Epidemic-Ready Primary Health Care (ERPHC) Framework and Technical Package

Epidemics start and end in communities, making primary health care the first point of contact for individuals seeking care—and therefore vital for epidemic preparedness and response. The COVID-19 pandemic placed immense pressure on primary health care systems globally, revealing critical gaps in their readiness and capacity, and underscoring the urgent need for more robust and resilient primary health care systems capable of managing future health crises.

Epidemic Ready Primary Health Care (ERPHC) meets this need by strengthening primary health care systems to prevent, detect, and respond to outbreaks while maintaining essential health services. The approach centers on connecting and integrating the public health functions of epidemic preparedness and response with clinical health services, at the point of health service delivery—ensuring ensuring PHC can quickly identify and notify cases (**speed**), manage them safely (**safety**), and handle increased patient volume and maintain essential service (**surge**).

ERPHC enables frontline health care workers to **connect** to local communities, promptly **detect** and report cases, **protect** themselves and others by applying the correct infection prevention and control precautions, **treat** cases, and continue to deliver essential health services for their populations.

ERPHC contributes to prompt detection and early response to outbreaks (supporting the attainment of the 7-1-7 target), protects frontline health care workers who are vulnerable to infection, and ensures the continuity of essential health services during outbreaks, leading to overall reduced mortality, morbidity, and the socioeconomic costs of outbreaks.

Supporting ERPHC can contribute to prompt detection and early response to outbreaks, supporting attainment of the 7-1-7 target, protect health care workers from infection and ensure the continuity of essential health services during outbreaks and other emergencies. ERPHC can help reduce mortality, morbidity, and the socioeconomic costs of outbreaks (Fig. 1).
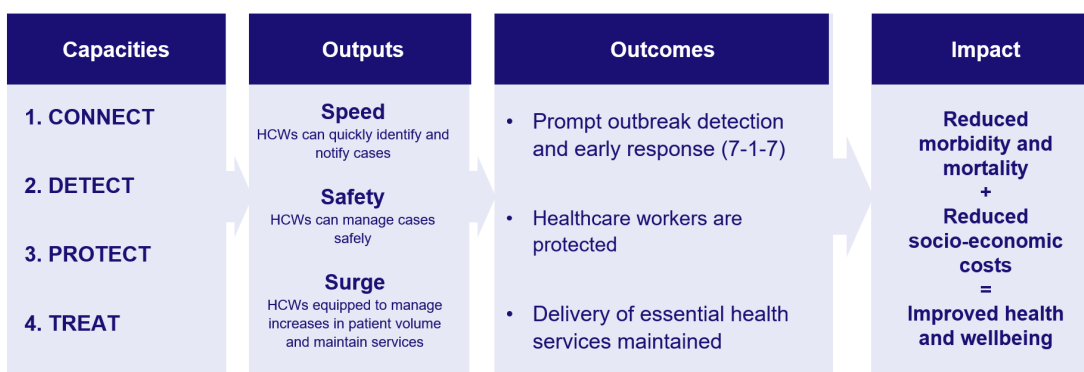

Capacities	Outputs	Outcomes	Impact
1. CONNECT	**Speed** HCWs can quickly identify and notify cases	• Prompt outbreak detection and early response (7-1-7)	**Reduced morbidity and mortality** **+**
2. DETECT	**Safety** HCWs can manage cases safely	• Healthcare workers are protected	**Reduced socio-economic costs** **=**
3. PROTECT	**Surge** HCWs equipped to manage increases in patient volume and maintain services	• Delivery of essential health services maintained	**Improved health and wellbeing**
4. TREAT			

Figure 1. ERPHC conceptual framework

The capacities required to achieve ERPHC have important connections with global frameworks, principally the Health Emergency Prevention, Preparedness, Response and Resilience (HEPR) framework, the International Health Regulations (IHR) and the operational framework for PHC strengthening. These connections represent important areas of potential overlapping investments. As such, investing in technical packages to achieve ERPHC could have substantial impact, creating synergies to advance multiple global agendas (Fig. 2).

PHC is central to the HEPR framework, which aims to strengthen global health security through five interconnected systems—the "Five Cs": collaborative surveillance, community protection, safe and scalable care, access to countermeasures and emergency coordination. By integrating HEPR capacities within PHC, health systems become more resilient, responsive and better equipped to prevent, detect and manage health emergencies. Strengthening PHC is therefore essential for achieving a robust HEPR architecture, safeguarding populations and mitigating disruptions to essential health services in crises.
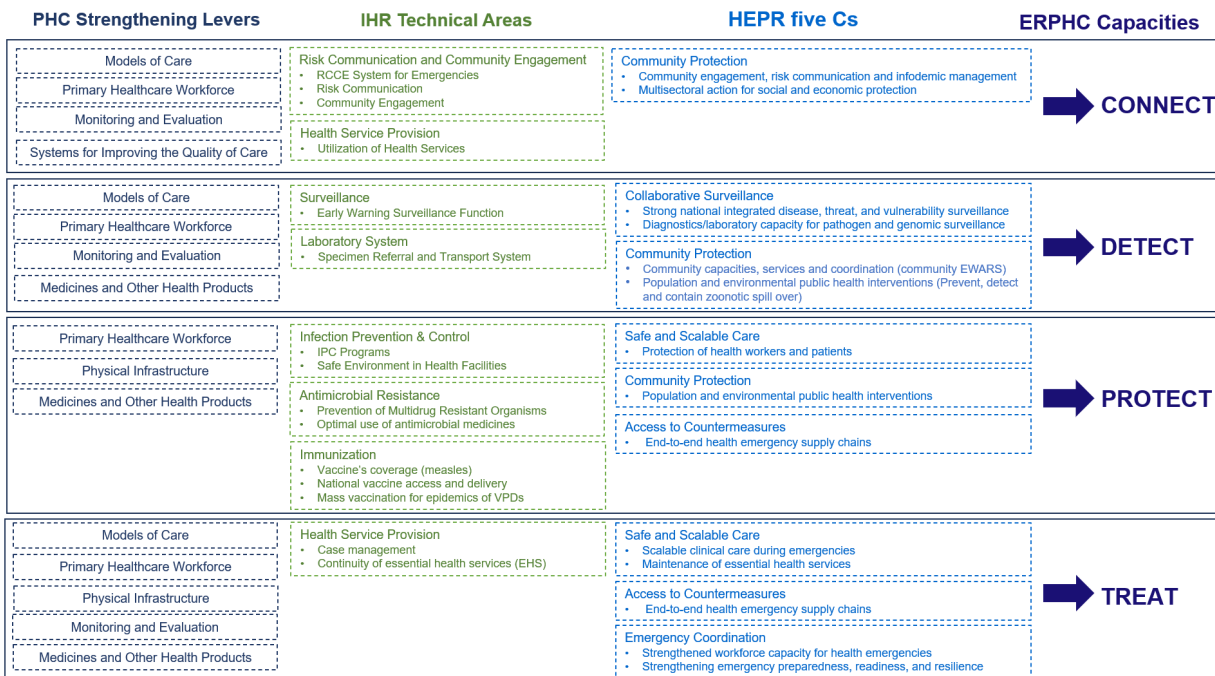

Figure 2. ERPHC and links to global frameworks

ERPHC CAPACITIES AND CORE ACTIVITIES

ERPHC emphasizes the establishment of four core capacities at the PHC level:

- **Connect:** Ensuring health care workers connect to local communities, integrating risk communication and community engagement and strengthening community capacities for prevention, detection and response.
- **Detect:** Ensuring communities and health care workers at PHC levels work closely to detect and promptly report suspected cases of priority pathogens and have access to point-of-care diagnostics or a quality-assured laboratory network to support prompt testing and diagnosis.
- **Protect:** Ensuring community and PHC health care workers protect themselves and others by applying the correct Infection Prevention and Control (IPC) precautions.
- **Treat:** Ensuring PHC health care workers can treat suspected cases of priority pathogens and have the resources to continue delivering essential health services for their populations in the face of emergencies.

CONNECT
Frontline HCWs **connect** to local communities, integrating risk communication and community engagement into PHC services. Regular community outreach and referral links between CHWs and PHC facilities enhance care coordination. Effective communication channels enable proactive analysis and response to community feedback and ensure timely access to accurate information. Community capacities for outbreak prevention and response are strengthened. Joint simulation exercises assess readiness and support coordinated action.
Outcomes: - Outbreaks are detected early (achieving the first 7 in the 7-1-7 target) - Communities can quickly contribute to outbreak response measures (achieving the second 7 in the 7-1-7 target)
Core activities: - Training HCWs on RCCE - Implementing PHC community outreach interventions to strengthen health literacy of communities in preventative measures, symptoms, reporting and vaccination benefits - Establishing community feedback mechanisms (e.g., hotline, complaint systems, social listening, digital platforms) - Operating a functioning health information system to collect, analyse, report and respond to community feedback - Utilizing digital health platforms to facilitate easy access to health information for communities and support information sharing between PHC HFs and CHWs - Mapping and engaging community stakeholders, such as community leaders, faith-based organizations and civil society - Strengthening the community health workforce, including supervision and referral links between PHC HCWs and CHWs - Establishing community health committees to foster collaboration between communities, local health care providers and public health authorities - Developing capacities for community health emergency risk management, including community risk assessment, vulnerability and capacity mapping, risk management, emergency planning and simulations - Identifying and training community-based rapid response teams - Conducting joint simulation exercises to test response mechanisms, communication channels, and coordination between PHC HFs and communities

DETECT

Frontline HCWs **detect** and promptly report suspected cases of priority pathogens. Routine surveillance, early warning systems, and real-time data analysis support early detection and reporting of notifiable diseases. Community-based surveillance mechanisms, including hotlines and trained informants, enable timely reporting of health events. Trained HCWs with access to point-of-care diagnostics and a reliable, quality-assured laboratory network supports timely testing and diagnosis. Effective linkages between PHC facilities and public health authorities facilitate rapid detection, notification and coordinated response efforts.

Outcomes:

- Outbreaks are detected early (achieving the first 7 in the 7-1-7 target)

Core activities:

- Identifying and training PHC HF Surveillance Focal Points
- Making SOPs and guidelines for priority events, diseases, and conditions for surveillance available at PHC HFs
- Training HCWs on the detection and reporting of priority events, diseases and conditions, with ongoing mentorship and supervision in place
- Operating a functioning health information system to collect, analyse and report surveillance data, with regular quality assurance of data collection and reporting
- Establishing communication and data feedback loops from intermediate public health levels to PHC HFs
- Establishing community EBS and reporting mechanisms (e.g., hotlines, trained community informants)
- Training CHWs on the detection and reporting of priority events, diseases and conditions, with ongoing mentorship and supervision in place
- Developing networks and sample transportation mechanisms to link PHC facilities to laboratories for testing for suspected cases of priority diseases
- Providing point-of-care diagnostics and supplies for specimen collection and transportation at PHC HFs
- Training HCWs on sample collection, packing and storage before transportation for suspected cases of priority diseases

PROTECT

Frontline HCWs **protect** themselves and others by applying Infection Prevention and Control (IPC) measures, supported by ongoing training, mentorship and supervision. IPC focal points and committees ensure adherence to SOPs, antimicrobial stewardship and regular monitoring. PHC facilities are safe and equipped with functional WASH infrastructure, screening/triage systems and isolation spaces. Reliable supply chains and strategic stockpiles of PPE and IPC supplies enables safe service delivery. Functioning cold chain infrastructure along with consistent access to vaccines supports routine and mass immunization programs.

Outcomes:

- Health care workers are protected (no HCW deaths)
- Health facilities and health care workers can quickly contribute to outbreak response measures (achieving the second 7 in the 7-1-7 target)
- Essential health services are maintained

Core activities:

- Identifying and training PHC HF IPC Focal Points
- Establishing IPC committees at PHC HFs
- Making IPC SOPs and guidelines available at PHC HFs
- Establishing systems and infrastructure for screening and triage at PHC HFs
- Training HCWs on IPC and AMR, with ongoing mentorship and supervision in place

- Monitoring IPC regularly using assessment tools and implementing action plans for improvement
- Implementing antimicrobial stewardship activities at PHC HFs
- Constructing or rehabilitating WASH infrastructure, including water, sanitation facilities, hand hygiene facilities, and waste management facilities
- Constructing or rehabilitating screening, triage, and isolation infrastructure
- Ensuring availability of essential PPE, hygiene and disinfection products, and other IPC-related supplies at PHC HFs
- Optimizing supply chain and responsive stockpile management processes to ensure continuous access to PPE supplies
- Training HCWs on immunization SOPs for storage, transportation, and deployment of vaccines
- Making SOPs and guidelines for routine and mass vaccinations available at PHC HFs
- Establishing and maintaining cold chain infrastructure at PHC facilities
- Ensuring availability of vaccines at PHC facilities

TREAT

Frontline HCWs can **treat** suspected cases of priority pathogens while maintaining the delivery of essential health services during emergencies. HCWs receive ongoing training and supervision in case management and outbreak preparedness, guided by SOPs and clinical protocols. Screening, triage and isolation facilities are available to support early and safe detection, while referral pathways ensure end-to-end care. Reliable supply chains and strategic stockpiles of essential medicines and supplies supports uninterrupted service delivery. Facility-level preparedness plans include health service continuity strategies, with regular simulations to assess readiness. A robust health information system enables real-time data analysis and forecasting for optimal resource allocation and service delivery.

Outcomes:

- Health facilities and health care workers can quickly contribute to outbreak response measures (achieving the second 7 in the 7-1-7 target)
- Essential health services are maintained

Core activities:

- Training HCWs on case management, with ongoing mentorship and supervision in place
- Establishing systems and infrastructure for screening and triage at PHC HFs
- Making case management SOPs and guidelines available at PHC HFs
- Establishing referral pathways and transportation mechanisms for patients with suspected or confirmed priority pathogens to ensure end-to-end clinical care
- Ensuring availability of essential medicines and supplies at PHC HFs
- Training HCWs on outbreak preparedness and health service continuity planning
- Developing PHC HF preparedness plans, including health service continuity planning for essential services (RMNCAH, NCDs, mental health)
- Establishing mechanisms to rapidly deploy additional resources to PHC HFs during emergencies
- Maintaining strategic stockpiles of essential medicines, supplies, PPE, and medical countermeasures at PHC HFs
- Forecasting and mapping needs for essential medicines and supplies through established inventory management and control systems at the facility level based on capacity assessments
- Conducting simulation exercises to assess PHC readiness
- Operating a functioning health information system to collect, analyse, and report data on health service utilization

PROPOSED ERPHC IMPLEMENTATION MODEL

The implementation of ERPHC activities follows a systems-oriented approach that emphasizes horizontal integration rather than isolated, vertical efforts within individual capacities. This approach merges similar activities across the four core ERPHC capacities—**connect, detect, protect, and treat**—while eliminating redundancies, resulting in a streamlined framework of **28 distinct ERPHC activities**. These activities are organized into **four core ERPHC implementation packages** to ensure comprehensive support across all levels and functions essential for effective ERPHC:

1. **Community:** Focused on strengthening community engagement and community capacities to recognize, report and respond to health threats.
2. **Health facility/sub-national:** Focused on strengthening PHC facilities' capacity to detect, manage and respond to health threats through training, improved infrastructure, preparedness planning and strengthening local facility-level systems.
3. **Supply chain**: Focused on ensuring the reliable availability of essential resources at PHC facilities by establishing stockpiles, strengthening logistics and end-to-end supply chain management.
4. **Health information system:** Focused on strengthening health information systems for early warning, disease surveillance, service utilization and real-time data sharing, ensuring quality data collection.

Not all activities within each package will be implemented uniformly. A tailored ERPHC strategy must be developed for each country, grounded in an initial assessment that helps contextualize and prioritize the intervention package. This context-driven approach ensures that ERPHC activities are strategically aligned with the unique needs, capacities and priorities of each country, optimizing the use of available resources. In doing so, support impactful and sustainable implementation of ERPHC, fostering long-term resilience.

ERPHC implementation packages

Implementation Package 1 - Community	
Activity	**Capacity**
Establish community feedback mechanisms (e.g., hotline, complaint systems, social listening, digital platforms)	Connect
Mapping and engagement of community stakeholders, such as community leaders, faith-based organizations and civil society	Connect
Establish community health committees to foster collaboration between communities, local health care providers and public health authorities	Connect
Development of capacities for community health emergency risk management, including community risk assessment, vulnerability and capacity mapping, risk management, emergency planning and simulations	Connect
Community-based rapid response teams identified and trained	Connect
Conduct joint simulation exercises to test response mechanisms, communication channels and coordination between PHC HFs and communities	Connect
Community EBS and reporting mechanisms (e.g., hotlines, trained community informants) established	Detect
CHWs trained on the detection and reporting of priority events/diseases, with ongoing mentorship/supervision in place linking PHC HCWs and CHWs	Connect, Detect

Implementation Package 2 - Health Facility/Subnational	
Activity	**Capacity**
PHC community outreach interventions to strengthen health literacy of communities in preventative measures, symptoms, reporting and vaccination benefits	Connect
SOPs and guidelines for surveillance, IPC, case management and mass vaccination available at PHC HFs	Detect, Protect, Treat
HCWs trained on RCCE, detection and reporting of priority events/diseases, IPC, case management, sample collection, vaccine deployment, with ongoing mentorship/supervision in place	Connect, Detect, Protect, Treat
Communication and data feedback loops from intermediate public health levels to PHC HFs established	Detect
Networks and sample transportation mechanisms to link PHC facilities to laboratories for testing for suspected cases of priority diseases	Detect
PHC Health Facility Focal Points for IPC and Surveillance identified and trained	Detect, Protect
IPC committees established at PHC HFs	Protect
Regular monitoring of IPC utilising assessment tools and actions plans for improvement	Protect
Implementation of IPC and antimicrobial stewardship activities at PHC HFs	Protect
Construction/rehabilitation of WASH infrastructure (water, sanitation facilities, hand hygiene facilities, waste management facilities) and triage/isolation infrastructure	Protect, Treat
Referral pathways and transportation mechanisms for patients with suspected/confirmed priority pathogens to ensure end-to-end clinical care pathways	Treat
PHC HF preparedness plans including health service continuity planning for essential services (RMNCAH, NCDs, mental health)	Treat
Mechanisms to rapidly deploy additional resources to PHC HFs during emergencies	Treat
Forecasting and mapping of needs for essential medicines and supplies through established inventory management and control systems at facility level based on capacity assessments	Treat
Simulation exercises to assess PHC readiness	Treat

Implementation Package 3 - Supply Chain	
Activity	**Capacity**
Optimization of supply chain to ensure essential supplies are available at PHCs (point-of-care diagnostics, supplies for specimen collection and transportation, PPE, hygiene and disinfection products, essential medicines and vaccines)	Detect, Protect, Treat
Strategic stockpiles of essential medicines, supplies, PPE and medical countermeasures at PHC HFs	Treat
Establishment and maintenance of cold chain infrastructure at PHC facilities	Treat

Implementation Package 4 - Health Information System	
Activity	**Capacity**
Digital health platforms to facilitate easy access health information for communities and facilitate information sharing between PHC HFs and CHWs	Connect
Functioning health information system to collect, analyse, and report surveillance data, community feedback, and data on health service utilization, with regular quality assurance of data collection and reporting	Connect, Detect, Treat