Ethiopian Public Health Institute
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ENHANCING HEALTH FACILITY PREPAREDNESS FOR PROMPT RESPONSE TO PUBLIC HEALTH EMERGENCIES

ETHIOPIA'S PUBLIC HEALTH EMERGENCY MANAGEMENT AT HEALTH FACILITIES INITIATIVE

IMPLEMENTATION GUIDE

SEPTEMBER 2024

Ethiopian Public Health Institute
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Enhancing Health Facility Preparedness for Prompt Response to Public Health Emergencies

Ethiopia's Public Health Emergency Management at Health Facilities Initiative
Implementation Guide, 2024 –2027

This implementation guide was developed with support from Resolve to Save Lives (RTSL) and WHO.

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FOREWARD

The Coronavirus Disease 2019 (COVID-19) pandemic taught us that the health system is not resilient to the pandemic and other public health emergencies. In recent years, Ethiopia has also made significant improvements in public health emergency management. Some of the key milestones accomplished in this area include the adoption of National Public Health Emergency Management Guidelines, the establishment of Public Health Emergency Operation Centers (PHEOCs), capacity building for healthcare workers, and the development of an early warning and surveillance system. Although there is significant progress in public health emergency management, there is still room for improvement. Investing in building resilient health systems and strengthening emergency preparedness and response is crucial.

This Public Health Emergency Management (PHEM) at Health Facility Initiative, one of the flagships of the Ethiopian Public Health Institute (EPHI), provides various implementation directions and key activities to address the major challenges of health facilities. It aligns with the national health policy, visioning Ethiopia's path towards universal health coverage and security. This document has been developed through different critical steps. Various assessment and consultative workshops have been conducted to arrive at this important stage. The implementation of PHEM at health facilities in Ethiopia has multiple packages and major activities to be focused on during implementation.

I would like to sincerely express my gratitude and appreciation on behalf of EPHI, to all organizations and individuals who contributed to developing the PHEM at the Health Facilities Implementation Guide. World Health Organization (WHO) and Resolve to Save Lives (RTSL) deserve special acknowledgement for their financial and technical support during the development of this document. Finally, I would like to urge all partners, including governmental and non-governmental organizations, health facility managers, PHEM officers, funding agencies, and others, to use this implementation approach as the source for guidance and implementation of this vital initiative.

Dr. Melkamu Abte

Deputy Director General, Ethiopian Public Health Institute

EXECUTIVE SUMMARY

The implementation guide for the Public Health Emergency Management (PHEM) at the Health Facility Initiative in Ethiopia provides crucial guidance for managing public health emergencies in health facilities across the country.

The primary goal of this initiative is to improve the ability to identify and respond to public health emergencies (PHEs) and ensure that health facilities are well-equipped and resilient in the face of PHEs.

The guide takes a proactive approach to emergency preparedness, aiming to mitigate the impact of crises and prevent them from happening. It serves as a comprehensive resource, outlining the step-by-step process for establishing an effective PHEM framework at health facilities that aligns with the national health emergency management plan at all levels.

The PHEM at health facility implementation guide has several key components. These include the establishment of teams for emergency preparedness and response, the development of emergency preparedness and response plans, and the strengthening of surveillance systems. The guide provides detailed guidance on the roles and responsibilities of different actors involved in implementation, as well as advocacy, capacity-building, and simulations.

The initiative emphasizes the importance of collaboration and coordination among various stakeholders in building effective PHEM systems. This includes local government, partners, Regional Health Bureaus (RHBs), healthcare workers, and the community. It encourages health facilities and communities to participate in emergency preparedness and response activities involving local leaders and community members.

The implementation guide is not only relevant to public health emergencies but also to other emergencies that require an equal level of preparedness and response such as natural disasters or conflicts. In conclusion, the PHEM at Health Facility Initiative Implementation Guide plays a vital role in helping health institutions to establish effective emergency preparedness and response systems. It offers practical guidance and tools that can be tailored to meet local needs and circumstances.

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ACRONYMS/ABBREVIATIONS

AAR	After Action Review
AFP	Acute Flaccid Paralysis
AR	Attack Rate
CBS	Community-Based Surveillance
CFR	Case Fatality Rate
COVID-19	Coronavirus Disease 2019
EBS	Event Based Surveillance
EDRM	Emergency Disaster Risk Management
EOC	Emergency Operations Center
EPHF	Essential Public Health Functions
EPHI	Ethiopian Public Health Institute
EPRP	Emergency Preparedness and Response Plan
HCAI	Healthcare-Associated Infections
HDN	Humanitarian-Development Nexus
HF	Health Facility
HSR	Health System Resilience
IAR	Inter Action Review
IDP	Internally Displaced People
IDSR	Integrated Disease Surveillance and Response
IHR	International Health Regulations
IMS	Incident Management System
IPC	Infection Prevention and Control
JEE	Joint External Evaluation
MEAL	Monitoring, Evaluation and Learning
NAPHS	National Action Plan for Health Security
NDSS	National Disease Surveillance System
PHC	Primary Health Care
PHE	Public Health Emergency
PHEM	Public Health Emergency Management
PHEOC	Public Health Emergency Operation Center
POE	Point of Entry
RHB	Regional Health Bureaus
RPHI	Regional Public Health Institutes
RRT	Rapid Response Team
SARS	Severe Acute Respiratory Syndrome
SDG	Sustainable Development Goals
SimEx	Simulation Exercise
SPAR	State Party Annual Reporting
SPM	Strategic Plan for Management
SWOT	Strength, Weakness, Opportunity and Threat
TOC	Theory of Change
UHC	Universal Health Coverage
VRAM	Vulnerability Risk Assessment and Mapping
WASH	Water Sanitation and Hygiene
WHO	World Health Organization

SECTION ONE

1. Introduction

1.1. Background

Drive for Public Health Emergency Management (PHEM) activities, including the integration of disease surveillance systems into the health system, has only recently begun in Ethiopia. The advocacy efforts began in the late 1990s and gained momentum following the 48th World Health Organization (WHO) Assembly. This assembly recommended that the National Disease Surveillance System (NDSS) be strengthened. In the early 2000s, after implementing Business Process Reengineering, Ethiopia identified PHEM as a key approach for early identification, detection, prevention, and response to health emergencies and disasters[1]. Despite challenges related to structure, human resources, and financing, the implementation of the Public Health Emergency Management (PHEM) system led to significant achievements in the country's health system.

The PHEM wing center at EPHI has been tasked with conducting various activities to mitigate public health threats. These activities include surveillance for early identification and detection of public health risks, ensuring adequate preparedness to prevent public health emergencies, alerting, warning, and dispatching timely information during public health emergencies, responding effectively and timely, and ensuring the rapid recovery of the affected population from the impact of the public health emergency. Despite commendable progress since its inception, the PHEM system in Ethiopia still faces significant challenges at the sub-national level. Specifically, certain regions and Woredas (administrative divisions) lack the essential infrastructure necessary for a fully functional PHEM system. Furthermore, health facilities altogether lack a structured approach to PHEM. Addressing these gaps is crucial to ensuring effective emergency preparedness and response across the country.[1]

In Ethiopia, health facilities are an integral component of the primary healthcare system and serve as the entry point for detecting and managing various re-emerging and emerging diseases. Therefore, enhancing the capacity of PHEM at the health facility level can significantly impact the health system's ability to prepare, detect early, promptly respond, and rehabilitate population groups and health systems affected by public health emergencies. Therefore, the implementation of PHEM at the health facility plays a vital role in helping health institutions establish effective emergency preparedness and response systems. It offers practical guidance and tools that can be customized to meet local needs and circumstances.

1.2. PHEM at Health Facility Implementation Guide Development Process and Method

The concept of integrating PHEM into health facilities emerged following the initial After-Action Review (AAR) conducted in Ethiopia after the yellow fever outbreak in the Wolaita zone in 2019. The review report highlighted significant delays in detecting, notifying, and initiating a response to the outbreak across all levels of the tier system, including tertiary care. In response, a team of diverse experts was assembled to develop this initiative. Unfortunately, the onset of the COVID-19 pandemic interrupted the implementation process.

Following the global declaration that COVID-19 was no longer a public health emergency of international concern, a team was reestablished in 2023. This team embarked on several crucial steps, including developing initial concept notes to outline the framework, identifying and mobilizing necessary resources,

conducting a national consultative workshop to gather insights and ideas, and drafting a protocol to guide the entire process.

Evidence generation has begun by conducting multiple reviews for health emergencies to assess the real-world capabilities of health systems to respond to public health threats at health facilities using different data sources: AARs/Intra Action Reviews (IARs), situational assessment in 200 health facilities, sentinel site reports, gray literature and 7-1-7 retrospective reviews of ten health emergencies that occurred from August 2018 to May 2022.

The development of the implementation guide for PHEM at health facilities followed a structured process. Key steps included:

- **Design and Agreement on Outline:** The guide's framework was meticulously designed and agreed upon.
- **Initial Draft Development:** A dedicated team created the initial draft based on the agreed outline.
- **Articulation of Objectives, Scope, TOC, and Approach:** These elements were shaped by referencing the Strategic Plan for Management (SPM), PHEM guidelines, and relevant WHO documents.
- **Content Creation and Enrichment:** Inputs from various stakeholders enriched the guide's content. These stakeholders included EPHI directorates, the Ministry of Health, Regional Health Bureaus/ Regional Public Health Institutes (RHBs/RPHIs), WHO, academic institutions, health professional associations, private health sector representatives, and civil society organizations.
- **Consultations, Reviews, and Approvals:** The guide underwent rigorous consultations, discussions, reviews, and learning processes. It received final approval during a formal launch event attended by the Minister of Health, EPHI Director General, and regional health bureau heads.

1.3. SWOT Analysis

This strength, weakness, opportunity, and threat (SWOT) analysis is based on the information gathered from comprehensive analysis input from stakeholders, field experts, and a thorough assessment of the local context. This will help us to identify its strengths, weaknesses, opportunities, and threats.

Table 1: Summary of SWOT analysis for PHEM in the facility, Ethiopia, 2023

	Enablers	Pains
	Strengths	**Weaknesses**
Internal environ	The presence of the PHEM division at the national and regional levels	Non-uniform PHEM structures across regions
	Some regions started to assign PHEM officers at HFs (AA & Amhara)	Understaffed PHEM structures at lower levels ("inverted pyramid")
	Existing health infrastructure and networks	Low awareness of IMS at health facilities
	Presence of policy and framework	Absence of specific plan for emergency (EPRP) at health facilities

	Strengths cont.	Weaknesses cont.
Internal environ cont.	The presence of an advanced field epidemiology training program	Absence of plans for ensuring the continuous delivery of essential health services during PHEs
	Presence of a frontline field epidemiology training program	Lack of human resources plan for health emergency management (Surge capacity)
	Functional IDSR system	Limited data analysis and utilization at the health facility level
	The presence of a network of regional public health laboratories	Lack of established RRTs at most HFs
	Engagement of multiple stakeholders	Limited data analysis and utilization at the health facility level
	Opportunities	**Threats**
External Environment	Presence of policy and approach on disaster risk management	Unprecedented natural and manmade disasters occurring concomitantly
	Presence of a National Action Plan for Health Security (NAPHS)	Regular surge of cases from common conditions (e.g., measles, cholera)
	Government support and commitment to public health emergency management.	Competition for resources with other health priorities
	Increased understanding of the need for PHEM by professionals	Limited access to remote or hard-to-reach areas during emergencies
	Lessons from the COVID-19 pandemic	Low socio-economic status among a large proportion of the population

1.4. Stakeholder Analysis

Stakeholder analysis is an important step in the planning and implementation of different initiatives. When we come to this specific initiative, stakeholders play a critical role in the success of any PHEM initiative at a health facility in Ethiopia. Understanding their needs, interests, and influence is essential for designing and implementing effective strategies that address the challenges and gaps in emergency response. We have listed the following key stakeholders involved in the PHEM initiative:

Government Authorities: The EPHI sets overall policies and guidelines for public health emergency management in Ethiopia. Their support and collaboration are essential for coordinating efforts, allocating resources, and ensuring the initiative aligns with national health priorities. Regional health bureaus and local health offices play a crucial role in implementing and monitoring the PHEM initiative at the regional and local levels, respectively.

Health Facility Staff: Doctors, nurses, administrators, and support staff are at the forefront of providing medical care and operational support during public health emergencies. Their knowledge, skills, and expertise are vital for effective response and ensuring the health facility is prepared to handle public health emergencies. Engaging and training health facility staff on PHEM systems is essential for building capacity and resilience in emergency situations.

Community Members: Community engagement is key to the success of the PHEM initiative, as community members are directly impacted by public health emergencies. Patients and their families rely on the health facility for timely and effective emergency response, making their feedback and input valuable for improving services and communication. Community leaders and local organizations can also play significant roles in raising awareness, mobilizing resources, and supporting emergency preparedness and response efforts.

Donors and External Partners: International organizations, non-governmental organizations, and research institutions provide valuable support including funding, technical expertise, and research insights for public health initiatives in Ethiopia. Engaging with donors and external partners can help leverage additional resources, build networks, and access specialized knowledge and best practices in public health emergency management. Collaborating with these stakeholders strengthens the initiative's sustainability and impact.

Media and Communication Channels: Effective communication and public awareness are essential components of successful emergency management. Journalists, reporters, social media influence rs, and communication networks can help disseminate accurate information, raise awareness about public health emergencies, and promote preventive measures among the community. Building partnerships with media and communication channels enhances the initiative's visibility, credibility, and outreach to a wider audience.

Generally, a comprehensive stakeholder analysis is crucial for the PHEM initiative at health facilities in Ethiopia to identify key players, establish partnerships, and ensure a coordinated and inclusive approach to public health emergency management. By actively engaging with stakeholders, addressing their needs, and fostering collaboration, the initiative can strengthen the health system's capacity to respond effectively to emergencies and safeguard the health and well-being of the population.

Table 2: Matrix of Key Stakeholders, PHEM at Health Facility Initiative, Ethiopia, 2023

Stakeholders	Behaviors We Desire	Their Needs and Interest	Why is the Information Required?	Resistance Issue	Institutional Response	Influence Level
Community	Participation, ownership, full information	Equal access Transparency, Efficient service Accountability	To improve our services and to gate trust.	Poor image, dissatisfaction, inefficient, unproductive	Ensure participation, equitable and quality service	High
Customers	Involvement, Ownership, and Healthy Lifestyle	Good governance Access to evidence-based health service	To improve services and satisfaction	Dissatisfaction Opting for Underutilization	Advocacy, Ensure participation, Quality service	High

Stakeholders	Behaviors We Desire	Their Needs and Interest	Why is the Information Required?	Resistance Issue	Institutional Response	Influence Level
Federal Ministry of Health (MOH)	Approval of Plan and performance. Follow up and support.	Implementation of the initiative. Equity and quality plan, Governance, Accountability	Compliance and Protection of Government Directives and Regulations	Administrative measures, Restructuring, Staff and experts reshuffled	Put in place an M&E system & comprehensive technical support	High
RHBs/RPHIs, Regional laboratories	Commitment, participation, and Collaboration in, lab services, and PHEM	Coordination. Joint Planning, Implementation, and SS	For better evidence-based decisions and implementation	Dissatisfaction, Fragmentation	Collaboration Coordination Joint program implementation	High
Ministry of Finance (MoF)	Resources allocation, performance follow-up, and support	Resource allocation. Report for all allocated resources and budget.	Compliance with financial Directives and guidelines	Poor budgeting. Poor resource use.	Good program budget plan and report. Accountable and good financing	High
Health facilities	Assign PHEM officers, Room, and other supplies, lead overall HF-based PHEM activities	Systematic capacity building and skill transfer Involvement in planning and Implementation	To deliver expanded PHEM services. To protect people from PHEs.	Administrative measures. Institutional restructuring. Staff reshuffled	Put in place a strong implementation, comprehensive capacity, and M&E system	High
Universities	Development of workforce, short-term training	Apparent ship Research and data sharing.	To develop desired manpower	No data sharing, poor.	Good, standardized MoU	Medium
Program donor (CDC, WHO, WB... etc.)	Harmonized & aligned Participation More financing Technical Support	Financing, planning, implementation & M&E	For resource allocation, and technical support	Fragmentation, High transaction cost Inefficiency & ineffective	Efficient resource use. Capacity building. Strengthen M&E	Medium
Civil Service Commission	Approval of HFs structure, standardize incentives and attrition mechanism	Good governance guidelines & manuals. Job specification and description.	Compliance and protection directives and guidelines and accountable	Administrative measures.	Institutional structure, standardized workforce, positional level,	High
Line Agencies (EFDA, EPSS)	Collaboration in all policies and strategies preparedness of inputs for PHEs	Evidence-based information; technical support. preparedness plan.	For strong coordination and collaboration	Fragmentation. Dissatisfaction. Poor preparedness for PHEs.	Collaboration Transparency Advocacy	High
Professional Association (PHA, EMA...)	Knowledgeable, skilled, and ethical health professionalism,	Support on Guidelines, Support in planning, implementation	For technical support and planning	Dissatisfaction, Fragmentation, Scale down, With drawl	Guidelines Transparency, Advocacy Capacity building	Low

Stakeholders	Behaviors We Desire	Their Needs and Interest	Why is the Information Required?	Resistance Issue	Institutional Response	Influence Level
Development Partners	Harmonized & aligned Participation More financing Technical Support	Financing, involved in planning, implementation & M& E	For resource allocation and technical support	Fragmentation, High transaction cost Inefficiency & ineffective	Leadership capacity-building, strengthen M&E	Medium
EPHI employees	Commitment, Participation Capacity building, output deliver	Conducive environment motivation and retention	To improve our services and to gate trust	Dissatisfaction Unproductive, Attrition	Motivation, Involvement, accountability, transparency	High
Ministry of Agriculture, Metrology,	Participation, collaboration Metrology Information	Coordination and collaboration on PHEM and zoonosis disease	For strong coordination and collaboration	Fragmentation Dissatisfaction	Put in place a strong collaboration & coordination	Low
NDRMC	National coordination during emergency response	Joint planning, implementation M& Evaluation.	For preparedness, response	Fragmentation	Collaboration Coordination Joint implementation	High

Source: Customized from EPHI SPM -III

1.5. Stakeholders Power /Influence Interest Matrix

The EPHI has identified and analyzed various stakeholders, such as collaborators, community members, and contributors, to ensure the successful implementation of the PHEM initiative at health facilities. Through a comprehensive stakeholder analysis, EPHI has assessed their behavior, interests, powers, and contributions, as well as their levels of resistance and institutional response, aligning with SPM principles. Stakeholders have been categorized into "Top Priority Stakeholders," "Handle with Care Listed Stakeholders," "Collaborators," and "Need Help to Participate Stakeholders" based on their power and interest levels, as depicted in the power/influence interest matrix.

Figure 1. Stakeholders Power or influence and interest grid customized from SPM-III

High	**Handle with care** Civil Service Commission Ministry of Finance Media	**Top priority** Community Customer EPHI and MOH EPHI employee RHBs/RPHIs
Influence	**Need collaboration** Professional Associations Ministry of Education Ministry of Agriculture, Meteorology Agency	**Need participation** Health facilities Donors (WHO, CDC, World Bank, etc.) Reference Laboratories NDRM
Low	**Interest**	**High**

SECTION TWO

2. Scope, Goal, and Theory of Change of the Initiative

2.1. Goal

The goal of the initiative is to improve the capacity of health facilities to prepare, detect, and respond to public health emergencies and to nexus clinical practices with public health emergency management to enhance health facility resilience to maintain core functions during public health emergencies and to profit from its dividend during calm times.

2.2. Rationale for PHEM at HF Integration Guide

Integrating the PHEM system at health facilities in Ethiopia is crucial for enhancing coordination and collaboration among different actors, optimizing resource utilization, and bridging the gap between clinical practices and emergency management. By leveraging existing PHEM structures, health facilities can effectively use available resources and ensure better emergency response through shared infrastructure, personnel, and logistics. This integration also aims to build resilience within health facilities during public health crises, allowing them to maintain core functions and serve their communities effectively. Overall, aligning emergency preparedness with routine health services benefits both patients and communities by ensuring a more coordinated and efficient response to public health emergencies.

GUIDING PRINCIPLE

There are several guiding principles of public health emergency management at health facilities. Some of these principles include:

- By understanding and managing risks, public health authorities can tailor their response efforts to the specific needs and vulnerabilities of the affected population.
- **Proactive:** Health facilities should take preventive measures and employ strategies to mitigate the impact and spread of disease before it becomes a major crisis. It involves planning, preparedness, and taking action in advance rather than reacting to a situation after it has already escalated.
- **All hazards:** Health facilities should develop plans and strategies that can be applied to different types of emergencies rather than creating separate plans for each specific hazard. This allows for a more efficient and coordinated response, as the same core principles and frameworks can be adapted and applied to a variety of situations.
- **Vulnerability and capacity focus:** Health facilities should put resources, capabilities, and infrastructure in place to effectively respond to public health emergencies based on their vulnerability.
- **Whole of society:** Collaborative effort of all segments of the community, including individuals, communities, organizations, and government agencies, to prevent, prepare for, respond to, and recover from public health emergencies.
- **Shared responsibility of health systems:** The responsibility for managing and responding to the emergency is shared among various stakeholders, including the government, healthcare institutions, community organizations, and the general public.

- **Risk Management:** Identifying the potential hazards, vulnerabilities, and risks associated with a public health emergency; assessing the potential impact and severity of those identified risks, communicating their potential impacts; and implementing measures to reduce or eliminate them. This will make it possible to effectively anticipate, prepare for, respond to, and recover from public health emergencies, ensuring the protection and well-being of the population.
- **Planning with communities:** It is a collaborative approach that recognizes the importance of including community members, organizations, and leaders in decision-making processes to ensure an effective and inclusive emergency response.

2.3. Scope

The formation of the PHEM system and its implementation at the health facility level is for all health facilities across the country. This program will leverage the existing PHEM structures that run from the national level to the district level of the health system into healthcare facilities. The implementation arrangement will follow a phase-based approach, which in the first year, will be implemented in 102 facilities, and in the second year, it will cover 148 selected government-owned and private health facilities (hospitals, health centers and clinics); a total of 250 health facilities in two years.

2.4. Theory of Change for PHEM System at Health Facility Level

In Ethiopia, the vulnerability to public health emergencies and disaster risk caused by man-made and natural factors increases from time to time. Different risks occur with varying frequency and severity. These incremental changes result in great loss to human life and social and economic crises. The health sector's response to this kind of public health emergency and disaster risk has undergone several developments both globally and in the country.

The PHEM system is an integrated, standardized approach to managing public health emergencies. It aims to build the capacity of health facilities to manage public health emergencies and improve their readiness to respond to outbreaks, epidemics, disasters, and other health emergencies. The following theory of change outlines the implementation of the PHEM system at the health facility level:

Inputs: The inputs for the implementation of the PHEM system at the health facility level include trained personnel, equipment, and supplies required for emergency preparedness and response. The trained personnel include health workers, emergency response teams, and other relevant stakeholders.

Activities: The PHEM system initiative involves the following activities at the HF level

1. Capacity building: The health facility staff and emergency response teams will receive training on emergency preparedness, response, and recovery. The training will focus on the essential elements of the PHEM System, including surveillance, early detection, reporting, and rapid response.
2. Development of standard operating procedures (SOPs) and implementation guide: The health facility will develop SOPs for emergency preparedness, response, and recovery. The SOPs and guide are based on the PHEM System guidelines and ensure that all staff members have a clear understanding of their roles and responsibilities during emergencies.
3. Establishment of a communication system: The PHEM System initiative will support the establishment of a communication system at the health facility level. The system will facilitate the timely exchange of information between the health facility, the emergency response teams, and other relevant stakeholders.

4. Procurement of equipment and supplies: The health facility will procure the necessary equipment and supplies required for emergency preparedness and response. These include personal protective equipment, medicines, laboratory equipment, and other related items.

Outputs: The outputs of the PHEM system initiative at the health facility level include:

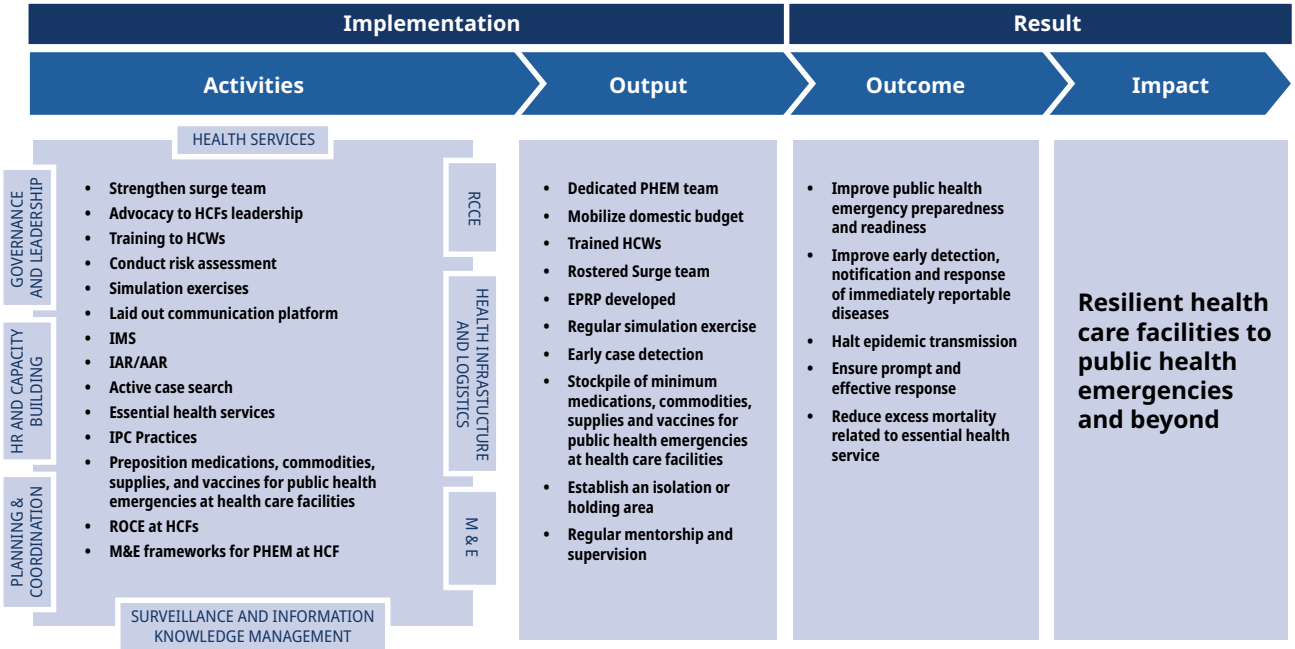
1. Trained personnel: The health facility staff and emergency response teams will be trained on emergency preparedness, response, and recovery.
2. Developed SOPs: The health facility will develop SOPs for emergency preparedness, response, and recovery.
3. Communication system established: The health facility will have a communication system in place to support the timely exchange of information during emergencies.
4. Equipment and supplies procured: The health facility will have the necessary equipment and supplies required for emergency preparedness and response.

Outcomes: The outcomes of the PHEM System initiative at the health facility level include:

1. Improved emergency preparedness: The health facility personnel will have the required knowledge, skills, and equipment to respond to emergencies effectively.
2. Timely response to emergencies: The communication system and SOPs will ensure the timely exchange of information and response to emergencies.
3. Improved patient outcomes: The timely response and effective management of emergencies will lead to improved patient outcomes and reduced morbidity and mortality.

Impact: The impact of the PHEM System initiative at the health facility level is an overall improvement in resilient public health emergency preparedness and response capacity of health facilities. It will contribute to reducing the impact of emergencies on the health and well-being of the population.

Figure 2. PHEM at Health Facilities Initiative Theory of Change EPHI, Ethiopia, 2023



SECTION THREE

3. Intervention package of PHEM at the health facility

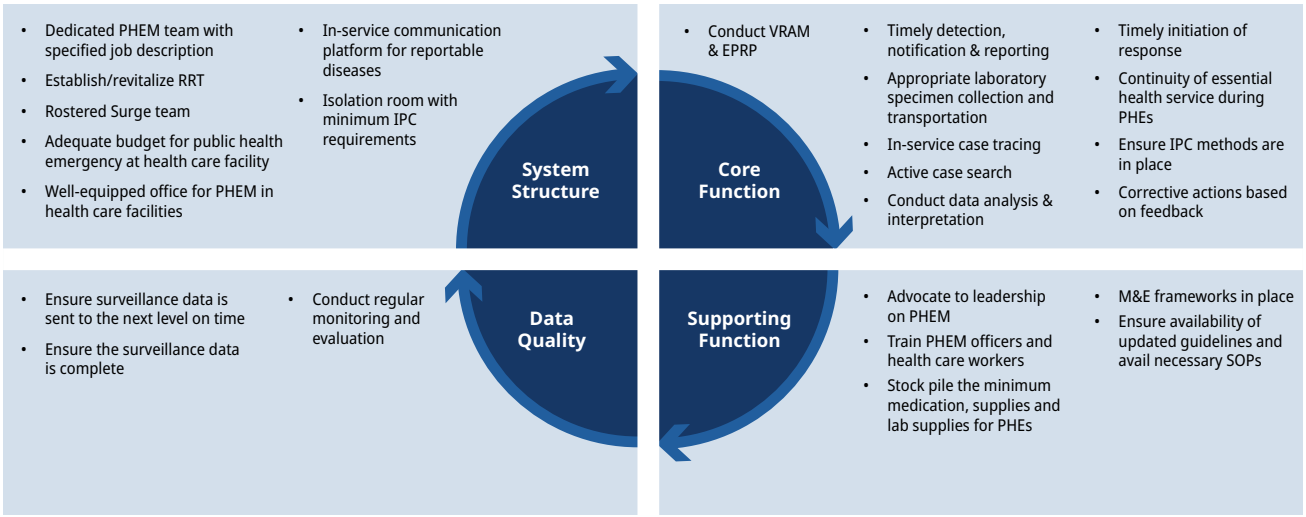
To strengthen PHEM at health facilities, the necessary activities should be clearly outlined. PHEM should be contextualized about healthcare facilities. WHO Building blocks and infectious disease framework have been used to show how the activities will tap which part of the system at a health facility.

3.1. Core Functions of PHEM at the Health Facility Level Using Infectious Disease Framework

A well-built PHEM system at HF should have a comprehensive approach to the prevention and control of infectious diseases. The infectious disease framework guides HFs to implement contextual PHEM activities at each health tier level in the prevention and control of infectious diseases in their respective facilities and the community at large. The framework involves four components listed below:

- **Core Functions of PHEM at Health Facilities:** The core functions of PHEM at HF that will be conducted by the dedicated PHEM team and health facilities include active case search, case detection, in-service case tracing, rumor verification, case registration, case confirmation, reporting, drill exercises, preparedness plan, data analysis and interpretation, initiation of response, ensuring continuity of essential health services, laboratory specimen collection and transportation, and corrective actions based on feedback.
- **Supporting Functions of PHEM at Health Facilities:** These functions are set to support the mentioned core functions. This includes providing guidelines and manuals (case definitions, laboratory guidelines, outbreak investigation guidelines, etc.), training, medication and logistic supplies, office equipment, M&E mechanisms, AAR and IAR, coordination, mentorships, and supervision.
- **Data Quality:** Information quality is necessary input for early preparedness and response. Facilities should ensure that surveillance data are sent to the next higher level on time and are complete.
- **System Structure:** This includes dedicating the PHEM team to the job description, establishing/ revitalizing the RRT team, rostered surge team, adequate budget for public health emergencies at a healthcare facility, well-equipped PHEM offices.

Figure 3: Infectious disease frameworks derived from WHO, 2023



3.2. Intervention Packages

INTERVENTION PACKAGE 1

- Strengthen emergency preparedness and response within healthcare facilities through dedicating public health emergency management officer position with a job description at different tiers of healthcare facilities, conducting staff training on PHEM, establishing rapid response teams (RRT), and ensuring the availability of surge teams during emergencies.

INTERVENTION PACKAGE 2

Enable efficient coordination, decision-making, and resource allocation during public health emergencies and readiness in healthcare facilities through developing emergency preparedness and response plans (EPRP), coordination mechanisms, regular simulation exercises, and engagement of leadership at different tiers of healthcare facilities.

INTERVENTION PACKAGE 3

- Effective surveillance systems and processes that promptly identify and alert potential reportable cases at healthcare facility level through conducting risk assessments, timely communication of identified cases, reporting surveillance data with timely feedback, monitoring trends, enhancing testing capacities and early warning systems, strengthening community-based surveillance and establishing an effective bidirectional communication platform.

INTERVENTION PACKAGE 4

- Prevention and control mechanisms to prevent the spread of public health emergencies at healthcare facilities through availing essential medications, commodities, supplies, and vaccines for PHEs at healthcare facilities, along with necessary infrastructure and resources.

INTERVENTION PACKAGE 5

- Management of health services and resources during public health emergencies at healthcare facilities focusing on timely response, disease management based on updated protocol, continuity of essential services, and infection prevention and control practices.

INTERVENTION PACKAGE 6

- Appropriate monitoring and evaluation frameworks should be available at healthcare facilities for corrective actions to be taken based on feedback provided from mentorship visits and supportive supervision within a healthcare facility.

INTERVENTION PACKAGE 7

- Mentoring and equipping health extension workers with the necessary skills and tools to detect and report early signs of public health emergencies within the community. Key components include ensuring health extension workers are proficient in identifying symptoms of common and rare diseases, enhancing their capacity to educate the community on preventive measures, and setting up a rapid alert system for immediate reporting to higher health system tiers.

SECTION FOUR

4. Roles and Responsibilities of the Health Facility at each Tier/Level

4.1. Hospitals (Comprehensive, Specialized, General, Primary)

- General, comprehensive, and specialized hospital to establish a case team with 3-5 experts and assign a focal person in each department.
- Primary hospital to establish a case team with 2-3 experts and assign a focal person in each department.
- Conduct real-time surveillance for all immediate and weekly reportable disease and health events.
- Validate and harmonize public health surveillance data by reviewing OPD and inpatient wards' medical registration books.
- Archive and document surveillance data
- Conduct regular active case searches within health facilities
- Analyze surveillance data and draw an epidemic curve to see if the epidemic thresholds for specific diseases have been crossed in the catchment area.
- Ensure appropriate collection, storage, and transportation of samples to appropriate referral laboratories.
- Ensure availability of surveillance supplies and tools, including reporting forms, guidelines, posters, case definitions, laboratory collection, and transportation tools.
- Provide PHE information on the morning section and other routine forums to the hospital's medical staff.
- Disseminate or share early warning and alert letters from health authority to all staff of the hospitals.
- Advocate PHEM mandates and its legal frameworks to all staff of HFs, including administrative staff
- Provide pre-service PHEM training to students
- Conduct emergency response exercises for infectious diseases and mass casualty management
- Continuously train and work closely with health facility staff to ensure standards of surveillance practice are followed and case definitions are known and used to monitor disease trends.
- Collaborate with the regional health bureau and zonal health department and provide training to general and primary hospitals within its catchment population.
- Provide technical support on EPRP, Vulnerability and Risk Assessment and Mapping (VRAM), case management, and emergency exercises to general and primary hospitals under its catchment area.
- Conduct regular PHEM forums with general hospitals under its catchment area under regional or zonal leadership.
- Ensure the availability and functionality of the isolation room
- Ensure the appropriate implementation of infection prevention and control precautions
- Facilitate the development of facility-based emergency response plans

- Collaborate with university staff and conduct operational research on PHEM operations
- Conduct disease outbreak verification and investigation
- Coordinate with the regional health bureau, zonal health department, Woreda health office and partners and establish an emergency treatment center in the health facility if it is applicable,
- Ensure timely requests for medical supplies for case management, infection prevention, and specimen collection from national and regional health bureaus
- Coordinate vaccination campaigns during outbreaks
- Facilitate the surge capacity for mass casualty care and outbreak response
- Mobilize a psychiatrist from the hospital and support psychosocial response activities

4.2. Health Centers and Clinics

- HC (Health center) to assign one full-time PHEM officer and focal person in each unit
- Clinics to assign PHEM focal person
- Conduct real-time surveillance for all reportable disease and health events
- Verify syndromic cases such as AFP, febrile, and hemorrhagic cases reported from satellite health posts
- Receive weekly and immediate surveillance reports from satellite health posts
- Compile cases of reportable diseases from the satellite health posts and from the health center itself(weekly/immediately) and report to the Woreda health office
- Validate and harmonize public health surveillance data by reviewing OPD and inpatient ward registration books
- Facilitate and lead the review of maternal death and fill out maternal death reporting form from verbal autopsy and facility-based abstraction form
- Archive and document surveillance data
- Conduct regular active case search within health facilities
- Analyze surveillance data and draw an epidemic curve to see if the epidemic thresholds for specific diseases have been crossed in the catchment area.
- Ensure availability of surveillance supplies and tools, including reporting forms, guidelines, posters, case definitions, laboratory collection, and transportation tools
- Ensure appropriate collection, storage, and transportation of biological samples to appropriate referral laboratories
- Participate in Woreda-level PHEM forum
- Ensure the availability and functionality of the RRT at the health center
- Provide supportive supervision to satellite health posts and provide on-the-job training to health extension workers
- Ensure the availability, readiness, and functionality of the isolation room/center to isolate and treat infectious diseases

- Ensure the appropriate implementation of infection prevention and control precautions within the health center
- Conduct disease outbreak verification and investigation
- Facilitate the development of facility-based emergency response plans
- Conduct emergency response exercises for infectious diseases and mass casualty management
- Train and sensitize health facilities' health workers on surveillance case definitions
- Continuously train and work closely with health facility staff to ensure standards of surveillance practice are followed, and case definitions are known and used to monitor disease trends
- Coordinate with the regional health bureau, zonal health department, Woreda health office, and partners and establish an emergency treatment center in the health facility if it is applicable,
- Timely requests for medical supplies for case management, infection prevention, and specimen collection from national and regional health bureaus
- Participate in VRAM
- Establish and facilitate increasing surge capacity for mass casualty and outbreak response

SECTION FIVE

5. PHEM at Health Facility Implementation Arrangement

5.1. Management and Coordination

Effective management and coordination are crucial in the successful implementation of PHEM at health facilities. They refer to the processes involved in the preparation, response, and recovery from public health emergencies. The initiatives that can be implemented to enhance management and coordination in PHEM include developing plans and protocols, coordinating with stakeholders, providing regular training for healthcare workers, conducting simulation exercises, ensuring the management of equipment and supplies, as well as monitoring and documenting PHEM activities. Effective management and coordination in PHEM at health facilities are essential to ensure a coordinated and efficient response to public health emergencies while protecting healthcare workers and minimizing the negative impact of disasters on the health system and the community.

Key performance indicators related to the initiative's inputs, activities, and output monitored regularly, with a one-time process evaluation conducted and the initiative's short, medium-term results evaluated periodically. In the long run the initiative's monitoring and evaluation framework will be integrated.

5.2. PHEM at Health Facility Implementation Arrangement

The program follows a phased approach. Phase one will concentrate on strengthening the PHEM system at 102 tertiary and secondary governmental hospitals, while phase two will build up on the gains of phase one and scale up to 250 private and government hospitals. The program will majorly focus on strengthening service delivery at the health facility level, integrating epidemic detection, notification and response at points of care and improving coordination between all levels of the health system.

The implementation arrangement strategies follow three phases, which include preparatory, implementation and finalization phases for both phase one and phase two (250 facilities) in two years. Each implementation arrangement strategy will be implemented separately in each intervention facility.

Table 3: PHEM at Health Facility Initiative Implementation Phases 2023, Ethiopia

Preparatory Phase	Implementation Phase	Finalization Phase
• Policy advocacy • Policy and procedure development • Formation of the emergency response team • Training and education • Resource assessment and planning • Communication systems • Awareness and education campaign • Partnership and collaboration	• Emergency response activation • Resource management and mobilization • Surveillance and monitoring • Continuity of operation • Addressing vulnerable population	• Evaluation of lesson learned • Documentation and reporting • Training and readiness and enhancement • Policy and system reform • Plan review and revision

5.3. Implementation approach

5.3.1. Advocacy (National and sub-national levels, government and partners)

An advocacy approach will help define, in a structured and systematic way, what needs to change and how to make that change happen following an advocacy event. This approach, in particular, looks to understand the perspective of implementing partners, relevant government sectors, regional to Woreda level health bureau offices, and particularly, health facilities in implementing the PHEM package at the health facility level including special clinics (based in organization and industrial areas) and IDP sites.

DIFFERENT ADVOCACY LEVELS

Advocacy can be undertaken at each level till the necessary change happens at the facility level

1. **National:** At the national level, conducting advocacy is very important. Providing the existing legislation or legal frameworks and strategies/guidelines that support the implementation of the PHEM package at all health facilities can be used to advocate for the implementation. Advocacy at the national level helps in leveraging technical and financial support towards the implementation of PHEM at the health facility level.

    - Conduct advocacy workshops at the national level to create a structure from the national to the Woreda level that will support, follow and capacitate the PHEM system at the health facility.

2. **Regional:** To speed up the implementation of the PHEM facility package, conducting advocacy campaigns or workshops at regional, zonal, and Woreda levels is necessary. The first essential step will be preparing the advocacy document.

    - Prepare a document that shows the importance of availing PHEM at the health facility
    - The document should show how the office will bring change to the detection capacity, surveillance, reporting, and response and capacity surge in the case of PHEs.
    - Develop a brochure on the impact of community engagement or collaboration between the local community, the health facility, and the health office.
    - Show how preparedness activities can minimize the burden on the healthcare system
    - Design resources mapping and mobilization schemas
    - Engage local and international NGOs, as well as partners, on the process for technical and financial assistance of the program.
    - Working with local civil society groups like women and youth associations to put pressure on the local governors and leaders of the health facilities and to take part in the implementation process.

PHASE ONE AND PHASE TWO DELIVERABLES

The implementation of PHEM at health facilities will occur in two phases: the first phase will cover 102 facilities, followed by 150 additional facilities in the second phase. While these phases are being implemented, preparedness activities will be carried out at the remaining health facilities.

The implementation will also follow the health system tier, starting with specialized/referral hospitals and then expanding to general and district hospitals, health centers, and clinics, including private facilities. Advocacy and resource mobilization efforts will continue throughout the process to scale up implementation across national, regional, and private health facilities. However, all implementing

facilities should be prepared to promptly provide the PHEM office with the necessary human and material resources. Working with implementing and development partners to access resources will be vital to achieve this.

Expected deliverables in Phase One and Phase Two include:

- Ensure 250 HFs have dedicated or structurally assigned PHEM Officers in the next 2 years.
- Ensure that a comprehensive PHEM training package is provided to 2,500 healthcare workforces at health facilities in the next 2 years.
- Improve weekly surveillance report completeness and timeliness to nationally recommended standards in all selected health facilities.
- Initiate PHE response at all selected health facilities within an acceptable time period whenever a public health emergency occurs.
- Control PHEs within an acceptable rate of mortality at all selected health facilities.
- Ensure the availability of emergency drugs, kits and other supplies at the health facility level during the preparedness and response of PHEs.
- Enable at least 250 health facilities to conduct/participate in VRAM to predict outbreaks and disasters.
- Ensure continuity of essential health service at all selected health facilities during and post PHEs.
- Ensure availability of isolation rooms at all selected health facilities for suspected cases and treatment corners for confirmed case management.
- Ensure prevention and control of intra-hospital transmission of infectious diseases of PHEs
- Ensure all selected health facilities have a well-organized and stand-by RRT and contact tracing teams for PHE response.
- Improve rapid detection, isolation, investigation, and response to PHEs at all selected health facilities.

5.3.2. Training

TRAINING OF HEALTHCARE WORKERS

The health facility PHEM officers need to get comprehensive public health emergency management-related training that will help the professional on proper detection of disease or events, timely notification for the concerned bodies/next hierarchy, data manipulation, current PHEM structure and role and responsibility at each level, surveillance data management and utilization for response purpose, additional training for specific diseases or site for specific purposes like disease-specific sentinel sites (influenza, HIV case-based surveillance, AFI).

The respective health facility officer needs to take comprehensive practical-based training before engaging in the routine PHEM activities mentioned in his/her role and responsibility. Additionally, the officer needs to take specific training in case the facility is selected for specific surveillance activities like influenza sentinel surveillance. Refresher training should be provided for officers when new approaches or methods are introduced, ensuring they stay updated as required.

The health facility PHEM officer needs to conduct regular facility-level training and needs assessment and identify training-related gaps that exist at the facility and health post level. Based on the result of the assessment, the officer should plan and provide training for facility and health post health professionals.

The training package is five days of training (basic) and seven days of training (ToT) for health professionals. The PHEM at the health facility training package will be customized using the following training packages:

- Basic PHEM training/frontline Field Epidemiology Training Program (FETP) training package
- Health system resilience training
- Comprehensive training in humanitarian emergencies
- Mass casualty management (MCM) training

Other health facility health professionals (physicians, nurses, laboratory technicians, etc.) need to be trained based on the findings of the training needs assessment conducted. However, basic refresher training on detection, notification, and management of reportable diseases and health conditions is important to enable them to promptly detect, notify and manage these reportable diseases and health conditions.

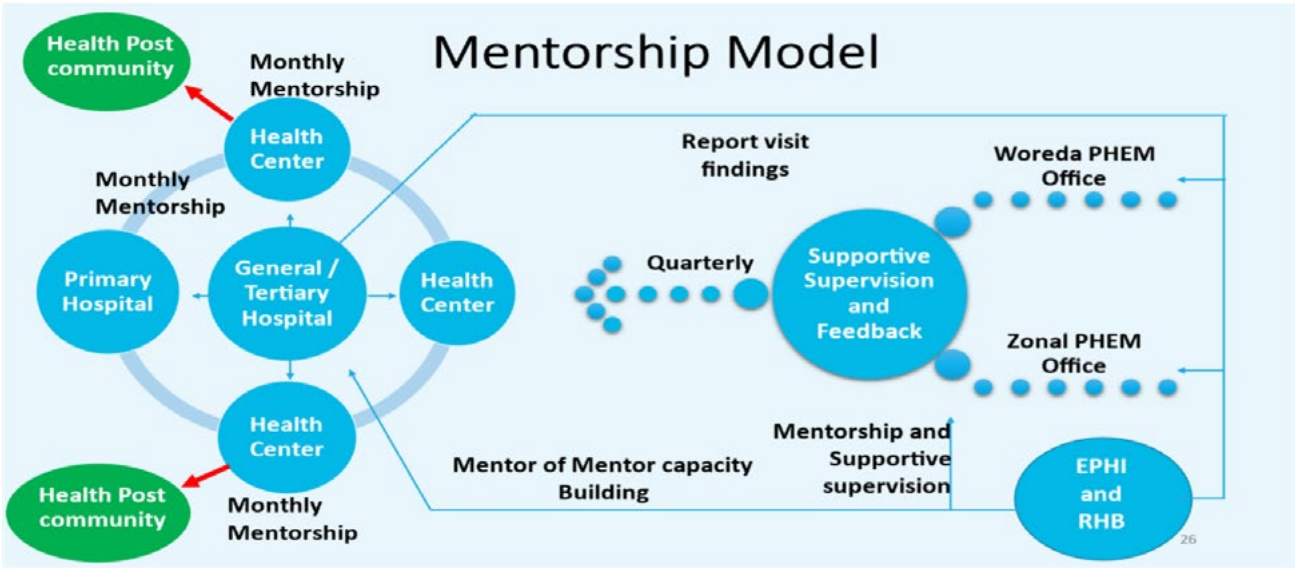
5.3.3. Mentorship

Mentoring modalities could occur across various levels of the health system (between hospitals and health centers or between zonal PHEM and health facilities) or within the same level. However, the relationship between the mentor and mentee facility is purely technical, with no administrative authority.

PHEM at health facility level mentoring will be conducted using a cascading approach. Selected and trained mentors from regional health bureaus or public institutes in collaboration with EPHI and partners will mentor designated PHEM officers at tertiary/referral and general hospitals. Those who were mentored (PHEM officers at referral and regional hospitals) will, in turn, provide PHEM at health facility level mentoring at primary hospitals and health centers in their catchment areas. This cascading system will maximize the utilization of the available expertise within the system.

The mentor health facilities will be selected by respective regional health bureaus with defined criteria and will be given the responsibility to provide mentoring to their catchment mentee health facilities on a regular basis. The mentoring visits will be conducted according to the guidance provided in these guidelines.

Figure 4: Mentorship process and tool for PHEM at a healthcare facility, 2023



5.2. Logistics and Supplies Required

HARDWARE

A comfortable and innovative working environment will improve employees' performance, which in turn, boosts the organization's performance. The physical infrastructure of health facilities impacts both the ability of healthcare providers to carry out their responsibilities, and deliver efficient health services, and must be adequately maintained.

SOFTWARE

Healthcare data is essential for epidemiologists and health authorities to monitor and respond to crises more effectively, but it cannot stop public health emergencies by itself. Assigned PHEM officers at the health facility level are expected to be the source of well-organized and analyzed public health emergency data. They are also mandated to report to the next higher level promptly. Software capable of collecting, capturing, recording, retaining, processing, intercepting, analyzing, and monitoring surveillance data should be installed on electronic devices at these facilities.

PHEM OFFICES AT FACILITIES

Designated PHEM offices need to be well equipped with office software, such as DHIS2, and necessary services like internet and phone access should be provided.

MATERIALS

Materials for implementation of PHEM at the facility level could be listed below:

- Office furniture
- One chair (managerial)
- Office table
- Two guest chairs
- One desktop computer
- One laptop
- Internet service
- Phone
- Stationeries (notebook, record book, long sheet papers to draw charts or reports, tape, staplers, highlighters, markers, etc.)
- File cabinet

IPC SUPPLIES

- Pieces of bar soap and bleach for setting up hand-washing stations and supply of gloves
- Safety boxes for collecting and disposing of contaminated supplies and equipment
- Specimen packaging and transporting supplies
- Cold box with ice packs or vacuum flask
- Cotton wool for cushioning sample to avoid breakage
- Labels for addressing items to the lab
- Labels for marking "store in a refrigerator" on the outside of the shipping box
- Case forms and line lists to act as specimen transmittal form
- Marking pen to mark tubes with patient's name and ID number

SAMPLE COLLECTION MATERIALS

- Specimen packaging and transporting supplies
- Cold box with ice packs or vacuum flask
- Stationeries (notebook, record Book, long sheet papers to draw charts or reports, tape, staplers, highlighters. marker)

- Cotton wool for cushioning sample to avoid breakage
- Labels for addressing items to the lab
- Labels for marking "store in a refrigerator" on the outside of the shipping box
- Case forms and line lists to act as specimen transmittal form
- Marking pen to mark tubes with patient's name and ID number

LABORATORY SPECIMEN COLLECTION SUPPLIES

- Blood: Sterile needles, different sizes, sterile syringes, vacutainers, test tubes for serum, antiseptic skin disinfectant, tourniquets, transport tubes with screw-on tops, transport media (Cary-Blair, Trans-isolate)
- Blood films (malaria): Sterile or disposable lancet, glass slides and coverslips, slide box
- Respiratory specimens' collection: Swabs, viral transport medium
- Cerebral spinal fluid (CSF): Local anesthetic, Needle and syringe for anesthetic, antiseptic skin disinfectant, sterile screw-top tubes and tube rack, microscope slides in a box, trans-isolate transport medium, latex kit, gram stain, May Grunwald Giemsa Kit
- Stool specimen collection: Stool containers, rectal swabs, Cary-Blair transport medium

TOOLS AND MANUALS

Different reporting tools are developed to facilitate the reporting of the identified diseases and conditions in the reporting surveillance sources. The health facility PHEM officer uses a different format for either collection of surveillance data or reporting to different levels (see Annex II).

GUIDELINES

For proper implementation of PHEM activities, different guiding and leading documents need to be available at all levels. The preparation, updating and distribution of these guidelines are conducted by EPHI in collaboration with partners and stakeholders. Facility-level PHEM officers will be responsible for distributing some of the manuals listed below within the facility (see Annex III).

STAFFING REQUIREMENTS

Health facilities should have at least one or two full time dedicated PHEM officers who can perform overall PHEM activities at the facility level based on the tier. Hence, a full-time dedicated, and qualified PHEM officer is necessary to improve the quality of surveillance and strengthen disease detection, reporting, and control systems at the health facility and community levels. The following qualifications are necessary for assigned PHEM officers to carry out their duties.

The following qualifications are important for PHEM officers:

- Master of public health/University, BSc degree/college diploma certificate in public health/health officer, epidemiology, nursing, laboratory technologist, environmental health, medicine, or related disciplines.
- Good computer skills: MS Word. MS Excel and MS PowerPoint
- Experience working in the control and prevention of communicable disease programs
- Demonstrated surveillance and outbreak management capacity, experience, or basic training in surveillance, data analysis, outbreak investigation, IHR and PHEM system

SECTION SIX

6. Monitoring, Evaluation, Accountability, and Learning (MEAL)

6.1. Purpose of M&E

Setting up a well-functioning MEAL system is an important part of program management and in creating accountability.

Generally, the purpose of the monitoring and evaluation (M&E) plan at this initiative thematically consists of the following major objectives:

A. Formative evaluation

- To facilitate the data collection process of the situational analysis using well designed tools.
- To support EPHI/MOH and implementing partners in carrying out analysis using SWOT analysis techniques in a similar pattern in all initiative implementing facilities across regions
- To establish better documentation of the findings of situational analysis for each Woreda through the use of a well-designed reporting tool.
- To facilitate the implementation process by availing necessary documentsat all levels from Woreda to the federal level.

B. Process evaluation

- To monitor the progress of the initiative's implementation and assess whether it is on track to meet its objectives and expected outputs, intermediate and primary outcomes in terms of their scope, timeliness, and quality.

C. Learning

- To document evidence on what works and what does not work, as well as how it is or is not working, and what conditions might be needed for activities to work at scale.
- To conduct well designed case studies in all regions and document best practices or success stories
- Contribute to the scaling-up process of PHEM at health facilities and use it as a knowledge-sharing tool to reflect on experiences and share lessons learned to maximize benefits from what is being done and how it is being done.

D. Routine data management

- To establish a categorization database at EPHI and RHBs for HFs implementing PHEM at health facilities and build the capacity of the staff to use the database for action.To establish a better and simpler approach in collecting non-epidemiological data from implementing HFs.
- To facilitate and assure data quality of implementation initiative at all levels using the different data quality checking tools.

E. Feedback and action plan

- To provide feedback at all levels to the initiative in order to identify successes and gaps and supplement information in supporting the initiative implementation processes.
- To help the EPHI PHEM system and implementing partners in planning their support based on existing findings or evidence in each of the implementing regions and HFs.

F. Accountability

- To support both EPHI PHEM and implementing partners in clearly identifying their expected program intervention activities, as well as their roles and responsibilities to ensure an effective and efficient implementation.
- To establish a functional data flow structure and reporting system, as well as creating visualizations and dashboards.

G. Dissemination

- To disseminate evidence and promising practices to appropriate bodies regionally, nationally, and internationally in order to engage stakeholders to scale up interventions that work and to see the value added due to the initiative's implementation.

Table 4: PHEM at HF Initiative Summary

Title	Implementation and Integration of PHEM at Health Facilities
Starting Date	2016 EC
Duration	2 years for Phase I (two-year interval for each phase)
Partners	WHO, RTSL, etc.
Target Area	250 health facilities across 10 regions and two city administrations (15 specialized hospitals, 36 general hospitals, 46 primary hospitals, 23 private hospitals, 100 health centres, and 30 private clinics). More than 2500 HCWs will be directly involved in phase one implementation.
Beneficiaries	Populations that live in those regions, HCWs
Funding Source	WHO, WB, CDC, RTSL and other partners
Goal	The goal of the initiative is to improve the capacity of health facilities to prepare, detect, and respond to public health emergencies and to nexus clinical practices with public health emergency management to enhance health facility resilience to maintain core functions during public health emergencies and to profit from its dividend during calm times.

6.2. Monitoring Evaluation and Learning questions

Evaluation questions are general PHEM at health facilities-focused questions which should be developed up-front, and in collaboration with the primary audience(s) and other stakeholders that a program intends to report to (EPHI/MOH). These questions go beyond measurements to ask higher-order questions such as whether the intervention is worth it or if it could have been achieved in another way. Overall, evaluation questions should lead to further action, such as program intervention improvement, intervention mainstreaming, or program intervention redesign.

To answer evaluation questions, monitoring questions must be developed to inform what data would be collected through the monitoring process. Monitoring questions are quite specific in what they ask compared to evaluation questions. For example, an evaluation question of *"What worked and what did not?"* may have several specific questions, such as "*Did the mentorship package lead to increased knowledge in HCW?"* or the monitoring questions will ideally be answered through the collection of quantitative and

qualitative data. It is important to not leap straight into the collection of data without thinking about the evaluation questions. Jumping straight in may lead to collecting data that provides no useful information, which is a waste of time and money. Learning questions are kind of questions that can be responded to through a continuous process of analyzing a wide variety of information sources and knowledge (including evaluation findings, monitoring data, innovations, and new learning that brings to light new, promising practices or calls into question received wisdom, and collected observations and tacit knowledge from those who have particularly deep or unique insight in a given area).

Table 5: PHEM at HF initiative monitoring, evaluation & learning questions

PHEM at HF Monitoring, Evaluation & Learning Questions	
I. Evaluation and Learning	
Focus Areas	**Questions**
Effectiveness	How effective is PHEM at HF in strengthening the PHEM System? • To what extent does the PHEM at HF approach improve the PHEM system in the implementation regions, Woredas?
Affordability	How affordable is PHEM at HF initiative? • What is the cost by unit (strong, medium and weak) to implement the PHEM at HFs?
Feasibility	How feasible is PHEM at HFs initiative? • Are there ways to exercise the plan-do-study-act cycle and other models of the PHEM at HF? • What are the challenges in the use of the PHEM at HFs? • What works well? How does it work for different health tier system? • How does it work in pastoralist/less favorable areas?
Acceptability	How acceptable is it? • What do HCWs say about the initiative? • What part of the initiative do they find hard?
Adaptability or Applicability	How adaptable or applicable is the PHEM at HF initiative? • How adaptable is the PHEM at HF initiative packages to overall health services? • How much replicable are the PHEM at HF initiative packages? • What factors can stop or motivate others from accepting the approach?
Sustainability	How sustainable is it? • What are the useful initiative packages/mechanismsand strategies used in 250 HFs to sustain the initiative activities? • How do we continue to lighten PHEM at HF? • What motivates others?
Scalability	How is the PHEM at HF initiative scalable? • What are the interests of other Woredas towards the utilization of PHEM at HFS components?

I. Evaluation and Learning cont.	
Focus Areas	**Questions**
Learning	What have we learned from the initiative's implementation?
Outcome	What kind of change happened after the implementation of PHEM at HF
II. Monitoring and Evaluation	
PO-I	Indicators for PO-I: • Was the final evaluation conducted on time and the report completed? • Was the costing study report completed?
PO-II	

6.3. Result Framework & Result Tracker

6.3.1. RESULT FRAMEWORK (RF)

The resulting framework is one of the major four M&E frameworks that present an initiative's strategy for achieving a specific objective. It is both a planning and a 'living' management tool which provides an important opportunity for an organization to work with its partners to build consensus and ownership around shared objectives and approaches to achieving them. Additionally, it is central to the strategic plan and provides a program-level framework for managers to gauge progress toward the achievement of results and to adjust relevant programs and activities accordingly. It also functions as an effective communication tool. The primary outcomes measure the overall change(s) in technologies, systems, populations or behaviors, which the investment seeks to achieve within the context of the investment timeframe. That is technically very similar with intermediate results of USAID, key results of UNICEF and impact of World Bank-funded initiatives. Again, the intermediate outcomes measure short- to medium-term changes in technologies, systems, populations or behaviors that need to be achieved in order to realize the primary outcome(s). It is also the same as the sub-intermediate results of USAID, outcomes of UNICEF and World Bank initiatives.

PHEM at HFs result framework captures the logical relationship between the expected results of the PHEM at HF initiative (outcomes and outputs) and the foundation's strategic goals to which those results contribute. It was also designed to identify the key outcomes and outputs that will be monitored or evaluated throughout the life of the initiative. The result framework consists of four primary outcomes (POs) and five intermediate outcomes (IOs).

These primary outcomes include:

- PO-1: Scalable, evidence-based PHEM at HFs initiative developed, tested, validated and implemented for Ethiopia PHEM System.
- PO-2: Increased technical capacity of PHEM system for emergency preparedness and response recovery capacity.

- PO-3: Key PHEM at HFs concepts/approaches/activities endorsed, institutionalized, and implemented by EPHI/MOH and other stakeholders in their Health Emergency and disaster intervention programs and intervention.
- PO-4: Implemented the PHEM at HFs initiative in 250 health facilities across 10 regions and 2 city administrations.

The first primary outcome doesn't have any specific intermediate outcomes, but it contains four major outputs, which are designed based on dimensions of evaluation, including effectiveness, affordability, feasibility, acceptability and adaptability. The outputs are focused on deliverables related to the costing study, evaluation, case studies and operational studies.

The second outcome comprises of all the outputs related to building the technical capacity of EPHI. This PO doesn't have specific intermediate outputs, and it captures all the activities, roles, and responsibilities of the initiative's implementer.

The third primary outcome covers the implementation of PHEM at HFs by the EPHI/MOH and other partners. Therefore, partners and other stakeholders will be able to understand the premises underlying the strategy and see within the framework those intermediate outcomes critical to achieving the objectives.

The fourth outcome captures the key activities of the PHEM at HFs initiative. It is prepared by focusing on the components of the PHEM cycle of preparedness, early detection, response, and recovery by linking facility-level implementation activities, such as preparing the micro plan, data analysis and use, supportive supervision, quarterly review meetings, linking the community and tracing out the targeted population. This PO has three intermediate outcomes and many outputs and indicators when compared to the other three POs. It implies that many of PHEM at HFs activities and core group activities fall under this PO.

6.3.2. RESULT TRACKER (RT)

The PHEM at HFs result tracker contains the same primary and intermediate outcomes, as well as outputs of the result framework. It is developed to agree upon targets and the approach to measuring and tracking results over the life of the initiative. It will be used during the management and close phase to document actuals and variance against targets as the initiative progresses. It also contains contents of indicator types and sources of the indicators.

Table 6: PHEM at Health Facilities Initiative Implementation Result Framework

PHEM at Health Facilities Result Framework		
PO-1: Scalable, evidence-based PHEM at HFs initiative developed, tested, validated, and implemented for Ethiopia PHEM system		
ID	**Immediate outcome**	**Output**
This primary outcome doesn't have an intermediate outcome.		1.1.1 Final evaluation completed 1.1.2 Costing 1.1.3 Findings from the operational research disseminated 1.1.4 Findings from case studies shared or disseminated

PO-2: Key PHEM at HFs concepts/approaches/activities endorsed, institutionalized, and implemented by EPHI/MOH and other stakeholders in their health emergency and disaster intervention programs.		
ID	**Immediate outcome**	**Output**
This secondary outcome doesn't have an intermediate outcome.		2.1.1 National PHEM guideline revised after the implementation of PHEM at HFs 2.1.2 the PHEM at HFs concept incorporated in MOH plan and policies 2.1.3 Partners working in PHEM incorporated the PHEM at HFs concepts
PO-3: Implemented the PHEM at HFs initiative in 250 HFs across 10 regions and 2 city administrations in the next two years.		
ID	**Immediate outcome**	**Output**
Timely implementation of PHEM at HF initiative in 250 HFs (for phase I)		
3.1.	Increase health facility preparedness	3.1.5 Availability of trained/oriented health staff 3.1.1 HFs have capacities to conduct various forms of assessments (VRAM, periodic surveys) 3.1.2 Presence of an epidemic preparedness and response plan (EPRP) and demand forecasting 3.1.3 Availability of emergency stocks of drugs, vaccines, and supplies during the last 12 months 3.1.4 Availability of funds for outbreak response 3.1.6 Availability of redundant and uninterrupted communication facility
3.2.	Improve early detection	3.2.1 HF capacities in early detection, prediction and forecasting of risks 3.2.2 HF existence and integration surveillance system 3.2.3 Existence of a strong surveillance system 3.2.4 Fast risk communication mechanisms and feedback provision systems
3.3.	Strengthen response	
3.4.	Strengthen recovery and resilience	

6.4. Performance Monitoring System (PMP) and Indicator System

6.4.1. PERFORMANCE MONITORING PLAN (PMP)

PHEM at health facilities' PMP is very similar to its result tracker except for a few additional information. It is designed not for agreement purposes with the foundation, but it is for internal initiative management purposes. Specifically:

Purposes:

- To track the progress of each expected and planned detailed activity at all levels (Specialized hospitals, general hospitals, primary hospitals, private hospitals, health centers, and private clinics).

- To differentiate the roles and responsibilities of PHEM at HF initiative implementers (MOH/EPHI) and partners in collecting and reporting information across regions and against primary outcomes.

The PMP covers monitoring the PHEM at HF implementation at all levels, including both outcome and output indicators. It also contains some process indicators that can measure activities of step-1 (preparatory phase), step-2 (implementation phase), and Step-3 (initiative finalization phase) activities.

6.4.2. INDICATOR SYSTEM

PHEM at HFs initiative includes some processes and output indicators with a qualitative nature, which are planned to be collected from non-numeric data sources, such as mentorship minute books and mentorship and supportive supervision reports. The initiative also uses quantitative indicators in relation to improvement in preparedness, early warning, response, and recovery of PHEM at HFS which is the corner stone for the success of the its implementation. (See Detail of indicators below in Annex IV)

6.5. Major M&E Activities

6.5.1. SITUATIONAL ANALYSIS

As part of the initiative to introduce PHEM at HFs, situational analysis is conducted in selected health facilities, implementing regions and city administrations. These activities will be carried out alongside the advocacy visit to initiate the PHEM at HFs initiative. This means that almost all 250 planned health facilities will undergo formative evaluation activities to assess their preparedness for public health emergencies.

Purposes:

A. To collect benchmark information about the PHEM System in selected health facilities, zones and Woredas

B. To categorize specialized hospitals, primary hospitals, general hospitals, private hospitals, private clinics, and health centers based on previous PHEM implementation data (using at least 2 years of PHEM)

C. To determine major strengths, influential factors, as well as gaps and challenges in implementing the PHEM system at all levels

D. To measure the quality of PHEM data

6.5.2. BENCHMARK

Several factors need to be considered to classify the initiative's health facilities for emergency preparedness and capacity building, including coordinating emergency responses, disaster response, recovery efforts, risk communication and community engagement, logistics and finance, patient care and supportive supervision, and health management information systems.

To classify a healthcare facility as Grade I, some specific standards and criteria must be met. A healthcare facility that fulfills at least two of the major criteria and four of the minor criteria will be classified as Grade-I. If a facility meets one of the two major criteria and at least three minor criteria, it will be classified as Grade-II, and if a facility fails to meet both major criteria, it will be categorized as Grade-III.

Table 7: Selection criteria for PHEM at Health Facility implementation 2024

Selected criteria used for the classification of PHEM at HFs			
Selected criteria	**Expected existing scenario of the HF to classify it as Grade-I**	**Criteria fulfilled**	
		YES	**NO**
Emergency Preparedness and capacity building			
Coordination of emergency			
Emergency and disaster response			
Emergency and disaster recovery			
Risk Communication and Community Engagement			
Logistics and finance			
Patient care and supportive services			
Health information management system			
Mentorship			
Expert opinion			
	HF status	**Yes**	**No**
GRADE-I			
GRADE-II			
GRADE-III			

6.5.3. DATA COLLECTION

Data collection is a crucial aspect of monitoring, evaluation, and learning (MEL). To monitor the intervention's overall activities and track its implementation progress, data will be collected from different levels, including the initiative's health facilities, Woredas, zones, and regional health offices, using various methods. The selection of data collection methods will depend on the variables to be measured, the source of the data, and the available resources.

To track the indicators listed in the result tracker and initiative monitoring plan, both qualitative and quantitative data will be collected. The data collection methods will include a combination of approaches based on the specific requirements of each indicator.

- Direct measurement/counting (using the predefined template)
- Observation
- Interview
- Document or record review
- Focus group discussion
- Lesson learnt and best practice documentation

In most cases, collecting data will be part of other activities such as advocacy visits, supportive supervision, review meetings, training, mentoring, and coaching. The PHEM at HF implementing directorate from EPHI and partners will support the MEL activities and teams by integrating data collection activities into the described initiative activities. Additionally, the frequency of data collection varies depending on data availability, reporting requirements, workforce, and logistics. Data collection may occur monthly, quarterly, bi-annually, annually, or before and after the described activities, depending on the aforementioned requirements.

6.5.4. DATA FLOW

All the data collected from different levels will promptly reach the central office MEL unit through different reporting channels using predefined reporting templates. The direction of the data and feedback system follows the pathway of surveillance reporting system at all health system levels from the federal to the community level.

6.5.5. DATA STORAGE

To ensure the successful implementation of the PHEM at HF initiative and to gather reliable data, different data storage platforms will be designed and assigned. Apart from the DHIS-2 system for data exchange, other initiative-level result trackers and performance monitoring tools will also have their own data storage.

Folders will be created for each PHEM at HF implemented and categorized by region. Various types of storage will be designed for different categories:

- Situational analysis reports and data storage
- Routine administrative data storage:
- Training report storage
- Lesson learned and best practice documentation storage
- Operational research and survey reports storage

6.5.6. DATA QUALITY

As part of the PHEM at HF initiative implementation, data quality assessments will be conducted in all implementation Woredas. The MEL team, PHEM at HF implementing team, partner staff, WHO, HC, and HP (Health Post) staff will conduct the assessment using two standardized approaches. These approaches include the DQS (Data Quality System) method, which assesses the general quality of the monitoring system of selected Health Facilities, and the LQAS (Lots Quality Assurance Sampling) method, which checks the consistency and accuracy of PHEM monitoring tools found at health posts and health centers or PHCU levels, and reports at all levels.

I. DQS approach

The quality of the PHEM at HFs monitoring system will be assessed using the DQS protocol. A general observation of the health facilities' PHEM systems will be conducted, and the DQS checklist will be used to assess it. Each question in the checklist will have a "yes," "no," or "NA" response, and the score will be based on these responses. These questions/observations/tasks will be grouped into the different assessed components of the monitoring system.

The purpose of this assessment is to identify the gaps in PHEM at HFs initiative implementing Health facilities (Situational analysis), correct those gaps, and measure the improvements made in the system at the end.

During the situational analysis and end (sustain) phase of the, the assessment of the public health emergency management system will be conducted twice, if possible, only by PHEM at HFs implementers and partners. The initiative implementer will use a checklist to measure the quality of the PHEM system at all levels and report using the same checklist. The Quality Index Score (QIS) will be used to determine the quality of the PHEM system. Quality Improvement is calculated by dividing the score for all questions answered "yes" by the sum of maximum scores that could be obtained from all questions, and then multiplying the result by 100.

II. LQAS Approach

In order to ensure the accuracy and consistency of PHEM-related data at the HF level, we will be using a technique similar to the HMIS LQAS (Health Management Information System (HMIS) and Lot Quality Assurance Sampling) methods. This will involve comparing the monthly record of reportable diseases in the tally sheet and registration books against the report sent to the next level or recorded in the database. We will then calculate the verification factor and make decisions based on pre-set cut-offs. The verification factor is calculated as the ratio of recounted data to reported data multiplied by 100%.

6.5.7. DATA ANALYSIS

It is important to aggregate, analyze, and utilize data generated at each level for informed decision-making and planning before reporting to the next higher level. To ensure this, the MEL unit will provide capacity building through training, supportive supervision, and mentoring. At the PHEM at HF office level/EPHI, data will be aggregated and analyzed using various statistical packages based on the need and type of analysis. For visualization purposes, Excel, Tableau Desktop, or Power-Bi tools will be used. SPSS, STATA, and Epi Info will be used for data analysis.

6.5.8. FEEDBACK

After analyzing the results, we will provide feedback to government and partner staff at all levels. This feedback will be given both verbally and in writing. The feedback will guide our planning and decision-making for future actions.

6.5.9. PRIVACY DATA

We guarantee confidentiality at all levels by national and international laws and regulations. Any non-routine data collected during research or case studies will be kept confidential and destroyed as outlined in the protocol.

6.5.10. FACILITATING LESSON LEARNT AND BEST PRACTICE DOCUMENTATIONS

The lesson learnt and best practice documentation method is a highly flexible approach to documentation that is particularly useful for researching issues related to sustainability and institutional systems. It involves several data-gathering strategies, such as document analysis, surveys, participant or non-participant observation, and participatory or action research. This approach provides a powerful and personal depiction of the impact of our work through the achievements. By weaving a success story around an individual, family, or community, and using powerful statistics, we can emphasize and illustrate the breadth of our reach.

The lesson learned and best practice documentation activities will happen in their respective regions. They will conduct at least one documentation process. The process involves collecting information on a quarterly basis for each region. Learning specialists will be responsible for gathering the data, transcribing it, analyzing it and writing a report. The report will then be submitted to the MEL team. To ensure authenticity, every participant who is involved in the documentation process, whether for an

interview or photography, will sign an agreement form. The consent form will be translated into the local language before use. The facilitator has the option to use a tape recorder during the interview if required. The MEL teams will support the regional team by providing on-site one-day orientation or training. The documentation process will follow international and national guidelines for best practices to ensure the best practice archiving.

Types and Focus

- Personal Achievement: Include personal stories and anecdotes of how PHEM at HF initiative has helped specific healthcare workers providing training, personal development and other activities. We especially welcome stories about people who received training and were empowered to become peer educators or change leaders.
- Building Capacity of Health Facilities: How have activities improved the organizational or technical capacity of organizations and staff? Please be as specific as possible by describing the organization, the method used to increase capacity (e.g., technical assistance, training, on-site support), the type of skills and/or knowledge that was transferred to the staff of the organization (e.g., financial management, policy development, etc.), and what the organization has accomplished as a result of its increased capacity.
- Hard-to-Reach and Underserved Populations: Stories about innovative changing ideas and actions that target hard-to-reach and underserved children.
- Integration: Stories that demonstrate interaction across technical areas. These stories should provide an example of how the unique partnership among organization working on PHEM at HF which allows the program to address a broader range of needs and more effectively serve the population.
- Impact at Scale: Demonstrate how PHEM at HF has reached a high proportion of the population that could benefit from the intervention.

6.6. Evaluation

The routine and ongoing evaluative practices, case studies, other operational and costing studies will be conducted by EPHI/PHEM at HF implementing team or directorate and other implementing partners.

These studies will take a critical look at a variety of issues, including poor documentation, poor analysis and use or misuse of data for action, poor performance evaluation, the type of learning culture that exists (i.e., whether health staff/facilities learn from better performers) and the type and frequency of supportive supervision visits. The studies will respond to some of the major evaluation questions. All other types of evaluation will be conducted based on the initiative implementation timeline.

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3. OCHA, Ethiopian situational report, Ethiopia, August,2023.
4. Woldeamanuel, T. M., & Yimtubezinash, D. C. (2021). Real-time impact of COVID-19 on clinical care and treatment of patients with tuberculosis: A multicenter cross-sectional study in Addis Ababa, Ethiopia. National Library of Medicine.

ANNEX

Annex I: Tools and manuals used for PHEM implementation

- Weekly reporting form for health post / HEW
- Weekly reporting format for other levels
- Daily epidemic reporting format for Woreda (DERF-W)
- Daily epidemic reporting format for Region (DERF-R)
- Case-based reporting format (CRF) for any disease
- AFP case investigation form
- Guinea worm case-based reporting format
- Guinea worm line list
- Influenza case-based reporting format
- Line list (for all diseases)
- Rumor log book for suspected epidemics (for any type of public health rumors)
- Case based laboratory reporting form (CLRF).
- Identification and notification form for maternal death
- Verbal autopsy tool for maternal death investigation (Community)
- Facility Based Maternal Death Abstraction Form (FBMDAF) (Health Facility)
- Maternal Death Reporting Format (MDRF)
- Identification and notification form for perinatal deaths
- Facility Based Perinatal Death Abstraction Form (FBPDAF) (Health Facility Death)
- Perinatal Death Reporting Form (PDRF)

Annex II: List of PHEM-related Guidelines

- PHEM guideline
- Cholera guideline
- Measles guideline
- Malaria guideline
- Influenza surveillance implementation guideline
- Meningitis guideline
- AFP(Acute Flaccid Paralysis) guideline
- NNT(Neonatal Tetanus guideline)
- Yellow Fever guideline
- Human Rabies guideline
- Anthrax guideline
- Dengue Fever guideline
- Ebola virus disease interim guideline
- COVID-19 interim guideline
- Health system resilience manual

Annex III. List Of Indicators

Thematic Classification of Indicators	Response
Theme -1: Research and Evaluation (all PO-1)	
Was the final evaluation report completed?	
Was the costing study report completed?	
Number of operations research studies from which findings are submitted/published	
Number of case studies from which findings are shared /disseminated	
Theme - 2 indicators: MOH documents focused (all PO-2)	
Was the national PHEM guide revised with PHEM at HF concepts incorporated?	
Was PHEM at HF concepts incorporated into MOH policies and plans?	
How many partners incorporated PHEM at HF concept in their program intervention?	
Theme – 3: Management Purpose and after (all po-3)	
Percent of HFs with dedicated PHEM Office as per the initiative implementation standard	
Percent of HFs with a dedicated PHEM officer as per the initiative implementation standard	
Percent of PHEM officer taking PHEM-related training	
Percent PHEM officer taking PHEM at HF training	
Number of PHEM officer other training received related to PHEM	
Number of PHEM office equipped with an adequate communication tool	
Number of initiative HFs that has a rapid response team	
Percent of initiative HFs with functional rapid response team	
Number of initiative HFs that conducts venerable and risk assessment	
Number of initiative HFs with public health Emergency Preparedness and Response Plan (EPRP)	
Percent of initiative HFs EPRP supported by the budget	
Percent of health facilities that conducted a simulation exercise	

Thematic Classification of Indicators	Response
Theme – 3: Management Purpose and after (all po-3) cont.	
Number of initiative HFs with surge planning	
Number of initiative HFs with surge roster	
Percent of initiative HFs that prepared surge team based on VRAM identified outbreaks	
Percent of HFs that have referral network system for laboratory	
Percent of PHE with adequate EDK	
Percent of initiative HFs With prepositioned PHE stock/supply for emergencies	
Amount of public health emergency relevant stocks (drugs and supplies) procured based on the EPRP	
Percent of HFs that conducted facilities-level active case search	
The proportion of weekly surveillance reports submitted by health facilities to the next level (completeness)	
The proportion of weekly surveillance reports submitted to the next level on time (timeliness)	
Number of epidemics detected at the initiative HF level	
The proportion of disease patterns/events verified within 24 hours of notification	
The proportion of disease patterns/events verified within 24 hours of all verified diseases	
The proportion of suspected outbreaks of epidemic-prone disease notified to the next level within 30 minutes of surpassing the alert/epidemic threshold	
The proportion of suspected outbreaks of epidemic-prone disease notified to the Next level within 2 hours of surpassing the alert threshold	
The proportion of initiative HFs that maintain line graphs for selected priority diseases for the past 3 months	
The death rate for each disease /event	
Proportion of HFs preparing weekly epidemiological bulletin/summarized surveillance report	
The proportion of laboratory-investigated outbreaks/events that required laboratory tests	
Percent of initiative health center integrated CEBS (Community and Event Based Surveillance)	

Thematic Classification of Indicators	Response
Theme – 3: Management Purpose and after (all po-3) cont.	
The proportion of outbreaks/events contained with an acceptable containment time (as per specific guidelines recommendation)	
Percent of HFs conducted post-emergency assessments/recovery needs assessments conducted	
The proportion of affected populations who received mental health and psychosocial support	
HFs in emergency-affected areas provided routine health services /essential health services/ without interruption	