods
- Control measures
- Results
- Discussion
- Conclusions
- Recommendations
- References

The final outbreak report should also be used to justify resources that were expended and/or to identify a need for additional resources for future incidents.

The final report is a public document and may serve as evidence in legal proceedings. When the final report is completed and submitted, interim documents, working notes and other materials that are not specifically medical records can be discarded.

Outbreak reports must be submitted to the Disease Surveillance Department of the Nigeria Centre for Disease Control by the affected State Ministry of Health within two weeks of the end of the outbreak.

ANNEX 1: REPORT FORMS

Annex 1A: Immediate/Case-based Surveillance Reporting Form IDSR001A

REPORTING HEALTH FACILITY				REPORTING LGA		REPORTING STATE			
IDENTIFICATION NUMBER						IDSR 001A			
Immediate/ Case-based Reporting Form From Health Facility/Health Worker to LGA health team									
Cholera	Dracunculiasis (Guinea Worm)	Neonatal Tetanus	Measles	Meningitis	Human Influenza caused by new sub type e.g A/H5N1	Viral Hemorrhagic Fever e.g. Lassa fever	Yellow Fever	Diarrhoea with Blood /shigella(Under 5)	Others/specify* e.g. Dengue, SARS, Small pox, Plague, Anthrax etc
Date form received at SMOH or the national level:					/	/	(Date/Month/Year)		
Name of Patient:									
Date of Birth (DOB):			/	/	Age (If DOB unknown):		Year	Month (if <12)	Day (NNT only)
			(Day/Month/Year)						
Sex:		M=Male F=Female							
Patient's Address:		Urban		Rural					
Settlement/Village									
Ward			LGA			State:			
Exact residential address:		If applicable or if the patient is neonate or child, please write full name of mother and father of the patient							
Date Seen at Health Facility: / /			Date Health Facility notified / / LGA/:			Date of Onset: / /			
Number of vaccine doses received:		9=unknown For cases of Measles, NT (TT in mother), Yellow Fever, and Meningitis (For Measles, TT, YF- by card & for Meningitis, by history)							

ANNEX 1: REPORT FORMS

Annex 1B: Immediate/Case-based Surveillance Reporting Form IDSR001B

IF LAB SPECIMEN COLLECTED

For Health Facility: If lab specimen is collected, complete the following information and send a copy of this form to the lab with the specimen.					
Date of specimen collection: ____/____/____					
Type of specimen:	Stool	Blood	CSF	Other/specify	
Date specimen sent to lab: ____/____/____					
ID Number:					
For the Lab: Complete this section and return the form to LGA/ health facility or clinician					
Date lab received specimen: ____/____/____					
Specimen Condition:		Adequate	Not adequate		
Disease/Condition:					
Type of Test:					
Result:		+ = Positive	- = Negative	P = pending	
Malaria	P. Falciparum				
	P. Vivax				
Cholera (culture)					
Cholera direct exam; specify the method used: _____					
Meningitis: N meningitides	Culture				
	Latex				
	Gram stain				
Meningitis: S. pneumonia	Culture				
	Latex				
	Gram stain				
Meningitis: H. influenza	Culture				
	Latex				
	Gram stain				
Shigella dysenteriae	Culture				
	Type	SD Type 1	Other Shigella types	No Shigella	
Result:		+ = Positive	- = Negative	I= Indeter.	P=Pending

Annex 1B: Immediate/Case-based Surveillance Reporting Form IDSR001B Cont'd

Viral Detection	Yellow fever (IgM)				
	Measles (IgM)				
	Rubella (IgM)				
	RVF (IgM)				
	Ebola (IgM)				
	Lassa (Ig M)				
	Marburg (IgM)				
	A/H5N1 (RT-PCR)				
Other lab test (specify)	Results:				
Date lab sent results to LGA//health facility:			___/___/_____		
Name of lab sending results:					
Other pending results:					
Name of lab technician sending the results:				Signature:	
Date LGA/ receive lab results: ___/___/_____				LGA/:	
Date lab results sent to health facility by LGA/: ___/___/_____					
Date lab results received at the health facility: ___/___/_____					

ANNEX 1: REPORT FORMS

Annex 1C: Line list – Reporting from Health Facility to LGA and for Use During Outbreaks

Health Facility: _____ Ward _____ LGA: _____
 _____ State: _____ Date Sent to LGA: _____
 _____ Date received at LGA: _____
 Disease or condition: _____

CASE ID No	O=out-patient I=inpatient	Name	Village, Town and Neighborhood	Sex	Age ¹	Date seen at health facility	Date onset of disease	Number of doses of vaccine ² received	Other variable	Other variable	Record date laboratory specimen collected	Record results of laboratory testing	Outcome A=alive D=dead	Comments

Annex 1C: Line list – Reporting from Health Facility to LGA and for Use During Outbreaks Cont'd

- If LGA sends specimens to the laboratory, use the same case ID number in the NIE/SSS/ LLLYY-NNNN format to identify the specimen.
- If health facility sends the laboratory specimen to the laboratory without passing through the LGA, then use the patient's name to identify the specimen.
- NOTE: If more than 100 cases occur in a week at a health facility (e.g., for measles, cholera, and so on), do not line list them. Record the total number of cases only. If previously recorded cases die, update their status by completing a new row with —died|| in the —Outcome|| column and —update record|| in the Comments column. ¹Record age in months up through age 12 months. If patient is more than 12 months old, record age in years. ² Exclude doses given within 14 days of onset of the disease.
- NIE – Country code, SSS – State Code, LLL – LGA code, YY – Year, NNN – Patient number

Annex 1D: Weekly Reporting of New Cases of Epidemic Prone Diseases and Other Public Health Events/Conditions Under Surveillance

Year: _____

Week number: ___ From: ___/___/_____/ To: ___/___/_____/

Month _____ Year _____

FORM CONTINUES ON NEXT TWO PAGES

HFs/LGAs/ States (with cases)	Cerebro-spinal Meningitis			Cholera			Viral hemorrhagic fever (e.g. Lassa fever)			Measles		
	Cases	Lab Confirmed	Deaths	Cases	Lab Confirmed	Deaths	Cases	Lab Confirmed	Deaths	Cases	Lab Confirmed	Deaths
Total												
Case fatality rate												

Date of submission of this report: ____/____/____/

Officer in charge: _____

Signature _____

Yellow fever			Guinea Worm Disease			Human Influenza due to new Subtype			Any Public Health Event of International concern - Specify. (infectious, zoonotic, food borne, chemical, radio Nuclear or due unknown condition, etc)		
Cases	Lab Confirmed	Deaths	Cases	Identification of Worm extracted	Deaths	Cases	Lab Confirmed	Deaths	Cases	Lab Confirmed	Deaths

ANNEX 2: COMMON CAUSATIVE AGENTS OF ACUTE WATERY DIARRHOEA

ORGANISM (VIRUS, BACTERIA, & PROTOZOA)	RESERVOIR	INCUBATION PERIOD	SYMPTOMS	TYPICAL DURATION OF SYMPTOMS	PERIOD OF COMMUNICABILITY	TRANSMISSION (SPREAD)
Rota virus	Probably only humans	24-48 hours	Abrupt onset of vomiting, diarrhoea and rapid, dehydration, low-grade fever	4-6 days	During acute symptoms; not usually after 8 days post infection (can be longer in the immune compromised)	Humans
Enteric Adenovirus (Adenoviruses also cause respiratory illness and conjunctivitis)	Humans	3-10 days	Abrupt onset of vomiting, diarrhoea and rapid, dehydration, low-grade fever	4-6 days	During acute symptoms and up to 14 days after onset (persistent and intermittent viral shedding may occur for longer periods)	Fecal/oral or vomitus/oral, possible droplet or fomite; Person-to-person spread is common
Campylobacter	Animals, mostly raw poultry; Pets	Usually 2-5 days; Range 1-10 days	Diarrhoea, abdominal pain, malaise, fever, nausea and vomiting	2-5 days	Throughout infection, then from several days to weeks if not treated	Mainly undercooked chicken or pork; Contact with infected pets; Person-to-person spread is uncommon, except in carrier state in those who are incontinent of stool
Clostridium difficile	Frequently present in the hospital environment Soils and, hay; Contaminated water; Intestinal tracts of animals and humans (2-3% of healthy adults and up to 70% of healthy babies have C. difficile in intestinal tracts)	Unknown; Generally seen in association with antibiotic use, but may occur weeks later, even after the course of antibiotics has been completed	Usually no symptoms; Diarrhoea (usually watery and sometimes bloody), loss of appetite, nausea, abdominal pain or tenderness, fever; Sometimes severe illness and death with CDAD (Clostridium difficile - Associated Disease)	Variable; 10% to 20% of affected individuals have a relapse	May be prolonged; In some hospitals and care facilities, 20% to 30% of patients or residents who have received antibiotics have been found to be asymptomatic carriers and shedders of the organism into the environment	May be prolonged; In some hospitals and care facilities, 20% to 30% of patients or residents who have received antibiotics have been found to be asymptomatic carriers and shedders of the organism into the environment

ANNEX 2: COMMON CAUSATIVE AGENTS OF ACUTE WATERY DIARRHOEA

ORGANISM (VIRUS, BACTERIA, & PROTOZOA)	RESERVOIR	INCUBATION PERIOD	SYMPTOMS	TYPICAL DURATION OF SYMPTOMS	PERIOD OF COMMUNICABILITY	TRANSMISSION (SPREAD)
Clostridium perfringens (Toxin produced by the bacteria)	Soil; GI tract of healthy people and animals	6-24 hours	Mild disease of short duration; sudden onset abdominal cramping & diarrhoea; vomiting and fever usually absent	A day or less	Toxin: Not spread from person to person	Ingestion of contaminated food; usually inadequately heated or reheated meats or gravies
E. coli	Cattle and humans	2-10 days; usually 3-4 days	Range from mild non-bloody diarrhoea to stools that are virtually all blood. Hemolytic uremic syndrome (HUS) in 2-7% of cases and post-diarrhoea Thrombotic Thrombocytopenic Purpura (TTP)	Typically less than a week	1 week in adults; up to 3 weeks in children	Mainly contaminated food, undercooked beef (especially ground beef), unpasteurized fruit juices; Waterborne outbreaks have been documented; Secondary person-to-person spread occurs in families and residential facilities
Salmonella Species	Domestic and wild animals, including reptile or amphibian pets; Humans	6-72 hours (usually 12-36 hours)	Sudden onset headache, abdominal pain, diarrhoea, nausea and, sometimes vomiting; Usually fever	Several days to several weeks	Throughout course of infection; A carrier state can occur and last for months	Ingestion of contaminated food; Person-to-person spread occurs
Shigella species	Humans (Outbreaks have occurred in primates)	Usually 1-3 days; Range 12 hours to 4 days	Diarrhoea accompanied by fever, vomiting and cramps; Usually self-limited	4-7 days	During acute symptoms and up to 4 weeks after illness; Asymptomatic carriers may transmit infection	Fecal/oral transmission; Direct person-to-person spread occurs; Indirect transmission through contamination

ANNEX 2: COMMON CAUSATIVE AGENTS OF ACUTE WATERY DIARRHOEA

ORGANISM (VIRUS, BACTERIA, & PROTOZOA)	RESERVOIR	INCUBATION PERIOD	SYMPTOMS	TYPICAL DURATION OF SYMPTOMS	PERIOD OF COMMUNICABILITY	TRANSMISSION (SPREAD)
Staphylococcus aureus (toxin)	Humans and cattles	1-6 hours	Sudden onset of severe nausea and vomiting, abdominal cramps. Diarrhoea and fever may be present	24-48 hrs	Not contagious	Fecal/oral or vomitus/oral, possible
Vibrio Cholera	Environment	1 – 5 days	Severe diarrhoea and vomiting leading to dehydration	1 – 5 days	During acute symptoms	Feco - oral
Yersinia Enterocolitica	Humans, warm blooded animals, (particularly in farm animals and pets	3 – 7 days	Fever, vomiting and abdominal pains, diarrhoea with/ out blood	3 -10 but may last up to weeks	During acute symptoms; up to weeks infection	Fecal-oral transmission from animal-to-human or consumption of contaminated foods, human to human
Giadiosis	Humans, pet dogs and cats	1 -2 weeks	Nausea, vomiting, diarrhoea or greasy stools abdominal cramps/pain	9-15 days	Up to 2 weeks	Feco - oral

REFERENCES

1. Federal Ministry of Health. 2013. Nigeria. *Integrated Disease surveillance and Response Technical Guidelines*. <http://ncdc.gov.ng/diseases/guidelines>
2. Medecins Sans Frontiers (2006, January 01). *MSF Cholera Guidelines 2004*. Retrieved July 13, 2017, from <https://www.humanitarianresponse.info/en/operations/iraq/document/msf-cholera-guidelines-2004>
3. U.S Centers for Disease Control and Prevention (2004, April 16). *Diagnosis and Management of Foodborne Illnesses*. Retrieved August 18, 2017, from <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5304a1.htm>
4. World Health Organisation (2017, May). *Diarrheal Disease*. Retrieved July, 2017, from <http://www.who.int/mediacentre/factsheets/fs330/en/>
5. World Health Organisation (2005). *World Health Organization Guidelines for the Control of Shigellosis, including Epidemics Due to Shigella Dysenteriae Type 1*. Retrieved July, 2017, from <http://apps.who.int/iris/bitstream/10665/43252/1/924159330X.pdf>
6. World Health Organization. (2004). *Practical guidelines for Infection Control in health care facilities*. Retrieved 2017, from http://www.wpro.who.int/publications/docs/practical_guidelines_infection_control.pdf
7. Kenya Ministry of Health (2014, August). *Policy Guidelines for Management of Diarrhoea in Children Below Five Years in Kenya*. Retrieved July, 2017, from http://guidelines.health.go.ke:8000/media/Policy_Guidelines_for_Management_of_Diarrhoea_in_Children_Below.pdf
8. World Health Organisation Global Taskforce on Cholera Control (2017, June). *Interim Guidance Document on Cholera Surveillance*. Retrieved July, 2017. http://www.who.int/cholera/task_force/GTFCC-Guidance-cholera-surveillance.pdf?ua=1
9. World Health Organisation Global Taskforce on Cholera Control (2017, June). *Organization of Case Management during a Cholera Outbreak*. Retrieved July, 2014. http://www.who.int/cholera/task_force/GTFCC-Case-Management.pdf?ua=1

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FEDERAL MINISTRY OF HEALTH
NIGERIA CENTRE FOR DISEASE CONTROL

PREPAREDNESS AND RESPONSE TO ACUTE WATERY DIARRHOEA OUTBREAKS

Preparedness and Response to Acute Watery Diarrhoea Outbreaks has been developed to guide proactive measures and effective response to occurrence of an infection.

This guideline highlights areas of action for health workers and authorities across the three tiers of government, ensuring health security in Nigeria.

FEDERAL MINISTRY OF HEALTH NIGERIA CENTRE FOR DISEASE CONTROL

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