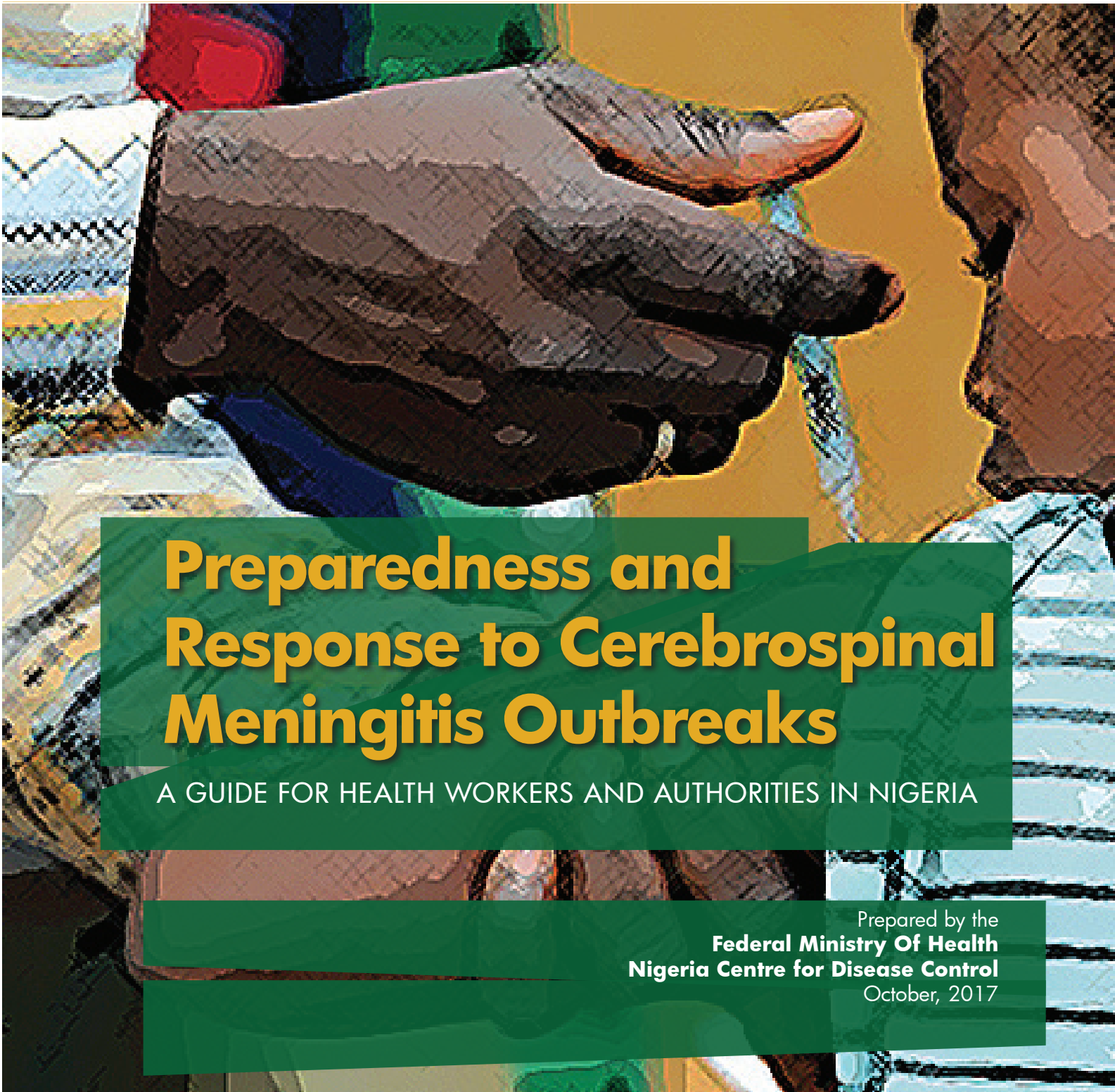
FEDERAL MINISTRY OF HEALTH
NIGERIA CENTRE FOR DISEASE CONTROL



Preparedness and Response to Cerebrospinal Meningitis 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

Meningococcal meningitis, commonly referred to as cerebrospinal meningitis, causes outbreaks in Nigeria. While these outbreaks can occur in any part of the world, the largest of these occur mainly in the semi-arid areas of sub-Saharan Africa, designated the 'African meningitis belt'. Nigeria is one of the countries situated within the meningitis belt with almost entire northern sphere of the country embedded in the belt geographically. The country has been witnessing outbreaks of meningitis, with the 2017 outbreak earmarked as one of the worst with high mortality. Several guideline documents exist globally, which address specific components of meningitis response but there is none that is specific to the Nigerian context, leading to response efforts being uncoordinated and unstructured.

The Nigeria Centre for Disease Control (NCDC) which is a parastatal of the Federal Ministry of Health (FMoH) has the responsibility of protecting the health of Nigerians through prevention, detection, and control of communicable and non-communicable diseases. Consequently, the NCDC developed this document as a "National Preparedness and Response Guideline for Cerebrospinal Meningitis Outbreak" in response to the growing need by stakeholders to streamline coordination efforts to prevent and respond to outbreaks of meningitis in Nigeria. The purposes of this practical guideline is to provide guidance on the prevention, detection and response to cerebrospinal meningitis outbreaks in Nigeria through specific measures on prevention, early detection of suspected meningitis cases and prompt reporting of these cases from health facilities to higher levels, activation of response coordination structures at national and sub-national levels during outbreaks, strengthening surveillance and laboratory confirmation data at all levels and use of such information for immediate public health control response.

The document is the first of its kind in Nigeria that integrates all aspects of control such as Prevention, Surveillance, Laboratory diagnosis, and Case Management, Risk Communication with Social Mobilisation, Vaccines/Logistics and Incident

Management Coordination for meningitis outbreaks with sample details of some useful practical annexes. Compliance with this guideline will improve our response capacity in any subsequent outbreak of meningitis in Nigeria and I urge all stakeholders at the frontline of outbreak control efforts to utilise this document as a guide to Meningitis outbreak preparedness and response.

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Acronyms

AEFI	Adverse Event Following Immunisation
AFENET	African Field Epidemiology Network
CCE	Chief Consultant Epidemiologist
CHIP	Community Health Influencers and Promoters
CSF	Cerebrospinal Fluid
CSM	Cerebrospinal Meningitis
DSNO	Disease Surveillance and Notifications Officers
EOC	Emergency Operations Centre
EPRC	Emergency Preparedness and Response Committee
FMoH	Federal Ministry of Health
HF	Health Facility
IAP	Incidence Response Action Plan
ICG	International Coordinating Group
IDPs	Internally Displaced Persons
IDSR	Integrated Disease Surveillance and Response
IFAIN	International Foundation Against Infectious Diseases in Nigeria
IMS	Incident Management System
IMST	Incident Management Support Team
IMT	Incident Management Team
LGA	Local Government Area
MDAs	Ministries Departments and Agencies
MSF	Medecins Sans Frontieres
NCC	Nigerian Communications Commission
NEMA	National Emergency Management Agency
NIMET	Nigerian Meteorological Agency
Nm	Neisseria meningitides
NOA	National Orientation Agency
NPHCDA	National Primary Health Care Development Agency
NYSC	National Youth Service Corps

PCR	Polymerase Chain Reaction
RRT	Rapid Response Team
SEMA	State Emergency Management Agency
SERS	Strengthening Epidemic Response System
SMoH	State Ministry of Health
SOPs	Standard Operating Procedures
SPHCDA	State Primary Health Care Development Agency
SPHCMB	State Primary Health Care Management Board
TI	Trans Isolate
TP	Total Population
UNICEF	United Nations Children Fund
UNMC	University of Nebraska Medical Centre
VCM	Voluntary Community Mobilisers
WHO	World Health Organization

1 Overview of Cerebrospinal Meningitis

Cerebrospinal Meningitis (CSM) is a disease characterised by inflammation of the meninges (protective membrane covering the brain and the spinal cord) which can be caused by a variety of microbial pathogens including viral and bacterial organisms[1]. The main etiological agents in bacterial meningitis are ***Neisseria meningitidis, Streptococcus pneumoniae and Haemophilus Influenzae***.[2] ***Neisseria meningitidis*** (Meningococcus) is a leading cause of bacterial meningitis.[3] Differences in the chemistry of the polysaccharide capsule allow definition of 13 serologically distinct meningococcal capsular groups, of which 6, designated A, B, C, W (previously designated W135), X, and Y, are responsible for almost all cases of the disease.[4] Meningococcal disease is a global problem, but disease rates vary by a factor of 10-100–fold in different geographic locations at one point in time and in the same location at different times.[4]

Meningococcal disease is of major public health importance in Sub-Saharan Africa as it is responsible for the occurrence of epidemic Meningitis in the 'African Meningitis belt' an area which comprise of 26 countries extending from Senegal in the West to Ethiopia in the East (Figure 1) with an estimated population of about 500 million.[5, 6] For more than a century, this region has experienced large serogroup 'A' epidemics every 7-10 years, with annual rates as high as 1,000 per 100,000 population.4 The onset of cases in the sub-Saharan region typically begins during the dry season, possibly related to drying and damage to the nasopharyngeal mucosa, and subsides with the rainy season, and may re-emerge the following dry season.[4] In Nigeria, the belt covers all 19 northern States including the Federal capital. In the recent past, the belt has widened to include some southern States namely: Oyo,

Cross River, Imo, Anambra, Enugu and Ebonyi States (Figure 2).

Epidemics in the meningitis belt were traditionally associated with Neisseria meningitidis serogroup A. However, the development and deployment of serogroup A meningococcal conjugate vaccine (MenAfriVac-A) in several countries within the meningitis belt of West Africa brought hope for the eradication of the disease in this region.[5, 6] Unfortunately, progress was set back by the outbreak of serogroup C disease during the dry season of 2014–15 in Niger, with more than 8,500 cases and 550 deaths.5 Since then sequential outbreaks of type C strain occurred in 2013 and 2014 in North-Western Nigeria caused by sequence type (ST)-10217, which had not been previously identified elsewhere. The outbreak of serogroup C disease in two consecutive years from Nigeria suggests emergence of a new strain.5 Studies have shown that factors such as low socioeconomic status, climatic conditions, immunological susceptibility, migration and behavioral factors are risk factors for epidemic meningococcal disease.[7] The Integrated Disease Surveillance and Response (IDSR) Technical Guidelines in Nigeria classify meningitis as one of the epidemic-prone diseases. Outbreaks of the disease are detected through the case-based surveillance strategy where cerebrospinal fluid sample is taken from each patient suspected of the disease.[8] The recent 2017 outbreak in Nigeria during which 14,542 suspected cases were reported with total deaths of 1,166 (CFR = 8%) was predominantly due to Neisseria meningitidis serogro6up –C.[9]

Source: World Health Organization (WHO)

Figure 1: African Meningitis Belt

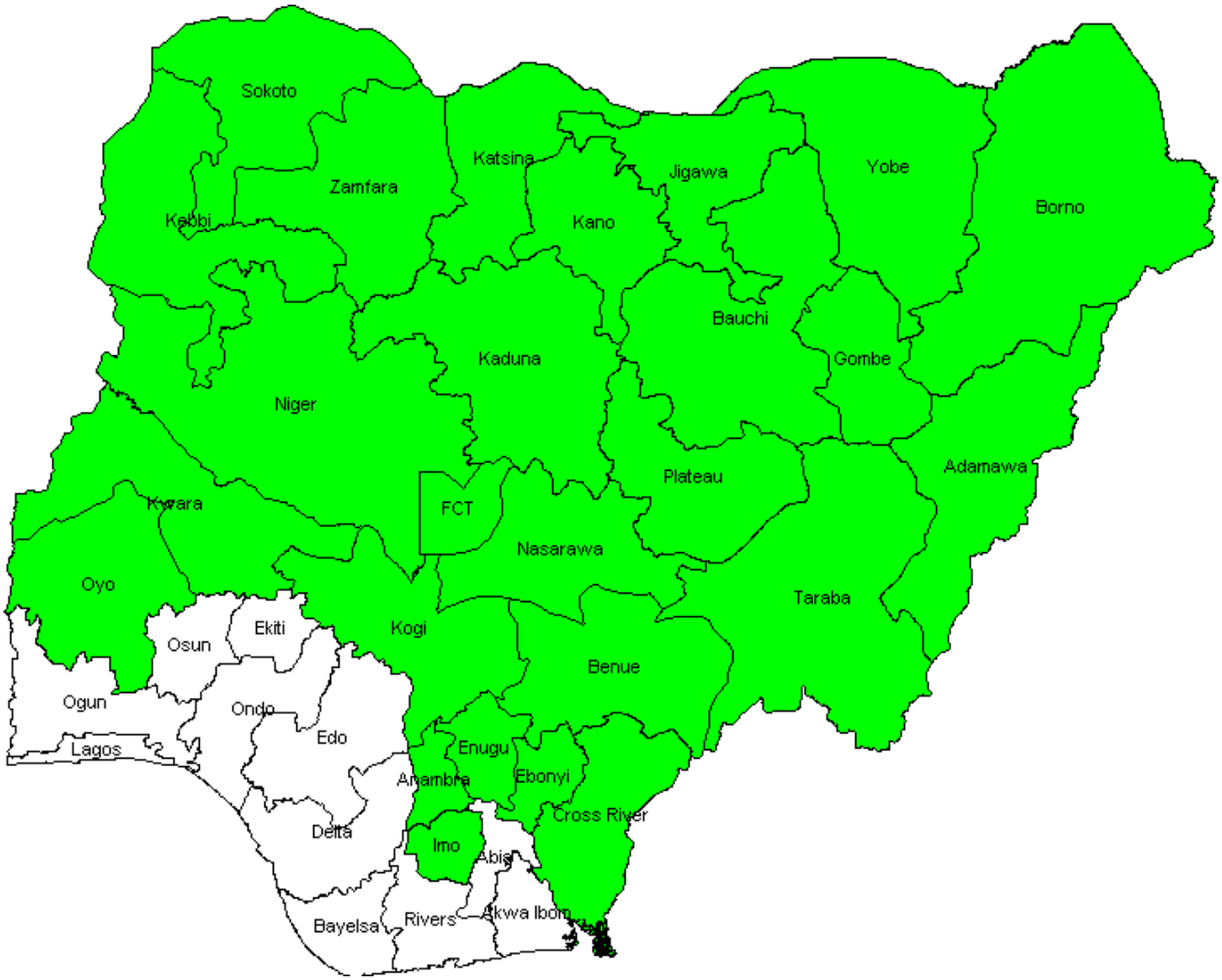


Figure 2: States In The Meningitis Belt In Nigeria

Scope

This document is designed to guide national and sub-national health authorities and key stakeholders involved in CSM preparedness and response, to prepare for, detect and respond to meningitis epidemics. This guideline covers the following areas: coordination, surveillance and epidemiology, case management, laboratory diagnosis, risk communication and social mobilisation as well as preventive and reactive vaccination.

Aim and Objectives

Aim

To provide guidance to public health officials at the national, state and local government levels on the prevention, detection and response to cerebrospinal meningitis outbreaks in Nigeria.

Specific Objectives

- To guide the prevention, early detection and response to suspected meningitis cases and prompt reporting of such cases from health facilities to higher levels for public health action;
- To guide the activation of response coordination structures at national and sub-national levels during outbreaks;
- To strengthen surveillance and laboratory confirmation at all levels and the use of this information for immediate public health control measures;
- To guide preparedness and response plans for meningitis outbreaks.

2 Standard Case Definitions for Bacterial Meningitis

Suspected case

Any person with a sudden onset of fever (>38.5°C rectal or 38.0°C axillary) and one of the following meningeal signs: neck stiffness, altered consciousness or other meningeal signs like Kernings, Bruzinski, nuchal rigidity, raised intracranial pressure including bulging fontanelle in toddlers.

Probable meningitis case

Any suspected case with CSF turbid, cloudy or purulent on visual inspection; **or** with a CSF leukocyte count >10 cells/mm3 on doing a cell count **or** with bacteria identified by Gram Stain of CSF.

In infants

CSF leucocyte count >100 cells/mm3 or CSF leucocyte count 10–100 cells/mm3 **and** either an elevated protein (>100 mg/dl) or decreased glucose (<40 mg/dl) level)

Confirmed case

Any suspected or probable case that is laboratory confirmed by culturing or identifying (i.e. by polymerase chain reaction, immunochromatographic dipstick or latex agglutination) a bacterial pathogen ***(Neisseria meningitidis, Streptococcus pneumoniae, Haemophilus influenzae type b***) in the Cerebrospinal Fluid (CSF).

3 Preventing Meningitis Outbreaks

There are essentially three principles employed in the prevention of meningitis, namely:

- Health Education
- Personal Hygiene
- Vaccination

Health Education

Stakeholders (Health Care Workers, Civil Society Organizations and Social Mobilisation Officers etc.) at the national, state and local government levels in the meningitis belt in Nigeria should continuously educate citizens about meningitis (causes, symptoms/signs, prevention, treatment and need for vaccination especially during outbreaks). Meningitis is seasonal in Nigeria, usually happening during the dry season (December – April). Stakeholders should endeavour to organise public awareness programs early in the "season" so as to prepare people for any eventual outbreak. This will strengthen preparedness and help in preventing the spread.

Personal Hygiene

Personal hygiene remains a key approach to prevention of meningitis especially in overcrowded settings such as internally displaced persons (IDPs) camps, Prisons, Schools etc. People should endeavour to adopt the following measures:

- Frequent hand washing with soap and clean water
- Keeping the environment clean
- Sleeping in well ventilated rooms

- Avoidance of overcrowded environments
- Non-sharing of personal body items with others (towel, handkerchief, brush etc.)
- Enjoying enough sleep and adequate rest
- Engaging in regular physical exercise

Vaccination

Vaccination is one of the effective ways to protect against certain types of bacterial meningitis. There are vaccines for three types of bacteria that can cause meningitis:

- *Neisseria meningitidis*
- *Streptococcus pneumoniae*
- *Haemophilus influenzae type-b (Hib)*

Currently in Nigeria, vaccines for ***Streptococcus pneumoniae*** (Pneumococcal Conjugate Vaccine: PCV) and ***Haemophilus influenzae*** type-b (Pentavalent Vaccine) are available through the routine immunisation program for children under five years of age. However, vaccines for ***Neisseria meningitidis*** (MenAfriVac-A, NeisVac-C and Conjugate ACWY Vaccine etc.) are only available through emergency request mechanisms from global stockpiles during outbreaks.

The vaccines that protect against these bacteria are not 100% effective. The vaccines also do not protect against all the types (strains) of each bacteria. For these reasons, there is still a chance that bacterial meningitis can still be acquired even following vaccination.

4 Preparedness Strategy for Meningitis

In preparation for the meningitis epidemic season, which is usually from Week 1 – 26 (approximately around January to June) with peaks around Week 14, 15, 16 (March), all States and Local Government Areas (LGAs) should actively plan to prevent, control and respond to outbreaks of meningitis. This is particularly important for States within the meningitis belt. Preparedness for meningitis outbreaks entails preparedness at all levels: health facilities, LGAs, States, and the NCDC. The following activities are recommended to strengthen preparations for the epidemic season:

Table 1: Table Showing Preparedness Level and Activities

LEVEL	ACTIVITIES
Health facility	• Awareness of case definitions of meningitis • Awareness of reporting procedures • Continued identification and laboratory confirmation of suspected cases Training on: • Lumbar puncture technique, specimen collection, Trans Isolate (TI) utilization and handling, and specimen transportation Case definitions • How and to whom to report cases, including zero reporting • Use of standardized case-based forms • Awareness of reference laboratory where specimens should be sent to for confirmation and serotyping

Table 1: Table Showing Preparedness Level and Activities Cont'd

LEVEL	ACTIVITIES
LGA	• Provide information to health facilities on designated CSM treatment centres, and inform each health facility of the nearest CSM treatment centre to refer of patients for diagnosis and treatment • Train health facilities on case definitions, reporting procedures, and collection of CSF specimens, ensuring understanding that specimens should be collected before starting treatment and the proper methods of ventilating/storing specimens prior to transport. • Ensure adequate supplies of LP kits, testing reagents/kits at designated laboratory and surveillance materials including reporting forms.
State	• Convene Emergency Preparedness and Response (EPR) Committee with representatives from Ministry of Health (MoH), key health facilities, reference laboratories, and partners (e.g. MSF, eHealth) (Annex M). • Complete CSM Preparedness Checklist (Annex A). • Develop plans for Emergency Operations Centre. • EPR Committee should develop Preparedness and Response Plan which: • Based on risk assessments, specifies resources available for epidemic response • Accounts for epidemic potential in neighbouring States • Provides estimates of the population at risk for epidemic-prone diseases. • Indicates for each suspected outbreak, reference laboratory to be used for confirmation.

LEVEL	ACTIVITIES
State cont'd	• Provides estimates of quantities of drugs, vaccines, and supplies for CSM and other epidemic-prone diseases. • Includes relevant Standard Operating Procedures (SOPs). • Determine which health facilities will be designated as CSM treatment centres and ensure that each health facility knows which facilities to refer patients to for evaluation and treatment. • Train LGA DSNOs in use of case-based forms, line list compilation, reporting procedures. • Ensure that training at LGA and health facility levels has been completed. • Pre-position diagnostic reagents, test kits and surveillance materials (templates, reporting forms) within LGAs and health facilities based on NCDC guidance and recommendations.
National	• Analyse results of each State's level of preparedness using the CSM assessment checklist. • Ensure that training in the use of standard reporting forms and reporting procedures has been completed in all States. • Analyse results of previous year's epidemics and vaccination campaigns to determine which States/LGAs are likely to be affected in the coming epidemic season. • Provide feedback of the result of the analysis to States with recommendations for pre-positioning of diagnostic reagents, test kits and surveillance materials (templates, reporting forms) within LGAs and health facilities. • Print and distribute guidelines and SOPs to States. • Work with partners and relevant MDAs to preposition medicines and health commodities such as vaccines (NPHCDA) and laboratory reagents (NCDC) in high risk States

Key sections of the epidemic preparedness and response plan should include:

1. Designated coordination committees at all levels.
2. Epidemiology and surveillance (including data management) activities.
3. Steps for implementing a risk communication strategy including social mobilisation.
4. Operational actions at each expected phase of the epidemic.
5. Laboratory confirmation: specimen collection, handling, transportation and processing including on-site processing.
6. Case treatment (antibiotics) and care.
7. Immunisation strategies.
8. Capacity building including required training, sensitisation meetings and simulation exercises
9. Logistics including supply lists.
10. Enhanced surveillance during epidemics.
11. Operational research and the documentation of the response.
12. Risk communication.
13. Monitoring/evaluation.

5 Surveillance and Epidemiology

Understanding thresholds in CSM outbreak surveillance is key to undertaking timely public health action to support response.

Alert and Epidemic Thresholds

Epidemiological data should be analysed every day by Ward and LGA to quickly determine which Wards/LGAs have reached Alert and Epidemic Thresholds; the definitions of which are dependent on the population.

Table 2: Definitions of Alert and Epidemic Thresholds

ALERT THRESHOLD	DEFINITION
Populations 30,000–100,000	Attack Rate of 3 suspected cases per 100,000 inhabitants in one week
Populations < 30,000	2 suspected cases in one week OR Increase in number of cases compared to previous non-epidemic years
EPIDEMIC THRESHOLD	**DEFINITION**
Populations 30,000–100,000	Attack Rate of 10 suspected cases per 100,000 inhabitants in one week
Populations < 30,000	5 suspected cases in one week OR Doubling of number of cases over a three week period

$$\text{Calculation of Attack Rate: } \frac{\text{Number of cases}}{\text{Total Population of Ward or LGA}} \times 100{,}000$$

Surveillance Response Activities during the Meningitis Epidemic Season

During each epidemic season, States/LGAs should report all CSM cases. The state epidemiologist, with support from NCDC must continue to monitor thresholds to assess attack rates. During each meningitis season, LGAs with weekly Attack Rates or case counts below the Alert Thresholds (pre-Alert phase), and LGAs in Alert or Epidemic phases should continually collect, report, and analyse data to enable timely outbreak responses, according to the following guides:

Table 3: Surveillance Activities at Pre-Alert, Alert and Epidemic Phases

PHASES	SURVEILLANCE ACTIVITIES	REPORTING
HEALTH FACILITY LEVEL		
Pre-Alert	• Use appropriate case definitions • For health facilities that are not designated CSM treatment centres, establish link with CSM treatment centre to aid referral of cases • Refer all suspected cases to designated CSM treatment centre for evaluation and treatment • Obtain CSF on ALL suspected cases and send to the designated testing laboratory along with case-based forms (Annex C)	• WEEKLY reporting of aggregate suspected cases and deaths including zero reporting to LGA DSNO using template (Annex B).

PHASES	SURVEILLANCE ACTIVITIES	REPORTING
HEALTH FACILITY LEVEL		
Pre-Alert Cont'd	• Complete IDSR case-based reporting form for each CSF sample and send to reference laboratory with sample (Annex D) • Inform LGA DSNO if materials to collect or transport CSF to reference lab are not available	
Alert	• Adopt case definitions • For health facilities that are not designated CSM treatment centres, review which CSM treatment centre will be the referral treatment centre for that particular health facility • Refer all suspected cases to designated CSM treatment centre for evaluation and treatment • Obtain CSF on ALL suspected cases and send to the reference laboratory along with case-based forms (Annex D) • Complete IDSR case-based reporting form for each case (Annex C). • Inform LGA DSNO if materials to collect or transport CSF to reference laboratory are not available • If patients are seen directly at a regional hospital without being referred by an LGA-level health facility, the regional hospital will inform the LGA DSNO about the case and send the case-based form to the DSNO of the LGA corresponding to the patient's home	• DAILY reporting of aggregated suspected cases and deaths including zero reporting to LGA DSNO. • DAILY reporting of aggregated suspected cases and deaths including zero reporting to LGA DSNO. • DAILY line list of all cases by LGA DSNO using standard template (Annex E). • Photos can be taken of template or line list and sent to DSNO to ensure timely reporting

PHASES	SURVEILLANCE ACTIVITIES	REPORTING
HEALTH FACILITY LEVEL CONT'D		
Epidemic	• Refer all suspected cases to designated CSM treatment centre for evaluation and treatment • Obtain CSF from all of suspected cases and send to reference laboratory along with case-based forms (Annex D) • Inform LGA DSNO if materials to collect or transport CSF to reference laboratory are not available • If patients are seen directly at a regional hospital without being referred by an LGA-level health facility, the regional hospital will inform the LGA DSNO about the case and send the case-based form to the DSNO of the LGA corresponding to the patient's home.	• DAILY reporting of aggregate suspected cases and deaths including zero reporting to LGA DSNO using by phone, SMS, WhatsApp, or email. Line list all cases using standard template submitted to LGA DSNO with each new suspected case. Photos can be taken of the line list and sent to DSNO to ensure timely reporting
LOCAL GOVERNMENT AREA (LGA) LEVEL		
Pre-Alert	• Ensure that health facilities are using appropriate case definitions • Ensure that health facilities know the designated CSM treatment centres for referral of suspected cases for evaluation and treatment • Ensure that treatment facilities have adequate testing supplies and surveillance forms/templates • Investigate all suspected cases and complete case-based forms for all suspected cases (Annex C) • Ensure that CSF from ALL suspected cases has been collected and sent to reference laboratory along with IDSR case-based form (Annex D) • Compile WEEKLY data from health facilities (Annex B)	• WEEKLY reporting of all suspected cases and deaths including zero reporting to State DSNO using the appropriate template (Annex B) or electronic templates. (Phone, SMS, email etc.) • Zero reporting weekly to State DSNO if no cases reported. • Send all case-based forms to State DSNO.

PHASES	SURVEILLANCE ACTIVITIES	REPORTING
LOCAL GOVERNMENT AREA (LGA) LEVEL CONT'D		
Alert	• LGA to alert the state on need to initiate ICG request • Alert all health facilities in LGA that the Alert Threshold has been crossed • Ensure that health facilities know the designated CSM treatment centres for referral of suspected cases for evaluation and treatment • Ensure that treatment facilities have adequate testing supplies and surveillance forms/templates • Investigate all suspected cases and ensure that CSF samples have been taken and sent to reference laboratory for confirmation of bacterial pathogen. Samples should be collected from all suspected cases with no contraindication per LGA so that at least 10 positive samples are obtained to determine circulating causal pathogens and decide on need for vaccination as appropriate • Complete case-based forms for all suspected cases (Annex C). • Assign epi numbers to all cases and laboratories should ensure that epi numbers are not changed so that laboratory result can be matched with patients' clinical data. • Contact health facilities that have not provided any reports (zero reporting) to ensure that they know the case definition and reporting procedures.	• Complete standardized line list (Annex E) for each suspected case based on line lists from health facilities. Compile data from all health facilities into one line list. Send to the State DAILY. • DAILY reporting of aggregate number of suspected cases and deaths to State DSNO using the appropriate template. Information can be sent by phone, email, WhatsApp, SMS, or other methods depending on availability in LGA. Photos can be taken of case-based forms and sent to DSNO to ensure timely reporting. • Send all case-based forms to State DSNO.

PHASES	SURVEILLANCE ACTIVITIES	REPORTING
LOCAL GOVERNMENT AREA (LGA) LEVEL CONT'D		
Epidemic	• If one ward/LGA in the State has reached Epidemic Threshold, all other wards/LGAs should begin active case finding.	• DAILY reporting of aggregate number of suspected cases and deaths including zero reporting to State DSNO using appropriate template (Annex E). Information can be sent by phone, email, WhatsApp, SMS, or other methods depending on availability in LGA. Photos of line list line can be taken and sent to DSNO to ensure timely reporting. • DAILY line list to State DSNO (Annex E). • Zero reporting from all LGAs. • Send all case-based forms to State DSNO.
STATE LEVEL		
Pre-Alert	• Ensure that all health facilities know which facilities are designated as CSM treatment centres • Ensure that LGAs and treatment centres have adequate testing supplies and surveillance forms/templates • Ensure that reference laboratories have the necessary supplies to conduct CSM testing • Compile weekly reports of aggregated case counts among all LGAs • Analyse data daily to evaluate when a Ward or LGA has reached Alert or Epidemic Threshold	• WEEKLY reporting of aggregated case counts to NCDC using standardized template (Annex B). • Calculate Attack Rates and Case Fatality Rates.

PHASES	SURVEILLANCE ACTIVITIES	REPORTING
STATE LEVEL CONT'D		
Alert	• Begin vaccination request process from International Coordinating Group (ICG), immunization micro-plan and budget in consultation with NPHCDA and NCDC • Check with reference laboratory to determine if Trans-isolate (TI) Media have arrived from LGA. If samples have not arrived, provide needed support to LGA to achieve laboratory confirmation of samples • Contact LGAs that have not provided any reports (zero reporting) to ensure that they know case definition and reporting procedures • Compile daily aggregate case summaries from all LGAs • Compile line list from all LGAs DAILY.	• DAILY aggregated cases and deaths reported to NCDC using appropriate template. • Send line list to NCDC DAILY (Annex E).
Epidemic	• Analyse data from Ward and LGA levels daily • Analyse age groups affected and submit results to NCDC • Activate IMS and ensure that the surveillance team in State IMS has direct, regular communication with surveillance team at the national level • Support LGAs and testing laboratories to ensure adequate TI media is available in facilities and LGAs • Submit ICG request including LGAs in Epidemic status.	• Notify NCDC immediately when one ward/LGA has reached Epidemic Threshold. • DAILY line lists to NCDC (Annex D.

PHASES	SURVEILLANCE ACTIVITIES	REPORTING
NCDC		
Pre-Alert	• Analyse data from States at Ward and LGA levels at least weekly.	• Provide feedback to States with Wards/LGAs with increasing case counts to ensure appropriate monitoring and response.
Alert	• Analyse data from States at Ward and LGA levels daily • Regularly follow up with State Epidemiologist to advice on ICG requests, provide required data, and assistance as needed. • Perform quality assurance on line lists from each State and provide feedback to States to improve data quality • Ensure that laboratory and clinical data are linked in the line list • Create a map WEEKLY showing Alert and Epidemic LGAs by state	• Contact State Epidemiologist and/or State IM, epidemiology/surveillance group to discuss data and plans for vaccination campaigns.
Epidemic	• Analyse data from States at Ward and LGA levels daily • Perform quality assurance on line lists from each State and provide feedback to States to improve data quality • Ensure that laboratory and clinical data are linked in the line list • Create a map WEEKLY showing Alert and Epidemic LGAs by State	• Provide written communication to all State Epidemiologists and partners describing which States/LGAs have reached Epidemic Threshold and list of contiguous LGAs in bordering States that should increase their surveillance.

PHASES	SURVEILLANCE ACTIVITIES	REPORTING
NCDC CONT'D		
Epidemic	• Activate IMS and ensure that epi/surveillance team in the national IMS regularly communicates with State IMS epi/surveillance team or State Epidemiologist at least twice a week • Epi/surveillance and vaccine teams meet bi-weekly to develop lists of Wards/LGAs in Alert/Epidemic status and provide data to State Epidemiologist to discuss ICG requests.	

Recommendations for Post-epidemic Phase

After each Epidemic phase, evaluate the surveillance activities to determine gaps in surveillance and issues that need to be addressed prior to the next epidemic season. The following activities should be completed during each post-epidemic phase:

1. Evaluate the detection and response/management of the epidemic to outline the gaps, lessons learned and make recommendations for their improvement.
2. Conduct a vaccine coverage survey if a vaccination campaign was implemented.
3. Mobilise adequate resources to conduct these evaluations, which are essential in order to improve control and response measures during future epidemics.
4. Continue weekly reporting of cases and laboratory results to monitor decreasing trends.
5. Epidemic is declared over when Attack Rate decreases to below the Alert Threshold over four consecutive weeks

6 Outbreak Response Strategies

Responding to outbreaks of meningitis should be focused on the following thematic areas:

I. Coordination

II. Laboratory Diagnosis

III. Case Management

IV. Risk Communication and Social Mobilisation

V. Vaccines and Logistics

VI. Surveillance and Epidemiology

I. Coordination:

This guideline recommends the use of Incidence Management System (IMS) for coordinating outbreak response at all levels. IMS is an integrated structure for coordinating multi agency response to an event of public health interest. Activating an IMS is an effective strategy for maximum utilisation of available human and material resources in outbreak control. Without it, response is often poorly coordinated as government institutions and partners respond to different issues in ways characterised by multiple commands structures with resultant duplication of efforts, uncertainty about response leadership, poor coordination without a defined 'command and control' structure, poor basis for data driven decision making, inefficient use of scarce resources and poor outcome definitions.

The physical space where the IMS is implemented is called an Emergency Operations Centre (EOC). The EOC serves as a physical workspace with basic infrastructure where all the resources and equipment to support inter-agency coordination is co-located. All responding agencies are expected to have representatives at the EOC throughout the course of response. Typically, the IMS is hinged on five pillars as shown in Figure 3.

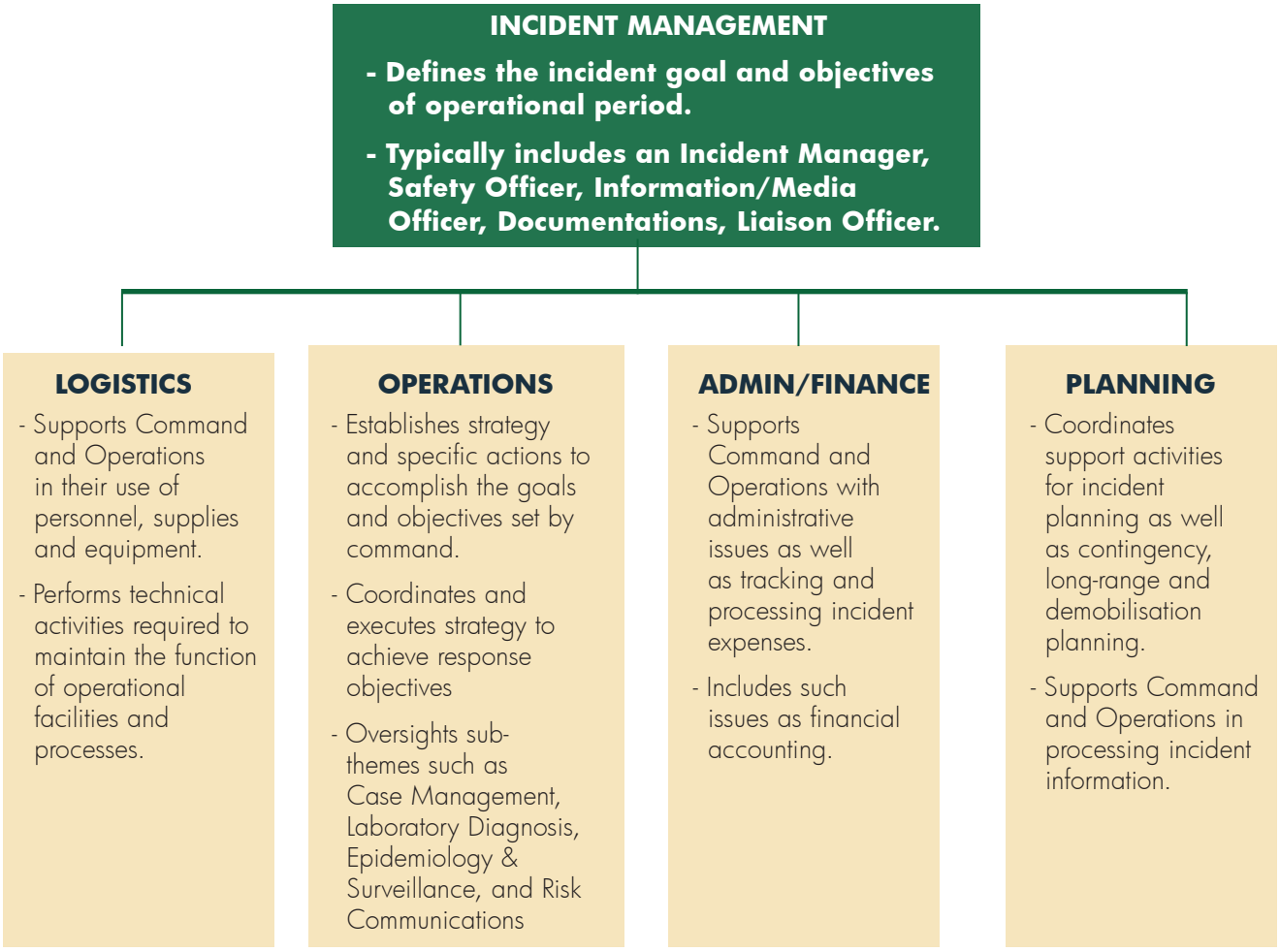


Figure 3: A Typical IMS

It is important to note that there is flexibility in employing the five essential components of an IMS. Depending on the scope of the outbreak, some components may not require personnel and when they do, not more than one. In other instances, the entire structure can be repurposed to accommodate specific response components.

In this guideline, a compact IMS is recommended as used during the 2016/2017 outbreak response. It was modified to accommodate requirements for responding to a vaccine preventable disease. This includes the following six areas (see Figure 4):

- Incidence Management
- Surveillance and Epidemiology
- Case Management
- Laboratory Diagnosis
- Risk Communication and Social Mobilisation
- Vaccines and Logistic

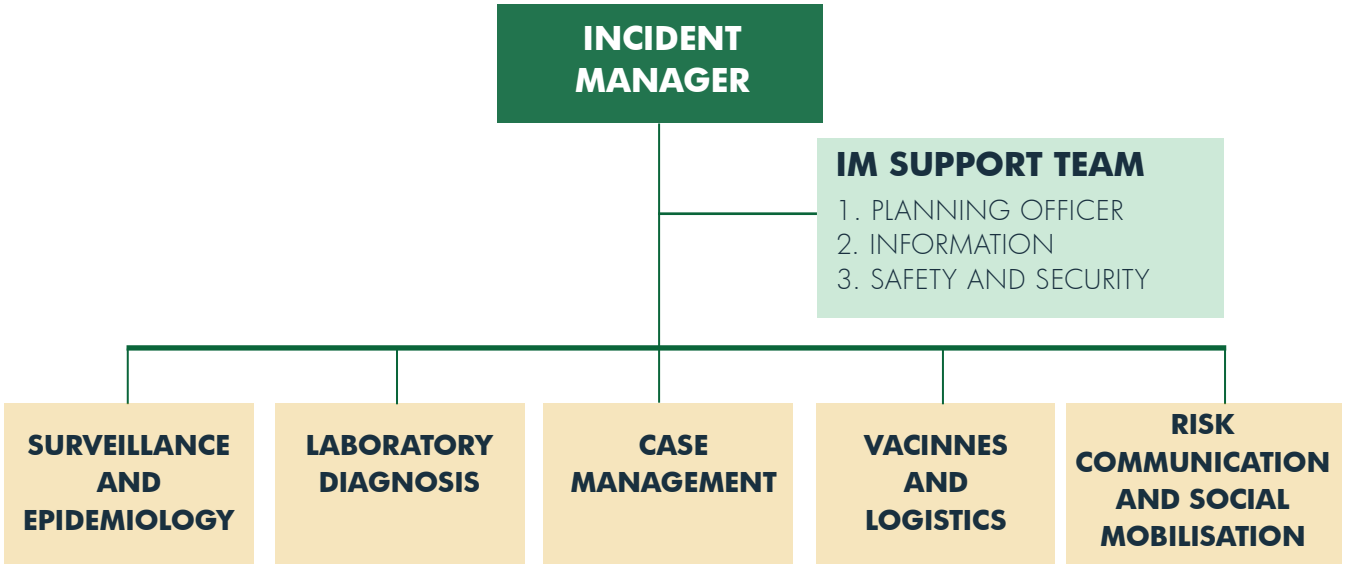


Figure 4: IMS for CSM Response

Roles of the Various Officers in the IMS

The Incident Manager

The Incident Manager (IM) is assigned by the relevant MDAs e.g. NCDC at national or SMoH at State level. The IM performs the following role(s):

- Chairs all incident response coordination meetings at the EOC.
- Coordinates overall response and provides leadership.
- Delegates action to specific people.
- Approves information from EOC to the public.
- Mobilizes resources for overall response.
- Where applicable and necessary, the IM also interfaces with security agents to ensure adequate protection measures are provided for staffs working in the EOC or response officers deployed to the field.
- Decides the level of sophistication of the IMS
- IM serves as a link between the EOC and higher authority.

The terms of reference (TOR) of other teams and officers working in the EOC are detailed in the annex section of this guideline (Annex F)

Criteria for Setting up an EOC for CSM Outbreak:

At any level of response, the recommendation to activate an IMS for CSM outbreak is the responsibility of the FMoH/SMoH under the leadership of the Honourable Minister of Health at the Federal level and Health Commissioner for Health at the State level supported by the Director of Public Health, State Epidemiologist and key technical partner(s).

In practice, a physical space is required for the following areas of responsibility:

- All IMS functions (Management, Operations, Planning and Logistics)
- Break-out / meeting rooms
- Media and communications space
- Public information Centre (Toll-Free Call Centre)

Ideally, the EOC should be adequately equipped with furniture, communication equipment (e.g. audiovisual gadgets, TV screens for video calls etc.) information display dashboards, office equipment, stationery, and emergency first aid kits. The EOC should also have a toilet and kitchenette for staff conveniences. It is also recommended that copies of maps and relevant reference materials are stored in the EOC facility for quick access. Also, equipment and supplies should be sufficient for prolonged operation of a fully staffed EOC.

Developing and Implementing an Incident Response Action Plan (IAP)

At the start of the EOC operation, it is important that a detailed and costed Action Plan be developed which defines the goal and objectives of the CSM outbreak response. It should address the priority areas of the response. There are five primary steps to be taken in sequential order to ensure a comprehensive IAP is developed as outlined below:

- Establish incident response goal and objectives
- Agree on response strategies for each objective
- Develop high impact response activities with corresponding timelines for implementation
- Assign roles and responsibilities for persons that will implement the listed activities
- Cost the assigned activities and mobilize resources for implementation
- Initiate implementation by tracking of status of activities in the activity tracker

dashboard. See Annex G

- Evaluate performance of activity tracker on a weekly basis and provide recommendations
- Develop and publish weekly situation reports (SITREPs). See Annex H for sample
- The planning officer coordinates development and Implementation Incident Response Action Plan (IAP)

Recovery Plan

Towards the end of the emergency response operations (which usually coincides with a period of plateaued decline after the last peak of cases of the epidemic), the EOC should begin to make and implement transition plans for recovery operations which include the following:

- Recall of all RRTs deployed to field via capacity transfer to onsite staffs.
- Scaling down of frequency of EOC coordinating meetings.
- Transitioning of cases from emergency designated treatment centres to routine health facilities for continued care especially where complications have developed e.g. hearing impairment/loss, physiotherapy etc.
- Arrangement for returning cases back to their Settlements.
- Continued psychosocial counselling efforts for patients with need.

IMS De-activation

The IM will recommend the deactivation of IMS by transitioning from emergency operations to a watchful mode. A press briefing is developed which is communicated to the public informing stakeholders of the containment of the outbreak and deactivation of the IMS to routine watchful activities. The decision to deactivate emergency operations is data driven and guided by the following situations:

- Epidemic is declared over when Attack Rate decreases to below the Alert Threshold over four consecutive weeks.
- EOC functions no longer required.

It should however be noted that despite IMS deactivation, a small team of 2-3 persons is left with the IM for a minimum period of 3-4 weeks to routinely monitor enhanced surveillance activities and plan the after action review for CSM outbreak.

Evaluation Report: IMS After-Action

The Incident Manager is responsible for ensuring that an after-action evaluation is conducted and the findings documented in a report for dissemination among stakeholders. Recommendations from the findings of the report should be used to strengthen preparedness for the next epidemic season.

II. Laboratory Diagnosis

Once a patient meets the case definition for meningitis, health personnel or Rapid Response Teams on the field must endeavour to collect CSF specimens for laboratory confirmation before the commencement of antibiotic therapy whenever possible (see Annex I). This is very important for clinical and public health management. CSF is the best clinical specimen to use for isolation, identification, and characterisation of the etiological agents. Informed consent should be obtained before doing this especially for children. Collection of this specimen should be delayed until the following contraindications are ruled out:

- Coma
- Raised intracranial pressure as evidenced by drowsiness, diplopia, abnormal pupillary responses, unilateral or bilateral motor posturing or papilledema.

- Shock or cardiovascular compromise.
- Respiratory distress.
- Focal neurological signs.
- Recent seizures (within 30 minutes), or not regained normal conscious level after a seizure.
- Coagulopathy/thrombocytopenia.
- Local infection (in the area where an LP would be performed)

Diagnostic Procedure

Once the CSF arrives in the microbiology laboratory, the volume of CSF available for analysis and its turbidity should be noted.

- Every CSF sample should be subjected to a rapid test such as Pastorex®
- Every Pastorex®-positive sample should be confirmed by PCR or Culture

The IM/State Epidemiologist/LGA DSNO should be contacted where Rapid Diagnostic kit (Pastorex) or T-I medium is not available. The NCDC Call Centre may also be contacted for guidance. CSF samples must be labelled with the patient ID and have an IDSR case-based form filled to accompany them. In line with WHO standards, all suspected cases should have CSF samples collected for laboratory diagnosis.

See laboratory protocol for sample collection, packaging, transportation and testing (Annex J & K) for details of procedures to be followed to confirm cases

III. Case Management

Management of bacterial meningitis patients is basically by administration of appropriate antibiotics and supportive treatment. Antibiotic treatment should be

commenced immediately without delay but, whenever possible, CSF sample should be taken first. Where laboratory results are available, antibiotic choice is based on sensitivity test result. In cases without laboratory confirmation or sensitivity testing (delayed or absent), the following regimen is recommended:

Table 4: Treatment Protocol for cerebrospinal meningitis (CSM) cases

DURING OUTBREAK	
In children aged 0-2 months:	Ceftriaxone 100mg/kg/day, IM or IV, once a day for 7 days
In children aged ≥2 months-14 years:	Ceftriaxone 100mg/kg/day once a day (maximum 2g) IM or IV for 5 days
In children aged >14 years and adults:	Ceftriaxone 2g/day once a day IM or IV for 5 days
OUTSIDE OUTBREAK PERIOD	
For all ages.	Follow the same regimen above but for a duration of 7-10 days

Source: World Health Organization (WHO

Note: Chemoprophylaxis is not recommended during outbreaks. However, this may apply if two or more cases are confirmed in confined places (e.g prisons). Physicians' discretion is advised here.

Infection Prevention and Control (IPC) Measures

There are no specific IPC measures for case management during outbreaks of cerebrospinal meningitis (CSM). However, universal safety precautions and general IPC measures applicable in healthcare settings are recommended when managing cases of CSM in healthcare facilities. These include:

a. Hand hygiene including washing (before and after) attending to patients with appropriate gloving.

b. Facial protection during minimally invasive procedures such as spinal taps.

c. Gown wearing during procedures that can generate splashes such as venipuncture and spinal taps.

d. Injection safety practices (needle and sharp disposals, avoid needle recapping etc.)

e Respiratory hygiene such as cough and sneezing etiquettes.

f. Environmental cleaning with disinfectants including linens hygiene.

g. Waste management practices like segregation, safe disposal of sharps etc.

h. Patient care equipment especially items soiled with blood, body fluids or other bodily secretions.

IV. Risk Communication and Social Mobilisation

The main aim of communications is to drive public awareness for positive behavioural change and community engagement for CSM outbreak prevention and control. This will require the implementation of community and public engagement activities focusing on different target groups and their information needs by:

a. Ensuring prompt and open communication to the public on the outbreak status.
b. Emphasizing the importance of early identification and reporting to designated health authorities/facilities for treatment and prevention of further spread, as well as
c. Scaling up messaging for community and all stakeholders' participation in prevention, detection, reporting and control.

Other activities will include:

a. Deploying all relevant social mobilisation and communication strategies.
b. Airing radio messages, jingles and social media spots that drive important prevention and control messages.
c. Sensitising and mobilising existing social networks for community mobilisation and education in high risk/priority LGAs.
d. Monitoring, tracking, evaluating and improving social mobilisation interventions and documenting their impact on response.

Identifying Target Audience

There is the need to identify the target audience as part of the communications strategy for CSM response. This is mainly due to the varying messaging style and platform needed to reach each category. The following audience segmentation is recommended, recognizing that the audience may be modified based on local context.

a. Healthcare workers.
b. Community members.

c. Community health Influencers and promoters (CHIPs).

d. Policy makers.

e. Journalists.

f. Civil Society Organizations (CSOs)

g. Ministries, Departments and Agencies (MDAs).

ONE WAY COMMUNICATION	TWO WAY COMMUNICATION
Radio	One-on-one dialogue
Television	Group discussions
Movies	Individual counselling
Community theatre	Home visits
Loudspeaker/ town announcer	Community talk
Banner	Compound meeting
Bill board	Social media platforms/interactions
T-shirt	Road shows and rallies
IEC Materials and print	
Poster	
Leaflet	
Booklet	
Newspaper	
Magazine	

Channels of communication

Drafting key messages

- Give clear and concise information but not too many messages
- Adapt messages to social, cultural and economic circumstances of the communities and its abilities to cope with social behavioural change.
- Create a matrix of target audience and relevant techniques of communication during outbreak.

Coordination of communications activities:

a. To minimise misinformation, States are encouraged to coordinate all information going out from their respective governments. The Commissioners for Health or appropriate designated persons should speak to the public AFTER updates have been shared with the NCDC. This is to ensure the whole system is in harmony.

b. States should avoid or explain key epidemiological terms while engaging the media to prevent misinformation. Only the number of confirmed cases should be shared with the public. The State owned media representatives in the Communication and Social Mobilisation Unit should help with the distribution of media releases.

Outcome/Impact Review of Communications Activities:

The communications team should review the outcomes of communication interventions using appropriate tools. For further information and guidance, States should reach out to the NCDC National Communications Team through the Emergency Operations Centre during preparedness, outbreak or post-outbreak phase.

V. Vaccines and Logistics

As soon as the Alert Threshold has been crossed in a Ward or LGA based on number of cases in populations of less than 100,000 preparations should commence for possible reactive vaccination. As soon as an Epidemic Status is reached by such a LGA, responding rapidly with vaccination becomes the key strategy for controlling spread. Reactive vaccination is carried out in areas with confirmed CSM cases with serotyping result. Therefore:

- A minimum of 30 CSF samples per LGA (where applicable) are required to be taken to allow for the determination of the circulating causal pathogens which guides the choice of vaccine to use.
- A minimum of 10 positive samples per LGA are required for better decision-making for appropriate reactive vaccination. Efforts should therefore be made to ensure there are at least 10 positive samples.

During an Epidemic

Once the Epidemic Threshold has been crossed in an LGA and the bacterial serogroup responsible is preventable by vaccination, it is essential that a vaccination campaign is conducted promptly (within four weeks of crossing the Epidemic Threshold) in both the population affected and any neighbouring LGA or Ward that may be at risk of outbreak. A vaccination micro-plan and accompanying budget for each area targeted for mass vaccination should be finalized immediately. The State Epidemiologist and the State Disease Surveillance and Notification Officer need to support the LGA DSNO to do this immediately the threshold is reached. They can request support from national emergency preparedness and response team (NCDC, NPHCDA other government agencies and partners). The decision tree should be used flexibly to enable appropriate consideration of all epidemiological and

laboratory information available in the affected area.

The State Epidemiologist and his team should carry out the following:

- The analysis of the geographic distribution of cases, which orientate more targeted actions.
- The analysis of cases by age group which can lead to different age groups being targeted for vaccination or the use of different vaccines for different age groups.
- For special situations (e.g. epidemics among displaced persons, or in refugee camps or closed institutions), different decision criteria can be applied in these situations with a lower threshold (2 confirmed cases) for action and immediately inform NCDC. Chemoprophylaxis with ciprofloxacin can also be administered in the absence of vaccines.

Sufficient amounts of vaccines must be immediately requested from the National Primary Health Care Development Agency (NPHCDA). If NPHCDA which maintains the national stocks does not have sufficient vaccine supplies, it shall request this from the International Coordinating Group (ICG) on Meningitis Vaccine Provision, which manages the international emergency stockpile. Once vaccine supplies have been confirmed, a public vaccination campaign should be launched in the target area. Other activities to be carried out are detailed below:

- A cold chain system to distribute the vaccines to the target areas shall be established.
- Preparations shall be made to manage the waste from the campaign.
- A system for monitoring adverse events following vaccination will be needed.
- A survey to estimate immunization coverage shall be planned.

See (Annex L) for SOP on procedures and processes involved in vaccination campaign of CSM outbreak.

Logistics

Logistics is an embedded support function in epidemic response operations. Logistical constraints and choices can alter strategic decisions and impact the conduct of operations.

The logistics response activities.

a. Carry out needs assessment in line with risk assessment.
b. Local procurement.
c. Receiving, storing and pre-positioning vaccines, medicines, consumables, vaccination card and certificate, and other supplies
d. Inventory management of supplies.
e. Ensure effective transportation of sample from health facility to designate laboratory and Abuja reference laboratory.
f. Waste management.
g. Technical support in the physical organization of the treatment area.
h. Managing team security and protection.
i. Transport and rotation for field response teams (in & out, field).

Needs assessment and Resource Mapping

All too often, the State Ministry of health Epidemiology Team does not have the resources to respond effectively to a disaster/outbreak of diseases. It is therefore

important to determine what resources EPRC (see Annex M) has (or is lacking), and what is required for relief operations to be carried out effectively. If logistical planning and preparations have taken place before the event, this will make it easier to determine which resources are available and which are lacking and must be procured elsewhere.

The tables below show how to estimate number of cases, vaccine and antibiotics needs for CMS outbreak response.

Table 5: Example: Estimating the number of expected cases

VARIABLES	ESTIMATION
Population at risk	
Number of estimated cases: Likely cumulative attack rate for season (based on past epidemics) (500/100,000)	
Number of cases notified as of this date (to be subtracted)	
Number of expected cases:	
Margin of error (25 %)	
Basis for needs estimation	

Table 6: Vaccines need estimation

VACCINE NEEDS ESTIMATION	
Estimate population at risk (unvaccinated) *Last epidemic year (s) immunization coverage /LGA* Target population *2-15 yo (45%) 2-30 yo (70%)* Number of doses *(For Vacc Cov of 100%/1)* Factor of loss *x 1.17* Security stock *x 1.25* • *Subtract Existing Stock (ED)* • *Period to covered = Function of:* • *level of existing stocks* • *delays of shipping* • *previous epidemic trends* • *availability of funds*	

Table 7: Antibiotics needs estimation

TOTAL POPULATION IN DISTRICT	95 484
Likely cumulative attack rate for season (based on past epidemics)	120/100 000
	95 484 × 120/100 000 = 114
Estimated number of cases during season (population × cumulative attack rate), less the number of documented cases	114 less 20 = 94
Plus additional 25 % buffer stock	94 plus 22 = 116
Antibiotics needed: Ceftriaxone treatment (10 1g-vials per adult)	116 × 10 = 1 160 vials of ceftriaxone
Plus water for injection, needles and syringes	

Note: Other supplies needed for supportive treatment can be estimated based on the number of expected ceases

Annex

Annex A: CSM Preparedness Checklist

CHECKLIST FOR ASSESSING PREPAREDNESS FOR CSM RESPONSE AT STATE LEVEL

State: Date:

S/N	ITEM	YES			NO	REMARKS
		Level of Implementation				
		< 50%	50-80%	> 80%		
1	**Coordination**					
	Have the members of the Epidemic Preparedness and Response (EPR) been appointed and have they met in the last 3 months?					
	Can EPR be functional within 48 hours?					
	Can Rapid Response Team (RRT) be functional within 24 hours?					
	Can funds and human resources be mobilised in 24 hours?					
	Has a simulation exercise been conducted with representative of all functional areas below?					
	At least 1 risk communication message has been developed and provided to LGAs in the last one month					
	SOPs and surveillance forms is available in health facilities?					

S/N	ITEM	YES			NO	REMARKS
		Level of Implementation				
		< 50%	50-80%	> 80%		
2	**Capacity building** (If yes, include the numbers trained)					
	Have trainers been identified?					
	Have clinicians been identified and/ or trained on case management and CSF collection?					
	Have nurses been identified and/or trained?					
	Laboratory personnel have been identified and trained					
	Has RRT been identified and/or trained?					
	At least 1 risk communication message has been developed and provided to LGAs in the last one month					
	SOPs and surveillance forms is available in health facilities?					
3	**Epidemiology/ Surveillance**					
	Is the CSM standard case definition available in health facilities?					
	Is there a substantive State Epidemiologist in the state MoH?					
	Have DSNOs been trained in register review, case search, alert and rumour surveillance?					
	LGA DSNOs have been trained on charting and analysis of weekly trends					

S/N	ITEM	YES			NO	REMARKS
		Level of Implementation				
		< 50%	50-80%	> 80%		
4	**Laboratory**					
	A Public health laboratory for CSF analysis has been identified					
	Do laboratories have adequate Pastorex, TI media and supplies?					
	Transport support and link with the National Reference lab for CSF testing available					
	Location/distance to nearest laboratory with PCR diagnostic capacity?					
5	**Case management** (If yes, please provide number)					
	Has a CSM Treatment Centre been identified?					
	Can the centre become functional within 48 hours?					
	What is bed capacity of the center?					
	Are medicines (Ceftriaxone and oily chloramphenicol) and consumables available?					
	Is there a protocol displayed for case management at health facilities?					
	Are hospital acquired infection control materials such as gloves, gowns, alcohol soap available in all health facilities?					
	Is there a protocol for the safe management of waste in every health care facility?					
	Essential drugs in stock (Refer to essential drug list)					

S/N	ITEM	YES			NO	REMARKS
		Level of Implementation				
		< 50%	50-80%	> 80%		
6	**Social mobilisation and sensitization**					
	Are printed IEC materials in appropriate languages available?					
	Do communities know about treatment centers?					
	Have community mobilisers/VCM and supervisors been identified and trained?					
	Is a list of private practitioners, traditional healers, religious leaders, local community development committees, churches, mosques and schools available?					
7	**Vaccine and Logistics** (Supplies & Transportation)					
	Is there CSM polyvalent vaccine in stock at the state level?					
	What quantity of the polyvalent vaccine is available?					
	Is site for vaccine storage determined at state and LGA levels?					
	Vaccine requirement determined for LGAs?					
	Vehicles for logistics, vaccine deliveries in place					
	Is there a list of all supplies for CSM response available?					

Annex B: Weekly Reporting of Epidemic Prone Diseases and Other Public Health Events

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 C: Case-based Surveillance Reporting Form IDSR 001A

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 Haemorrhagic 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): / / (Day/Month/Year)	**Age (If DOB unknown):**	Year	Month (if <12)	Day (NNT only)

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)
Date of last vaccination	/ / (Measles, Neonatal Tetanus (TT in mother), Yellow Fever, and Meningitis only)
Close contact with infected poultry	1=Yes 2=No
Close contact with suspected or confirmed case of Avian influenza	1=Yes 2=No
Associated with an outbreak?	1=Yes 2=No

In/Out Patient	1=Inpatient	2=Outpatient	
Outcome	1=Alive	2=Dead	9=Unknown

Final Classification of case	1=Confirmed	2=Probable	3=discarded	4=suspect	
Final Classification for Measles	1=Laboratory confirmed	2=Confirmed by Epidemiological linkage	3=Clinical Compatible	4=Discard	5=Suspect with lab pending

Person completing form **Name:** **Title:** **Address:**	**Signature**

Date form sent to LGA: / / **(Date/Month/Year)** **Date Form Received at LGA:** / / /
Signature

Annex C cont'd:
Case-based Surveillance Reporting Form IDSR 001A

WHO/AFRO recommends a generic case-based reporting form that can be used to report written information about individual cases of priority diseases recommended for case-based surveillance. These include: epidemic-prone diseases (cholera, diarrhoea with blood, measles, meningitis, viral haemorrhagic fevers and yellow fever)

Annex D: Case-based Laboratory Reporting Form IDSR 001B

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
Viral Detection	Yellow fever (IgM)				
	Measles (IgM)				
	Rubella (IgM)				
	RVF (IgM)				
	Ebola (IgM)				
	Lassa (IgM)				
	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 received lab results: / ____/ _____.	LGA/:
Date lab results sent to health facility by LGA: _____ / _____ / _____.	
Date lab results received at the health facility: _____ / _____ / _____.	

Annex E: Line List-Reporting from Health Facility to LGA and for Use During Outbreaks – IDSR 001C

Health Facility: _____ Ward_____ LGA_____ State: _____
Date sent to LGA: _____ Date received at LGA: _____
Disease or condition: _____

CASE ID No	O =out-patient I = In-patient	Name	Village, Town and neighbourhood	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

- 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.

  [1]Record 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 F: Terms of Reference of IMS Teams and Officers

The IM is supported by a team as follows:

- Planning officer
- Secretariat Support Staff
- Media Officer
- *Safety Officer (when there is an established need or security concerns)

Planning Officer

1. Develops and monitor implementation of strategies and tactics that enable the implementation of the incident response objectives as guided by the IM
2. Organizes, assigns and supervises the use of all EOC resources

Documentation (Secretariat Support)

1. Ensures minutes of meetings are taken and action points are well captured for tracking
2. Ensures a comfortable working environment is established and maintained for EOC staff
3. Sends notifications or invitation of meetings to all members of the EOC team
4. Develops and uses appropriate electronic group mails, chat platforms (e.g.

WhatsApp) to facilitate information dissemination to all EOC members

5. Ensures documentation of all EOC processes and activities from activation to de-activation

Safety and Security Officer

1. Ensures a minimum basic level of security is maintained at EOC and for personnel
2. Liaises with security formations for technical services where required.
3. Monitors the safety of all EOC personnel deployed to the field.

Media officer

1. Provides advice to the IM on sharing of outbreak status.
2. Respond to all rumours from the public and manages same for the IM on outbreak response operations.
3. Serves as an external liaison with stakeholders on behalf of the IM on issues surrounding outbreak response.
4. Develops FAQs and disseminate same to the public as necessary.

The team leads for other pillars (surveillance and epidemiology, laboratory diagnosis, case management, vaccines and logistics as well as communications and social mobilisation) who are appointed by the IM as jointly agreed by members of the EOC, provides technical coordination of all team members around various pillar

activities of the outbreak response. The terms of reference for these teams are:

Surveillance and Epidemiology

- To ensure appropriate data capturing tools (IDSR DCTs) are made available for use in States/LGAs and at incident scenes e.g. health facilities, designated treatment centres, etc.
- To retrieve daily line lists from the LGAs and collate them for onward transmission to the national level
- To maintain and update the State line list on a daily basis
- To conduct daily analysis of cases (time, place, person) for informed decision-making at the EOC
- To provide accurate data that will feed into SITREP production
- To support operational research on the outbreak
- To provide feedback.
- To monitor appropriate use of case definitions.
- To monitor rumour from formal and informal sources.
- Timely and complete transmission of outbreak data.

Laboratory Diagnosis

- To ensure the implementation of protocols for sample management including collection, storage, transportation and processing
- To ensure appropriate sample storage, processing, documentation and dissemination of results to the IM
- To ensure proper documentation of all laboratory resources including

consumables, commodities and reagents

- To address identified gaps in laboratory diagnosis of cases of the outbreak
- To provide technical guidance on all laboratory related matters for the outbreak control
- To support the logistic team in quantifying laboratory needs (e.g. consumables, commodities)

Case Management

- To ensure the Rapid Response Teams (RRTs) deployed to support case management efforts at field implement national guidelines and protocols for case management
- To assess human resource capacities for case management for the outbreak
- To provide on-site and off-site training/mentoring of health workers managing cases on the field
- To identify and map dedicated treatment facilities in all LGAs/States
- To disseminate outbreak case management protocols to all treatment centres
- To coordinate the distribution of medical countermeasures and deployment of RRTs to identified treatment centres during outbreaks or emergencies
- To track treatment outcomes and complications from all treatment centres
- To ensure the collection of relevant specimen and transportation to testing laboratory, if not analysed on-site
- To support the management of all Adverse Events Following Immunization (AEFI)

cases during vaccinations

Vaccines and Logistics

- To support the development of vaccination micro plans and ensure compliance with their implementation
- To provide forecast of requirements for vaccines and other immunization supplies
- To support all resource mobilisation efforts and provide guidance to IM on distribution
- To ensure availability of bundled vaccines, Cold Chain equipment and other supplies
- To ensure availability of drugs for treatment in all designated centres
- To contract for and purchase goods and services needed for the outbreak response operations e.g. transportation services, waste management services, courier etc.
- To ensure availability of AEFI kits and data tools at all vaccination posts
- To distribute vaccines and other supplies to designated States/LGAs/Wards
- To monitor logistics utilization (vaccine and drugs accountability etc.)
- To ensure proper waste management during vaccinations
- To ensure AEFI surveillance for up to 42 days following campaigns

Risk Communication and Social Mobilisation

- To identify key messages and narratives for the outbreak response.

- To describe clearly the media audience that should be reached
- To ensure all public information are streamlined according to risk communication plans
- To develop and produce appropriate radio or TV jingles for media enlightenment campaigns
- To measure and monitor public engagement on key traditional and social media platforms
- To identify social factors that surround the outbreak
- To map stakeholders that surround identified social factors
- To develop advocacy and social mobilisation plan that ensures an alignment of stakeholders
- To support social mobilisation, public enlightenment/education, sensitizations prior to vaccination campaigns

Annex G: Weekly Activity Tracker Template

ACTIVITY DASHBOARD TRACKER				
		KEY	0 - RED	NOT DONE
			1 - YELLOW	ONGOING
			2 - GREEN	COMPLETED
NUMBER	ACTIVITY	TRACKER	CHALLENGE(S)	REMARK
RESPONSE PILLAR (INSERT PLEASE)				
		1		
		2		
		1		
		2		
		0		

Annex H: Sample of a Situation Report

CEREBROSPINAL MENINGITIS OUTBREAK IN NIGERIA
Situation Report
(1st May, 2017)

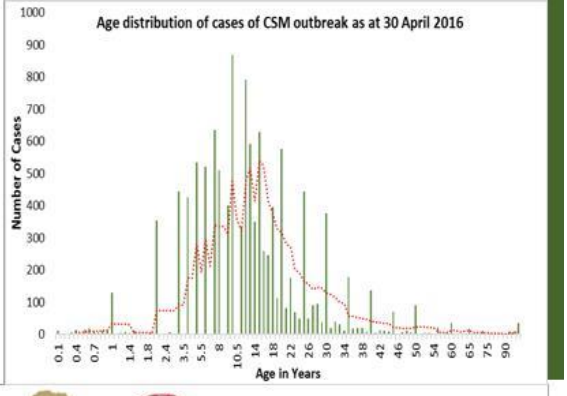
Highlights

- From 13th December, 2016 to 30th April, 2017, 11,647 suspected cases and 960 deaths (8.2%) were reported
- Of the 364 laboratory confirmed cases, 260 (71.4%) were *Neisseria meningitidis* serogroup C
- In the last four weeks (Epi-week 14-17), 43 Local Government Areas (LGAs) have reached alert/epidemic threshold in six States — Zamfara, Sokoto, Kano, Katsina, Kebbi and Yobe
- Tsanyawa LGA in Kano State has reached alert threshold
- Technical teams still supporting coordination and response activities in the most affected States
- On-going reactive vaccination campaign in Sokoto State by National Primary Health Care Development Agency (NPHCDA)
- Due to its urgency, the CSM-EOC is set to deploy the first batch of medical teams to Zamfara and Sokoto States within the next two days
- The Government of Nigeria continues to work with global health partners to mobilize additional vaccines,

Epi summary

- The first case occurred in Zamfara State during Epidemiology Week 50 (December 12– 18, 2016)
- A total of 11,647 cases with 960 deaths (CFR=8.2%) have been reported
- Of the reported cases, 717 (6.2%) were laboratory tested; of which 364 (50.8%) were confirmed positive for bacterial meningitis
- *Neisseria meningitides* serogroup C remains the predominant (71.4%) cause of meningitis amongst those who tested positive
- A total of 5541 (47.7%) cases were in the 5-14 year age group
- In the six most affected States — Zamfara, Sokoto, Katsina, Yobe, Kebbi and Kano — a total of 13 LGAs have reach the alert threshold and are therefore under enhanced surveillance, while 30 LGAs have reached the epidemic threshold, with full outbreak investigation and control measures being implemented

Key Indicators	Number
Total cases reported	11,647
Total Deaths	960
Confirmed cases	364
Total samples tested	717
States that have reported at least one suspected case	23
States with at least one LGA currently in Epidemic	4
States with at least one LGA currently in Alert	6
Current LGAs in Alert	13
Current LGAs in Epidemic	30
Cumulative LGAs ever in Epidemic	34



Annex I: How to Collect Cerebrospinal Fluid

Preparing for lumbar puncture

If possible, three tubes (1 ml each) of CSF should be collected for microbiology, chemistry, and cytology. If health facilities lack the ability to do chemistry, two tubes are sufficient. If only one tube of CSF is available, it should be sent for microbiology. Where specimen transport for microbiology will take over one hour away from collection point, the contents of the tube should be transferred to T-I medium. Where multiple tubes are collected, the tube with the least amount of blood in it should be sent for microbiology.

The following materials should be assembled in preparation for lumbar puncture.

- Skin disinfectant: 70% alcohol swab and povidone-iodine swab
- Sterile gloves
- Sterile gauze
- Surgical mask
- Adhesive bandage or tape
- Beveled lumbar puncture needles with stylet (the use of needles without a stylet is sometimes associated with spinal epidermoid tumors) (22 gauge/89 mm for adults and 23 gauge/64 mm for children)
- Sterile tubes
- Syringe and needle
- Transport container

- T-I medium (if CSF cannot be analysed immediately in a microbiological laboratory). T-I should be refrigerated at 4°C and added to the LP kit immediately before use in the field.

Lumbar Puncture Procedure

- Standard bio-safety precautions apply to all steps in lumbar puncture procedure
- Gather all materials from the CSF collection kit and a sharps container for used needles
- Wear surgical mask and sterile latex or nitrile gloves that are impermeable to liquids and change gloves between every patient
- Label the collection tubes with appropriate information: patient's name, date and time of specimen collection, and Hospital or other Unique Identification Number. Be sure this number matches the number on both the request and report forms
- Ensure that the patient is kept motionless during the lumbar puncture procedure, either sitting up or lying on the side (for children, it is done preferably lying on the side with the body arched), with his or her back well arched so that the head almost touches the knees in order to separate the lumbar vertebrae during the procedure. Aim for maximum flexion of the spine (curl into fetal position), but avoid over flexing the neck, as this may cause respiratory compromise
- Disinfect the skin along a line drawn between the posterior superior iliac crests with 70% alcohol and povidone-iodine to clean the surface and remove debris and oils. Allow to dry completely.
- Aim for the L3-4 or L4-5 inter-space

- Imagine or draw an imaginary line between the top of the iliac crests. This intersects the spine at approximately the L3-4 inter-space. Position the needle in the midline with the bevel pointing towards the ceiling (when in lateral decubitus position) or to the side (when sitting)
- Introduce into the skin with the bevel of the needle pointing an upward direction and gradually re-orientate such that the needle is parallel to the bed and perpendicular to the back slightly aiming towards umbilicus in direction
- Advance the needle into the spinous ligament (increased resistance). Continue to advance the needle within the ligament until there is a fall in resistance. Remove the stylet. If CSF is not obtained replace the stylet and advance the needle slightly then recheck for CSF
- Remove CSF (1 ml minimum, 3-4 ml if possible) and collect into sterile screw-cap tubes. If 3-4 ml CSF is available, use 3 separate tubes and place approximately 1ml into each tube. DO NOT COLLECT CSF INTO A SYRINGE, use screw cap bottles only.
- Withdraw the needle and cover the insertion site with sterile gauze and adhesive tape. Discard the needle in a sharps box
- Remove mask and gloves and wash hands with antibacterial soap and water immediately after removing gloves
- In the event of a needle-stick injury or other skin puncture or wound, wash the wound liberally with soap and water. Encourage bleeding
- Report a needle-stick injury, any other skin puncture, or any contamination of the hands or body with CSF to the supervisor and appropriate health officials immediately as prophylactic treatment of the personnel performing the procedure may be indicated.

Inoculating and Transporting Trans-isolate (T-I) Medium

T-I is a biphasic medium that is useful for the primary culture of meningococci and other etiological agents of bacterial meningitis (Streptococcus pneumoniae and Haemophilus influenzae) from CSF. T-I media should be stored at 4°C and warmed to room temperature (25°C) before use.

- Label the T-I bottle with appropriate information: patient name, date and time of CSF inoculation, and Epid ID number. Be sure this number matches the number on both the case based and laboratory forms
    - Use sterile forceps to pull the aluminum cover of a T-I bottle away from the rubber stopper (Do not completely remove the aluminum cover) and disinfect the stopper with 70% alcohol. Allow to dry.
    - DO NOT use povidone-iodine as it may be carried into the medium by the passing needle and would inhibit growth of bacteria.
- Use a sterile syringe and needle to inoculate 0.5-1.0 ml of CSF into the T-I medium. The remaining CSF should be kept in the collection tube. It should not be refrigerated, but should be maintained at room temperature (20-25°C) before Gram staining and other tests (where available). Discard the needle and syringe in a sharps box
- After inoculation, invert the T-I bottle several times to mix
- If transport to the designated testing laboratory is expected to be delayed for more than a day, insert a venting needle (sterile cotton-plugged hypodermic needle) through the rubber stopper of the T-I bottle, which will encourage growth and survival of the bacteria. Be sure that the venting needle does not touch the broth

- Incubate the inoculated T-I medium at 35-37°C in a candle-jar overnight or until transport is possible. If transportation is delayed for more the 4 days, remove the vented T-I bottle from the incubator or candle jar and place at room temperature until shipment
- Remove the venting needle and wipe the rubber stopper with 70% alcohol before shipping
- If the T-I bottle can be transported to the testing laboratory the same day, do not vent the bottle until it arrives in the receiving laboratory.

Transporting CSF Specimens Without T-I Media

- During an outbreak, it is possible that T-I media will be exhausted at sites more than one hour away from the secondary laboratory. In such circumstances, incubating the specimens (with screw-cap loosened) at 35-37°C in a candle-jar may improve bacterial survival.

Annex J: Protocol for sample collection, packaging and transportation

Once the CSF arrives in the microbiology laboratory, the volume of CSF available for analysis and its turbidity should be noted and recorded. All samples received should be documented in the NCDC Lab E register

- Every CSF sample should be subjected to a rapid test such as Pastorex®1
- Every Pastorex®-positive sample should be sent to the NCDC National reference Laboratory Gaduwa for confirmation by PCR

Protocol for Sample Collection, Packaging and Transportation

Samples accompanied by laboratory form should have the following information

- Patient's name
- Patient's epid ID number
- Patient's age and sex
- Date and time of specimen collection
- Clinical diagnosis and relevant patient history
- Antibiotics patient has received or currently receiving
- Name and phone contact details of sender

On the specimen container label

- Patient's name
- Epid ID No
- Date of collection
- Time of collection

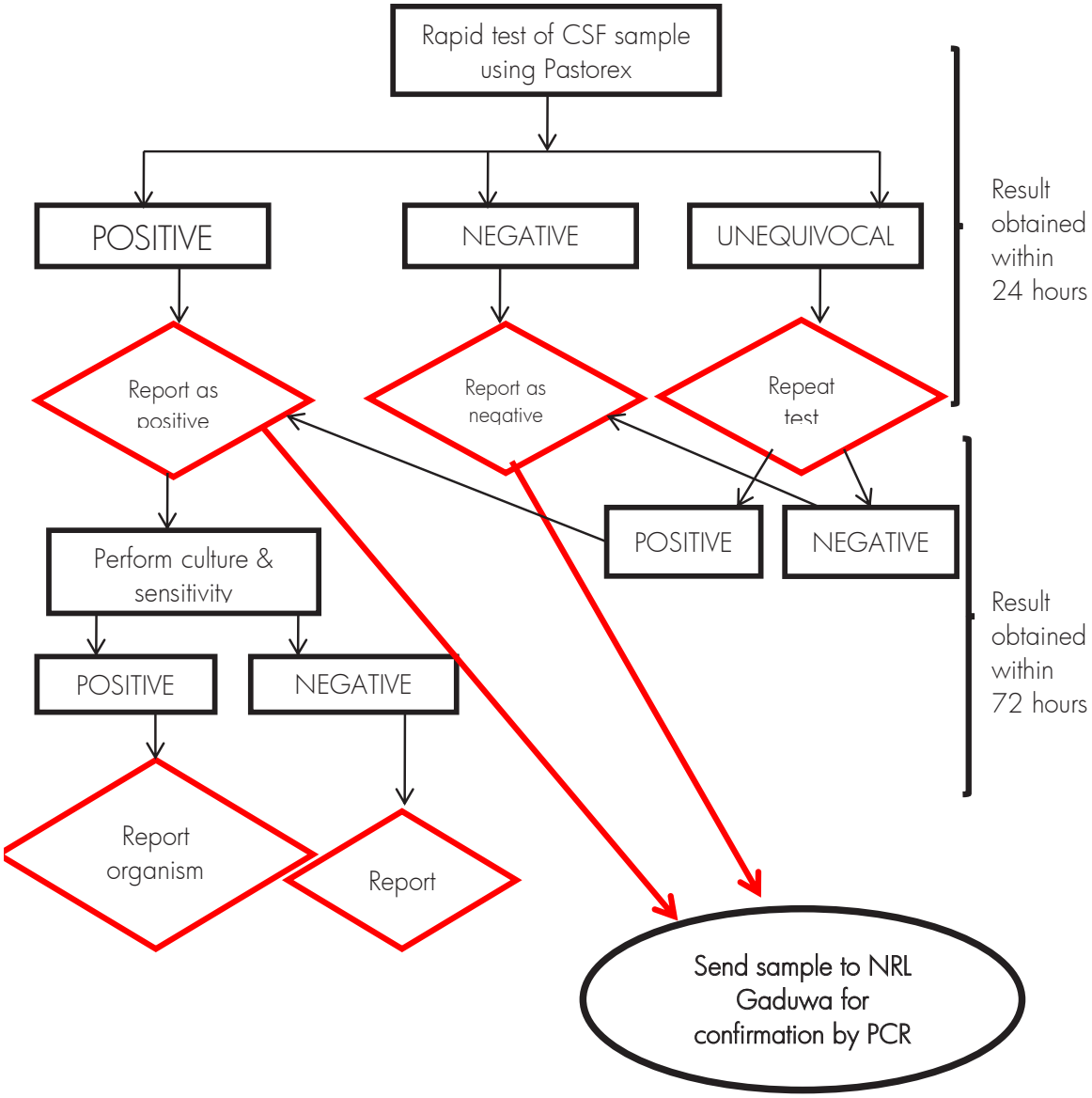
Sample Packaging

Sample container is :

1. Wrapped in absorbent paper
2. Placed in Ziploc bag and thereafter
3. Placed in a solid carrier to ensure triple packaging
4. Shipped/transported as soon as possible

NB: sample should NOT be refrigerated.

Annex K: Testing Algorithm for CSF Diagnosis



Annex L: Vaccines and Logistics SOP

To access the ICG emergency vaccine stockpile

The following are needed to access the emergency vaccine stockpile:

- Provide evidence of a meningococcal disease outbreak
- Provide laboratory confirmation of the Neisseria meningitides serogroup responsible for the outbreak
- Develop and provide plan(s) of action for the vaccination campaign(s)
- Provide proof of necessary storage and transportation resources to ensure the safe and effective delivery and maintenance of the vaccines to, and in the area affected.

Request forms can be downloaded at:

http://www.who.int/csr/disease/meningococcal/icg/en/

ICG email address: ICGsecretariat@who.int

Preparing a Vaccination Micro Plan

A vaccination micro-plan must be prepared for every LGA/Ward targeted for a vaccination campaign. It is the responsibility of the State health authorities to complete and submit the plan to ICG in order to prepare for the campaign and to secure the necessary vaccines

The vaccination micro-plan should include:

- The names of LGAs, wards and settlements targeted for vaccination
- The total population currently present in the target areas
- The population targeted for vaccination
- The type and quantity of vaccine needed

- The quantity of additional supplies needed – Auto-Disable (AD) syringes, safety boxes dilution syringes (10 ml), cotton wool, gloves
- The number of teams conducting the campaign (each team requires vaccinators recorders, crowd controllers, town announcer and a supervisor)
- The number of supervisors – at team, Ward, LGA, State and central levels
- The mechanism for training the vaccination teams
- Logistic needs – cold-chain equipment, vehicles, kettle, soap and AEFI kits
- The mechanism for managing waste resulting from the campaign
- The plans for vaccination campaign coverage surveys
- Plan for risk communication and social mobilisation
- Plan for hard to reach settlements

Components of Ward Level Micro Planning

1. Total population

- Target population of CSM vaccine (1- X years) = X% of Total Population(LGA or Ward or settlement)

2. List of Settlements, their estimated population and distance from the nearest Health Facility (HF)

- List of permanent settlements*, their estimated population and distance from the nearest HF
- List of temporary settlements (including nomads) their estimated population and distance from the nearest HF
- List of urban settlements, their estimated population and distance from the nearest HF

- List of rural settlements, their estimated population and distance from the nearest HF

  *Settlement: group of people with common interest that stay together to earn their living

3. List of health facilities
   - Public:
   - Private

4. Estimation of fixed vaccination posts
   - Number of persons to be immunized per day per fixed post
   - Urban/densely populated areas: 350 children per day, and 1,750 children in 5 days
   - Rural/sparse populated areas: 250 children per day, and 1,250 children in 5 days

   Example:

   - Estimation of number of vaccination posts if urban LGA, with target population of 42,000
   - Target population/number of persons to be immunized in 5 days

     42,000 / 1,750 = 24 team posts
   - Estimation of number of vaccination posts if rural LGA, with target population of 21,000
   - Target population / number of children to be immunized in 5 days

     21,000 / 1,250 = 17 posts

- Total number of immunization posts required for the 2 LGAs = 24+17 =41

5. Human Resources required

Vaccination post supervisor: Vaccinators (2/team): Recorders (1/team): Crowd controller (1/team) and Community leader (1/team):

6. Vaccines and supplies requirements

- CSM Vaccines (Wastage factor 1.18)
- Adverse Event Following Immunization (AEFI) Kit: 1 /vaccination team
- AEFI Data tools: 1 Data tool set /team
- Safety boxes (Number of pre filled CSM)/100 X Wastage factor 1.05)
- Cotton Wool: 500 gm of 1 roll of cotton wool per vaccination team
- Marker Pens (2 Marker pens to mark filled safety box per team/wastage factor 1.1)
- Vaccination card and data tools

NB: Not for fingertip marking

7. List of schools per Ward (Nursery, Primary) with number of eligible people

- List of private schools
- List of public schools:
- Number of eligible people:
- Name of contact person in each school for planning and coordination of vaccination activities

8. List of FBO schools with number of eligible people

- Name of contact person in each school for planning and coordination of vaccination activities

9. List of worship centres (e.g. mosques, churches)
    - Estimation of eligible people attending churches:
    - Day and time of worship

10. List of markets
    - Type of markets: Frequency of markets: Best day/days to visit for immunization. Best time and best location of vaccination posts

11. List of other relevant places
    - List of motor parks, recreational facilities and any other place where eligible people can be found
    - Best day/days to visit for immunization
    - Best time:
    - Best location of fixed posts

12. Cold Chain Requirements
    - Icepacks: Vaccine carriers: Cold boxes: Freezers: Ice liner freezer: Refrigerator: Generators:
    - Fuel for generators for 16 hours per day X 7 days X No. of litres per hours of the type of generator
    - (1 day before, 5 days of implementation and 1 days after de campaign)

13. Dry Storage Capacity available required
    - Minimum requirement per Ward: one room of 3 X 4 X 3 meters

14. Availability of disposal sites:
    - Incineration facilities

15. Transport Facilities

- Bicycles
- Motor bikes
- Vehicles
- Canoes/Engine boats
- Others

16. Health Facility Catchment Area Map

- Mapping of Settlements served by the HF
- Distance of each Settlement from the HF
- Target population of each Settlement
- Location of vaccination posts
- Location of schools and other important places where eligible people can be found
- Location of the community leaders' and community influencers' houses

17. LGA Map:

Aggregation of Ward maps

18. State Map:

Aggregation of LGAs maps

19. Cold Chain equipment

- There is a requirement of extensive Cold Chain storage space for Men C vaccine (single dose in prefilled syringes)
- At the national level, cold chain equipment required is cold rooms.
- At the State level, a mix of cold rooms and refrigerators will be required while LGAs will require refrigerators.
- At the State and LGA levels, freezers will be required to produce icepacks for both vaccine transportation and for immunization posts during implementation.
- Storage capacities need to be estimated for both storage and icepacks production
  - At the Ward and facility levels, including at temporary posts; cold chain equipment is required for storage at the Ward level and implementation at vaccination posts.
- Each Ward will need 4 large Cold Boxes for vaccine and icepack storage and each vaccination post will require 2 Giostyle vaccine carriers
- ONLY Giostyle vaccine carriers are to be used
- For the Ward level, 24 icepacks are required for vaccine storage and depending on the number of posts
- At the Vaccination posts, each Giostyle vaccine carrier will require 4 icepacks.

For icepacks: The formula is

- Icepacks for Vaccine carriers = No. of Giostyle VCs x No. of posts x 4 x 3 x 1.05 (planning for 3 days)
- Icepacks for cold boxes =No. of cold boxes required for storage x 24 x 2 x 1.05 (for 2 cycles of storage

For estimation of storage space:

- Each dose of (MenVac –C for example) requires 2.6cc of storage space.
- To calculate the volume of storage required for a given target population, the formula is: Storage volume required = TP x coverage (95%) x 1.18 x 2.6/1000
- For estimation of icepack producing space: Each icepack 0.3/0.4lts occupies 0.5lts storage space.
- The volume required is calculated as follows
- Freezing space required = No. of icepacks required x 0.5Lts

20. Budget

This should include:

- Allowances for members of the vaccination team;
- Social mobilisation costs (including allowances for staff);
- Costs of logistic equipment (fuelling, transportation);
- Costs of waste management;
- Cost of immunization coverage survey.

Composition and Roles of LGA Vaccination Coordination Team

- LGA Director of PHC – Chairperson
- LGA Immunization Officer
- LGA DSNO
- LGA Health Educator
- LGA Cold Chain Officer
- Ward Focal Persons
- The most senior district Head

- Religious leader
- Maternal and Child Health Coordinator (MCHC)
- State Technical Facilitator
- LGA Facilitators
- Others

This team will perform the following roles:

- Conduct advocacy to the LGA stakeholders and high level traditional institutions/ religious leaders.
- Conduct planning meeting with LGA TFI.
- Identify senior health workers as post supervisors
- Ensure that all personnel selected to support the vaccination exercise (vaccinators, supervisors, Ward focal persons) are selected in accordance with selection criteria adopted by the State
- Plan and conduct training at LGA and Ward levels for both pre-implementation and implementation phases.
- Supervise the development of daily implementation plans by catchment area for fixed post vaccinations.
- Identify the required number of vaccinators (according to vaccination micro plans)
- Monitor the quality of the campaign in the LGA, identifying areas of weakness and ensuring that appropriate corrective actions are taken in a timely manner
- Conduct daily review meetings
- Submit daily call-in data
- Give daily feedback to state MoH/CSM EOC

Composition and Roles of (LGA/Ward) Vaccination Team

- A supervisor who is a senior health worker
- Vaccinator (health worker who is allowed by law to give injections)
- Recorder (who can read and write)
- Crowd controller/Screener for age and residency:
  - Community leader or representative for male queue and
  - Female leader for the female queue/House to house mobiliser.
- Town announcer

Roles of Vaccination Post Supervisor

His/her responsibilities are to:

- Develop the catchment area map together with community leader
- Ensure the community leaders selected are mature and respected persons within the catchment area who can influence change in the community
- Ensure plans are in place and understood by the community
- Ensure the town announcers and social mobilisers and the community leaders conduct house-to-house mobilisation daily.
- Ensure the availability of cold chain and logistics materials based on the daily implementation work plan
- Ensure the availability of vaccines and injection devices and AEFI kits based on the daily implementation work plan
- Ensure screening is done appropriately
- Ensure the vaccination post is functioning according to the daily work plan of the vaccination post

- Ensure proper vaccine administration at the post
- Monitor, manage and audit all AEFI cases and report such to the Ward Focal Person daily
- Conduct daily data collection, collation and submission to the Ward level
- Collect the safety boxes from the fixed post to the Ward-designated areas every day.
- Monitor the waste management issues in the out post
- Attend daily Ward review meetings

Annex M: Epidemic Preparedness and Response Committee
Epidemic Preparedness and Response Committee

EPR committees shall be established at all levels and strengthened where available with defined terms of reference, plan of action and operational guidelines. The committee shall meet on quarterly basis and when deemed necessary. Rapid response teams equipped with adequate resources and logistics for rapid intervention shall be established at all levels. Adequate funds shall be provided at all levels to secure contingency stocks of medicines, vaccines and supplies and for pre-positioning of emergency stocks.

Epidemic management protocol and Standard Operating Procedures (SOPs) shall be made available to health personnel at all levels. The EPR committee shall monitor LGA weekly data on epidemic prone diseases to prediction of impending epidemics.

National/State Epidemic Preparedness Response Committee Membership/ Composition

The EPRC shall be composed of:

- HMH/Hon. Commissioner for Health
- Director PHC/Public Health
- Director Hospital Services
- Director of Pharmaceutical Services
- Director of Nursing Services
- Director Medical Laboratory Services
- DG NEMA/Executive Secretary, SEMA
- CCE/State Epidemiologist.

- Director Finance
- Representative of partner agencies

Terms of Reference of State Epidemic Preparedness and Response Committee

- Plan and coordinate surveillance and epidemic response activities
- Resource mobilisation.
- Meet regularly with the Epidemic Rapid Response Team.
- Monitor and evaluate response interventions.
- Review response plan where necessary.

NB: States are to consider including a Clinician and laboratorian from the Federal Tertiary Hospital in the State as members

Annex N: Incident Response Action Template

NATIONAL CSM EOC INCIDENT ACTION PLAN (IAP)	
Location: NCDC Situation Room, Abuja, Nigeria	Control Level: National
Period of Performance: 1 month	From: To:
Incident Manager:	*Name, Phone No, E-mail*
Epidemiologic Week: XX	
Situation (SITAN)	
Response Objectives	
Implementation	
Control Strategies	
Operational structure	
Role Task(s)	

Annex O: Electronic Line List Used During the 2016/2017 Outbreak

Sero Type	Outcome	Suspected Case	Name of Laboratory	Data Sample Collected	Date Laboratory Received Sample	Date Laboratory Sent Result	CSF Appearance	Test Result PASTOREX	Test Result CULTURE	Test Result PCR

Annex P: LGA Log of Suspected Outbreaks and Rumours

INTEGRATED DISEASE SURVEILLANCE AND RESPONSE (IDSR): LGA LOG

Condition or Disease	Date LGA was notified	Name of informant	Location of informant (Village, community, HF, etc.)	Name(s) of Suspected Case(s)	Age of suspected case	Sex of suspected case	Location of case(s) (Village, community, health facility, etc.)	Date a case was first seen at a health facility

Name(s) of Investigator(s): _____
_____
_____
_____

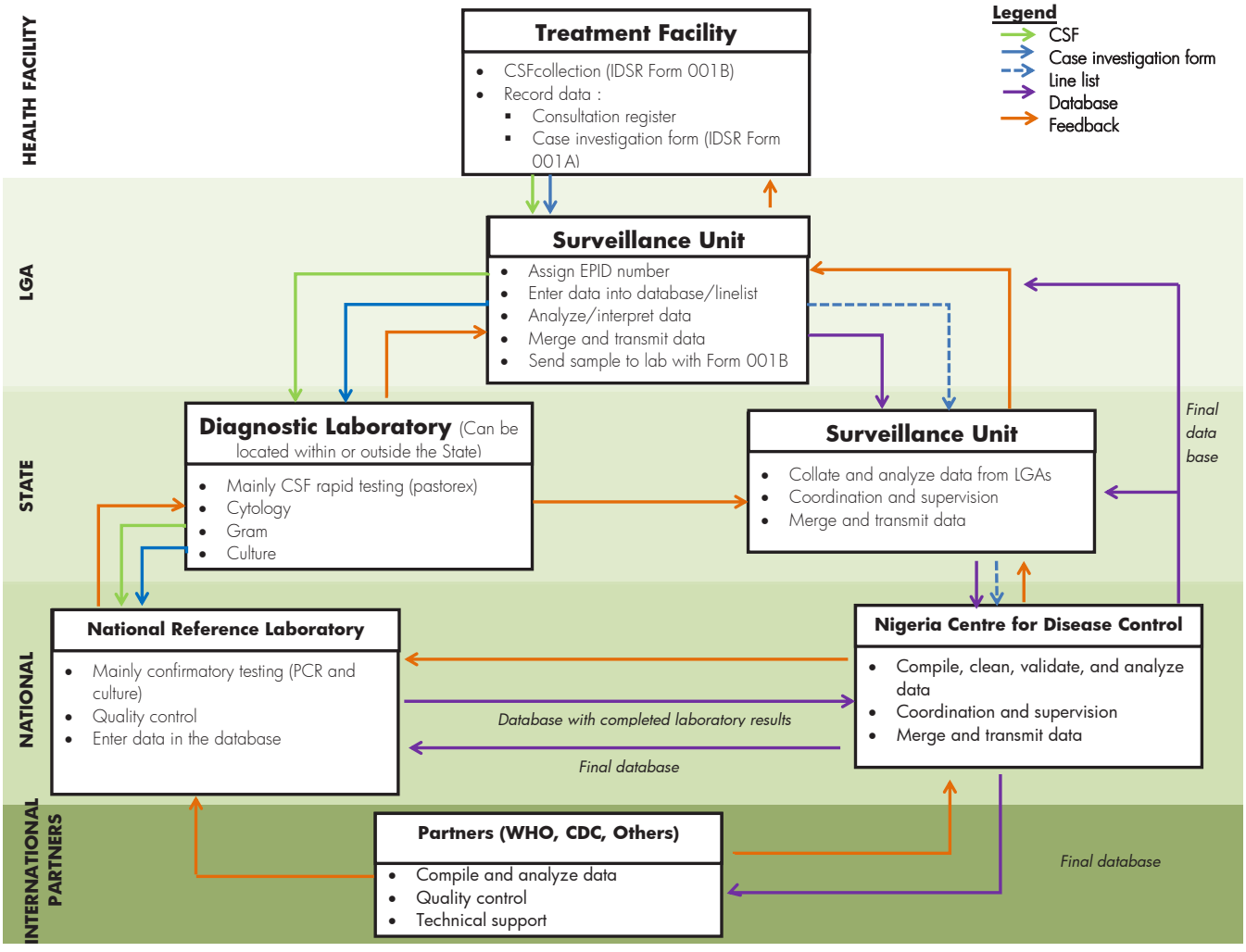
OF SUSPECTED OUTBREAKS AND RUMOURS

Date or Period suspected outbreak/ rumour was investigated by the LGA	Result of LGA Investigation (confirmed, Ruled Out or Unknown)	Date Outbreak Began (Date onset index case/date crossed threshold or first cluster)	Date concrete intervention began	Type of Concrete intervention that was begun	Date LGA notified State/ National Level of the outbreak	Date LGA received State/ National response	Comments/ Recommendations

Signature(s) of investigator(s): _____
_____
_____
_____

Date: _____

Annex Q: Electronic Line List Used During the Last Outbreak



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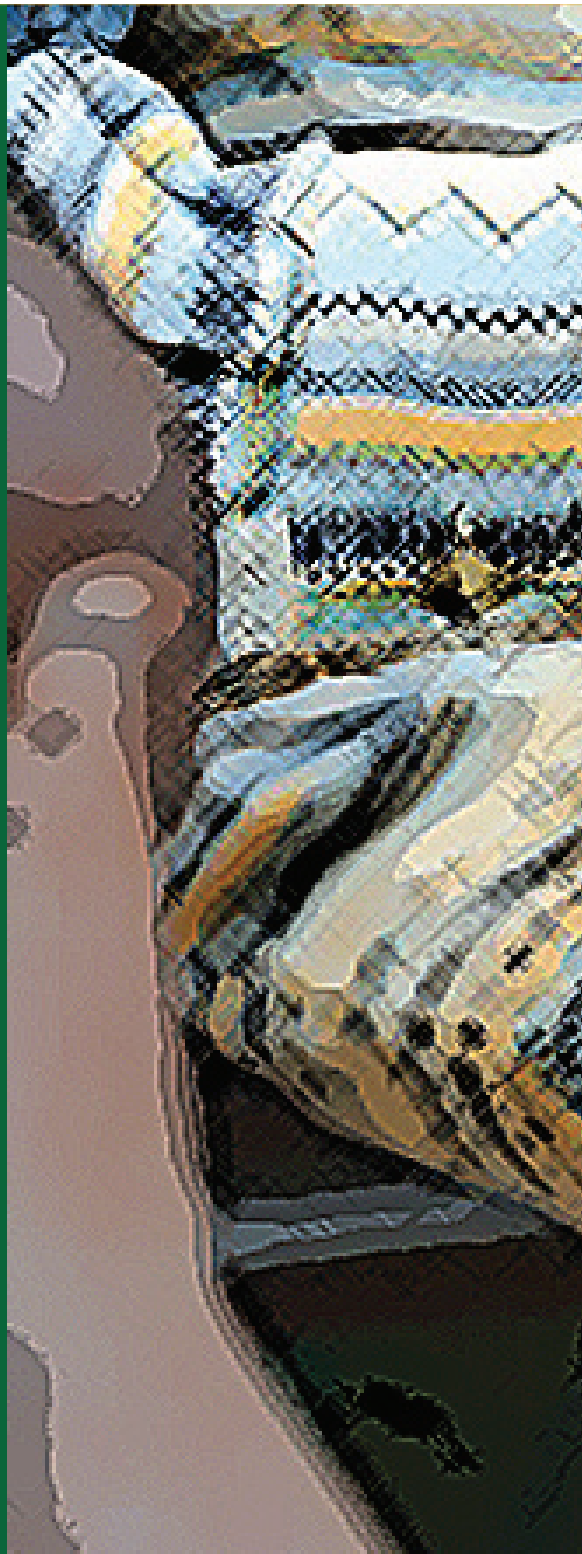
FEDERAL MINISTRY OF HEALTH
NIGERIA CENTRE FOR DISEASE CONTROL

PREPAREDNESS AND RESPONSE TO CEREBROSPINAL MENINGITIS OUTBREAKS



Preparedness and Response to Cerebrospinal Meningitis Outbreaks has been developed to guide proactive measures and effective response to occurence 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.

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