

NATIONAL EMERGENCY PREPAREDNESS AND RESPONSE PLAN

2023



**World Health
Organization**

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ABBREVIATIONS AND ACRONYMS

AEFI	Adverse Effects Following Immunization
AFP	Acute Flaccid Paralysis
AWD	Acute Watery Diarrhea
CAC	County Agriculture Coordinator
CDC	Centers for Disease Control and Prevention
CFR	Case Fatality Rate
CHO	County Health Officer
CSO	County Surveillance Officers
DSO	District Surveillance Officers
EHT	Environmental Health Teams
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
EPR	Emergency Preparedness and Response
EVD	Ebola Virus Disease
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HCF	Health Care Facilities
HCW	Health Care Worker
HEPR	Health Emergency Preparedness and Response
HSC	Health Service Continuity
HIV	Human Immunodeficiency Virus
IDSR	Integrated Disease Surveillance and Response
IHR	International Health Regulations
IMS	Incidence Management System
IPC	Infection Prevention and Control
MOA	Ministry of Agriculture
MOH	Ministry of Health
NDMA	National Disaster Management Agency
NFP	National Focal Point
NEPRC	National Emergency Preparedness and Response Committee
NGO	Non-Governmental Organizations

NPHIL	National Public Health Institute of Liberia
NSC	National Security Council
PHEMC	Public Health Emergency Management Committee
PHEOC	Public Health Emergency Operations Center
PHEIC	Public Health Emergency of International Concern
PHERRT	Public Health Emergency Rapid Response Team
PHSM	Public health and social measures
POE	Point of Entry
PPE	Personal Protective Equipment
RCCE	Risk Communication and Community Engagement
RRT	Rapid Response Team
SOP	Standard Operational Procedures
TOR	Terms of Reference
USAID	United States Agency for International Development
VOC	Variant of Concern
VS	Veterinary Services
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organization

SECTION 1: BACKGROUND

1.1. Introduction

An Emergency Preparedness and Response plan (EPR) describes strategies, resources, plans, procedures, and utilities that can be used to prepare for and respond to emergencies, be it natural or man-made, that threaten the existence of life or the environment. These emergencies can range from small to large-scale events.

This EPR plan builds on the emergency preparedness and response (EPR) plan developed in 2011 and updated in 2016. It is intended to guide preparedness and response activities for timely, comprehensive, and coordinated county-led, nationally supported response actions to public health threats in accordance with the 3rd edition National Technical Guidelines for Integrated Disease Surveillance and Response (IDSR) in Liberia¹. This plan focuses on preparedness and response activities before, during, and after a public health emergency. It complements the Liberia IDSR guidelines, outlining surveillance, triggers, alert notification, verification, field investigation, and response procedures.

Liberia was at the epicenter of the 2014-16 Ebola Virus Disease (EVD) epidemic outbreak. Response efforts to this outbreak were led at both national and county levels. A total of 10,678 cases with 4,310 deaths were recorded in Liberia², further weakening an already fragile health system.

COVID-19 continues to cause huge loss of life, human suffering, and economic and social disruption across the country and the world at large. Hard-won gains, including childhood immunizations, were reversed in many countries³. The COVID-19 pandemic has affected nearly all sectors of life, despite a relatively low number of cases and deaths in Liberia. Liberia recorded her first confirmed case of the SARS-CoV-2 virus on March 16, 2020, and the disease spread across the 15 counties progressively with a cumulative 7,996 cases with 294 deaths as of October 30, 2022. COVID-19 global, regional, and local burdens to date are summarized in Figure 1 below.

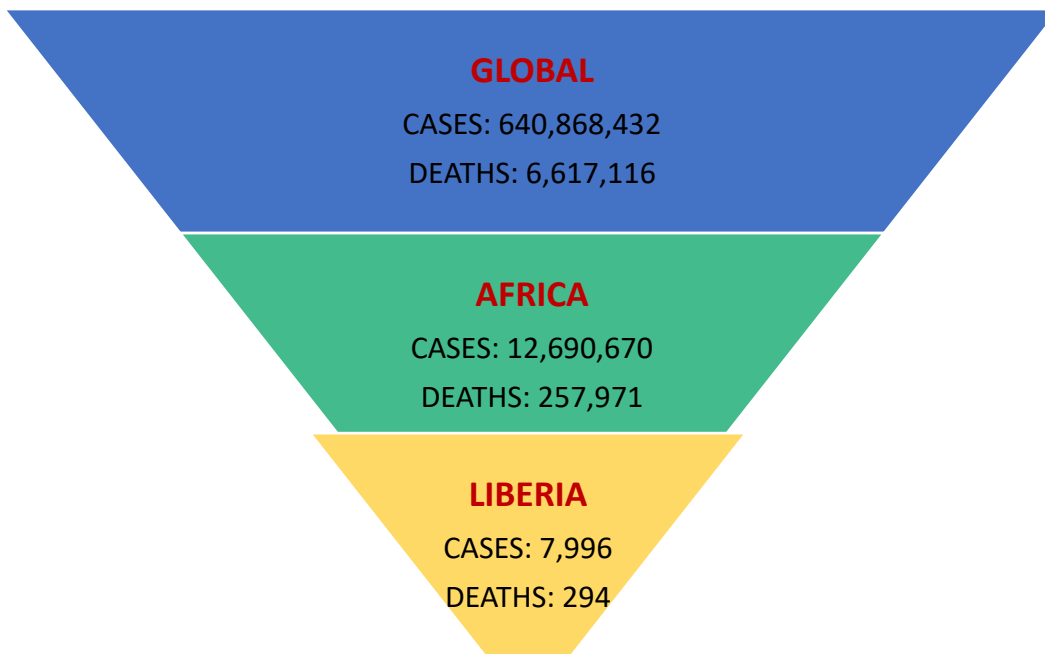


Figure 1: COVID-19 Burden, October 30,2022

Apart from EVD and COVID-19, Liberia has battled other outbreaks in the past, including recurrent outbreaks of Lassa Fever and measles. These outbreaks compound the persistent burden of other diseases such as malaria and HIV; as well as the rapid rise in non-communicable diseases and injury (accounting for an estimated 37.9% of the national burden from all causes and 43.4% of all deaths in Liberia).⁴ Together, they impose great strains on already weak health systems. The weather, migration, economic, social, environmental, and political factors are changing the patterns of diseases in the world⁵. Moreover, in the recent past, Africa has become more inter-connected than ever before, with free trade across countries and open borders allowing the large-scale movement of people, livestock, and goods. While this is good on the economic front, it also amplifies the risk of spread of communicable diseases. The COVID-19 pandemic continues to highlight the need for a stronger and coherent health emergency preparedness, response, and resilience (HEPR) architecture.

This plan captures lessons learned from EVD and COVID-19 response efforts and outlines key preparedness and response activities that are necessary for mounting timely and effective response to future epidemics. The plan outlines national roles and responsibilities in both preparedness and response activities and in return to routine activities.

1.2. Target audience

The target audience is institutions and individuals that are expected to take active part in any future public health emergencies. The National Public Health Institute of Liberia (NPHIL) in consultation with the Ministry of Health (MOH) will lead the implementation of this plan with support from other relevant Ministries (e.g. Ministry of Agriculture in case of zoonotic diseases), agencies and partners (local, international, public and private).

1.3. Goal

The goal of the national EPR plan is to ensure that a coordinated, effective and functional preparedness and response mechanism is in place at each level of the health system with the capacity to address disease outbreaks and other health threats.

1.4. Objectives

The objectives of this plan are to:

1. Define clear roles and responsibilities of all the actors involved in emergency preparedness and response activities
2. Describe EPR procedures and coordination among and across responding agencies to ensure an effective operation
3. Describe activities involved in emergency preparedness and response
4. Provide evidence-based approach to emergency preparedness and response.

1.5. Scope

The national EPR plan is aligned with the Liberia's National Action Plan for Health Security (NAPHS) 2018 - 2022, and the National Public Health Institute's (NPHIL) Strategic Plan 2018 -2022. The EPR plan applies to all departments, government agencies and partners that may be tasked to aid in public health emergency preparedness and response. It is highly recommended that the EPR plan be used in the following ways:

- a) As a common plan to further enhance in building national capacities to manage public health emergencies and to further improve health security

- b) As a national mechanism to collectively monitor progress, facilitate learning for continuous improvement, and improve national preparedness and response.
- c) As a document for advocacy and to mobilize national and external financial and technical resources

The plan will undergo a comprehensive annual review; however, it will be regularly updated after an event when the need arises. The EPR plan addresses the immediate notifiable epidemic prone diseases, conditions, and events as per the Liberia 2021 IDSR guidelines (Table 1). This plan supports but does not incorporate county EPR plans.

Table 1: Diseases, conditions or events requiring immediate reporting in Liberia, 2021

Acute Bloody Diarrhea (Shigella)
Acute Flaccid Paralysis (AFP)
Adverse Events Following Immunization (AEFI)
Buruli Ulcer
Cholera (Severe AWD)
Coronavirus Disease (COVID-19)
Dengue fever
Human exposure to Rabies (Human Rabies)
Lassa Fever
Maternal Deaths
Measles
Meningitis*
Monkeypox
Neonatal Deaths
Neonatal Tetanus
Tuberculosis
Unexplained cluster of health events**
Unexplained cluster of deaths**
Viral Hemorrhagic Fevers (including Ebola Virus Disease and Marburg Virus Disease)
Yaws
Yellow Fever

* Includes Haemophiles influenzae type b (Hib), Neisseria meningitidis, and Streptococcus pneumoniae)

** Examples of clusters can be:

- Any of cluster of illness or deaths among people living in the same community within a specific time (for example, one week)
- Unexplained cluster of deaths of animals/birds within a specific period (for example, one week)
- Illness or death among people after exposure to animals
- HCW illness after exposure to patients with similar illnesses
- Unexpected increases in admission to health care facilities of persons with similar severe symptoms
- Sudden illness in a person who has travelled out of the country in the past 14 days
- Any unusual illness or sudden death in the community within a specific time period (for example, one week)
- Unexpected large numbers of children absent from school due to the same illness in the same seven-day period
- Unexpected large numbers of sales at pharmacies of many people buying medicines for same kind of illness

1.6. Policy and legal framework governing emergency preparedness and response in Liberia

The framework governing government's preparedness and response to public health emergencies can be found in various policies, legal frameworks, and strategic documents.

- a) Public Health Law 1976
- b) National Disaster Management Act
- c) NPHIL's Strategic Plan 2018-2022
- d) The National Health and Social Welfare Policy and Plan 2011–2021
- e) The National Action Plan for Health Security 2018 - 2022
- f) IHR 2005⁶
- g) Integrated Disease Surveillance and Response Technical Guideline (2021)
- h) One Health Governance Manual 2nd edition

- i) PHEOC handbook
- j) Animal Disease Surveillance and Response Plan
- k) Emergency Supply Chain Playbook
- l) Medical Countermeasures Plan for Liberia
- m) Multi-hazard Contingency Plan
- n) Flood Preparedness and Response Plan

1.7. Implementers and Partners

In response to our shared responsibility to ensure health security, the key implementers of this plan will include:

- a) Ministry of Finance and Development Planning
- b) Ministry of Health Liberia
- c) NPHIL
- d) National Disaster Management Agency (NDMA)
- e) National Security Agency (NSA)
- f) Ministry of Agriculture (MOA)
- g) Forestry Development Authority
- h) Environmental Protection Agency (EPA)
- i) Ministry of National Defense
- j) Ministry of Internal Affairs
- k) Ministry of Foreign Affairs
- l) Liberia National Police
- m) Ministry of Transport
- n) Tertiary Institutions/ Universities
- o) Liberia Immigration Services
- p) Liberia Revenue Authority
- q) General Services Agency
- r) Ministry of Commerce and Industry
- s) The private sector, non-governmental organizations (NGO), civil society, and International technical and development partners
- t) Other partners and as required

1.8. Time frame for implementation

The EPR Plan is designed to have a flexible implementation time frame of five years which is from 2023 to 2027 or can be further extended if required to accommodate differences in national planning cycles and capacities across the country in the IHR implementation agenda.

1.9. Liberia's Health System

Liberia is divided into 15 counties, with 93 health districts (figure 2). There are four functional national reference laboratories across sectors (National Public Health Reference Laboratory, Central Veterinary Laboratory, National Standards Laboratory, Environmental Research and Radiation Safety Laboratory); 2 tertiary referral hospitals (JFK Memorial Hospital and JFD Memorial Hospital); 39 secondary level hospitals; and over 830 primary health care facilities. Referral pathway guidelines have been developed to guide on patient referral from community to health facility and between facilities.



Figure 2 Map of Liberia showing referral hospitals.

1.10. Lessons Learnt from EVD and COVID-19

Based on recent outbreaks, particularly the devastating 2014-2016 EVD outbreak and the 2020 COVID-19 pandemic, lessons learned, and recommendations have been identified and can be applied to accomplish effective future responses and containment, these are summarized below:

- Strong political leadership and governance is essential;
- Multi-sectorial collaboration and communication is essential;
- Document surge capacities of trained and competent personnel (i.e. rapid response teams), with clear roles and responsibilities at all levels of the health system;
- Sufficient logistics including stock management, transportation, equipment, communication and operational funds;
- Strong coordination mechanism (national and county IMS) with clear terms of reference of identified pillars and timely assignment of NPHIL, MOH staff and partners to pillars according to their skills and competencies;
- Partnership mapping and collaboration between government, local and international partners is key
- Documentation, early planning, and target setting guide emergency response.
- Ensure that a risk communication strategy with effective, uniformed messages is in place before, during and after a public health emergency;
- Community engagement and buy-in strengthens contact tracing, active case finding and community adherence to monitoring. In addition, it improves surveillance by easily identifying contacts;
- Enforce use of unique identifier for lab specimens to ease tracking;
- Primary screening of patients (deciding if patient meets suspect case definition) at Health Care Facilities (HCFs) should always be done by a clinician;
- Availability of Infection Prevention and Control (IPC) materials and Essential drugs buffer stock in the county is essential (pre-positioning);
- Risk assessment of Health Care Workers (HCWs) should be standardized and systematically implemented;
- Rapid establishment of isolation centers helps break the transmission chain;

- Applying and maintaining WASH minimum standards for public and private facilities is strongly required;
- Food security increases cooperation when precautionary observation is required;
- An allocated, easily accessible EPR budget line accelerates response activities;
- Real time data availability and analysis to guide daily priority activities;
- Well trained and experienced Rapid Response Teams (RRTs) is key;
- Maintaining sentinel surveillance especially in areas is important;
- Preparation of legislative and administrative frameworks to permit all necessary disease control actions to be implemented without delay;
- The ability to train and deploy community health workers (CHWs) rapidly, the trust that communities place in them, and their presence in areas with few resources make them a vital part of systems for health and emergency preparedness and response;
- Ensured access to quality-assured vaccines (for likely disease outbreaks) through a vaccine bank or from other sources;
- Harmonization of disease control programs and cooperation with neighboring countries to ensure a regional approach;
- Health security starts with robust public health surveillance and information sharing;
- Installation of diagnostic capabilities for all epidemic prone diseases is important. These should be fully developed and tested in national and, where appropriate, county diagnostic laboratories and linkages established with regional reference laboratories;
- Importance of multiplex testing platforms;
- Ensure arrangements for involvement of the private sector;
- Build resilient health systems and ensure maintenance of essential health services is essential during an outbreak;
- Mental Health is a key component that should be addressed in protracted outbreaks with disruptive public health and social interventions;
- Build and sustain trust: Decline in public trust in science and government can have implications for public health preparedness and response;
- We must remain agile and flexible to rapidly respond to new infectious disease challenges such as Monkeypox and COVID-19;

- Scientific Literacy: The importance of educating the public about how science works cannot be underestimated. It is important to inform public health decisions. Being knowledgeable of a vaccine is also important to promote acceptance;
- Infodemic management in risk communication and community engagement is key;
- Partnerships accelerate research and development (R&D) and manufacturing;
- Delivery Infrastructure must be strengthened;
- Pooled procurement mechanism, e.g. COVAX play an important role;
- Schools are the true fulcrum for the functioning of society: Children, especially those from low-income families suffered significant harm during prolonged school closures in many countries;
- It is important to promote media literacy and information-hygiene practices;
- Importance of Pandemic management protocols: existence of up-to-date plans, procedures and guidelines;
- Risk anticipation capacities: government capacities to anticipate risks, whether through early warning systems, risk assessment exercises, foresight, or building critical material stocks;
- Critical sectors preparedness for emergencies
- Engaging in multi-stakeholder training and simulation exercises to ensure functionality of emergency management systems. Where appropriate, these activities should include other non-health ministries and departments.

SECTION 2: ASSUMPTIONS

2.1. Planning Assumptions

The impact of the EVD and COVID-19 pandemic in Africa has had implications on health services demand. The following are important planning assumptions for public health emergency preparedness and response:

Risk of exposure: Practice of sanitation and hygiene, access to water, poor road networks, population density, urban slums, social-cultural, living conditions and other contextual factors may increase risk of disease exposure.

Demographics: Everyone is susceptible, and this can lead to weak health systems being overwhelmed if transmission is not contained early.

Health systems: Emergency could occur if there is a weak health system with shortage of skilled health workers, lower density of health infrastructures and inequity in distribution, inadequate or poor medical equipment and medical supplies, among others. The health system is already overstretched with the routine service needs and is at risk of amplifying transmission of priority diseases. Nosocomial transmission has been a particularly important factor that contributed to the spread of COVID-19 in many African countries, as several healthcare workers were infected. Increased infection rates among healthcare workers may be due to a combination of low awareness, lack of sufficient personal protective equipment (PPE), inappropriate PPE use and unrecognized disease (e.g. due to lack of diagnostics). The international air travel restrictions exacerbated the challenge of a widespread lack of appropriate medical equipment and PPEs.

Community Health Workers (CHWs): During public health emergencies, laboratory testing capacity may be reduced due to illness and supply shortages. Hospital capacity may be limited and could be further reduced because of staff illness. Inter-hospital assistance may be limited depending on the scale of the emergency. Strong community structures in Liberia can be leveraged for critical public health measures. Based on the lessons learned during the Ebola outbreak and COVID-19, there is a clear demonstration on the important role of the community structures in outbreak

response. Although this was mainly rural areas, there is a need to explore the most effective way of using similar structures in urban settings.

Disease burden: The African region including Liberia has a high burden of chronic communicable and non-communicable conditions particularly among the economically active age group. These conditions fueled by the prevailing high level of poverty may worsen disease outcomes.

Socio-economic, cultural and political factors: In many African societies, cultural and social activities tend to encourage the congregation of people. The type of housing (less spacious houses), the conditions in public transport, the low coverage of safe water are all limitations in the application of some public health and social measures (PHSM) e.g. isolation in the home and hand washing. The economic activities in urban Liberia are mainly informal and this may make it difficult to identify and track contacts and put in place economic mitigation measures.

Testing capacities: Although testing capacities have improved in Liberia after EVD and COVID-19, there remain challenges in long turn-around time for priority diseases, and capacity is still limited, especially in the Veterinary Services (VS) sector. Challenges still exist in genomic surveillance and use of bioinformatics tools.

Human Resources: During some public health emergencies, the availability of public health and health care workers could be reduced by up to one-third due to illness, concern about disease transmission in the workplace, or care-giving responsibilities. The plan assumes that redeployment of the health care workforce across the health system is managed during health emergencies based on pre-defined trigger thresholds adapted to a wide range of potential scenarios. Resilience of the health workforce includes non-clinical aspects of protection, such as working conditions, fair remuneration, the availability of hazard pay, professional education and development and mental health support. Gender dynamics should also be considered, given that women make up most of the health workforce in most countries. The plan also assumes there is a Business Continuity Plan in place for redeployment considerations and to ensure the provision of essential services. It is also important to have an updated directory of responders for surge capacity.

Communication: Designated mandatory reporters for public health emergencies - MOH and NPHIL will communicate through established policies and procedures

regarding suspected, probable, and confirmed cases and deaths. A public health emergency will require significant communication and information sharing across jurisdictions, between the public and private sectors and developmental partners. Public health officials will be expected to communicate clear, consistent, and timely public information and risk messaging based upon best available data and infection control principles known at that time; the expectation is that this information may change rapidly and will be updated accordingly.

Clarity of authority: There should be a clear chain of command and reporting structure. This reporting structure is clearly outlined in the incident management system described in section 3.

Clarity of specific roles and responsibilities for each person/ organization.

Coordination: Coordination of line ministries/ departments, partners, and other agencies to ensure optimal use of resources and avoid role duplication.

Contingency plan: To include specialized resources, surge capacity, supplies, emergency funds, etc. Surge capacity is the increased human resource capacity required during, for example mass casualties, disease conditions and events.

Accountability: Accountability systems should be in place for the resources supplied and utilized during the response.

2.2. Other Assumptions

- All relevant stakeholders are aware of this plan and the role they play;
- Individuals occupying public health leadership roles have received IMS training;
- An incident management system can be established promptly to coordinate Public Health response and other associated activities;
- People with the required skills, training, equipment, and experience can be easily “rostered” and available to perform critical response functions;
- There is a robust public health surveillance system in place;
- National and county Rapid Response Team (RRT) can easily be activated;

- All protocols e.g. IPC, Case Management, Risk Communication, etc. are in place;
- There are fully equipped isolation units with dedicated trained staff;
- Adequate and efficient supply, distribution, and stockpiling of PPE, vaccines, laboratory supplies and countermeasure drugs will be available and strategically located in the event of a public health emergency;
- In the likelihood of potential cross border transmission, significant entrance and exit screening will be mandated at border entry and exit points. Isolation and precautionary observation at international points-of entry (POE) is a national responsibility, with some local government support and follow-up;
- Governmental endorsement and financial support for the adoption, testing, and implementation of the plan;
- Capacity to implement risk communication and community engagement strategies in collaboration with National Disaster Management Agency (NDMA) will be available at all levels (pre, during and post outbreak) to targeted audiences;
- Political disruption, civil conflict, or other man-made or natural disaster events can hinder response;
- During public health emergencies, staff, equipment and other resources may be re-purposed to respond to the emergency;
- There is a pre-defined list of essential supplies and medicines developed based on national treatment guidelines and prioritized public health threats;
- Capacity to implement risk communication and community engagement strategies will be available at all levels (pre, during and post outbreak) to targeted audiences;
- Should multiple outbreaks occur simultaneously, or a disaster occur disease-specific contingency plans (EVD, Cholera, Lassa, etc.) may be activated to respond accordingly.

SECTION 3: PREPAREDNESS AND RESPONSE STRUCTURE & COORDINATION

3.1. PREPAREDNESS

Public health emergency preparedness involves all the planning which must take place before, during and after a public health event occurs to maximize the chances that the event will be detected and to ensure that a rapid and effective response can be made. This will include, but is not restricted to: ensuring that there is an effective surveillance system in place, particularly an effective disease reporting system, risk assessment, etc. Preparedness activities are described below.

3.1.1. Risk Assessment

Risk assessment is a component of a comprehensive risk management program. It helps identify threats, determine their likelihood of occurrence, and the likely magnitude of public health impact to prioritize and plan for a response, preferably within an all-hazards approach. NPHIL in collaboration with the relevant line Ministries and Agencies, Partners will undertake a public health risk assessment in the face of an imminent threat such as from disease outbreak reports, etc. The goal of the risk assessment is to determine the nature and magnitude of the response that will be required to mitigate the impact of the impending hazard/ threats. Risk assessment involves the following five steps:

- a) Identifying hazards/ threats and risks (latent and potential harms)
- b) Evaluating the vulnerability of the population(s)
- c) Analyzing the risks with respect to consequences of exposures.
- d) Prioritizing risks to determine the threat level.
- e) Evaluating prevention and mitigation options to manage the risks and minimize potential harm.
- f) Recommending actions to mitigate the risk of hazards and enhance coping capacity.

The risk analysis matrix illustrated in figure 3 below will be used to guide the risk assessment process.

	Negligible	Minor	Moderate	Significant	Severe	
Likelihood of occurrence	Very likely	Medium	High	High	Very high	Very high
Likely	Low	Medium	High	High	Very high	
Possible	Very Low	Low	Medium	High	High	
Unlikely	Very Low	Low	Low	Medium	High	
Very unlikely	Very Low	Very Low	Low	Medium	Medium	

Figure 3: Potential impact of public health emergency

3.1.2. Capacity and capability assessment

Upon completion of the risk assessments, an estimation of required capacities (resources and infrastructure) and capabilities (knowledge, skills, and abilities) to respond to identified risks is carried out. A gap analysis is conducted to determine the existing gaps. Thus, its absence amplifies vulnerability, and therefore poses risk. This assessment seeks to identify opportunities to address gaps in the EPR’s capacity and capabilities through resource mobilization from:

- Parties and agencies with relevant roles and responsibilities (e.g. hospitals, clinics,)
- Competent human resources (e.g. health service staff of all types)
- Specialized physical resources (e.g. microbiology and genomic sequencing laboratories)
- Mutual aid agreements with other jurisdictions (e.g. access to specialized resources not available locally).
- Staff training

3.1.3. Legal framework

In order to conduct many of the components of a response to a public health emergency (such as movement restrictions, quarantine etc.), certain legal powers will be needed. It can take time to establish adequate legislation and so it is important that this is put in place prior to an emergency otherwise delays in response are likely while legal powers are sought.

3.1.4. Financing

Ensuring that adequate funds will be available if a public health emergency occurs is an essential part of emergency preparedness. It is important, not only that funds are available, but also that they can be accessed rapidly to prevent delays in response. The finance plan should identify the source of funds, and the conditions for their release. The finance plan should include both ongoing costs (surveillance, risk analysis, etc.) and costs that are likely during an emergency (e.g. costs of control).

3.1.5. Compensation policy

For epidemic-prone diseases including zoonotic diseases, a compensation policy is an essential part of any control policy. Compensation policy can include payments for staff responding during large scale public health emergencies emerging from epidemic-prone diseases. Compensation policy may also include the destruction of animals or property as needed. Details of compensation, such as: the level of compensation paid (and how this is determined), how it is paid (e.g. cash or replacement livestock) and when it is paid should be carefully considered.

3.1.6. Surveillance system

An effective surveillance system should be in place to ensure rapid detection of diseases of public health concern, changes in the epidemiology of endemic diseases, such as: increased geographical spread; increased number of outbreaks; change in hosts affected, etc. A robust early warning system minimizes delays in detection and

response through, inter alia: good surveillance; support of an informed community; and structures, plans and resources in place to launch an effective response. Integrated Disease Surveillance and Response (IDSR) and Animal Disease Surveillance Response (ADSR) should be strengthened in all counties as part of preparedness. In addition to the IDSR technical guidelines a National Surveillance Strategic Plan has been developed to strengthen surveillance functions in Liberia.

3.1.7. Contingency plans and operational manuals

Contingency plans and operational manuals are the essential instructions for what should be done and what is required when a public health emergency happens. A contingency plan should contain information on all that should occur when an outbreak is first suspected and will include such things as: investigating the report of a suspect case, sample collection and submission, laboratory capacity and how this will be increased to cope with an outbreak, outbreak investigation procedures, initial control measures, where and how to access necessary equipment, roles and responsibilities, including reporting lines, etc. The operational manuals or standard operating procedures are detailed instructions for implementation of different aspects of the contingency plan and might include such things as: sample collection and submission; personal decontamination; vaccine storage; transport of vaccine etc.

3.1.8. Response training and simulation exercises

This part of the emergency preparedness and response planning involves training all people involved in the response to a disease emergency to ensure that they are able to carry out their role effectively and to ensure that they are aware of the command structure in which they will operate and to whom they should report. Training is a vital component of emergency preparedness and response and it is important to repeat training regularly to ensure that people's skills remain current and to allow for any turnover in staff which may alter the role of certain individuals. It will also be necessary to train more than one person for each role (particularly key roles) in case an individual is unable to take part in the emergency response. At the time of emergency, training rosters should be reviewed to determine staff that have been trained and can be deployed immediately. Simulation exercises allow people to practice their role and also provide a method of testing response plans and identifying and addressing any areas

of weakness. These should also be conducted on a regular basis and should usually involve testing of only small components of the plan and their integration with other parts of the plan, rather than the whole plan at one time.

3.1.9. Business Continuity Plan

It is important to develop a business continuity plan that describes how the health sector will continue to function during or after a public health emergency or event of large magnitude. This involves planning how key services can be continued, and the recovery of key business and systems.

3.1.10. Community awareness

Working with Community Health Workers (CHWs) helps to ensure that unusual public health events or specific signs of disease will be detected and reported in a timely manner for investigation and response. Training of CHWs should include details on disease recognition, reporting procedures (when to report and to whom), etc. as per the IDSR 2021 guidelines.

3.1.11. Updating disease plans

As described above, these documents should be regarded as living documents and reviewed and revised in light of changing circumstances, risks, etc. Any updating of the plans should be clearly documented and the most recent version be clearly distinguishable from earlier versions. This is important to ensure that everyone is using the most up-to-date version of the plan. Further training, simulation exercises, etc. may need to be conducted in order to update personnel on the altered plans and to test that the plans still function properly.

3.2. RESPONSE

3.2.1. Governance and Leadership

Ministry of Health (MOH) - plays a leading role in the health sector and serves as an overarching body that regulates all curative health services for the general population. MOH plays an integral role in emergency preparedness and response by

complementing and supporting NPHIL activities for emergency preparedness and response.

National Public Health Institute of Liberia (NPHIL) - will lead the implementation of this plan as mandated to prevent and control public health threats and improve the public health status of the population in alignment with IHR core capacities (prevent, detect, and respond to public health threats and events).

National Disaster Management Agency- is responsible for managing natural and man-made disasters in Liberia. The NDMA has an overarching role to coordinate the management of disasters and implementing disaster countermeasures activities before, during and after disaster.

Ministry of Agriculture- (MOA) has the role and responsibility for coordinating animal welfare services in an emergency and is the lead agency of government in the animal health sector. The MOA will co-lead in emergencies responding to animal diseases, plant diseases and plant pests.

Environmental Protection Agency (EPA) - is the regulatory institution of the Government of Liberia (GOL) for the sustainable management of the environment and its natural resources. The EPA will co-lead in emergencies responding to spills and biological, radiological, and nuclear incidents in Liberia.

Ministry of Defense/Arm Forces of Liberia - supports the police and emergency services and has a range of responsibilities relating to planning, management and delivery of Liberia's emergency services. The MOD will provide support throughout a response in an emergency and will play an integral role before, during and post-emergency.

General Services Agency (GSA) - Provides the highest quality, value for money-asset management services to the government of Liberia (GOL) and ensures the smooth and uninterrupted delivery of services to the GOL. GSA will provide logistical support and manage assets during an emergency or public health event.

Ministry of Justice/Liberia National Police/ Liberia Immigration Service - is responsible for providing effective and efficient public safety and legal services which promote the rule of law, ensure the safety and security of the public and uphold the

interest of the government and the people of Liberia. The MOJ will ensure compliance with and respect for the rule of law during an emergency or public health event.

Ministry of Internal Affairs (MIA) - is responsible to administer local governance which is basically involved in maintenance of peace and tranquility and seeking the welfare of the people. The MIA will be a core member in emergency preparedness and response activities.

International and National Partners, Corporations, Organizations and Agencies— provide technical (expertise in specialized areas) and operational support and assist in advising and mobilizing resources for emergency preparedness and response. Partners should work to complement government's plans and collaborate with each other, and share activities and data with the leading institutions.

In the event of a public health emergency, to ensure coordination at the highest levels between MOH and other relevant Ministries, agencies and partners, the Minister for Health will represent EPR interests and coordinate collaboration.

3.2.2. National Coordination

At the national level, there shall be a National Emergency Preparedness and Response Committee (NEPRC), Public Health Emergency Management Committee (PHEMC), a National Incidence Management System (IMS), a National Focal Person on EPR, a National Public Health Emergency Operations Center (PHEOC) and National Rapid Response Team that is responsible for ensuring the country's preparedness for and proper response to all priority diseases. Detailed descriptions and responsibilities of each structure are outlined below.

National Emergency Preparedness and Response Committee (NEPRC)

The NEPRC shall replace the IMS when it is deactivated and shall assume all functions carried out by the IMS and shall function as the highest decision-making body for emergency preparedness and response. The NEPRC shall meet weekly and shall review the national epi/surveillance bulletin to monitor reported disease and public health event occurrences throughout the country. The NEPRC shall be responsible for determining appropriate actions given diseases trends and the appropriate intervention mechanisms required for mounting an effective response. The NEPRC

shall be chaired by the Director General, NPHIL. The NEPRC will require close coordination and collaboration with other Ministries and agencies in order to effectively prepare for and mobilize an effective response to epidemics and outbreaks of unusual proportion. Other members of the NEPRC shall include:

- Thematic pillars: Coordination, planning, financing and monitoring; Risk communication, community engagement (RCCE) and infodemic management; Surveillance, outbreak investigation and calibration of public health and social measures (PHSM); Points of entry, international travel and transport, and mass gatherings; Laboratories and diagnostics; Infection prevention and control and protection of the health workforce; Case management, clinical operations and therapeutics; Operational support and logistics, and supply chains; Strengthening essential health services and systems; Vaccination and Research, innovation and evidence.
- National PHEOC
- Line divisions of the Ministry of Health and NPHIL
- Key partners involved with emergency preparedness and response
- Academic institutions including the University of Liberia, and Cuttington University Graduate School of Public Health.
- Representatives of all relevant ministries and government agencies

Public Health Emergency Management Committee (PHEMC)

The PHEMC should be established at district, county, and national levels. PHEMC members across these levels should work closely with their counterparts to plan and monitor the implementation of public health emergency plans. These coordinating committees should operate at their respective levels and are composed of technical and non-technical members from the health and other sectors. The role of PHEMC is to develop and oversee the implementation of emergency preparedness strategies, action plans and procedures. The PHEMC can also be referred to as a policy group. At the national level, the PHEMC provides policy direction on the implementation and operation of the national PHEOC and also provides oversight, policy and strategic guidance on the implementation of functional PHEOCs or similar coordination structures or mechanisms at the subnational levels. The PHEMC committee also mobilize funds for PHEOC development and sustainability.

Functions of the PHEMC:

- a) Ensure coordination and integration of surveillance and response activities across all levels;
- b) Develop a national/regional/district EPR plan to manage all potential emergencies including disease outbreaks and detection of other emerging public health events or hazards; and clearly stipulate surge capacity to respond to public health emergency at district, county or national level.
- c) Map available human and material resources: experts, logistics including distribution, finance etc.
- d) Periodically review and update the plan in response to any changes in technical, managerial or epidemiological situation or any other risk identified.
- e) Liaise with NDMA to ensure multisectoral preparedness and response.
- f) Establish a community communication plan for sharing information with communities before, during and after any public health emergency. The plan should include mapping of all communication channels-community radio, data on cellular and internet penetration, NGO/FBO networks, prearranged agreements with cellular companies, other platforms (women's groups etc.) that can be leveraged for reaching the public. The plan should also include liaison activities with relevant partners in multiple sectors including POE and other required reporting sites.
- g) Coordinate community risk mapping activities within the district and ensure that all reporting sites are aware of the use of thresholds for reporting acute outbreaks or events.
- h) Identify and mobilize resources for emergency prevention and control including procurement of response and communication supplies. There should also be a mechanism to monitor the use of resources before, during and after the emergency event. Ensure that emergency material stockpiles at the district/county/national levels are procured, monitored, and updated regularly.
- i) Enhance linkages with CBS focal persons to ensure flow of data for early detection of public health events.
- j) Coordinate training of community, health facility, and district/regional/national personnel in EPR.

- k) Ensure that there is periodic organization of emergency response simulation activities at the national, regional, district and community levels.
- l) Coordinate the post-emergency evaluation and plan to disseminate findings with the affected communities.
- m) Ensure provision of efficient administrative and financial management support including human resources; cash flow by estimating, tracking and approving response-related expenditure; monitoring and coordination of funding from all sources.
- n) Ensure that the facilities' communication technology and information system is ready to support any type of emergency.
- o) Oversee the activation of the national PHEOC and similar coordination structures at the subnational level (county and district), during public health emergencies.
- p) Formation of Public Health Emergency Management Subcommittees and deployment of the RRT.
- q) Hold regular meetings to strengthen preparedness capacity (e.g. Training HCWs) during periods when there are no public health emergencies.

Public Health Emergency Operations Center (PHEOC)

A PHEOC has been established at the national and county levels, to act as a command-and-control center that enhances coordination and oversees public health EPR activities. To establish the PHEOC, a legislation was developed to allow the NPHIL to establish and manage the PHEOC. The PHEOC acts as a command-and-control center and is a hub for the coordination of information and resources to support incident or event management activities, thus ensuring a coordinated response to emergencies that involve health consequences and public health threats.

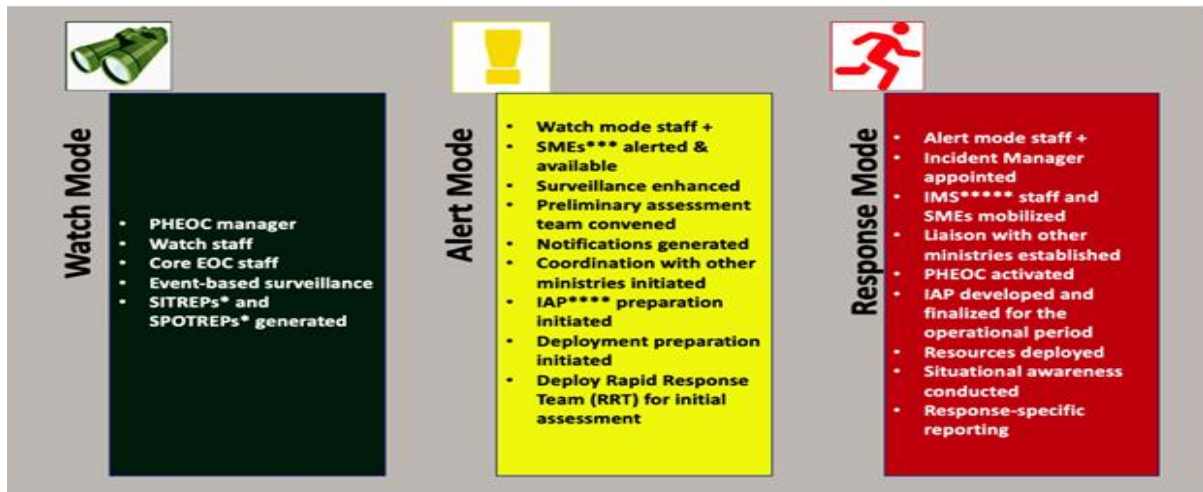
The PHEOC monitors events using various sources of data; facilitate and improve communication between public health and emergency management personnel; and facilitate coordination with multiple response partners. The PHEOC feeds into the National DRM Emergency Operations Center (EOC) to manage escalated events of national magnitude. The PHEOC reports to the Director General of NPHIL who then reports to the Minister for Health. During public health emergencies, the PHEOC, which is the command-and-control center guided by the NEPRC, is activated and

functions as a center for decision-making and the coordination of information and resources for strategic management of public health events and emergencies.

The PHEOC uses the Incident Management System (IMS), which is a standardized approach to managing and coordinating the response by providing a common hierarchy for staff response. The operational structure of PHEOC (command and control center) can be scaled up, which is essential for maintaining its effectiveness and it can be modular (i.e. can be partially or fully activated) depending on situational needs. Counties have PHEOCs, with basic facilities that support the direct coordination of preparedness and response to public health emergency, facilitate real-time communication and information sharing between various stakeholders at their levels and, ensure that there is a mechanism for sharing information with the national-level PHEOC.

When inactive, the PHEOC (command and control center) reduces in size and respective members under various Public Health Emergency Response Management Subcommittees return to their respective working stations. The few staff remaining at the center then liaise with respective sections or departments to continue maintaining plans and procedures; conducting training and simulation exercises (SimExs) as well as routine and event-based surveillance activities; and maintaining the systematic database of the resources available, such as important phone numbers, names and addresses of important government and non-government officials, international bodies, and NGOs.

The PHEOC operates at different levels, referred to as modes, depending on the magnitude and risk of a prevailing public health threat (Figure 4). These are **watch**, **alert** and **response** modes. Different activities are undertaken during the various modes of operations. However, transition from one mode to another depends on the thresholds of the incident-specific triggers. Thresholds of various disease outbreaks are detailed in Liberia's IDSR Guidelines (2021).



Operating modes of a PHEOC showing the activities in each mode and the responsible officers. SITREP - situation report; SPOTREP - spot report; SME - subject matter experts; IAP – incident action plan; IMS – incident management structure.

Figure 4: PHEOC Alert Levels

In the watch mode, routine day-to-day operations are undertaken by watch staff. The alert mode is the standby phase of activation when an emergency event is imminent or has occurred. The PHEOC conducts intensive monitoring of an incident or event in preparation for a potential PHEOC activation. During the response mode, the PHEOC is partially or fully activated guided by pre-defined criteria for levels of activation corresponding to levels of response. The lowest level of response addresses relatively lower scale events for which all response activities are largely within the capabilities and resources of the PHEOC and low-level augmentation is required. The activation levels are color coded in green, orange, and red while the grading level is determined by the scale of urgency, severity, complexity and resource requirement. Each corresponding level is defined and outlined accordingly as shown in the table 2.

Table 2: Levels of Liberia’s national PHEOC activation with matching triggers

LEVEL	DESCRIPTION	TRIGGERS
Level 1 (Watching)	Normal staffing Monitoring situation 24/7	<ul style="list-style-type: none"> Routine Work
Level 2 (Alert, Partial Activation)	<ul style="list-style-type: none"> Suspected or confirmed epidemic cases Public health events which sub-national level can handle with available resources in terms of: Technology requirement, laboratory, PPE Staff competence Limited requests for assistance expected Enhanced planning occurring in anticipation of Level 3 activation 	<ul style="list-style-type: none"> Event based surveillance Syndromic surveillance reports Affected sub-national preparedness level Area and population vulnerability

<p>Level 3 (Response, Activation)</p>	<ul style="list-style-type: none"> • Public health event spreading rapidly with evidence of failure to truncate transmission • Unknown disease or a disease of international concern • Transboundary diseases • Events affecting ≥ 2 counties • The counties getting overwhelmed based on acceptable disease control timelines • All general and command staff in place (activated) • Surge teams mobilized to affected area • Resources mobilized to support response • All necessary emergency support functions activated 	<ul style="list-style-type: none"> • High attack rates • High hospitalization rates • High Case fatality rates • Area and population vulnerability
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Incidence Management System (IMS)

In the context of IDSR, the IMS is represented by the PHEMC at strategic level, which will assemble during activation of PHEOC; as well as the National Public Health Emergency Management Subcommittees which are also present at the operational level. The IMS outlines the specific roles and responsibilities of responders during an event, while providing a common framework for government, the private sector, and NGOs to work seamlessly together. In IMS, each person is assigned a specific role and follows a set command structure. It can be staffed with additional teams of subject matter experts, analysts, logisticians, and support staff depending on the situation at that time.

The IMS permits emergency response organizations to work together effectively to manage multi-jurisdictional incidents while improving communication, coordination of resources and to facilitate cooperation and coordination between agencies. The IMS also coordinates joint assessments and monitoring for continuous improvement of the response. It facilitates the PHEOC's operations within the response system; it guides the PHEOC personnel in their management activities and provides a framework for these activities. The IMS describes (i) the system's coordination and functional structure, (ii) internal vertical and horizontal communications and responsibility matrix (such as, the function of any non-activated element will be the responsibility of the next highest element in the organization), and (iii) the external relationships with the emergency management infrastructure. It is only activated during response to an incident/ emergency.

IMS should be functional at all levels of health system delivery (national, county and district). Once the IMS is activated during public health emergency, it is important for the PHEMC to meet regularly (at least daily) to facilitate coordination, communication, and information-sharing; adopt containment measures; and facilitate the activation and deployment of the RRTs.

The functional positions within the IMS are aligned to the core functions of the PHEOC as follows: Management encompasses the management and strategic roles. Includes strategy development, direction and control, coordination, risk management, liaison, and public communications.

- Operations: encompasses the roles that support field operations; includes the heads of sections, units, teams, branches, and relevant task forces involved in operations, including the rapid response team.
- Planning: focuses on information collection and analysis, and document development to inform the response,
- Logistics: focuses on ensuring the availability and management of supplies to be utilized during the emergency response.
- Administration and finance: focus on documents management, and oversight of the cash flow and tracking of expenditure.

Emergency Preparedness and Response Unit

The national EPR Unit shall be charged with the responsibility of overseeing the implementation of this operational plan. The unit shall coordinate with other relevant institutions to monitor progress and regularly update the operational plan as required and develop an EPR work plan. The EPR Unit shall designate regional focal persons or technical assistants to oversee preparedness and response activities throughout the country. The regions may be modified as follows to suit the purpose of improving national preparedness and response activities:

1. North Western region: Bomi, Grand Cape Mount, and Gbarpolu counties
2. South Central region: Montserrado, Margibi and Grand Bassa counties
3. North Central region: Bong, Nimba, and Lofa counties

4. South Eastern A region: Rivercess, Sinoe, and Grand Gedeh counties
5. South Eastern B region: River Gee, Grand Kru, and Maryland counties

Rapid Response Team (RRT)

The National IDSR Technical Guidelines describes the Rapid Response Team (RRT) structure. In summary, rapid response experts are designated as RRT members with core functions. The district RRT is activated when there is a need. If and where required, the District Health Officer (DHO) will request support from the county RRT through the county health officer. The same system is in place between county and national levels. This bottom-up approach ensures the response is county-led and owned, with national support only as required. Once the need is over, the teams are deactivated, and members go back to their usual jobs “business as usual”.

The figure below shows the RRT structure taking into consideration the linkages between relevant stakeholders and actors as seen in the Rapid Response Framework (2019)⁶.

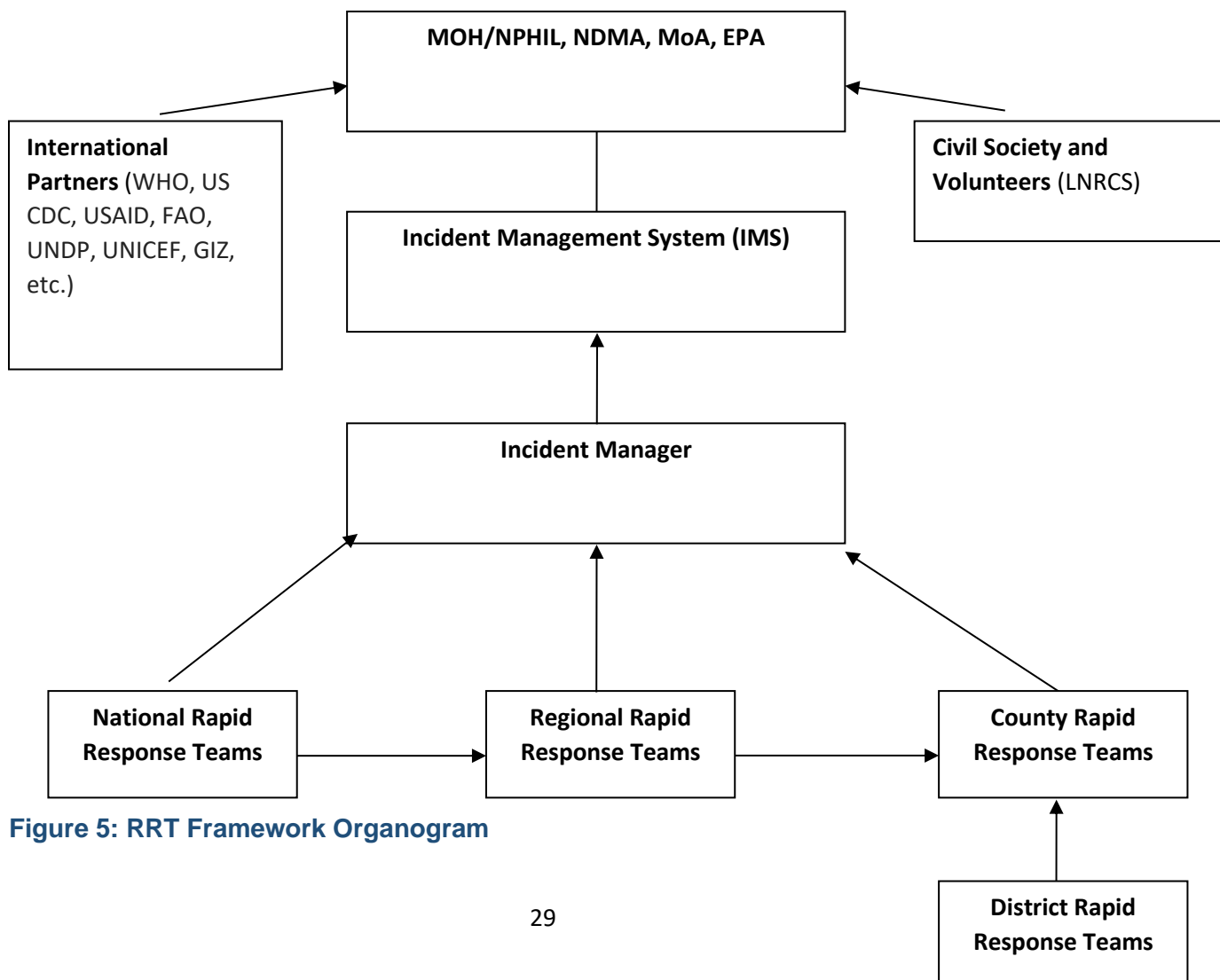


Figure 5: RRT Framework Organogram

(a) National Rapid Response Team (NRRT)

The EPR Focal Person shall lead the NRRT. The outbreak type will determine the national RRT composition, however core team functions that are included irrespective of the outbreak include:

1. Coordination - EPR Focal Person (Team Lead)
2. Surveillance
3. Case Management, including IPC
4. Laboratory
5. Environmental Health, including DBM and WASH
6. Infection Prevention and Control Focal Point
7. Risk communication and community engagement (RCC)
8. Psychosocial/Mental Health Support
9. Logistics

Additional functions may be added to the core functions listed above as per the Nature of the response. The national RRT shall support county teams to perform alert verification, initiate investigation, initial control measures, and support case management as outlined in the National IDSR Technical Guidelines for Liberia (2021). The National Epidemic Preparedness and Response Focal person shall be responsible to develop and regionally prepositioned required stock and supplies for all priority diseases, always ensure their availability. This team shall ensure that stocks and supplies are regularly replenished and provide status reports on a quarterly basis. The team shall ensure that there is a national contingency plan and that stock and supplies are regularly updated.

The National EPR focal person will be responsible to lead all trainings in rapid response and collaborate with partners and other relevant institutions to mobilize resources, and support counties in simulation drills and exercises as part of building and maintaining national preparedness. This person shall regularly review counties' EPR plans and provide feedback.

The county IMS will lead response to public health emergencies within their counties (and can activate a county RRT as needed), however coordinate closely with national EPR focal person for additional support when required. If requested or deemed necessary, the National IMS will activate and deploy the NRRT within 24 hours.

(b) County Rapid Response Teams

The core functions of this team should include:

- Coordination – team lead
- Surveillance
- Case Management, including IPC
- Environmental Health, including WASH and DBM
- Risk communication/Community Engagement
- Logistics
- Psychosocial/Mental Health Support
- Laboratory

The responsibilities of the County RRT are to:

- ✓ Ensure timely investigation, verification of rumors, report of outbreaks and other public health events. Investigation should be initiated within 6-12 hours of receipt of report
- ✓ Propose appropriate strategies & control measures in line with the evolving outbreak/situation
- ✓ Establish appropriate and coordinated risk communication
- ✓ Coordinate rapid response actions with partners and other stakeholders, including the lab
- ✓ Initiate implementation of proposed control measures
- ✓ Conduct on-going monitoring and evaluation of effectiveness of control measures through continuous epidemiological investigations and analysis
- ✓ Prepare detailed investigation reports
- ✓ Contribute to on-going preparedness assessments and final evaluation of the outbreak.

(c) **District Rapid Response Teams.**

The responsibilities of the District RRT are to ensure timely investigation and verification of rumors, unusual health events and reports of outbreaks and to coordinate closely with Country Rapid Response Team in terms of institution of disease control/containment activities if/where required. Listed below are core functions of the district rapid response team:

- Coordination – team lead
- Surveillance
- Case management
- Infection Prevention and Control
- Environmental Health, including WASH and D B M
- Risk communication and Community Engagement
- Psychosocial support (PSS)

(d) **Dispatch and Call Center**

All public health emergency referral services in Liberia are jointly coordinated through the Emergency Operations Center (EOC) and the Emergency Medical Response (EMR). The EOC and EMR have a toll-free hotline 4455,5888 respectively, where patients/ public can request services through calls. All counties have ambulance services that are coordinated and dispatched when requested and needed. When a call is placed to the Call Centers, a Call Center staff responds to the call, queries the caller about his or her emergency and passes credible emergency calls to relevant institution to the scene of the reported emergency to investigate and provide medical help. Prior to its dispatch, the RRT will determine the composition of the team needed to respond based on the nature and description of the emergency. Procedures for referral are detailed in the national referral guidelines (2022).

3.2.3. **Concept of Operations**

Effective emergency preparedness and response consists of four basic stages: preparation, ongoing monitoring, alert, and response. These basic stages are outlined below and explained in more detail in the IDSR guidelines. The county PHEOCs and IMS play a pivotal role once the alert thresholds are met and a response is activated.

Good communication between the PHEOCs, IMS, and responding partners, as well as prompt response actions, are critical to success as these are dynamic or fluid situations.

Preparations

Actively preparing for future response needs, through methods such as stock piling supplies and practice drills ensure that all participating individuals know their roles and responsibilities when it comes to time for future actions.

Ongoing monitoring

On-going IDSR surveillance enables good communication, collaboration and information sharing between counties and national Division of Infectious Disease and Epidemiology, allowing the Ministry of health to watch and monitor the health events occurring throughout the country.

3.2.4. IMS Activation Criteria/Phases

When an alert and/or action threshold is reached for a particular disease at the county or national level, there are different degrees (escalations) of national responses that can occur, including PHEOC and IMS activation in severe cases.

When an alert threshold is reached at county level the national EPR focal person is notified. This may activate the national PHEOC as well as national IMS in order to initiate a national level response. Decision on activation will be made by acting chair within 24 hours following meeting of National Emergency Preparedness and Response Committee (NEPRC) to provide recommendation to the Minister of Health for approval.

IMS Activation criteria

- Significant number of people affected or at risk and geographic spread/cluster as defined by the steering committee (NPHIL, MOH, MOA, EPA,)
- Once the disease specific action threshold is being reached
- Response coordination required exceeds county capacity; an outbreak which is widespread (e.g. impacts multiple counties, cross borders, etc.)
- Resource coordination required exceeds county capacity
- A county request for national assistance

- Declaration of a state of emergency

At this preliminary stage (still at alert threshold) the national level response may be minimum; verification, monitoring and when necessary, providing county support including resource mobilization. The IMS will be in a state of alertness; prepared to be activated at any given time if required.

Levels of IMS activation

To ensure a timely and effective response to a public health emergency, it is important to demonstrate the ability to immediately assemble the appropriate Incident Management structure and senior pillar leaders. The level of IMS activation is determined by the magnitude, scope and stage of the event (see EVD example given in figure 5). Only those IMS functions and positions that are required to meet current response objectives need to be activated. Non-activated functions and positions will be the responsibility of the next highest level in the IMS organization. Each IMS function must have a person in charge. The organizational structure should be flexible enough to expand and contract as needed. IMS staff may be required to take on more than one position (role), as determined by the nature of the emergency event, availability of resources and / or as assigned by a supervisor. The levels of IMS activation include:

Level III – This is the highest level of activation for the largest scale responses. This level requires significant augmentation of staff and 24/7 operations.

Level II – This level of activation requires augmentation of staff to manage operations and provide technical expertise for the response. The operational period for this level is 14 hours, seven days a week.

Level I – This is the lowest level of activation that requires minimal augmentation of staff. This level is used as a default unless a higher level is specified during the activation process. Activation at a level 1 requires resources beyond the capacity of a single Division. Activation at this level is eight hours, seven days a week.

The required response activities for each action threshold are thoroughly detailed in the IDSR guidelines. In summary, there are two types of thresholds used to initiate response: an alert epidemic threshold. These thresholds are normally expressed in terms of the number (or proportion) of cases of a disease and the critical point

(threshold) beyond which action must be taken. Once an action threshold of a disease is reached the county will immediately inform the national EPR focal person, which may or may not result in a declaration of an emergency. The response actions that follow will be determined by the type and magnitude of the outbreak event, as demonstrated in the figure 5 that provides an outline for response escalation levels to viral hemorrhagic fevers. The level of response will vary, taking into account the following factors:

- Number of cases (single versus cluster)
- Geographic location (2 or more counties, cross border, etc.)
- County resource availability (human, financial, logistic)
- Number of concurrent outbreaks (Lassa fever and measles versus Lassa fever alone)

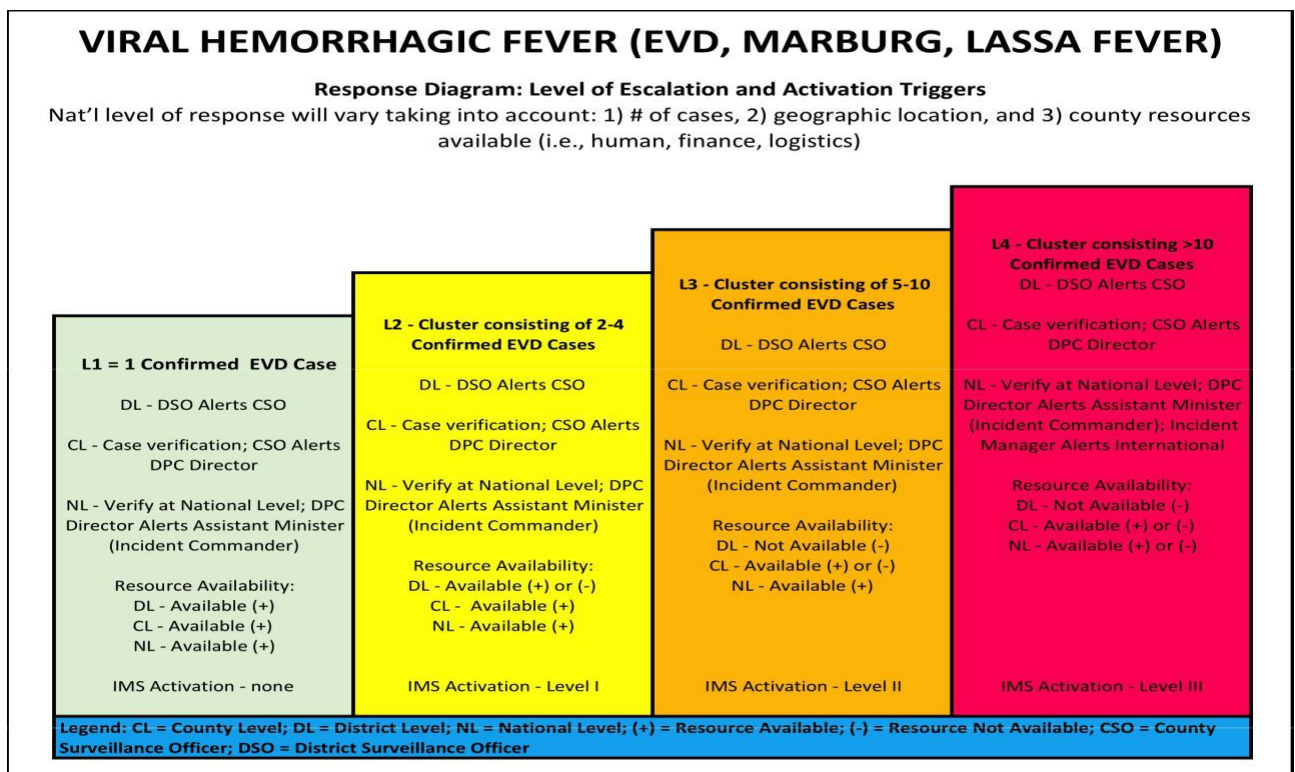


Figure 5: Response escalation levels using VHF example.

3.2.5. Declaration of an outbreak

Once an alert threshold is reached at district level, the DHT should notify the County and subsequently the national level (OH sectors). Depending on the event, at the national level, the IHR National Focal Person (NFP) will assess whether the event is

a potential PHEIC using the IHR decision instrument. The NFP in consultation with the Chief Medical Officer (MOH)/Director-General of the NPHIL shall notify the WHO IHR AFRO Office. They will then alert the nearby Counties and districts (where applicable) about the outbreak to ensure that there is coordination of response efforts. The level of response will vary, considering the following factors:

- a) Number of cases (single versus cluster outbreak)
- b) Potential impact of the illness on the population
- c) Geographic location (2 or more counties, cross border, etc.)
- d) County resource availability (human, financial, logistic)

At this preliminary stage (still at alert threshold) the national level response may be minimum; verification, monitoring and when necessary, providing county support including resource mobilization. The IMS will be in a state of alertness; prepared to be activated at any given time if required. Once an action threshold is reached, the county will immediately inform the relevant stakeholders at the national level. Based on the situation, the case definition will change in the context of an outbreak.

The decision to go to an outbreak case definition is based on a risk assessment that considers factors such as whether the area has been the site of previous cases, the presence of cases in surrounding countries, presence of the virus in animals, reservoir, or potential carriers/survivors. The relevant One Health sectors will determine if an outbreak is declared. When an outbreak is declared the established County or National Public Health Emergency Rapid Response Team (PHERRT) are switched into response mode and the IMS may be activated; the degree and level of IMS activation, RRT activations, and the defined roles will depend on the type and magnitude of outbreak. If the decision is made to activate a PHERRT:

- a) Provide orientation or training along with relevant supplies for the county and District RRT staff. Review existing resources as defined in the EPR plan and determine what additional resources are required. Request these from local partners in first instance before approaching national level. Request outbreak or event response funds to be released in line with the existing preparedness and response plan.
- b) Assign clear responsibilities to individuals or teams for specific response activities.

- c) Mobilize logistics support (travel of PHERRT, accommodation arrangement, communication, other essential equipment). If supplies are not available locally: contact the national level (One Health sectors) to request alternate suppliers, borrow from other services, activities, or NGOs in your district or identify practical low-cost substitutes

3.2.6. Roles of NEPRC, IMS and PHEOC

The NEPRC is a central coordination facility responsible for carrying out the principles of public health emergency preparedness functions at a strategic level in a non-emergency situation and ensuring the continuity of operation of the Ministry of Health and NPHIL. As the NEPRC is the lead non outbreak coordinating body, NEPRC representation will naturally be present in the IMS once activated as they will be chaired by the same chairperson to ensure an effective coordination and continuity during handover between activation and deactivation. Both the IMS and NEPRC will be housed in the Emergency Operations Center (EOC). The EOC is the physical location at NPHIL where all operations are controlled and EOC operations staff operates.

The NEPRC at the national level maintains communication and public health information with relevant One health stakeholders to ensure appropriate preparation and readiness is maintained in each county while also ensuring ongoing monitoring and evaluation.

3.2.7. IMS roles and responsibilities

Once activated, the IMS serves to ensure coordinated, unified, and timely response and recovery activities during public health emergencies. The IMS functions include (for more information refer to *National Public Health Emergency Operations Center Standard Operating Procedures*):

- i. Coordinate all response activities
- ii. Develop and distribute critical information requirements (CIR)
- iii. Provide a bio-surveillance capability under the control of the relevant One Health sectors.

- iv. Ensure that all relevant institutions are informed about a public health emergency
- v. Function as the central “clearinghouse” for information provided to the media during public health emergency, ensuring that information is provided in an accurate and timely manner
- vi. Activate appropriate response agencies and facilities to support the response, including medical and logistic facilities.
- vii. If appropriate, dispatch a rapid response team and other required resources to support an emergency
- viii. Collects and analyzes information to develop accurate and timely intelligence that facilitates response operations
- ix. Ensures that all appropriate intelligence is provided to national leaders, key response stakeholders.
- x. Coordinate with appropriate entities to address any potential trans-boundary issues that may affect neighboring countries, including impacts on their citizens, potential refugee situations and related economic impacts.

Incident Manager role

Clear, strong leadership and coordination arrangements are essential to manage any public health emergencies. To achieve a combined, coordinated response with unity of purpose, the capabilities of the MOH must be closely linked with those of key stakeholders and partners. In summary, the IMS represented by the Incident Manager (IM) is responsible for overall leadership of the activities related to the outbreak.

The Incident Manager’s responsibilities include:

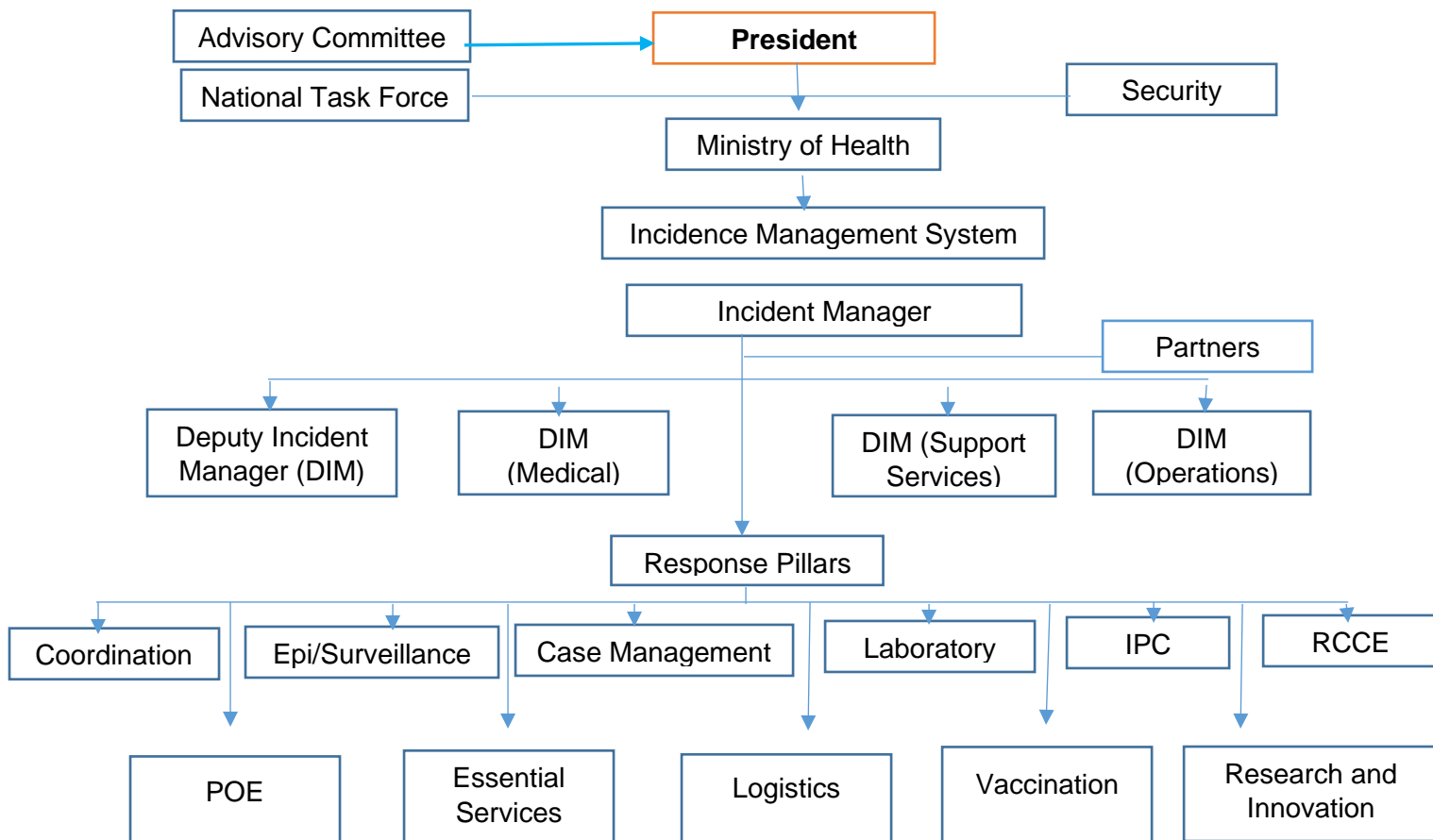
- **Leads and directs the national team across all functional areas**; ensures adherence with International Health standards, adding and/or replacing staff as necessary to the incident situation
- **Represents at the national coordination level**, to ensure an effective interagency response
- **Develops/ensures implementation of coherent response strategies and procedures** within a public health event
- **Provides technical and policy orientation** to partners on the current incident response

- **Conceptualizes, formulates and manages the incident at the national level**
- **Initiates, mobilizes and coordinates** humanitarian/emergency assistance to ensure necessary support
- **Establishes overall action plan and ensures implementation** based on the national EPR plan
- **Organizes and chairs IMS meeting** to present real time updates and analysis of the response.

IMS pillar leads

Once the IMS is activated, the national EOC serves as the main office of response. The Incident Manager and his principal deputies are responsible for medical response, human and financial resources, logistics and operation. The IM activates specific pillar leads for logistics, case management, infection prevention and control, Epi-surveillance, laboratory, DBM, psychosocial services, risk communication and community engagement, nutrition & meal services, dispatch, and call center (figure 6).

Figure 6: IMS activation organogram including pillar leads



Monitoring and Evaluating Response activities

Although not an official component of the IHR Monitoring Evaluation Framework, Intra-action Reviews (IAR) were issued by WHO as one of the temporary recommendations to State Parties during the fourth meeting of the IHR (2005) Emergency Committee regarding the outbreak of COVID-19 convened by the WHO Director-General on 31 July 2020. Moving forward, there is the opportunity to use intra-action reviews for other protracted public health events beyond COVID-19. This allows periodic reviews during the event so a country can continue to reflect on the ongoing response and revise national and subnational response strategies and plans as needed.

3.2.8. Monitoring the management of Public Health Emergencies

Monitoring the management of the public health emergency is crucial to the control process. The monitoring results are important for response report submitted to the supervisory levels, community leaders, and is needed for future advocacy. For example, the response management team should make sure there is ongoing monitoring of:

- a) Events, disease trends to assess the effectiveness of the response measures, the scope of the emergency and risk factors;
- b) the effectiveness of the response: Attack Rate, Case Fatality Rate (CFR), incidence;
- c) implementation of the response: program coverage, meetings of the emergency management committee, etc.;
- d) availability and use of adequate resources, supplies and equipment;
- e) community acceptability of response efforts;
- f) regular reporting on stocks of supplies provided and consumption during emergencies;
- g) Food security is important during emergencies particularly for affected communities, patients in quarantine and improves the resilience of those affected. Providing food increases the cooperation of the community;
- h) Well-coordinated ambulance system with communication facilities that will have two categories of services: specific for infectious diseases and routine medical care

Periodically, report on the progress of the emergency response will be given by providing information developed by the PHERRT to the affected communities and health facilities. In the situation updates, provide information such as:

- a) details on response activities, including dates, places and individuals involved in each activity, as well as the “Epi” curve, spot map, table of person analyses, and the line list of cases;
- b) any changes made since the last report;
- c) effectiveness of the response: CFR, AR, incidence;
- d) implementation of the response of the EPR committee etc.;
- e) operational challenges and gaps;
- f) recommended changes to improve future emergency response such as a vaccination strategy to enhance immunization or a transportation procedure to ensure that specimens reach the reference laboratory timely and in good condition.

The SitReps will be an important reference for evaluating the response and developing a final report.

3.2.8. Deactivation of response and return to routine activities

The Incident Manager, in consultation with the Minister of Health, NPHIL and WHO will determine the need and timeline for deactivation of the IMS. This will involve a review of the incident objectives to ensure all critical needs of the response have been met and that any residual response activities can be met through normal program operations and county activities.

IMS Deactivation criteria

- Individual IMS functions are no longer required
- A state of local emergency is lifted
- Coordination of response activities and/or resources is no longer required
- Event has been contained and emergency personnel returned to regular duties

Once the decision has been made to deactivate the IMS the Incident manager shall assign appropriate individuals to ensure demobilization activities are completed in time and the following activities have been completed:

- Inform all staff, the public, counties, and partners of the outcome of the response and the return of the EOC to normal operations
- Verify all resources have returned to normal utility
- Conduct an After-Action Review
- Ensure all records are documented and compiled for future response.

Once deactivated the IMS reverts to the NIHR/EPRC committee.

3.2.9. Role of partners

Relevant stakeholders will take the leadership in coordinating a response; partners will have their roles and responsibilities defined by relevant stakeholders in line with each partner's institutional competencies, providing technical, logistical, financial and/or human resources support where requested. Partners should work in collaboration with each other and share activities and data with relevant stakeholders.

3.2.10. Points of Entry

Travelers and animals crossing international borders pose specific risks to the people in the countries sharing the borders. Public health emergencies involving travelers and animals with the potential for international spread should be reported immediately to the national level (National IHR Focal Persons/ World Organization for Animal Health delegates). The national authority will rapidly convene a committee of experts to assess the situation using the decision instrument provided in of the IHR 2005. If the criteria are met, the relevant stakeholders will initiate the appropriate actions and notify WHO immediately. The relevant stakeholders will also notify national counterparts in other countries if an event is identified that impacts the residents of those countries.

3.2.11 Link to county plans

The National s EPR plan informs the county EPR plans; this ensures county-led, nationally supported activities. National level should be familiarized with county plans and vice versa, and will provide supportive supervision to the county plans to ensure objectives are met. Plans will be reviewed bi-annually or after every event as part of the after-action review process, by the county health teams and national EPR Technical Working Group to match evolving county needs.

SECTION 4: PILLAR PREPAREDNESS & RESPONSE

Effective and efficient emergency preparedness and response requires some or all the key stakeholder pillar involvement.

Depending on the type of emergency some pillars may be activated, others may be merged, while other supports may not be required. Each technical pillar requires well-defined terms of reference and standard operating procedures for advance preparedness and prompt responses.

Public health preparedness is defined as the capacity of the public health system, communities, and individuals to prevent and protect against, mitigate against, quickly respond to, and recover from health emergencies particularly those in which scale, timing, and unpredictability threaten to overwhelm routine capabilities, regardless of their cause. Each pillar will have a lead who is responsible for coordinating all pillars activities for preparedness, response and document lessons learnt. Pillar lead role and responsibilities include:

- Coordinate key stakeholders and partners involved in pillar activities, including chairing regular pillar meetings
- Act as a link between the pillar and the IMS by providing regular IMS updates and incorporating IMS inputs/feedback into pillar activities
- Provide leadership and policy direction to team members
- Provide technical direction to team members and CHT when required
- Map all pillar activities and ensure its implementation
- Responsible for follow up of activities
- Play a problem-solving role
- Provide recommendation for effective and efficient response activities

At national level there will be designated technical pillar leads; however, in counties these roles may be functional instead of a designated person.

This section provides a brief description of pillars that can be used to respond to different public health events as needed.

4.1. Coordinating, planning, financing, and monitoring

Coordinating, planning, strategic communications and monitoring at national and subnational levels play a critical role to ensure effective emergency preparedness, readiness, response, and early recovery. This includes an inclusive multisectoral, trans-disciplinary, coordination mechanism aimed at removing duplication of efforts and maximizing the available resources. Liberia's coordination mechanism and response plan will be contextualized based on the identified risks focusing on vulnerable communities. This plan leverages the existing coordination systems for emergencies. It promotes inter-pillar coordination, and streamlines communication across all relevant stakeholders, including operational partners, media and the general public. An operational synergy of the health sector development partner coordination mechanisms is key to tackle the ongoing challenges with the continuity of essential services and make regular services safe and accessible.

In this pillar, the following key activities (but not limited to) will be undertaken:

- Ensure coordination of early detection, clinical care and decentralization of response
- Enhance collaboration/coordination with private sector, partners and regional bodies
- Ensure the review and update of the national plans and guidelines
- Develop an effective functioning multi-sectoral, multi-partner coordination mechanism PHEOC, IMS, etc.
- Build capacity of the IMSs, PHEOCs staff, and decision-makers at national/subnational levels as appropriate
- Strengthen the identification of Risk Communication and Community Engagement actions tailored toward specific population groups and settings to address knowledge, rumors, misinformation and disinformation
- Ensure health authorities, policy makers and the public receive up-to-date information on public health emergencies
- Strengthen the procedures to share data and risk assessment findings with relevant stakeholders, including mapping vulnerable populations
- Monitor the implementation of response plans
- Mobilization of resources

- Monitor the response continuously and make necessary adjustments
- Conduct after-action reviews in accordance with the International Health Regulations (IHR 2005) as required. Can consider IAR for protracted public health emergencies
- Support decentralization of the coordination structure at national and sub-national levels

4.2. Risk Communication, Community Engagement, and Infodemic Management

This pillar aims to reduce the negative impacts of public health emergencies on individuals and communities by using evidence-based approaches. It provides timely, credible, and relevant information to manage infodemic (an overabundance of information, including misinformation) and ensures the people-centered and community-led approaches are championed widely, resulting in increased trust social cohesion. A whole-of-society approach with every community member's participation to act and prevent transmission is required. People's behaviors and their willingness and ability to follow public health and social measures remain the most powerful means to stop the spread of many public health emergencies. Thus the need to elevate the role of risk communication and community engagement (RCCE) in breaking the chains of transmission and mitigating the impact of public health emergencies with no one-size-fits-all solutions. RCCE is also crucial in fighting hesitancy and anti-vaccine misinformation and disinformation. This pillar can be partially activated during the preparedness phase.

The following key activities (but not limited to) will be undertaken by this pillar:

- Develop a clear strategy and costed plan for risk communication response, as well as relevant strategic documents (SOP, TORs strategies, guidelines, fact sheets), and disseminate them to relevant individuals or authorities at all levels
- Facilitate community-led responses through the improvement of the quality and consistency of RCCE approaches
- Strengthen coordination of RCCE to increase quality, harmonization, optimization and integration
- Reinforce capacity and local solutions to control the transmission and mitigate its impacts

- Manage infodemic to ensure that individuals and communities have evidence-based factual information at the right time from their trusted sources of information to make informed decisions
- Have infodemic management response systems in place to handle large flow of disinformation and misinformation
- Respond to the infodemic by monitoring and analyzing disinformation and misinformation that is circulating and developing effective content to combat the disinformation and monitoring the effectiveness of such content
- Analyzing and using evidence about community's context, capacities, perceptions, and behaviors
- Develop and disseminate Information, Education and Communication (IEC) materials tailored for specific population groups
- Strengthen capacity building of media institutions, health workers, community leaders and civil society groups
- Train health and non-health organizations to empower communities
- Partner with Non-Government Organizations (NGOs), Community-Based Organizations (CBOs) and regional and international organizations to mobilize communities
- Support mobilization of the public for Vaccination when applicable
- Support implementation of RCCE Plans for key sectors such as Education, Transport, Tourism and Hospitality
- Strengthen leadership for coordination and management of RCCE
- Implementing Monitoring & Evaluation protocols to monitor RCCE implementation, documenting successes, challenges and opportunities
- Document experiences in hand washing, social and physical distancing among other measures
- Prepare Policy Briefs and Guidance documents on public health event prevention measures

4.3. Surveillance, emergency investigation and calibration of public health and social measures

Surveillance data are essential to detect cases, monitor trends and calibrate appropriate and proportionate public health measures. People suspected of having

infectious priority diseases should be rapidly identified, tested, isolated where applicable, and cared for probable or confirmed cases. Contacts of probable or confirmed cases should also be rapidly identified, quarantined, and monitored for any signs and symptoms. In a scenario of community transmission, surveillance will focus on monitoring the geographical spread of the pathogen, transmission intensity, disease trends, infection prevalence, characterize pathogenic features, and assess impacts on health-care services. In settings where large scale testing of suspected cases is limited or not possible, it is important to:

- a) Monitor overall trends for mortality and morbidity
- b) Undertake early detection of spread through laboratory confirmation focusing on a limited number of cases within clusters with a focus on health workers, those with chronic diseases, vulnerable population and closest contacts.

In addition to understanding the transmission scenarios with the greatest granularity possible, it is important to track health system capacity and performance to determine which public health and social measures (PHSM) apply.

If community transmission occurs and if there is also a risk of having the health system overwhelmed, measures should further limit the potential for disease spread through a combination of individual and community measures. Due to the considerable social and economic costs associated with stringent PHSM measures, their implementation should be agreed on with the participation of relevant sectors, with the full understanding and involvement of communities, and based on the principle of doing no harm. The measures should be time-bound and regularly reviewed. The rationale and intended public health benefits of implementing PHSM to control transmission must be effectively communicated to the affected populations and communities engaged. In low capacity and humanitarian settings, critical measures for prevention and control may be more difficult to implement and potentially more harmful to many community members' survival. In these settings, capacities for testing, isolating and treating those who develop the disease, and tracing and quarantining contacts, may be severely lacking. Health actors working on and in fragile settings should focus on monitoring and reducing all-cause excess morbidity and mortality, based on the local understanding of the emergency severity and other health needs. In doing so, there may be a need to prioritize protecting and safely restoring essential health services,

alongside feasible and proportionate control measures and investment in mechanisms to monitor health outcomes beyond the public health emergencies.

Generally, decisions on whether to implement, lift or strengthen PHSMs should be based on guiding principles including measures with high acceptability and effectiveness, feasibility, and ease of reintroduction of such measures if cases and hospitalizations begin to rise. This adjustment should be implemented in a phased manner and weighed against the potential impact on health systems and public health risk. Figure 7 below is an example of COVID-19 stepwise approach to adjusting PHSMs.

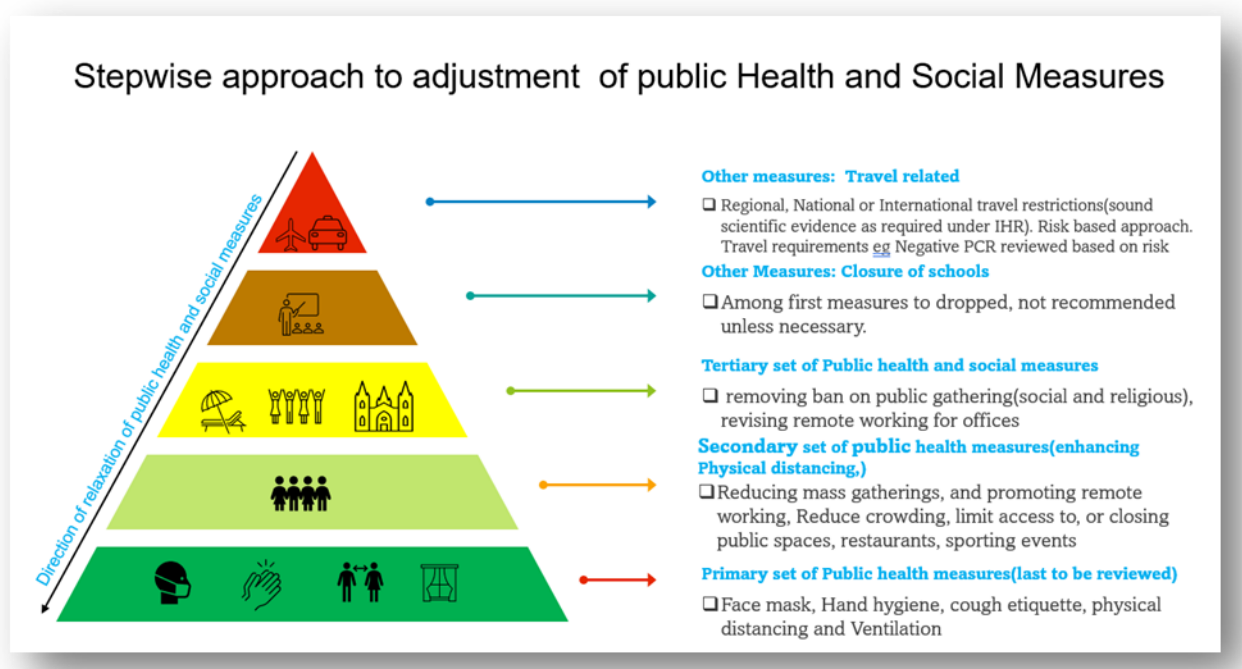


Figure 7: stepwise approach to adjusting PHSMs for COVID-19

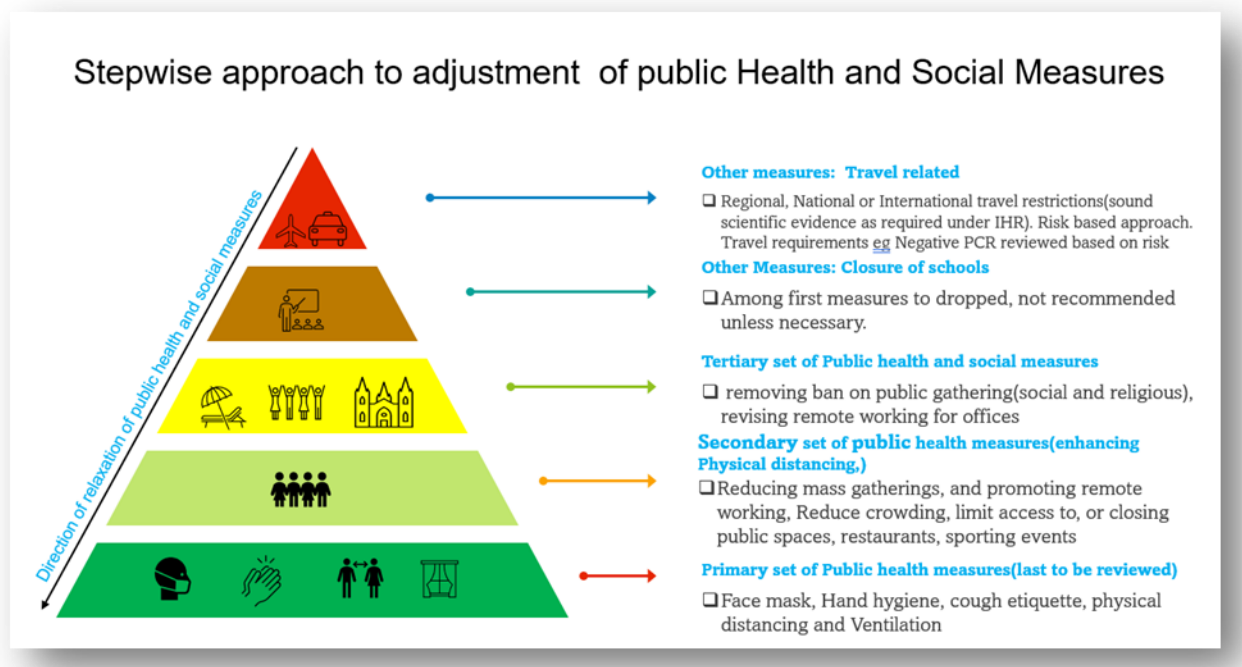


Table 3 below shows an example of COVID-19 scenarios and corresponding modes of response, developed by WHO-AFRO. These scenarios are based on the parameters and assumptions of the unique characteristics and behaviour of the virus variants and country context in terms of population natural or acquired immunity, vaccination coverage, socio-economic factors such as population density and health system capacity to manage admission and critical care patients.

Table 3: Summary of projected scenarios for COVID-19 transmission in 2022 in WHO Africa Region

Scenario	Mode of Response
<p>Scenario 1: Low levels of transmission with similar virus and response actions (status quo) with no re-infections. This is the most optimistic scenario but is highly unlikely.</p>	<p>Low level transmission: Enhance community and health facility surveillance to monitor resurgence and sustain readiness capacities</p> <p>High level transmission: rapid implementation of public health measures and targeted interventions</p>
<p>Scenario 2: Continuous trend with similar virus and response actions but rate of morbidity and mortality proportional to immunization coverage.</p>	<p>Same modes of response to scenario 1 aligned with effective vaccination strategies to reach maximum vaccination coverage of target and total population.</p>
<p>Scenario 3: Upsurge of new cases due to a high level of reinfection</p>	<p>As for scenario 1 and 2 plus PHSM among vaccinated populations during upsurges plus targeted booster and 3rd dose strategies to protect vulnerable groups.</p>
<p>Scenario 4: A new variant of concern with higher transmissibility and/or virulence (worse-case scenario).</p>	<p>As for scenarios 1,2, and 3 plus a re-introduction of strict PHSMs, surge support by WHO and partners and revised vaccination strategies.</p>

This pillar remains activated during preparedness phase, but not necessarily with all components, e.g. contact tracing.

Some of the key activities in this pillar include but not limited to:

- Strengthen early warning and alert management systems
- Implement tools and information systems for data management, including Early Warning Systems and Data

- Strengthen production and dissemination of epidemiological and social science reports, including scientific research and publications
- Collaborate with institutions on analysis and advanced emergency modelling and projections
- Strengthen capacities for Geographic Information System modelling and analysis
- Conduct forecasting using statistical modelling for predictive analysis of epidemiologic trends
- Conduct training in Surveillance and Response Technical Guidelines
- Implement essential surveillance approaches using the IDSR strategy
- Harmonization and implementation of updated surveillance tools, guidelines and software, including those at the Points of Entry
- Where applicable, update surveillance policy/strategy that guides the country on how to respond during community transmission and high attack rate, festive seasons, mass gathering, reopening of schools/offices/institutions, new variants, testing capacities/decentralization of testing, RDTs, long term capacities/institutionalize capacities
- Harmonize and adopt new technologies for surveillance, case investigation and contact tracing to enhance efficiency through automation of processes
- Conduct training for rapid response teams composed of clinical management, public health, animal health and laboratory experts (One Health approach RRTs)

Case and Source Investigation: When reports of a suspected case are received, the information must first be verified. Suspected cases should be investigated to determine if they truly meet the suspected case definition for the disease in question, if they have been in contact with a confirmed case or source of infection, and the potential source of the outbreak. Using this information, district or county teams must instigate appropriate control measures to prevent further transmission of the disease. Details of case investigation and contract tracing are detailed in the IDSR guidelines

Contact Tracing: Contact identification, listing, verification, follow-up, and close monitoring are the basic components of all contact tracing activities. Specific objectives of contact tracing are to:

- ✓ Identify all individuals who have been exposed to known cases (contact identification, listing and verification)
- ✓ Conduct daily follow-up and observation of contacts (contact follow up and monitoring)
- ✓ Detect symptomatic contacts early (case identification)

The monitoring period for contacts will vary depending on the disease in question. The IDSR technical guidelines provide detailed information on disease-specific incubation periods. In most circumstances, contact tracing does not occur until a case is confirmed (note that there may be exceptions to this if there is a high index of suspicion or delayed laboratory confirmation).

Contact tracing will be led by District Surveillance Officers (DSOs) and may require additional surge staffing and support from the national level if needed. In the event a contact crosses into another district or county, the DSO/County Surveillance Officer (CSO) and County Health Officer (CHO) should be notified, and the receiving district or county will be responsible for their follow up (with regular communication to the district or county of origin).

Active Case Finding: Active case finding is the systematic search of persons that fulfill the suspected case definition for a disease. Active case finding should involve surveillance officers, health facility staff, community health volunteers and members of the community.

Cross Borders: In the event a case or contact crosses into another country, the appropriate health officials in that country should be notified, for monitoring and management of the case or contact per their response plan and contacts should be shared. Coordination should occur at the national level.

Dead Body Management: Where applicable, Environmental Health Teams (EHTs) or appropriate health care providers are responsible for making the distinction as to whether a death is high or low priority/risk. High priority/risk deaths are those that meet suspected case definitions for the disease in question or those

where symptoms prior to death cannot be determined. When encountering a low-risk dead body/death, EHTs collect a swab specimen and ensure safe and dignified burials. In the event a high priority death is encountered, standby burial teams perform safe and dignified burials. The CHT is responsible for ensuring safe and dignified burials are conducted by trained teams with access to appropriate materials (e.g., PPE, supplies for cleaning and disinfection, body bags). In rural remote counties, the CHT (through EHTs and DBM Partners) will activate the safe and dignified burial contingency plan when an infectious disease outbreak occurs.

4.4. Points of Entry, international travel and transport, and mass gatherings

Efforts and resources in the context of international travel and transport should focus on implementing adequate risk mitigation measures. These actions should be informed by a thorough and regular risk assessment, considering the local epidemiology in departure and destination countries; travel volumes between countries, public health and health services capacity and performance to detect and care for cases and their contacts, including among travelers, in the destination country. Measures include advice to travelers, self-monitoring of signs and symptoms, multisectoral coordination and planning for disease prevention and control, surveillance, and case management at the point of entry and international contact tracing. Besides, risk mitigation measures include exit and entry screening for signs and symptoms, testing targeting international travelers, and quarantine for international travelers.

If testing is used in the context of international travel, it should be informed by a thorough risk assessment, targeting travelers arriving from areas with higher incidence. Testing resources should never be diverted from high-risk groups. International Health Regulations (IHR (2005)) capacities for points of entry should be enhanced to limit the international spread of public health events, including new variants, especially in countries with sporadic and a cluster of cases. Implementation and relaxation of Public Health and Social Measures (PHSM) should be based on risk assessment and applying risk mitigation measures. This pillar is partially activated during the preparedness phase.

The following (but not limited to) key activities will guide response in this pillar:

- Track and monitor the implementation of public health and social measures, including IHR (2005) additional measures and compliance with IHR article 43
- Conduct risk assessments and apply risk mitigation measures for mass gatherings and other PSHMs
- Implementation of the Public Health Emergency Contingency Plan for the POE to strengthen the IHR (2005) capacities
- Cross-border collaboration to ensure harmonization of policies, practices, and assessments at points of entry (POE)
- Training of POE staff on isolation and initial case management of ill travelers and suspected cases
- Strengthen of POE data management systems for action and decision making to guide the response, including cross-border data sharing for surveillance purposes
- Review and update POE plans and their implementation
- Conduct simulation exercises to test the developed POE plans
- Monitor and evaluate POE implementation plans
- Monitor and evaluate the effectiveness of measures being implemented at points of entry and recommending adjustments as appropriate

4.5. Laboratories and diagnostics

Diagnostics play a key role in the prevention of spread of public health events as they enable rapid identification of infected individuals so that public health measures can be implemented. Extensive and systematic testing as guided by surveillance objectives, is essential to contain outbreaks and is the only way to avoid extensive and economically crippling mitigation measures like travel restrictions and lockdowns. In addition, it's critical to integrate genomic sequencing to promptly detect and respond to new variants of concern (VOC). Better surveillance and laboratory capacity to monitor variants of concern need to be accompanied by prompt sharing of specimen through globally agreed mechanisms so that critical research can be promptly initiated each time that is needed. Monitoring of genetic changes in pathogens is critical in rapidly identifying new

variants that may have altered or enhanced biological properties which may affect transmissibility, pathogenesis, or severity of infection.

Liberia will continue to strengthen and sustain domestic diagnostic and laboratory capacity to manage large-scale testing for EVD and now SARS-CoV-2 at national and sub-national levels, while building on and maintaining the established infrastructure and diagnostic capacity for other relevant diseases. A strategic national surveillance and country wide testing strategy should be available for outbreaks and should include:

- a) a clear structure on coordination, supervision and registration of performed diagnostics and how collaboration with the stakeholders is organized
- b) surveillance/testing strategies
- c) quality assurance mechanisms through national laboratory systems and national reference laboratories
- d) RCCE plan for stakeholders and communities to inform when to test
- e) system in place to effectively collect diagnostic data among all stakeholders for action
- f) strategic national plan provides clarity on how testing is integrated with the other measures in the response
- g) which capacities need to be sustained to strengthen IHR functions.

In the event of community transmission, surge plans should be activated to manage the increased volume of samples from suspected cases.

This pillar is activated at all phases of the preparedness and response.

The following key activities will response in this pillar:

- Where applicable, expansion of testing at all levels of the health system using available testing kits
- Strengthen laboratory systems to provide adequate support for surveillance, clinical care, research and development
- Establishment of active support supervision mechanisms to detect any errors and promptly institute corrective and preventive measures
- Sustain the external quality assurance mechanisms and interlaboratory quality schemes

- Storing and randomizing representative samples to ensure diagnostics quality and routine genomic surveillance
- Document sequencing activities for sharing best practices and to inform decision making
- Source for reagents and consumables for laboratories
- Training on diagnostics, sequencing and bioinformation tools and processes
- Mobilize domestic and external resources in order to conduct sentinel surveillance, sequencing activities including sample collection and shipment to the assigned genomic sequencing laboratories
- Capacity building activities on integration EPI- LAB surveillance
- Guide procurement of laboratory equipment and supplies

Details on laboratory testing are outlined in the IDSR guidelines. The specimen transport network previously established (currently Riders for Health) will ensure specimen transport to the nearest laboratory which has been identified as capable of receiving the specimen and conducting testing for the disease of concern. Samples are also transported with this system between regional labs and the NRL. Riders for Health, the current collecting health facility and responsible testing laboratory are responsible for tracking the sample(s) during transportation by sending out timely updates by email, phone calls and SMS until the sample(s) reach the laboratory. It is the responsibility of the testing laboratory to communicate results to appropriate stakeholders in a timely manner. In the event of a priority specimen the results will be communicated as soon as available by the testing laboratory supervisor. In addition, a standardized line list of laboratory results will be reported daily to the relevant stakeholders for dissemination.

4.6. Infection Prevention and Control and protection of the health workforce

Infection prevention and control (IPC) programmes and practices in facilities and communities are required for the identification and management of patients infected with priority diseases, as well as prevention of transmission to staff, between staff, between staff and patients/visitors, and in the community. IPC practices should also be monitored at national and subnational levels and improved to prevent transmission of healthcare associated infections during the provision of

other routine health services. The focus is to ensure community awareness of public health preventive measures, including where applicable, physical distancing, frequent hand hygiene, respiratory etiquette, appropriate mask use and awareness of the role of ventilation. In the event of shortages of critical personal protective equipment (PPE) safe reprocessing methods or alternatives could be used. Enabling these IPC measures is dependent on access to safely managed water, sanitation, and hygiene (WASH), particularly for vulnerable communities and those populations affected by humanitarian crisis.

Facility level preparedness and readiness should be brought into the central coordination mechanism to further aid in reducing avoidable mortality from priority diseases and other concurrent emergencies. Focus needs to be given to safety and security of health care givers and all frontline workers in the national preparedness and response plan.

National Healthcare Quality Management Unit coordinates all IPC activities in Liberia. Each county will have a Quality improvement committee lead by a quality management focal person (including IPC focal person). Every district will have an IPC focal person to oversee IPC activities in the district and coordinate IPC activities during the outbreak. All facilities will have Quality improvement committees to oversee and manage IPC activities in the facility and be the initial responding team in case of outbreak, the facility committee will be led by Quality improvement focal person. All other facilities will have IPC focal persons to oversee IPC activities in the facility and supports the facility leadership with IPC interventions during an outbreak.

The following (but not limited to) key activities will guide response in this pillar:

- Coordinate and implement the appropriate preparedness activities and interventions in coordination with other IPC/WASH stakeholders
- Provide technical guidance and recommendations to IMS
- Conduct capacity assessment and mapping of identified facilities for case management including IPC capacities of public places and communities
- Review, update and disseminate existing national IPC guidelines

- Implement the plan for prevention, identification, monitoring and management of workers' exposed to infection including research
- Provide training to all workers on IPC measures
- Advocate for water utilities and small-scale providers to provide sufficient safe water to allow for IPC measures in facilities, hand hygiene in public and community settings
- Promote public awareness/ education on preventive public health measures
- Develop or reviewing the national plan to PPE supply and to identify IPC surge capacity needs and include direction for alternatives or local production if necessary.
- At the national level, ensure an essential IPC/WASH supplies (kits and water treatment, soaps, etc.) stockpile will be maintained.

4.7. Case management, clinical operations, and therapeutics

There is a need to build service delivery networks for large increases in the number of patients with suspected or confirmed cases at local, sub-national and national levels. In all facilities, staff should be familiar with the case definitions and must be able to deliver the appropriate care pathway; ensuring that patients with, or at risk of, severe illness are treated and/or referred immediately. The referral pathway guidelines for Liberia allow upward referrals including care in the community, or at lower-level facilities where applicable. Guidance needs to be made available on how to manage mild cases in self-isolation, when appropriate.

Case management coordinates prompt isolation and quality care for all suspected, probable, and confirmed cases in established facilities and isolations units. The following will be in place beforehand:

- a) Isolation and treatment units established and equipped (including contingency plans for additional isolation)
- b) Referral protocols
- c) Available treatment guidelines at relevant facilities

The following (but not limited to) key activities will guide response in this pillar:

- Case management capacity building efforts at national and subnational levels through refresher and cascade training in collaboration with partners
- Ensure technical supportive supervision, quality assurance and monitoring and evaluation on case management activities
- Ensure development/adaptation and dissemination of new guidelines
- Ensure update and dissemination of referral guidelines
- Ensure development/update and dissemination of treatment guidelines
- Identify, develop and provide support for the mental health and psychosocial needs of individuals, families, communities and the responders affected in and after an emergency in order to improve wellbeing and coping
- Ensure integration of mental health and psychosocial services in all aspects of the medical/health services component of the emergency response

4.8. Operational Support, Logistics, and Supply chains

Logistical arrangements to support incident management and operations need to be reviewed. The following (but not limited to) key activities will guide the response in this pillar:

- Establish and sustain a system for monitoring stock of essential medical supplies to ensure timely procurement and delivery
- Conduct assessments of the logistics capacity and management systems and develop a logistic safety plan
- Ensure update of the relevant Sector Supply Chain Strategy and Implementation of the Action Plan is done
- Train personnel on cold chain maintenance
- Build the capacity of Operations Support and Logistics (OSL) teams
- Introduce inventory tracking system to ensure end-to-end tracking of wide-ranging commodities
- Train logisticians at national and sub-national levels in logistics management
- Ensure rapid deployment of personnel and supplies for effected areas
- Establish emergency operations center and isolation areas
- Provide regular support to case investigation and management teams

Each county will have an essential medicine and supplies package in shape of kits; these kits will be primarily stored at relevant storage facilities. Regional Forward Logistics Base (FLB) will provide additional storage support. National levels' function will be to restock relevant storage facilities and regional level supplies as required in addition to maintaining a comprehensive stock of all essential inventories. It is the responsibility of the relevant institution representatives to maintain an updated checklist of required materials, supplies, and tools for their respective county. The relevant institution representatives will check the kits expiries and will reprogram all supplies to routine service for those remaining with less than 6 months of shelf life.

Pre-positioned supplies to allow for safe isolation and basic care are critical for rapid response; therefore, it is essential that the RRT review and conduct stock inventory of the supplies on hand at the time of response and predict additional need and make a request to national level for additional stock as needed. Prepositioned kits/stocks at national level will be made available for the epidemic prone diseases. Procurement team will ensure continuity of supplies through pre-qualified suppliers for all essential items during emergencies.

4.9. Strengthening Essential Services and Systems

When systems are overwhelmed, both direct mortality from an emergency and indirect mortality from preventable and treatable conditions increase dramatically. At times, difficult decisions must be made to balance the demands of responding directly to emergencies, while simultaneously engaging in strategic and coordinated action to maintain essential service delivery, mitigating the risk of system compromise.

Adaptations and lessons learned from EVD and COVID-19 should be identified to contribute to longer term resilience and progress toward Universal Health coverage (UHC). This also presents an opportunity to see how emergency response management approaches within service delivery can be sustained to protect progress of UHC from shocks. Regular monitoring of availability, access barriers and use of services at all levels of care, as well as gaps and health outcomes among communities should guide programming decisions and priorities.

This plan proposes to support the use of real-time data analysis and integrated social sciences evidence to understand differential trends in health services use and outcomes during emergencies. The selection of essential health services will be guided by the health system's baseline capacity and burden of disease, the socio-economic conditions of the communities and the transmission context. High priority categories for continuity include preventing and treating communicable diseases (malaria, tuberculosis, HIV etc.), averting maternal and child morbidity and mortality, preventing acute exacerbations of chronic conditions by maintaining established treatment regimens, continuity of critical inpatient therapies and managing emergency conditions requiring time-sensitive intervention, just to name a few. Plans to provide business continuity and provision of other essential healthcare services should be reviewed and adapted. Special considerations and programs should be implemented for vulnerable populations and fragile, conflict and violence and humanitarian settings.

The following (but not limited to) key activities will guide response in this pillar:

- Develop/review and update Health Service Continuity (HSC) strategic plans to address gaps occasioned by evolving epi situations.
- Implementation of National HSC strategic plans
- Sustain and strengthen the real-time monitoring of Health service continuity and establish a protocol for investigating and addressing identified disruptions.
- Training and capacity building for national and sub-national level health managers and Health care workers for the implementation of plans.
- Where applicable strengthen resumption of new vaccine introduction and supplemental immunization activities that get postponed due to public health events
- Develop program specific strategies to strengthen Health Services and core program activities based on Liberia's priority and emergent trends (Mental health, RMNCH, Nutrition etc.)

- Improve immunization data quality and use for decision making with the implementation of program reviews, data quality review and capability building interventions
- Strengthen medicine and medical product supply chain.
- Establish/Strengthen policy for health workforce protection in the context of emergencies.

4.10. Vaccination

Where vaccine is available for a public health event, the country needs to be prepared for their introduction and deployment. This will involve early planning, regulation, communication, training, logistics, legal, infrastructure, operations, and other areas to distribute vaccines in a timely and efficient manner.

The following key activities will guide response in this pillar:

- Ensure preparedness for the storage and deployment of vaccination, including target population definition and financing mechanisms.
- Monitoring and evaluating of the vaccine storage, deployment, and the impact of vaccination.
- Ensure the rapid deployment of vaccine and associated supplies/equipment in the right condition, right quantities and the right place.
- Develop/adapt monitoring and evaluation tools for vaccination progress and documentation.
- Develop/adapt and disseminate guidelines for active surveillance of specific vaccine related adverse events.
- Work closely with RCCE pillar to develop targeted messages for vaccination.

4.1. Research, Innovation and Evidence

The following (but not limited to) activities will guide response in this pillar:

- Conduct studies on various emergency-related issues.
- Strengthen human capacity for research.

- Assess the effectiveness of different PHSM and clinical care pathways employed in outbreaks
- Support conduct of operational research
- Document and disseminate best practices

SECTION 5: TRAINING AND TESTING

Training, Exercises, and Capacity Building

All staff involved in executing this EPR plan will be provided an orientation session. The session will act as a training activity and allow for individuals to become familiar with the plan as well as to provide feedback and clarify any concerns and ask specific questions. The relevant institutions will develop this orientation program and corresponding schedule. Once developed and on the calendar, the dates of orientation sessions will be provided to those involved in implementing and utilizing the EPR plan.

In line with generally accepted principles of emergency response planning, system's capabilities must be tested using a variety of scenarios in order to rehearse responses. The testing and exercising are essential to ensuring that the organizations maintain the capability to properly and efficiently execute a credible and timely response. Training of staff on response plans will be through various methods. Staff directly involved in operational implementation will be offered training that will consist of a combination of orientation to the materials and periodic refresher trainings.

There are several media for testing and exercising this plan. They include:

- Drills: The testing or exercising of a single response function or action
- Table-tops: Conceptually stepping through the procedures to be followed for either a single function or phase of the event
- Functional exercises: Allows testing and exercising of one component of the plan and supplemental plans
- Full-scale: Allows for the testing and exercising of the entire EPR plan through deployment, and concluding with reconstitution or returning to normal operations.
- Feedback sessions: Allows for individuals utilizing the EPR plan to give feedback on how it has worked, any issues encountered, and suggestions for the future

The relevant institutions will develop a process of monitoring and evaluating on exercises to determine gaps in preparedness and response plans, and develop alternative courses of action to improve operational readiness. Such evaluation exercises may contain elements of the media mentioned above and may also serve

as an assessment of the functionality of the EPR plan. During emergencies with a protracted period, an IAR can be conducted to determine gaps and recommend intervention to effectively respond. However, an after-action report will be produced and a corrective action plan will be implemented for future use.

SECTION 6: BUDGET TEMPLATE

6.1. Budget Template per Pillar

PILLAR	TOTAL COST (USD)
Coordination, planning, financing, and monitoring	
Surveillance, outbreak investigation and calibration of public health and social measures	
Risk communication, community engagement and Infodemic management	
Points of entry, international travel and transport, and mass gatherings	
Laboratories and diagnostics	
Infection prevention and control and protection of the health workforce	
Case management, clinical operations, and therapeutics	
Operational support and logistics, and supply chains	
Strengthening essential health services and systems	
Vaccination	
Research, innovation, and evidence	

6.2. Detailed Budget Template

PILLAR	TOTAL COST (USD)
Coordination, planning, financing, and monitoring	
Surveillance, outbreak investigation and calibration of public health and social measures	
Risk communication, community engagement and Infodemic management	
Points of entry, international travel and transport, and mass gatherings	

Laboratories and diagnostics	
Infection prevention and control and protection of the health workforce	
Case management, clinical operations and therapeutics	
Operational support and logistics, and supply chains	
Strengthening essential health services and systems	
Vaccination	
Research, innovation and evidence	

ANNEX 1: LIST OF PARTICIPANTS

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