Handbook for Public Health Emergency Operations Center Operations and Management

World Health Organization
REGIONAL OFFICE FOR Africa

AFRICA CDC
Centres for Disease Control and Prevention
Safeguarding Africa's Health

CEDEAO ECOWAS

Handbook for Public Health Emergency Operations Center Operations and Management

ISBN: 978-929023445-6

Suggested citation. Handbook for Public Health Emergency Operations Center Operations and Management Brazzaville: WHO Regional Office for Africa; 2021. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

Sales, rights and licensing. To purchase WHO publications, see http://apps.who.int/bookorders. To submit requests for commercial use and queries on rights and licensing, see http://www.who.int/about/licensing.

Designed and printed in the WHO Regional Office for Africa, Brazzaville, Congo

Table of Contents

Acronyms

AAR	After-Action Review
CAP	Corrective Action Plan
US CDC	U.S. Centers for Disease Control and Prevention
EOC	Emergency Operations Centre
GPS	Geographic Positioning System
IDSR	Integrated Disease Surveillance and Response
IHR	International Health Regulations
IM	Incident Manager
IMS	Incident Management system
MOH	Ministry of Health
NDMO / NDMA	National Disaster Management Organization / Agency
PG	Policy Group
PHE	Public Health Emergency
PHEOC	Public Health Emergency Operations Centre
RRT	Rapid Response Team
SC	Steering Committee
SITREP	Situation Report
WHO	World Health Organization
WR	WHO Representative

Acknowledgements

This publication is the product of extensive collaboration between World Health Organization (WHO) Regional Office for Africa, partners and member states. The professionals listed below participated in various ways during development of this document.

Authors

World Health Organization

Senait Tekeste Fekadu
Yoti Zablulon
Michel Yao
Ngoy Nsenga
Jian Li

Africa Center for Disease Control

Wessam Mankoula
Merawi Aragaw

West Africa Health Organization

Virgil Lokossou

Contributors

World Health Organization

Ali Ahmed Yahaya, Demba Lubambo, Thierno Balde, Ambrose Talisuna, Mary Stephan, and Yousouf Kanoute.

U.S. Centers for Disease Control and Prevention

Wilton Menchion, Emily Rosenfeld.

Member States

Abraham Lilay, Abdoulaye Bousso, Angelo Goup Kouch, Aristide Abah Abah, Aschalew Abayneh, Abraham Nyenswah, Baba Alle Dieng, Cherif Djibril, Emmanuel Okunga, Eteng Womi, Issa Makumbi, Misago Leonidas, Mukeh Fahnbulleh, Nevashan Govender, Louis Nzeyimana, Lorna Gujral, Tossa Kokou.

1. Introduction

Public health emergencies arising from public health threats continue to be a major concern in Member States of the WHO African Region. Member States need to have functional public health Emergency Operations Centres (EOCs) to fulfill the International Health Regulations (IHR) obligations. EOCs play critical roles in helping Member States prepare for and respond to public health emergencies.

A Public Health EOC (PHEOC) serves as a hub for coordinating the preparation for, response to, and recovery from public health emergencies. The preparation includes planning, such as risk and resource mapping, development of plans and procedures, and training and exercising. The response includes all activities related to investigation, response and recovery. The PHEOC also serves as a hub for coordinating resources and information to support response actions during a public health emergency and enhances communication and collaboration among relevant stakeholders.

The "Framework for a Public Health Emergency Operations Centre" (PHEOC Framework) provides high level guidance for establishing or strengthening a functional PHEOC. The framework defines "plans and procedures" as one of the key components of the PHEOC and highlights that the PHEOC has different types of plans and procedures under the overarching national health emergency response plan. The PHEOC plans and procedures include: PHEOC Handbook, event- or hazard-specific response and management plans, and Incident Action Plan.

This PHEOC Handbook describes objectives of the PHEOC, management, response coordination system, criteria and authority for activation, information management, communication from the PHEOC and procedures for operating a PHEOC. It will serve as the primary resource manual for PHEOC staff, containing necessary forms, role descriptions, Concept of Operations (CONOPS) and Standard Operating Procedures (SOPs).

1.1. Rationale

Member States of the WHO African Region are establishing PHEOCs to serve as nerve centres for preparation and response to public health emergencies. A PHEOC must have a handbook that guides its operations at all times. This handbook will be utilized by Member States of the African Region as a reference to guide PHEOC management and operations by adapting it to specific country context.

2. Purpose, mission and scope

2.1. Purpose of the handbook

The purpose of PHEOC Handbook is to provide step by step guidance for the management and operations of the PHEOC to prepare for and respond to public health emergencies (PHEs) in order to ensure optimal and effective use of the facility.

These include:

- day-to-day management and operations of the facility
- procedures to follow to activate the PHEOC to coordinate the responses to PHEs
- operations of the PHEOC during different levels of activation
- organization of response and ensuring multi-disciplinary / multisectoral coordination
- management of data and information for evidence-based decision-making
- coordination of human, financial and material resources

2.2. Objectives of PHEOC

Key objectives of PHEOC include:

- Timely event-specific operational decision-making using the best available information, policy, technical advice and plans.
- Communication and coordination with response partners
- Collection, collation, analysis, presentation and utilization of event data and information
- Acquisition and deployment of resources, including surge capacity services and material to support all PHEOC functions
- Preparation of public communication and coordination with response partners to support audience awareness, outreach and social mobilization
- Monitoring financial commitments and providing administrative services for the PHEOC.

2.3. Scope of PHEOC

The scope of PHEOC depends on the purpose for which the PHEOC is created. Therefore, in this section, each country will briefly define the scope of its PHEOC.

3. Target audience

The Handbook is intended to be utilized by PHEOC staff to guide PHEOC operations and management, including decision procedures for activation and deactivation and procedures to follow under each activation level. In addition, responders who coordinate response to outbreaks and other public health emergencies will use this document.

4. Laws and regulations on PHEOC

This section provides a summary of existing laws, regulations or decrees that authorize and legitimize the PHEOC and govern its activities. Additionally, it describes the authority the PHEOC has to manage public health emergencies, authority for activation and deactivation, authority and mechanism for availing funding for sustaining the PHEOC and emergency response, etc.

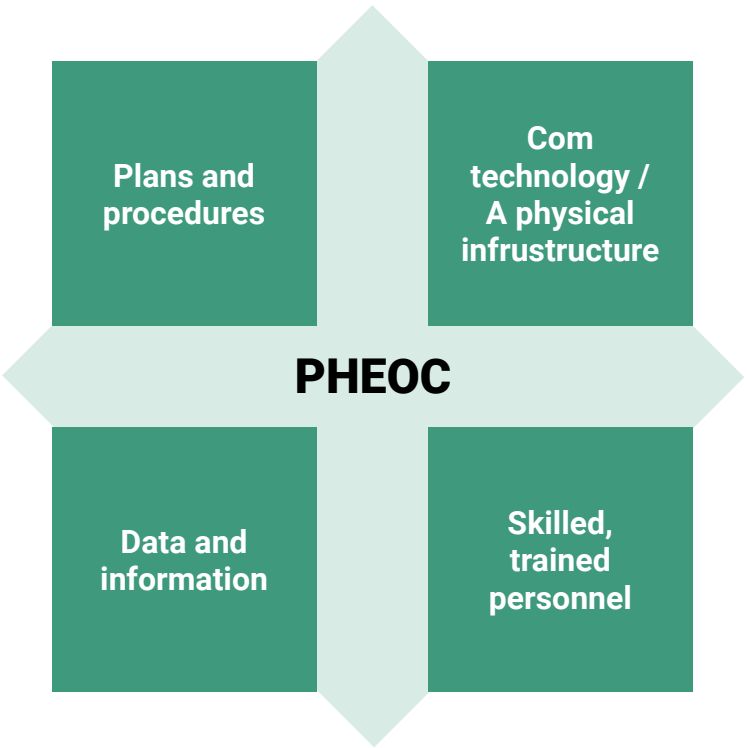
5. Strategic risk assessment

In this section, describe the strategic risk and resource assessment conducted to map risks and list potential identified risks, and identify resource gaps.

6. Core components of PHEOC

The key components that make a PHEOC functional, as highlighted in the EOC framework, are: plans and procedures, physical infrastructure, ICT infrastructure, information systems and data, as well as human resources. Meeting minimum requirements for each component enables the PHEOC to run according to minimum standards as stipulated in the IHR Joint External Evaluation.

Fig. 1 - Core components of PHEOC



**Refer to Annex 3 of the PHEOC Framework for details of the basic requirement of the key components.*

7. Description of PHEOC

In this section, a detailed description of the facility is encompassed. It includes:

- Physical location
- Description of rooms and the function of each room
- Technology: display screens, computers, telecommunication facility, etc.
- Entrance authorization to PHEOC
- Physical security such as surveillance camera, etc.
- Capacity of PHEOC in terms of the number of people it could accommodate
- Information management system and how this can be accessed
- Food services
- Rest room

A floor plan of the PHEOC needs to be designed and included in the PHEOC Handbook.
A seating chart with labels displaying IMS section positions is recommended.

8. Management of PHEOC

Organizational location: describe where PHEOC falls in the organogram of the health sector and the reporting system (to which the EOC manager reports). Provide the organogram of the PHEOC for the day to day operations and the number of staff available in the PHEOC.

Users: when the PHEOC is not activated, the PHEOC might be used for conferencing, training and meetings. The PHEOC manager needs to define the users and put in place a system for requesting utilization of the facility. The request will be sent to the PHEOC by email or other means (for example online request form or phone call).

The following information should be provided when requesting:

1. Purpose of usage
2. Date, time and duration
3. Resource to be used (videoconference, teleconference, meeting room, etc.)
4. Number of locations to be connected
5. Number of persons expected to use the facility

The PHEOC manager needs to designate the person responsible for coordinating this activity.

Access to the PHEOC: entrance to the PHEOC needs to be controlled. A registration log and sign-in sheet need to be placed by the entrance. A sign in log sheet template is provided in Annex 1. If the PHEOC has an access code, the PHEOC needs to maintain a list of people with access. In this section, describe how users will access the PHEOC. During activation of the PHEOC, regular meetings and calls may be cancelled and the PHEOC is occupied by the IMS staff.

Regular facility check: to ensure that the PHEOC is always ready for activation, it is vital to carry out regular checks of the infrastructure and technology system to guarantee its continuous functionality. In this section, provide a schedule of facility check in terms of what to be checked, when and who the responsible person is. A systems checklist is provided in Annex 2.

The PHEOC manager may also call for call-down drills exercise to test facility functionality (see training and exercise section).

9. Concept of Operation (CONOPS)

9.1. Staffing the PHEOC

The EOC has two types of staff: permanent and surge staff.

9.1.1. Permanent staff

The permanent staff is responsible for the day-to-day operation of the PHEOC. These include PHEOC manager, leaders of the key functional areas and staff under each area.

The PHEOC manager reports to the leadership under which the PHEOC is placed in the Ministry's organizational structure and the PHEOC staff report to the PHEOC manager.

THE PHEOC MANAGER

The PHEOC manager leads the PHEOC activities and is responsible for:

- the day to day operation of the PHEOC
- all PHEOC operations and ensures that the facility and resources required for PHEOC support are provided

- ensuring development of plans and procedures, and monitoring implementation
- development of training programmes and conducting exercises to validate components of existing plans and identify gaps
- ensuring proper management of information and documentation
- ensuring timely dissemination of information
- undertaking corrective actions following evaluation of the PHEOC and after-action reviews

In addition, when the PHEOC is activated the PHEOC manager will:

- staff the PHEOC in collaboration with the Incident Manager
- advise the incident manager on utilization of emergency management tools and procedures
- ensure that all systems in the PHEOC are up and running to provide operational support
- avail PHEOC resources and ensure access to the information systems is provided to the IMS team
- ensure proper documentation of the response to enable recreation of the incident for the after-action review

The key functional sections operating under the PHEOC manager are:

OPERATIONS UNIT

During peace times:

- works with the PHEOC manager to coordinate watch and alert activities

During response:

- oversees response activities in accordance with the operations section of the incident action plan, releasing or requesting resources as needed
- conducts response operations, using assigned human and material resources and resolving problems as they arise.

PLANNING UNIT

During peace times:

- works with PHEOC manager to develop and / or update plans and procedures; conducting exercises to validate components of existing plans and identify gaps; follow up on implementation of recommendations from after-action reviews; and maintain situational awareness

During response:

- oversees collection, evaluation, dissemination and use of information to support the production of plans and reports, maintenance of situational awareness, and prediction of the emergency's probable course
- compiles and presents information to support situational awareness
- tracks the status of all resources assigned to the emergency response
- maintains records of response activities to support accountability
- develops corrective action plans following after-action review and post exercise and monitors implementation
- prepares the demobilization plan and monitors implementation

LOGISTICS UNIT

During peace times:

- forecasts and orders resources based on risk assessment.

During response:

- oversees provision of all emergency response facilities, supplies, services and resources
- provides services to support emergency operations
- establishes and maintains a communications and message centre and is responsible for communications hardware (for example, radios, telephones)
- monitors health aspects and provides medical services for response personnel
- ensures that response personnel have sufficient food and potable water
- orders, receives, stores and distributes supplies and equipment, and coordinates procurement contracts with the finance section.
- prepares and maintains logistics management plans and SOPs

ADMINISTRATION AND FINANCE UNIT

During peace times:

- provides administrative support to the EOC manager by providing budget and following up on approval of PHEOC budgets, keeps records of staff and ensures welfare, overtime and other benefits.

During response:

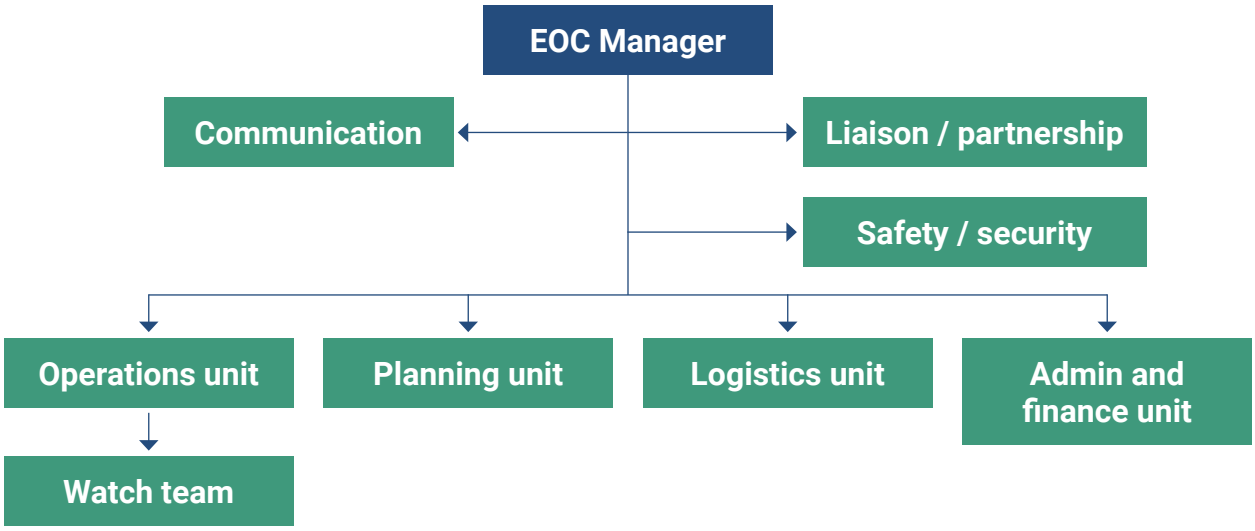
- supervising cash flow by estimating, tracking and approving response-related expenditure; monitors and coordinates funding from all sources:
- manages compensation for injury claims by response personnel
- creates and maintains cumulative response cost records, provides reports, and advises on potential cost savings
- prepares procurement instruments and ensures accounts for all properties utilized in the response
- ensures that personnel are compensated for time worked, and that documentation meets agency standards

It is vital to assign at least one person in each unit as leader. The watch staff fall under the supervision of the operations leader.

The PHEOC needs to have a public communication officer. If there is no permanent communications officer, it is crucial to linkup with the ministry of health communications unit to ensure required support. If capacity allows, it is necessary to also have liaison and security / safety officers.

It is also very important to have an information and communication officer (ICT). He / she will ensure all ICT equipment is up and running, and is always ready to support PHEOC operations.

Fig. 2 - Proposed basic PHEOC organogram



9.1.2. Surge staff

The PHEOC maintains a roster of multi-disciplinary and multisectoral experts who can be mobilized and staff the PHEOC when activated. When the IMS is activated, depending on the scale of the incident, positions will be identified in the IMS. Based on the positions identified, a human resource response plan will be developed. Experts will be identified from the roster to fill the identified positions. Terms of reference for each position will be developed. A generic TOR is given in Annex 3 for adaptation to the situation. The PHEOC manager organizes regular training of people on the roster and conducts exercises to validate plans, etc. and identify gaps.

A request for assistance needs to be made to key partners should there be a need to fill required positions. The procedure for requesting assistance is given in section 4.

9.2. Modes of operation

The PHEOC typically operate in three modes. These are: watch, alert, and response modes.
The modes are described below (ref: PHEOC Handbook for policy plans and procedures).

I. WATCH MODE

This mode corresponds to the normal day-to-day business activities. The watch staff constantly monitor and triage information on public health events by facilitating the collection, organization, analysis, distribution, and archiving of information. The PHEOC is constantly in watch mode throughout the different modes of operation. The staff continue to monitor events even if the PHEOC is in alert or response mode.

The work of the watch mode is guided by critical information requirement (see section 10.2).

Countries of the WHO African Region are implementing IDSR with overlapping function of the watch services. The watch services need to be carried out in integration with the IDSR team or done by the IDSR. The IDSR team may conduct this service from the PHEOC.

The section below provides examples of how watch services are done in Kenya and Nigeria.

The IDSR team in Kenya monitors events through routine surveillance, event based surveillance and media monitoring, as well as manages information received from community through a toll free line and other sources

Similarly, in Nigeria, watch activities are coordinated within the IDSR, event-based surveillance and PHEOC teams using a digital platform, SitAware. Incidents of public health interest detected by any of the teams are immediately entered into the platform and all follow-up action and response activities (if EOC is activated) are documented and tracked to a close. The platform enhances accountability for any detected incident throughout its entire life cycle. Also, a weekly technical session – National Surveillance and Outbreak Review Meeting (NaSORM) – brings together key technical staff and partner agencies to review disease data, provide updates on incidents, preparedness and response activities.

In this mode, the PHEOC is in a constant state of preparedness and readiness to support any escalation of operation level.

In this section, describe how watch services are done, how the watch and IDSR teams complement each other and annex the procedures and protocols the watch staff have to follow to conduct watch services including:

- how the monitoring should occur
- which function or position is responsible for it
- what they should do when certain threat thresholds are exceeded
- what they should do when new threats are detected and evaluated.

Roles and responsibilities of watch staff include:

- Monitor and triage incoming information
- Draft or prepare reports
- Distribute reports, documents, and notifications to relevant section or person responsible
- Ensure that the PHEOC has supplies and that equipment is operational
- Coordinate or lead briefings as required
- Support management of small scale events that do not meet criteria for activation

II. ALERT MODE

The alert mode is the early standby phase of activation when an incident or event has occurred or is imminent. The PHEOC conducts intensive monitoring of an incident or event in preparation for a potential PHEOC activation.

Alert mode activities include, but are not limited to, intensified surveillance, deployment of RRT to undertake an investigation, commencement of coordination with other sectors, initiation of preparation for deployment of financial and logistic resources, and identification of experts to staff the PHEOC. To accomplish these activities, the PHEOC usually requires increased staff and extended working hours. The PHEOC identifies and requests for additional surge staff as necessary.

Risk assessment

The PHEOC conducts risk assessment to determine if the incident requires PHEOC activation and determine the level of activation. The assessment can be done by the PHEOC staff and subject matter experts.

The levels of activation are determined on the basis of the results of a rapid initial risk assessment after an event has occurred. The PHEOC is activated (within 120 minutes) immediately after the risk assessment is completed and a directive is given. The PHEOC should be capable of activating within 120 minutes as required by the IHR indicator for a PHEOC to operate according to minimum standards.

A risk assessment template is provided in Annex 7.

III. RESPONSE MODE

During response mode, the PHEOC is partially or fully activated. The centre should define levels of activation corresponding to levels of response. The lowest level of response addresses lower scale events for which all response activities are largely within the capabilities and resources of the PHEOC and low-level augmentation is required.

Activation level names vary from country to country. The activation and grading mechanism should be in line with national policies, plans and procedures; and should specifically match with activation levels defined in the national health response plan. A grading template is given in Annex 5.

Countries should define and outline levels of activation corresponding to each grade based on scale, urgency, severity, complexity, capacity and resource requirement, as well as activation criteria outlined in section 9.3 a.

This handbook provides three activation levels within the response mode. These are Grade 1, Grade 2 and Grade 3. Grades 1 and 2 are partial activation (Grade 1 being the lowest and Grade 2 medium) and grade 3 is full scale activation (the highest level). The following colour codes are assigned to each level: Grade 1 = purple, grade 2 = orange and Grade 3 = Red.

Examples of grading criteria and levels of activation for Kenya and Nigeria PHEOCs are given in Annex 6.

During responses to humanitarian crisis or disasters, the health sector will provide the required health services and activate the PHEOC as necessary.

Partial activation

The PHEOC may classify partial activation as lowest and medium scale / grades of activation.

In a lowest -level (grade) activation, the PHEOC uses the lowest level of resources including regular PHEOC staff, relatively minimal augmentation in resources for the response, and reporting requirements.

In a medium-level activation, the PHEOC uses increased resources, including additional staffing (in addition to the regular PHEOC staff), moderate cost for the response, and increased but manageable reporting requirements.

The PHEOC is activated and surge staff will be called to undertake appropriate activities, based on their assigned roles and responsibilities. The PHEOC mobilizes additional resources and also requires some level of support from other departments. The PHEOC will be prepared for any escalation and to work extended business hours up to 24/7.

Countries need to define triggers for activation for each level of activation.

Full-scale activation

This phase corresponds to the highest activation (grade) level. The PHEOC will deal with the emergency of greatest magnitude, complexity, scope and impact. This requires the greatest resources and coordination. The national resources and capacities are exceeded and overwhelmed and substantial international support is required.

The national level will mobilize its existing resources and requires substantial International support. The health sector will mobilize resources from different sectors and stakeholders.

During this level of activation, coordination of the response will be managed by the health sector or might be taken over by a higher coordination body and the health sector will lead the response in line with the national policies and procedures. This level might require 24/7 operation with full staff.

9.3. Criteria and authority for PHEOC activation

Activation criteria

Some or all of the following criteria will trigger activation:

1. The capacity of the province / district of incident occurrence is overwhelmed
2. Any condition that has met the criteria to be declared a public health event of international concern (PHEIC) in line with IHR 2005 guidelines
3. An emergency with high public health burden potential
4. The capacity of regular staff is overwhelmed and additional support is required
5. Additional resources are required
6. A condition with the potential of cross border effects
7. Leadership / policy group directive
8. High media interest
9. Wide geographic extent (to be defined by the country)

Each country should define the criteria for each level of activation

Authority for activation

The Minister of Health or designated authority gives directives for activation of the PHEOC following a proposal by the PHEOC manager. Activation will be based on results of risk assessment. The Minister or designated authority may also directly provide directives for activation for political reasons or foreseen situations.

Proposed activation procedures (align to the procedures in the overarching health response plan):

- Conduct risk assessment
- If criteria for activation is met, determine activation level
- Proposal to the health minister or designated authority for activation
- Authority's approval to activate the PHEOC
- Designation of incident manager and activation of incident management system
- Exceptional activation by direct order by authority
- Approval of resources required (corresponding levels of activation) to kick off response

Activation notification

Activation notification provides information on activation of PHEOC, level of activation, assigns lead responsibility to a specific organizational unit; identifies the initial IMS structure to be implemented including designation of the incident manager.

The notification should be communicated with relevant stakeholders. The PHEOC needs to define recipients of the notification.

Activation checklist

1. Notification sent to relevant stakeholder
2. Incident manager is designated
3. IMS activated (partially or fully)
4. Section heads (Finance, Operations, Logistics and Planning) are called upon
5. Personnel assigned to positions on the PHEOC report to the PHEOC and check in with section heads
6. Determine staffing needs and acquire additional support as required

7. Incident action plan is developed
8. Orientation provided to surge staff on the PHEOC
9. Conduct incident situation briefing
10. Task assigned to Incident Management System (IMS) team monitored using tasks tracking tool
11. Issue job action sheets
12. Ensure situation report is regularly disseminated
13. Activity logs conducted
14. Shift change plan and briefing done
15. Emergency contacts list developed and shared
16. Ensure proper documentation of relevant information in a central location
17. Ensure communications equipment is working and ready for operation
18. Necessary logistical supplies and materials are available
19. Ensure partners activities are tracked and used for planning and coordination

9.4. Shift during activation

During activation where coordination of responses from the PHEOC requires working extended hours up to 24/7, qualified staff on the PHEOC activities will work in rotation. A complete shift of staffing will be established for the duration of the operations. The incident manager (IM) with support of PHEOC manager is responsible for developing a rotation plan. A briefing (at least 15 minutes) must be given to the replacement. It is recommended that each person works maximum of 12 hours in a shift. The shift plan will be recorded and displayed in the PHEOC. A shift plan template is provided in Annex 8A / 8B.

9.5. De-escalation

When the scope, complexity, and severity of the health emergency decreases, de-escalation of the level of activation needs to be considered.

Considerations for de-escalation include a decrease in one or more of the following:

- No longer a public health event of international concern (PHEIC) in line with IHR 2005 guidelines
- Human resource surge support required
- Resources required
- Media interest
- Geographic extent
- Executive / leadership directives

The PHEOC will conduct risk assessment and review of activation level
in order to make the decision for de-escalation.

9.6. PHEOC Deactivation

When the response is declared over, the PHEOC will be deactivated and return to routine monitoring. The Minister of Health or designated authority is responsible for deactivating the PHEOC.

Criteria for deactivation

Some of the criteria for deactivation include:

- The trends and data from the field begin to suggest that the issue being addressed is on the decline
- The issue is no longer a public health threat
- The sub-national level is no longer overwhelmed and has the capacity to address the incident
- Resources are no longer required
- The incident or state of emergency has been declared over by the MOH or designated authority

Deactivation checklist

- Notify appropriate agencies through mail and / or telephone regarding the individual sites where the PHEOC activation is being closed out.
- Collect data, logs, situation reports, message forms, and other significant documentation for archiving.
- The IM to handover to the PHEOC manager
- Fold and repack re-usable maps, charts, materials
- Collect items that have been deployed in the field for future response use
- Make a list of all supplies that need replacement and forward to the logistician
- Return identification credentials to the PHEOC Manager
- Develop deactivation report
- Deactivate

9.7. After-Action Review

The International Health Regulations (IHR 2005) require countries to develop core public health capacities to prevent, detect and respond to public health events. Following recommendations of the IHR review committee on second extension for Establishing National Public Health Capacities and on IHR Implementation in 2014, the World Health Organization has developed a new IHR Monitoring and Evaluation Framework (IHRMEF) with three new components. One of the three components is **After-Action Review** – a qualitative review of functional capacity which is conducted **after** the response to public health events or incidents.

After-action review (AAR) helps to assess actions taken in response to a public health emergency as a means of identifying best practices, gaps and lessons learned in order to take corrective actions to improve future response. It is highly recommended to conduct the AAR **immediately** after the declaration of the end of a public health event and **up to three months** after the event. Therefore, the PHEOC will conduct AAR within the recommended time frame.

The IHRMEF recommends and encourages countries to conduct after-action review (AAR) of the response to public health emergencies in order to learn from the response to improve future outbreaks and public health emergencies.

Objectives of AAR:

- Demonstrate the functional capacity of existing systems to prevent, detect, and respond to a public health event
- Identify lessons and develop practical, actionable steps for improving existing preparedness and response systems
- Share lessons learned from the review with other public health professionals
- Provide evidence for the development of the national action plan for health security or to contribute to other evaluations such as the Joint External Evaluation or simulation exercises

Methodology:

An after-action review (AAR) is a qualitative review of actions taken to respond to a real event as a means of identifying best practices, lessons and gaps in capacity.

The AAR exercise uses an interactive, structured methodology with user-friendly material, group exercises and interactive facilitation techniques. It is divided into five sessions:

- What was in place before the response?
- What happened during the response?
- What went well? What went less well? Why?
- What can we do to improve for next time?
- Way forward

After any live activation or simulation exercise, the PHEOC conducts an AAR; and at the end of every AAR, an action plan is developed and the activities are prioritized for implementation with clear timelines to address the identified gaps.

The planning section is responsible for conducting AAR by bringing all actors involved in response, development of an action plan and monitoring of implementation.

9.8. Response structure and roles and responsibilities

The PHEOC will use the IMS for coordination of response to public health emergencies. The IMS is an emergency management organizational structure that, alongside protocols and procedures, provides an approach for a coordinated and timely response. The system is modular and scalable, hence can be partially or fully activated depending on the scale of the event.

The IMS embraces five functions: management, operations, planning, logistics and administration and finance.

1. **Management:** It sets the response objectives, strategies and priorities; including public communication and liaising with agencies and the safety of responders. The IM is responsible for overall management of the response operation. The role of the IM can be assumed by the designated deputy IM. Leaders of the other four sections directly report to the IM.

   The following functions fall under management section: PHEOC manager, public health communications officer, liaison / partnership officer, and safety / security officer.

2. **Operations:** It guides the use of resources to directly respond to the event. At the national level it provides coordination and technical guidance. This section includes the following technical areas: surveillance, laboratory, epidemiological data management, social mobilization, water, sanitation, and hygiene; and case management, mass casualty management, etc.

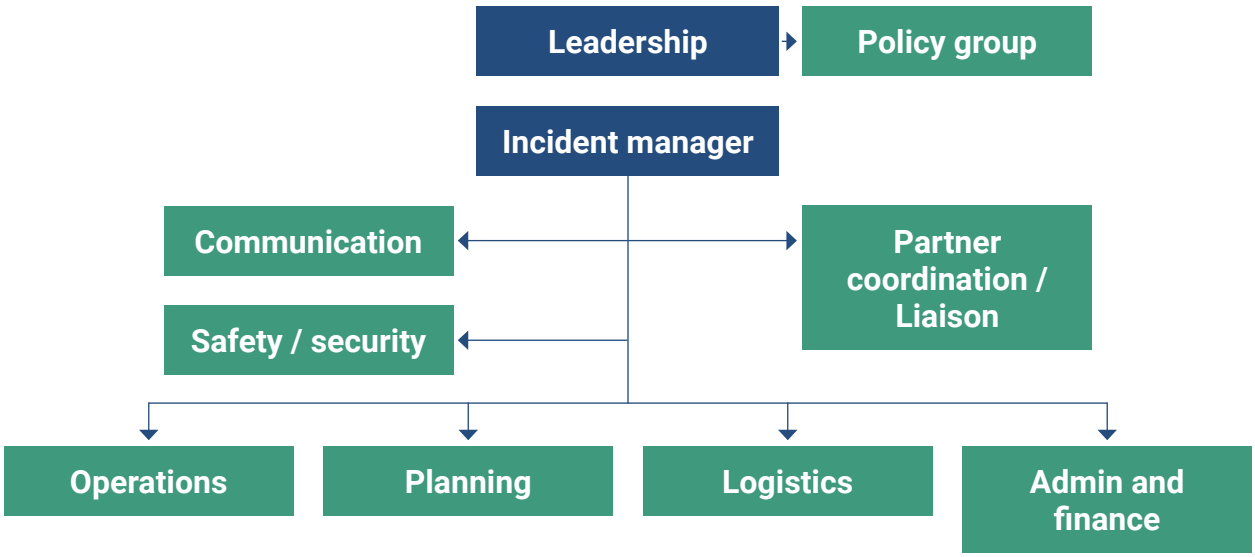
3. **Planning:** It supports the incident action planning and budgeting process by tracking resources, and collecting and analysing information. This function is responsible for preparing the incident action plan and maintaining documentation of the incident or event. An incident action plan template is provided in Annex 9.

4. **Logistics:** It acquires, tracks, stores, stages, maintains and disposes material resources required for an event response.

5. **Administration and finance:** It organizes all financial and administrative tasks including accounting, procurement, human resources, etc.

The Incident Management and response structure is provided below (figure 3).

Fig. 3 - Incident management model



The incident manager is responsible for determining the IMS structure and defining staffing requirements. Continuous assessment will be conducted and the structure will be reviewed based on the scale and complexity of the emergency event. The roles and responsibilities of response personnel is given in Annex 3 and must be adapted to the event situation.

Once the PHEOC is activated, the IM and section leaders will issue job action sheets. Tasks on the Job action sheet can be amended to fit the situation by adding or deleting tasks. The job action sheet outlines tasks to be implemented by surge staff.

The tasks are categorized as:

- **Immediate:** tasks that must be completed first upon assuming the role or coming on duty.
- **Intermediate:** tasks to be completed after the immediate tasks are addressed.
- **Extended:** tasks to be completed later or on an on-going basis during the work shift.

Annex 10 provides a job action sheet template.

9.8.1. Policy / leadership

The policy group will provide strategic leadership and guidance to the EOC operations and avail funding for emergency operations. The roles and responsibilities of the leadership include:

- Providing strategic guidance to the PHEOC
- Ascertaining funding for sustaining the PHEOC
- Availing funding for emergency operations
- Ensuring that relevant plans and procedures are in place and approve them
- Ensuring multisectoral and multi-agency coordination and collaboration

The leadership / policy group are composed of:

- Ministers of relevant sectors
- National disaster management agency
- Representatives of international and regional organizations.

- Key subject matter experts including legal and ethical advisors
- Partners involved in emergency management
- Key subject matter experts

The Minister of Health or a designated person who is given authority to bring different sectors together shall be the chairperson of the policy group. The representative of the World Health Organization (WHO) shall be the co-chair.

During full scale activation, when the capacity of the health sector is overwhelmed, the coordination might be taken over by the higher national coordinating body (presidential or prime minister's level).

The leadership group needs to regularly receive updates highlighting the situation, operations, challenges, gaps and outline activities that require leadership attention and decision and support. A template for situation update to the leadership is provided in Annex 11. The incident manager is responsible for coordinating preparation of the report and sharing with the leadership.

9.8.2. Tactical level operation

This level is responsible for the day-to-day actions that will achieve the established strategic, operational goals and objectives. To ensure compatibility and interoperability, the PHEOC must ascertain multisectoral and multi-disciplinary coordination of response using IMS at district and provincial levels. The PHEOC manager coordinates and ensures provision of training for these levels, development of plans and procedures and conducting the simulation exercise.

The PHEOC has to establish a communication, information sharing and feedback mechanism between the sub-national level and the national PHEOC.

9.8.3. Rapid Response Team (RRT)

The RRT is a multi-disciplinary team, trained to provide support to regional / district and local health authorities in the event of any public health emergency. The RRT is ready to be deployed and provide surge capacity, and complimentary expertise to responses to emergencies.

The RRT will participate in all training and exercise programmes planned by the PHEOC.
During responses to PHE, experts will be deployed to the tactical level to conduct investigation and support response operations.

Annex 12 illustrates how the three levels (strategic, operational and tactical levels) work together in a compatible structure to lower level and engaging different sectors and agencies and how information and alerts flow to and from the PHEOC.

The RRT operates at the tactical level (field level) and the operations section of the IMS in the PHEOC oversees their activities.

9.9. Request for assistance

The IM identifies gaps and proposes to the leadership what types of resources (human, material and financial) are required from external sectors and response partners. The leadership prepares a letter of request for assistance signed by the minister or designated authority. This process needs to be aligned to the existing internal ministry procedures. The request for assistance form is given in Annex 4.

9.10. Linkages with other sectors and agencies

The Concept of Operations (CONOPS) in the national public health response plan should describe when and how the PHEOC links and interacts with the national disaster management agency, line ministries including defence, security and international organizations. Military and other resources may be engaged as necessary and coordinated through the PHEOC. This section should describe the national CONOPS on

linkages and responsibilities of all stakeholders. The bigger CONOPS might be annexed in this handbook.

Emergency response planning is part of a comprehensive disaster risk management programme that addresses questions about who or which agency does what during an emergency, and when. This creates a framework for responsible agencies to develop and test plans for engagement.

A PHEOC is the response management component of an evolving comprehensive emergency (risk) management programme within the responsible jurisdiction. PHEOC planning should recognize both alignments with the NDMA and linkages with national-level humanitarian response agencies.

The PHEOC needs to secure a liaison officer who facilitates linkages and coordinates joint planning and efforts of agencies that are external to the health sector. A model of CONOPS is given in Annex 12.

10. Information management

The EOC framework defines three types of information required in PHEOC for decision-making. These are:

- Incidents-specific information
- Event information
- Contextual information

The PHEOC needs to define information requirement in the PHEOC to support decision-making.

This information is known as Essential Elements of Information (EEI).

10.1. Essential Elements of Information (EEI):

An essential element of information (EEI) is information that is required for decision-making in a PHEOC in a timely manner across all IMS functions. The level of urgency and the need for action distinguish CIRs from EEIs.

Characteristics of EEIs:

- Include standard data and information items for routine situational awareness.
- Provide context and contribute to analysis.
- Are included in response situation reports.
- Facilitate identifying response activities and material requirements.

The EEI include:

- All the notifiable diseases / conditions outlined in national IDSR
- Resource mapping, including human, financial, logistical and availability

10.2. Critical Information Requirements (CIRs)

The CIRs include collection, analysis and dissemination of relevant information on public health risks, epidemic investigation and response, needs assessment, overall health sector response, gaps, and performance. It is information that is vital to facilitating situational awareness and decision-making. It is a high-priority subset of EEIs, and is used to trigger immediate or mandatory action.

The list of CIRs below is not exhaustive and requires prompt reporting by the watch team and is monitored on a regular basis. This list can be amended to meet the information requirement of a PHEOC.

- All PHEs of international concern in accordance with IHR requirements
- An outbreak that exceeds the threshold defined in the IDSR and being monitored by PHEOC
- Any acute PHE that requires assistance from WHO

- Media interest for any event
- Accidental death / injury of response personnel deployed in the field
- Any event affecting installation activities / operations
- Upward or downward change in grade of a current PHE
- An incident which negatively impacts the facilities, activities, or operations of the PHEOC or MoH
- An unusual or serious event reported from the sub-national level

During activation, incident-specific targeted CIRs are developed to guide information gathering and reporting for the specific event. The PHEOC manager in consultation with the IM develops the CIRs.

10.3. Information flow

Coordination of information on PHEs is very crucial. The PHEOC should serve as a hub for reporting public health events and coordination of information. All information on PHEs must systematically flow to the PHEOC. This includes information flowing from community, event sites, health facilities (including treatment centres and point of entries) from ward level to district, regional and national levels and is received by the PHEOC at the national level.

All communication to and from the PHEOC will be done using the PHEOC email.

10.4. Recording and documentation

Information on the PHEOC should be recorded in PHEOC information system. This includes logging activities, tracking HR deployment, tracking of partners' activities, tasking, scheduling, etc.

It is extremely important to accurately document actions taken during preparedness and response to emergencies. This will assist in tracking and monitoring the effectiveness of the response activities. Hence, all documents related to an event will be properly archived. The PHEOC needs to have a central repository (preferably online to ease access) where all relevant information on incidents is archived. The planning function is responsible for documentation and must ensure proper documentation of all relevant information on response operations.

10.5. Analysis / visualization

The PHEOC will regularly analyse epidemiological data and produce epidemiological situation maps. Trends and maps need to be displayed in the PHEOC.

The planning function is responsible for collecting, analysing and visualizing incident information such as human resource deployment, status of materials deployment (what has been deployed when and where) and mapping partners' activities (who is doing what, where and when). Trends of the event and situational maps will regularly be produced, displayed and shared.

It is vital for the PHEOC to have key analytical tools such as GIS.

10.6. Displaying information

The PHEOC needs to define type of information to be displayed in the walls, boards and screens of the PHEOC. Information for display include: PHEOC schedules, maps and trends of events, task tracking, etc. It is vital to post in the PHEOC walls big size (A0 or bigger) maps of the country depicting district, provinces, bordering countries, rivers, health facilities, etc.

10.7. Information products

To support informed decision-making, the EOC produces various information products. Table 1 below provides a list of information products, frequency of reporting, target audience and those responsible for producing the product. SOPs for producing each information product must be included in the handbook.

Templates for summary of response to leadership, situation report, and 4Ws are given in Annexes 11, 13, and 14 respectively.

Table 1 - PHEOC Information product

Information product / outputs	Source of information	Frequency of report	Report Distributed	Person Responsible
SPOTREP	PHEOC		Leadership	
Situation report	PHEOC	To be determined by nature of event	Determine	
Summary of Event to leadership (max 2 pages)	PHEOC	Twice a week	Policy / leadership group	
Feedback report	PHEOC	Weekly	Determine	
4W matrix	PHEOC	Once a week	Determine	
Investigation Reports	PHEOC	Depending on occurrence of PHE	Determine	
After-Action Reports	PHEOC	End of an outbreak	Determine	
Annual report	PHEOC	Once a year	Determine	

10.8. Partners' activity tracking

To coordinate response efforts and avoid duplication, it is vital to know who is doing what, where and when. This information is maintained in the PHEOC and regularly updated and shared throughout the course of the response (the PHEOC to determine frequency). The leadership, incident management team and partners will receive this report. A template for tracking partners' activities is given in Annex 13. The partnership focal person is responsible for ensuring availability of the 4Ws.

The PHEOC will maintain data on partners' capacity by area of intervention.

10.9. Meetings and activities schedule

All planned activities, conferences and meetings (regular and ad hoc) will be recorded and regularly displayed in the PHEOC. The PHEOC manager ensures updating of the information. A scheduling template is given in Annex 15. The schedules need to be displayed (during normal and activation time) to help know what activities are occurring at the PHEOC.

10.10. Emergency contacts

There will be a 24/7 PHEOC dedicated call line in the PHEOC which can be used as an emergency contact point (provide contact number). It is also important for the PHEOC to have a toll-free line (provide contact number) in the PHEOC that will be used by individuals to report about any event.

The PHEOC maintains a list of contact of key stakeholders, including all levels of health system delivery, government sector, key staff, partner organization representatives, and disaster management. In addition, the PHEOC will maintain contacts of EOCs that the PHEOC connects to including telephone number, address, and video and tele-conferencing detail. A contact tracking template is provided in Annex 16.

11. Coordination and communication

An effective, accurate and timely communication system is crucial for the control of the response and the PHEOC is the platform for effective communication. The PHEOC establishes internal communication within the Incident Management System (IMS) and external communication with partners, government and the private sector as well as the public.

11.1. Internal

To establish effective communication within the different sections of the IMS and the field, the following actions shall be taken:

- **Regular IMS team coordination meeting:**

  When the PHEOC is activated, regular IMS team meetings are scheduled. Frequency of meetings is determined based on the severity and evolution of the incident. This platform facilitates communication between the different sections and serves as a mechanism for sharing of updates for common operational picture, decisions for action and coordination of the emergency response. All IMS staff and partner organizations participate in the meeting. The incident manager chairs this meeting.

  Action points from this meeting will be recorded in the task tracker and their implementation monitored against the assigned timeline. The IM and function leaders are responsible for assigning responsibilities and monitoring implementation.

  Minutes of this meeting are compiled and shared with the team for comments within 24 hours and finalized. The planning team is responsible for preparing minutes and archiving them in a central repository.

  The incident manager will report to the leadership issues and challenges that require leadership decision and present them during the leadership meeting.

- **Sections coordination meetings:**

  Each section meets regularly (determine frequency) to enhance communication and facilitate coordination of response.

- **Strategic communication:**

1. **Reporting to leadership:** the IM prepares a leadership update reports regularly (determine frequency) and shares with the leadership. The summary includes brief summary of the event, actions taken and next steps, issues and challenges that required high level decision-making (maximum two pages). Reporting templates are given in Annex 11.
2. **Leadership meeting:** this meeting is chaired by the minister or designated authority and co-chaired by a WHO Representative (WR). It is attended by all respective health directors, IMS personnel, heads of responding partners and other relevant stakeholders. This is a forum for strategic communication among relevant stakeholders where critical decisions are undertaken. The incident manager and section leaders will provide situational awareness. Minutes of the meeting are shared regularly to monitor actions and documented properly in the PHEOC repository.
3. **PHEOC email:** the PHEOC mailbox serves as a central mail repository. Any communication with the PHEOC and going out of the PHEOC should be done through the PHEOC mailbox. PHEOC staff must have access to and should communicate via the PHEOC email.
4. **Situation Report:** a situation report is produced regularly. An email distribution list needs to be formed containing all taskforce members. The SITREP should be disseminated widely to the IMS members, all levels of the health system delivery (regions, districts, etc.), relevant private and government sectors and partners, and displayed in the PHEOC.

5. **Communication with the field:** it is critical that the field response team maintain regular communication with the PHEOC and information should seamlessly flow to the PHEOC. The PHEOC must have a full operational picture on what is happening in the field. The PHEOC needs to put a mechanism or procedures to establish steady communication with sub-national levels.

   At sub-national level, teams need to be equipped with basic communication facilities such as telephones (with timeline), internet, etc., to enable them to communicate and share information.

11.2. External

The PHEOC communicates externally with relevant partners, government and private sectors as well as the public, in line with government communication policy.

The PHEOC communicates with relevant partners, government and private sectors through a communications unit, which must have been set up in advance with designated roles and responsibilities. Crucial preparatory work must be conducted in advance of a public health emergency. Standard operating procedures (SOPs) with key timelines need to be developed and then followed during a health emergency, while the communications outputs need to be monitored and evaluated. There is a crucial need to understand the difference between risk communications and corporate communications.

Communications include a website or newsletter with a regular situation update, regular press briefings, press releases of actions taken and areas which need support.

11.2.1. Public communication

Preparing Communication for a Public Health Emergency:

- **Building on the current communications structure**, setting up a team with clearly defined roles and responsibilities that people can shift into once an emergency strikes.
- **Media mapping** and developing the contacts of influential mass media outlets and journalists with the widest reach, scope and appeal
- **Partner mapping** and creating a contact list of key communications partners who will participate in the response and devising a communications system
- **Capacity building** and designating key spokespersons and officials who will interact with the media and public. Media training should be provided in advance of an emergency.
- **Developing SOPs** for communications during a public health emergency with key timelines.
- **Preparing preliminary statements** on different possible emergencies and storing in a 'bank' to ensure that initial information about the incident is swiftly and accurately conveyed to the media and key stakeholders. These would include:
  - Fact sheets
  - Questions and answers
  - Important telephone numbers and contacts

During the Public Health Emergency:

- Posting the daily situation update on the MoH website and sending out to key media and stakeholder contacts
- Holding regular press briefings on the situation
- Sharing key messages regularly with partners to ensure everyone is speaking with one voice
- Issuing press releases at key moments in the response: announcement of outbreak, scaling up of support and key control measures such as vaccination campaigns and then containment and end of outbreak

- Daily monitoring of news channels, including social media to spot any misinformation or rumours circulating
- Media training of key journalists and outlets to sensitize them to key prevention and other measures
- Working with risk communications health promotion and community engagement colleagues to disseminate key prevention and other measures through radio, social media and other communications channels
- Communicating with the public to inform them about the situation, control measures and risks
- Using social media platforms to disseminate key information and to dispel rumours, as well as to identify issues of concern

After the public health emergency has ended, follow-up activities include:

- Looking at media output in terms of numbers of press releases, briefings, interviews and social media posts
- Analysing coverage in terms of alignment of messaging
- Archiving useful documents for easy access next time
- Conducting lessons learned regarding procedures and processes to see what went well and what can be improved the next time
- Continue building relationships in preparation for the next emergency

12. Monitoring and evaluation of the PHEOC

Following a simulation exercise or where a live incident is declared over and the PHEOC is deactivated, performance of the centre must be evaluated. This evaluation will consider facility availability, connectivity with the field and other level of PHEOC operations, availability of information, functionality plans and procedures. Input will be collected from PHEOC staff and other incident management staff regarding PHEOC support to the response

This process will identify key failures / drawbacks that the PHEOC needs to improve to fully support the response operation. Results of the evaluation will inform development of corrective action plan to rectify weaknesses. The PHEOC manager should ensure development and implementation of the action plan, and reports to the supervisor on implementation of the plan within a timeframe. A PHEOC evaluation form and corrective action plan (CAP) template is provided in Annex 17 and 18 respectively.

13. Training and Exercise

The PHEOC has to develop training programmes and regularly train both PHEOC permanent and surge staff. These will allow development and maintenance of critical set skills, and continuous improvement of PHEOC functions. During normal time, the PHEOC must train its staff and conduct simulation exercises.

Outline:

- Types of training to be conducted
- Persons to be involved in the training (need to be multi-disciplinary / multisectoral, including response partners)
- Frequency of training sessions per year

Training sessions are usually followed by an exercise. Simulation Exercises will be regularly conducted to test skills acquired, to validate existing plans and procedures, and systems.

The EOC framework outlines six types of exercises for PHEOC. These are:

- Orientation exercise
- Drill
- Table-top exercise (TTX)
- Functional exercise
- Full-scale exercise
- Games

WHO has developed a manual titled “WHO Simulation Exercise Manual” which provides an overview of the different simulation exercises, tools and guidelines.
The manual is available at: https://www.who.int/ihr/publications/WHO-WHE-CPI-2017.10/en/

14. Redundancy / continuity of operations plan

This plan enables the PHEOC to continue carrying out its operations in case of an emergency situation that disrupts normal working conditions. A permanent PHEOC that is continuously in use should have an alternate location that can be activated with full functionality within minutes for swift resumption of the delivery of critical services affected by a disruption.

Physical security

This section provides information on the security system available in the PHEOC such as fire detection, fire alarm, locations of fire extinguishers, etc. It will also describe how staff should exit from the PHEOC in the event of emergencies.

Data security

To avoid loss of data following failure of IT systems, a backup system needs to be put in place. In this section, describe the data backup systems being implemented in the PHEOC and the recovery plan.

Communications system backup

In the event of communication breakdown, a backup communication system should be installed to enable continuity of operations. This will include internet connectivity, satellite phones, radio, etc. Describe the communication backup available and to be utilized during breakdown.

Power backup

All computers and other appliances have to be connected to an uninterrupted power supply (UPS) unit to protect equipment from power surge and subsequent failure.

Continuous and lengthy power interruption disrupts PHEOC operations. To ensure continuity of operations, it is crucial to have a power generator in the PHEOC. The generators will automatically takeover in the event of commercial electricity power cuts.

It is important to describe the power backup system available in the PHEOC.

Continuity of Operation (COOP)

In case of physical infrastructure failure that does not allow use of the PHEOC, the operation of the PHEOC must continue from a different location. The PHEOC must identify a location from which operations can continue. It can be a location in the health or another sector. The national disaster EOC is an option.

Describe the identified location and facility available to support response operations. If the national disaster EOC is the identified facility, ensure that an agreement is reached with the centre.

15. Logistics support for PHEOC operations

Communications equipment

Communicating with Rapid Response Teams (RRT) is very critical during response operations. To enable the RRT to communicate with the PHEOC, they need to be equipped with some of the following communications equipment: laptops, phones, satellite phones, internet access, GPS and other necessary equipment. The logistics team from PHEOC will be responsible for making available the communications equipment for deploying and conducting training for staff on how to operate the equipment.

Staff sustainment and safety

During activation, food and beverages will be served in the PHEOC to sustain staff working extended hours. The logistics section coordinates these services (include administrative procedures to be followed for ordering and procuring the service). It is advisable that the PHEOC have a kitchen equipped with refrigerator and utensils for storing and serving the food. Drinking water, toilet, flash light, first aid kit need to be available in the PHEOC (indicate locations in the floor plan).

PHEOC supplies and materials

The logistics section is responsible for providing necessary stationery materials and supplies for the PHEOC staff both during normal and activation period.

16. Annexes

Annex 1: Sign-in sheet

The sign-in sheet is used to keep a record of all persons who utilize the PHEOC. The purpose of this log is to monitor utilization as well as to assist with recreating the event for after-action reviews after response operations have concluded. Each individual must sign in and out upon entering and exiting the room.

Date	Name	Programme	Sign in time	Sign out time

Annex 2: Regular facility checklist

No.	Equipment	Frequency	Date	Status s	Remedy

Annex 3: Roles and responsibilities

Incident Manager	- Responsible for all aspects of the outbreak response; including developing event objectives, managing all operations, application of resources as well as responsibility for all persons involved - Sets priorities and defines the organization of the response teams - Responsible for the overall incident action plan - Oversees all operations of the outbreak response - Establishes the appropriate staffing level for the IMS and continuously monitors operational effectiveness of the response - Ensures availability of end of PHE after-action report - Responsible for recommending deactivation of the PHEOC when the outbreak is declared over
Deputy Incident Manager	- Assumes the responsibility of Incident Manager when needed - Performs specific tasks as requested by the Incident Manager - Implements directives from senior managers
Communications Officer	- Interfaces with the public, media, other agencies, and stakeholders to provide response related information , and updates based on changes in the status of the incident or planned event - Responsible for development of public information and communication products - Controls and coordinates the release of information to the media - Prepares press releases and conferences - Develops and releases information about the response to the news media, to the response personnel, and to other appropriate agencies and organizations - Obtains media information that may be useful to incident planning - Provides accurate and timely status reports to the Incident Manager and PHEOC members - Provides accurate information to the media on a timely basis - Performs a key public information - monitoring role, such as implementing measures for rumour control - Develops and distributes community information releases through local and national media such as TV, radio, or newspaper, and the use of social media networks
Liaison Officer	- Coordinates activities with other agencies in the PHEOC that are normally not part of the PHEOC staff, such as partners, private and governmental sector or volunteer organizations to make sure they are incorporated into PHEOC operations as appropriate

PHEOC Manager	- Supports all PHEOC operations and ensures that the facility and resources required for PHEOC support are provided - This position works closely with the Policy Group and ensures that proper emergency and disaster declarations are enacted and documented - Ensures PHEOC plans and procedures and monitors implementation - Staffs the PHEOC in collaboration with the Incident Manager - Responsible for the day to day operation of the PHEOC - Ensures proper management of information and documentation - Ensures timely dissemination of the response information
Safety / Security Officer	- Monitors the health, welfare, and safety of all responders. - Provides safety and security briefings to response teams. - Gives guidance on the psychological and emotional challenges that staff may face during response activities. - Advises the Incident Manager on issues regarding safety.
Planning Section Leader	- Receives, compiles, evaluates, and analyses all outbreak information and provides updated status reports to PHEOC management and field operations - Develops and communicates operational information - Predicts the probable evolution of events - Develops objectives, strategies and action plans - Keeps records and ensures proper documentation of the response - Identifies inaccuracies and conflicting reports - Coordinates activities with technical areas (sub-committees) and logistics to capture and centralize resource status information - Prepares and maintains resource status boards, and displays current status and location of tactical resources - Identifies the technical expertise that is needed during the response
Logistics Section Leader	- Provides logistics support to the PHEOC - Estimates the needs of response equipment, supplies, transport and communication equipment - Manages the procurement of supplies and essential response equipment, communications systems - Supports FMOH on stock management, inventory, replenishment and stock rotation - Develops distribution plan in collaboration with partners for all supplies and equipment from central level to the points of use - Supports PHEOC with prerequisite administrative support and finance resource management to ensure implementation of field activity

Administrative Officer	- Ensures office administration and support - Handles all routine correspondence related to the operation - Monitors and maintains office supplies - Ensures that printers, copiers and faxes are functional and stocked with paper - Ensures that all memos, letters and other documents related to the outbreaks are handled effectively, rapidly and disseminated accordingly - Prepares and maintains a rotation plan for administrative staff beyond normal hours in line with the SOPs - Updates arrival and departure dates of deployment of personnel
Finance Officer	- Mobilizes and manages financial resources in collaboration with HQ - Organizes rapid transfer of funds if required - Supports funding proposals - Organizes petty cash for staff deployed to the field (for emergency procurement in the field and / or cash advance on per diem) if needed - Monitors expenditure for the response, including cash flows, and works with partners on cost-sharing arrangements - Clears all financial documents
Surveillance Unit	- Submits the plan and requests funds - Plans for the activities, assigns responsibilities and implements - Prepares protocols for surveillance at community and health centres - Ensures that active case finding and contact tracing is done well at both national and regional levels - Prepares a standard protocol for contact tracing - Follows up all contacts and ensures that a database for all the contacts is in place - Ensures core capacity for surveillance and response is well established at all community health facilities and ports of entry - Oversees capacity building for health workers on surveillance and response - Works with GIS to map key epidemiological parameters - Collates, analyses, interprets and reports summary data (e.g. daily counts of cases / deaths) - Generates descriptive epidemiology and data visualization - Manages implementation within the approved budget - Manages outbreak data: analyses data regularly for trends and establishes transmission chains - Supervises, monitors and evaluates implementation at national and regional levels - Prepares and submits cumulative and progress implementation report to the task force - Closely links with infection control and social mobilization groups

Data management / GIS Unit	- Collects, collates epidemiological data from regions - Manages database including content, structure, file location, backup system - Works with surveillance and epidemiology to map and visualize data - Incorporates all relevant data to produce map products, statistical data for reports and / or analysis
Epidemiological Analysis Cell (EpiCell)	- Architecture and Information Flow: Ensures that a reliable epidemiological data collection and transmission system is in place - Quality and data capture: Ensures or supports quality control of epidemiological data, including consistency of surveillance and other stakeholder data, feedback to sub-coordination and other. - Data analysis and information products: Provides daily data analysis (micro-level analysis), including epidemiological and operational data, to guide operations and review of daily incidents, as well as in-depth analysis global and specific ('macro' analysis) for strategic orientation. - Critical review of incidents, of any event or deviation from public health action procedures, to guide actions and recommendations, in connection with daily critical reviews.
Laboratory Expert	- Prepares guidelines, policies and manual - Ensures that all laboratories provide services consistently and accurately - Provides supportive supervision to laboratories - Provides advice to case management on treatment guidelines - Ensures laboratories have supplies
Laboratory NHL	- Provides technical assistance on testing referral samples - Provides technical training (in service training) to laboratory personnel in the country - Conducts supportive supervision to laboratories - Mentors laboratories in microbiology practices and quality management system - Provides technical advice on sample management (sample transportation) - Confirms the outbreak - Links the confirmed cases with epidemiology - Tests water samples brought for surveillance. - Professionally and effectively performs referral laboratory testing services to produce accurate, reliable, timely and precise results

Case Management	- Conducts assessment, care coordination, evaluation, and advocacy for services to meet the impacted population health needs during a disease outbreak. - Acquires and provides to the other subcommittees and the Task Force detailed information regarding the impacted population to establish an intervention and response plan - Works with the community health officers in impacted areas to assist in the development and implementation of response actions; assures that services provided are specified in the treatment plan(s) and monitor progress towards treatment goals - Regularly attends the coordination and the Task Force meetings to provide updates and exchange pertinent information - Reviews and advices on the requests from regions before processing them for support
Social Mobilization / Risk Communication	- Monitors implementation of social mobilization and health education activities - Develops or revises IEC materials to be used at field level - Ensures provision of training to community health workers - Conducts house to house awareness on the disease to reduce denial and provide information to help prevent the spread of disease within the community - Searches for victims and refers to appropriate health care facilities for treatment - Spearheads the distribution of response supplies, ORS, etc. at the community level - Develops and implements a communications plan to support response activities - Develops and periodically updates appropriate “action points” concerning the response for dissemination to all appropriate policy makers
IT Officer	- Ensures that PHEOC hardware and software systems are operational and maintained - Ensures security of the PHEOC IT system - Provides access, response personnel, to relevant PHEOC information
Human Resource Officer	- Regularly assesses and identifies the human resource needs for the response in liaison with function leaders - Prepares human resource plan and regularly updates and monitors - Sends requests to relevant partners for support - Facilitates recruitment of local experts and organizes administrative arrangements - Regularly updates the deployment tracking database

Annex 4: Request for assistance template

Request for Assistance		
Date		**Logo**
From (Name of the sector requesting assistance)		
Contacts		
Incident name		
To (Name of sector / organization requested for assistance)		
Contacts		
Brief situation update		
Resources request for assistance		
Signature of requesting authority		

Annex 5: Grading template

Grading Template			
Incident name			
Done by technical team			
Date		**Participants**	
Time			
Chair			
Minutes taker			
Country name			
Emergency Type			
Grading level decision (e.g. Grade 1, 2 ...)			
Agenda (Grading meeting for ...)			
Situation analysis – summary			
Risk assessment – summary			
Assessment of grading criteria Scale (provide assessment for each): 1. Increased number of cases 2. Geographical spread 3. Urgency 4. Complexity 5. Capacity			
Names and contacts of key staff			
Immediate actions			

Agreed Immediate Next Steps			
Action	**Details**	**Person responsible**	**Date**
	1.		
	2.		
	3.		

Decision and approval by leadership

Comment:

Approval: Signature:

Annex 6A: Grading criteria and levels of activation – Kenya example

PHEOC EOC Activation – Kenya PHEOC				
Level	**Conditions**	**EOC Duties**	**Activation**	**Staffing**
1 (Green)	1. Outbreak suspected 2. Small incidents involving one health facility 3. Serious increase in international tension 4. Severe weather / flood watch is issued 5. Situational conditions warrant 6. Earthquake, landslide advisory	1. Continuous monitoring of event 2. Check & update all resource lists 3. Distribute status and analysis to EOC personnel 4. Receive briefing from field personnel as necessary	1. Only basic support staff or as determined by EOC Manager	1. EOC Section Chiefs review Plan and Guidelines and check readiness of staff and resources
2 (Orange)	1. Small scale civil unrest 2. Severe weather warning issued 3. Moderate earthquake / landslide 4. Wildfire affecting specific areas 5. Incidents involving 2 or more facilities 6. Hazardous materials evacuation 7. Major building collapse with more than 5 people 8. Major scheduled event	1. Continuous monitoring of event 2. Initiate EOC start-up checklist 3. Facilitate field personnel 4. Provide status updates to EOC personnel	1. Staffed as situation warrants and liaison to other agencies 2. Primary EOC personnel will be available and check-in regularly	1. Briefings to DMS & CS 2. EOC begins full operation
3 (Red)	1. International crisis deteriorated to the point that widespread disorder is probable 2. Acts of terrorism (biological, technical, other) are imminent 3. Civil disorder with relatively large scale localized violence 4. Hazardous conditions that affect a significant portion of the county 5. Severe weather is occurring 6. Verified and present threat to critical facilities 7. Major emergency in the county	1. Brief arriving staff on current situation 2. Facilitate EOC staff	1. As determined by the EOC Director essential and necessary staff 2. Key department heads 3. Required support staff	1. A Briefings to DMS & CS 2. EOC begins full operations 3. As situation warrants

Annex 6B: Grading criteria and levels of activation – Nigeria example

Response Levels – Nigeria PHEOC	
Level	**Assessed Foreseeable Risk and Actions**
1 (Green)	1. Public health impact including public interest is limited to one state, however it exceeds what is determined to be routine work. The response can be managed at a state level. 2. The command and control (EOC) of the incident will be locally focused, and the coordination will be from the State EOC. 3. It requires onsite NCDC support by a Rapid Response Team but incident leadership is from the state. 4. External partners will be invited to provide support at state level. 5. NCDC will monitor this through the Incident Coordination Centre and will receive Situation Reports (SitReps) provided by the state team.
2 (Orange)	1. This is either an escalation of a level 1 event or event could also be designated as a level 2 event from the start. 2. Public health impact including public interest or concern could expand beyond the affected State. 3. The public health implications of the incident or public anxiety go beyond affected LG / State. 4. A National Incident Management Team is set up with specific terms of reference guided by National leadership. 5. An Incident Manager is appointed at NCDC to provide coordination and overview from the national level providing support to state. 6. The response may involve inter-agency and a larger external partner support. 7. The Incident Manager will issue briefing notes to be cascaded via the EOC's daily / weekly activity report and / or briefing to ensure that all parts of the response organization are aware of the incident and its management.
3 (Red)	1. The impact of the incident has significant national and / or international implications. 2. Public health impact including public interest or concern for the national population is severe. 3. Full central EOC coordination, enhanced extended surveillance is required through NCDC. 4. A level 3 response requires national / federal level direction or leadership, resource mobilisation and ensures national coordination while providing a more proportionate response to the threat to the public. 5. Requires a significant interaction with MDAs at the national level. 6. The response will involve inter-agency liaison and will require significant NCDC and partners / international resources.

Annex 7: Risk assessment of acute event template

Country Rapid Risk Assessment – Acute Event of Potential Public Health Concern	
Event Name / Location	
Date and version of current assessment	
Date(s) and version(s) of previous assessment(s)	

OVERALL RISK AND CONFIDENCE (based on information available at time of assessment)

Overall risk		
National	**Regional**	
Low Moderate High Very High	Low Moderate High Very High	

Confidence in available information		
National	**Regional**	
Low Moderate High Very High	Low Moderate High Very High	

RISK STATEMENT

Give a brief justification of why the overall risk categorisation was chosen. This should be very short and there is no need to repeat all the different aspects of the hazard, exposure and context assessment. The aim is that the first page of the RRA gives a very concise overview of the risk of an event, only including the most pertinent information.

RISK QUESTIONS (assess scenario where no further interventions are implemented)

Risk question		Assessment		Risk	Rationale
		Likelihood	Consequences		
		Very unlikely Unlikely Likely Highly likely Almost certain	Minimal Minor Moderate Major Severe	Low Moderate High Very High	
Potential risk for human health? The hazard: morbidity, contribution to overall mortality, case fatality rate The type of exposure: how frequently does it occur Transmission: transmission route, how easily is it transmitted, taking into account the context Think of the impact on the health of population if they are exposed: how likely is it that the population will be exposed and what will be the consequences for that exposed population?	**National**				
	Regional				
Risk of event spreading? Where is this event occurring? Urban? Rural? Crowded? Level of sanitation? Mode of transmission (airborne, waterborne, person-to-person, fomites, etc.) Is the basic reproductive rate known? How susceptible is the population? Population mobility Ecosystem	**National**				
	Regional				
Risk of insufficient control capacities with available resources? This question aims to identify if, given the current situation and if no further resources become available, the country is able to implement control measures that are likely to contain the outbreak.	**National**				
	Regional				
Add additional risk question if needed; otherwise delete Who is likely to be affected, including whether any particular subgroups have a different risk assessment from the general population (consider doing separate risk assessment for subgroups if helpful) What is the likely exposure to the hazard When, why and how might the population be affected by the exposure to the hazard	**National**				
	Regional				

MAJOR ACTIONS RECOMMENDED BY THE RISK ASSESSMENT TEAM

Agree on and tick the actions to be taken; list any immediate actions in section 2 and define due dates and persons responsible for those actions. If no immediate actions are required, state this.

E.g. of immediate actions:

- Immediate activation of EOC as urgent public health response is required
- Develop response plan or activate national contingency plan if available
- Request for technical support to WHO and other partners as required
- Immediate support to response
- Support districts to undertake preparedness measures
- Continue to closely monitor

	Action	Timeframe
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		

*+If chosen, list actions and identify **persons responsible and due dates** for each action in section 2 (Supporting information)*

COMMUNICATIONS

Target audience / channel	Planned	Done	First date	Last update
Inform AFRO through WHO Country office (WR)	☐	☐		
Inform National authorities	☐	☐		
	☐	☐		
	☐	☐		
	☐	☐		

SUPPORTING INFORMATION

Hazard assessment:

- This section is written as text
- Identify the hazard(s) that could be causing the event
- Review key information about the potential hazard(s) (i.e. characterizing the hazard)
- Rank potential hazards when more than one is considered a possible cause of the event

Exposure assessment:

- This section is written as text
- Brief update on the epidemiology (number of cases and deaths reported, affected area, affected persons (age / sex, gender, occupation or any other relevant characteristics)
- Information on previous outbreaks
- Number of people or group known or likely to have been exposed (take into consideration mode of transmission etc)
- Number of exposed people or groups who are likely to be susceptible (take into consideration people who have previously been exposed and may be immune, vaccination coverage etc)

Context assessment:

- This section includes a brief text summary of the context, and a table highlighting the vulnerabilities and capacities;
- Consider social, technical / scientific, economic, environmental, ethical and policy / political (i.e. STEEEP) factors that may influence the public health impact
- State the quality of the evidence used for the RRA (i.e. confidence in available information). Poor quality information may increase the overall perceived risk due to the incertitude in the assessment and requires the urgent need to gather further information.

Capacities	Vulnerabilities
These can decrease the likelihood and impact of the event	These can increase the likelihood and impact of the event

Immediate actions
Not a detailed response plan, state if no action required

Risk assessment team members
List names and roles

Reference documents used for risk assessment

Annex 8A: Shift plan during activation

Date (dd/mm/yyyy):

Time (in 24hrs):

Function	Name	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	1	2	3	4	5	6

Annex 8B: Transfer of responsibility during activation

Date	Name	Function	Sign in time	Sign out time	Major responsibilities to be shifted

Annex 9: Incident action plan template

Incident Action Plan (IAP)			
Incident Name and Incident Action Plan Version			
Incident Name		**IAP Type**	Initial ☐ Update ☐ Final ☐
Operational Period (Date / Time)		**PHEOC Activation Level**	
Risk level			
Functional IMS Position	**Name**	**Email**	**Phone**
IMS Management Leadership and Staff			
Incident Manager			
Deputy Incident Manager			
Core IMS Functions			
Operations Section			
Plans Section			
Logistics Section			
Finance & Admin. Section			
Expanded IMS Functions			
Liaison Officer			
Safety Officer			
Public Information Officer			
Response Branch Operations			
Current Operations Branch			
Laboratory Branch			
Case Management Branch			
Epidemiology Branch			
Situation / Actions for Current Operational Period			
Background			

Current Activities	
Ministry / Department Response Mission	
Response Mode Critical Information Requirements (CIRs)	

Planning Assumptions
Evidence-based facts and assumptions in the context of developing the plan

Response Objectives
SMART: Specific, Measure, Achievable, Realistic, Timeframe

Response Strategies

Sections / Functional Area Operational Objectives / Expected results

Response activities				
SNo.	Activity / Task	Person Responsible	Cost	Completion Date

Triggers that may increase the Response Tempo and / or raise the Response Level

Triggers that may return Centralized Response Operations to a Programme Management Level

Pending Briefings for Operational Period

Scheduled Meetings for the Operational Period

Safety and Security Concerns

Place a visual depiction of the incident location or locations here

Current Organization

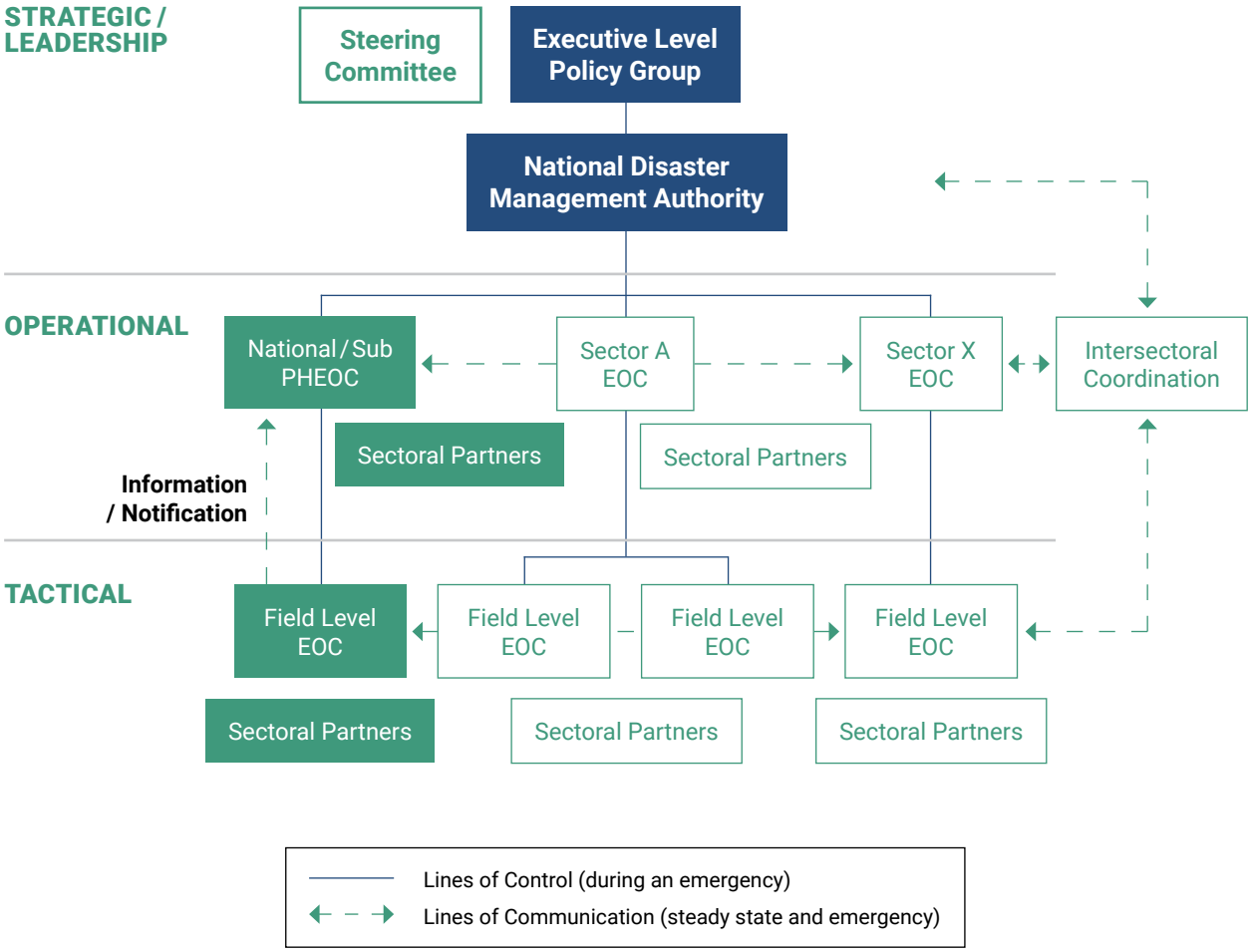
Annex 10: Job action sheet template

Incident Management System Job Action Sheets	
A Job Action Sheet, or JAS, is a tool for defining and performing a specific IMS response functional role. The tasks on the Job Action Sheet can and should be amended to fit the situation by adding or deleting tasks. **The Section leader who is issuing the Job Action Sheet should review for applicability and add in writing any incident-specific instructions or changes.** The key elements are:	
Position Title	
The name of the emergency response functional role. Note that these generally are not the same as every day, non-emergency job titles.	
Reports to The supervisor that has direct authority over the staff.	
Mission The purpose of the role, and a brief guiding principle for the responder to keep in mind.	
Immediate Tasks that must be completed first upon assuming the role or coming on duty.	
Intermediate Tasks to be completed after the immediate tasks are addressed.	
Extended Tasks to be completed later or on an ongoing basis during the work shift.	

Annex 11: Summary of incident update to leadership

Incident update to leadership			
As of (dd/mm/yyyy)		**Update #**	
Situation Update Very brief summary			
Actions Undertaken Very brief summary in bullet points			
Issues and Challenges Highlight major issues and challenges that require leadership attention			
Next Steps for Decision Bullet points that require high level decision			
EOC Contact Physical address, email, tel			

Annex 12: Concept of operation



Annex 13: SITREP template

MOH HEADER

Situational Report (SITREP)			
Outbreak Name		**Country affected**	
Date & Time of report		**Investigation start date**	
Prepared by			
Status (activation level)		**Activation date**	
Frequency of report			

1. Highlights	
Number of cases Reported this week / day. Compare to previous week / day.	
Cumulative case numbers to date e.g. from 'dd/mm/yyyy' until 'dd/mm/yyyy', a total of XXX (SUSPECTED / PROBABLE / CONFIRMED) cases including XX deaths of DISEASE / SYMDROME have been reported from LOCATION.	
Summary of key challenges	
2. Background	
Brief description of - How and when the outbreak was recognised - Description of disease burden in the country - Overview of initial rapid situation assessment - Date of outbreak declaration	
3. Epidemiology & Surveillance	
Case definition (please include as an annex) Include definition of suspected, probable and confirmed cases as an annex so it is clear what the data is referring to	

Descriptive epidemiology

- Please use graphs, tables and maps for visualisation of the data by time, place and person.
- Please make sure all figures have clear titles including the population being displayed e.g. n=.
- Please make sure all axis and legends are clearly labelled.
- Please ensure sufficient interpretation is provided to aid the reader.
  - Number of cases to date: (as a table)
    - New and cumulative (suspected, probable, confirmed)
    - Deaths: count and CFR%
    - Incidence / attack rate (e.g. number of cases per 100 000 population)
  - Case / person characteristics (e.g. age, sex, occupation, risk factors): comment on the most affected groups if present
  - Time trends: Epi curve
  - Geographical distribution (maps preferable, describe new areas affected)
  - Clinical description (e.g. symptoms, duration, number of cases of hospitalisations)
  - Analysis by exposure
  - Source investigations
  - State any delays in notification

Contact tracing summary
(for events where contact tracing is necessary)

- Number of contacts, number seen, number traced, number missing, number that completed follow up, number that became symptomatic
  - by lowest geographical location possible

4. Laboratory Investigations	
Brief summary of tests performed and results	
Subtyping (this section may be combined with epidemiology description above)	

5. Environmental Assessment	
If completed, summarize the findings of any environmental investigations to date (e.g. water testing, vendor inspections, community assessments, etc.)	

6. Public Health Action / Response Interventions	
Describe the response measures implemented by thematic area and any impact seen. Please add additional pillars if required e.g. vector control, operational research	
Coordination	
Surveillance	
Laboratory	
Case Management	

Hazard Containment	
Wash & IPC	
Risk Communication, Community Engagement & Social Mobilisation	
Logistics	

7. Challenges / Gaps

8. Recommendations & Priority Follow Up Actions	
Coordination and Leadership	
Surveillance	
Laboratory	
Case Management	
Hazard Containment	
Wash & IPC	
Risk Communication, Community Engagement & Social Mobilisation	
Logistics	

9. Conclusions

Provide concluding remarks on the overall perspective of the event including future outlook

10. Re-echo Key Messages for Urgent Attention

11. Point of contact of PHEOC and / or the report

The persons to whom questions regarding the report are directed

Annex 14: 4Ws matrix

No.	Activity		Organization	Location (prov, district)		Resources needed	Start date	End date	Status
	Area	Specific activity		Province	District				

Annex 15: Meetings and activities schedule

Date	Time	Activity	Focal point	Location

Annex 16: Emergency contact list template

No.	Name	Function	Organization	Location	Tel. No.	Email

Annex 17: PHEOC evaluation form

PHEOC Corrective Action Programme – After-Action Comment Submission Form			
Name		**Exercise / Incident**	
Role in Exercise / incident		**Location**	

Issue
Simply state the observation or problem

Discussion
Describe the observation or problem in detail. If an expected action did **NOT** occur, please provide why you think it did not occur. If an action occurred that was unexpected, please provide why you think it occurred and the positive or negative effect it had on the situation. Please provide specific information that may be used for follow-up (dates / times, locations, names, etc.)

Recommendation
Provide your assessment of what action(s) should be taken to correct / resolve the problem and who should be involved in implementing your recommendation

Are you willing to be contacted to provide additional information if necessary?

☐ Yes ☐ No

Contact telephone:

Contact e-mail:

Annex 18: Corrective Action Plan (CAP)

Corrective Action Plan			
Characterize	**Issue / #**		
	System name		Date:
	Description		
Cause & Implication	**Root cause**		
	Results and implications		
Corrective action	**Immediate corrective action**		Date:
	Long-term corrective action		Date:
	Preventive action		Date:
Closure	**Conclusion**		

17. Glossary

After-Action Review / Report	After an activation, operation or exercise has been completed, a process involving a structured facilitated discussion to review what should have happened, what actually happened, and why.
Continuity of Operation (COOP)	It is to continue operation of essential response functions under a broad range of circumstances including all-hazard emergencies as well as natural, man-made, and technological threats and security emergencies.
Emergency Operations Centre	A place within which, in the context of an emergency, personnel responsible for planning, coordinating, organizing, acquiring and allocating resources and providing direction and control can focus these activities on responding to the emergency. An EOC is a generic concept, embracing a range of emergency management facilities from an on-scene incident command post at an emergency site to a national emergency coordination centre providing strategic direction and resources to multiple jurisdictions and agencies in a wide-area disaster. An EOC usually sits between these extremes and provides strategic policy, logistical and operational support to site-level responders and response agencies— see also public health emergency operations centre (PHEOC).
Incident	An actual or imminent occurrence of a natural or human-induced event (see event) that requires a response to prevent or minimize illness, loss of life or damage to property or the environment, and to reduce economic and social losses.
Incident Management System	An emergency management structure and set of protocols that provides an approach to guiding government agencies, the private sector, non-governmental organizations and other actors to work in a coordinated manner primarily to respond to and mitigate the effects of all types of emergencies. The incident management system may also be utilized to support other aspects of emergency management, including preparedness and recovery.
Information Management	A set of processes and procedures to collect, store, analyse and distribute data and information to enable EOC functions.
Liaison	A process of linking and coordinating joint planning and efforts of agencies that are external to the jurisdiction responsible for the emergency response. Such agencies may have either a policy or an operational interest in the response and may participate through a liaison officer either by assisting in the response (assigning tactical resources to the event) or cooperating (providing external support). Liaison officers are considered part of the command / management staff and report to the incident manager / incident commander.
Operational Period	The time required to achieve a particular set of objectives.

Policy Group	The policy group provides high-level policy and technical guidance on overall management of the emergency, and facilitates inter-agency and inter-jurisdictional coordination. It is also responsible for endorsing requests for external resources and assistance, and initiating requests for assistance from more senior levels of government, donors, or international aid. The policy group includes heads of involved organizations, subject matter experts (including legal counsel and an ethics advisor), government officials and other executive officers, and professionals tasked with providing strategic level leadership. om more senior levels of government, donors, or international aid.
Public Health Emergency	An occurrence, or imminent threat, of an illness or health condition that poses a substantial risk of a significant number of human fatalities, injuries or permanent or long-term disability. Public health emergencies can result from a wide range of hazards and complex emergencies.
Public Health Emergency Operations Centre	An emergency operations centre specializing in the command, control and coordination requirements of responding to emergencies involving health consequences and threats to public health.
Situation Report (SITREP or SitRep)	A routinely produced report that provides current information about an emergency response and immediate and future response actions, an analysis of the impact of the emergency, and identification of related management issues.

18. References

1. Framework for a Public Health Emergency Operations Centre. https://www.who.int/ihr/publications/9789241565134_eng/en/
2. International Health Regulations (2005), Second edition. http://www.who.int/ihr/publications/9789241596664/en/
3. Handbook for developing a public health emergency operations centre: part A policies, plans and procedures. https://www.who.int/publications-detail/handbook-for-developing-a-public-health-emergency-operations-centre-part-a
4. Standard Operating Procedures for AFRO Strategic Health Operations Centre (AFRO SHOC). https://apps.who.int/iris/handle/10665/184672
5. International Health Regulations (2005), Second edition. http://www.who.int/ihr/publications/9789241596664/en/
6. A systematic review of public health emergency operations centres (EOCs). December 2013. http://www.who.int/ihr/publications/WHO_HSE_GCR_2014.1/en/
7. Summary report of systematic reviews of: plans and procedures; communication technology and infrastructure; minimum datasets and standards; training and exercises for public health emergency operations centres. http://www.who.int/ihr/eoc_net/en/
8. Consultation meeting, Public Health Emergency Operations Centre Network, November 2012. http://www.who.int/ihr/publications/WHO_HSE_GCR_2013.4/en/
9. First consultation meeting on a framework for public health emergency operations centres, April 2015. http://www.who.int/ihr/publications/9789241509398_eng/en/

World Health Organization
REGIONAL OFFICE FOR Africa

AFRICA CDC
Centres for Disease Control and Prevention
Safeguarding Africa's Health

CEDEAO ECOWAS