Regional Approaches to Health Security: Assessing East, Central and South Africa Health Communities (ECSA-HC) Contributions to Emergency Preparedness in Eastern and Southern Africa (2023–2025)

Abstract

Strengthening health emergency preparedness and response (EPR) remains a priority for countries in Eastern and Southern Africa due to recurrent emergencies, cross-border health threats and sub-optimal capacity. The ECSA-HC has supported eight countries to enhance EPR capacities through world bank funded project. This paper evaluates the contribution of ECSA-HC to strengthening EPR in those countries from 2023 to 2025. A mixed-methods approach was employed, combining quantitative analysis of 19 key indicators with qualitative review of programmatic interventions drawn from ECSA-HC's Health Minister Conference and analyzed using a deductive thematic approach across six domains. Findings show substantial progress, with the largest gains (50%) observed in four indicators and moderate improvements (25–37.5%) in seven indicators. However, no progress was recorded in Joint External Evaluation (JEE) core capacities, Stepwise Laboratory Quality Improvement Process Towards Accreditation (SLIPTA) score, gender equity indicators, and points of entry contingency planning. Overall, ECSA-HC support plausibly contributed to improvements in operational health security, though sustained, strategic efforts are needed to address persistent system-level gaps. A key policy implication is that sustained investments in health security across SSA should prioritize equity-focused, regionally coordinated approaches that target countries with the greatest capacity gaps, while simultaneously strengthening domestic financing, multi-sectoral coordination, and long-term ownership.

Background

Africa continent faces a high burden of public health emergencies and countries in Eastern and Southern Africa carries disproportionate burden of recurrent outbreaks of arboviral diseases, zoonoses, and emerging infections[1,2]. These risks are exacerbated by porous borders, population mobility, environmental changes, and weak health systems. The International Health Regulations (IHR 2005) provides a global framework for strengthening preparedness and response capacities; however, many countries continue to face challenges in achieving and sustaining the required core capacities[3,4].

Regional approaches have increasingly been recognized as effective mechanisms for addressing shared health security threats. By facilitating coordination, knowledge exchange, and pooled technical support, regional institutions can complement national efforts and enhance collective preparedness. ECSA-HC, Under Health Emergency Preparedness, Response and Resilience Multi-phasic Programmatic Approach (HEPRR-MPA) has supported eight countries to strengthen EPR. Key interventions include cross-border surveillance, emergency coordination, workforce development, antimicrobial resistance (AMR) prevention, digital health, laboratory capacity building and others.

Despite these efforts, evidence on the effectiveness of regional support mechanisms in strengthening national and regional EPR capacities remains limited. Hence, this paper aims to assess the contribution of ECSA-HC interventions in enhancing EPR via evaluation of selected EPR-related indicators between baseline and endline across participating countries.

Methods and Materials

A mixed-methods design was used to assess changes in EPR capacities across eight countries supported under the HEPRR-MPA program. Quantitative data was derived from baseline and endline assessments across eight countries using 19 pre-defined indicators. Those indicators were selected to reflect key domains of EPR, workforce, surveillance and response performance, policy and planning, service delivery readiness, laboratory quality systems, cross-border and point of entry preparedness. The qualitative component emanated from policy deliberations and resolutions from the 76th ECSA-HC's Health Ministers Conference.

Descriptive statistics were used to summarize quantitative findings. For each indicator, the number and proportion of countries meeting predefined criteria were calculated at baseline and endline, and percentage changes were computed to assess progress. The qualitative data were analyzed using a deductive thematic coding approach guided by a predefined analytical framework structured across six domains: (1) cross-border surveillance, (2) emergency coordination, (3) workforce readiness, (4) digital system, (5) laboratory systems, and (6) AMR. It focused on identifying major interventions implemented by ECSA-HC and examining contextual factors influencing outcomes. Triangulation of quantitative and qualitative findings was undertaken to enhance validity, but no contribution analysis framework is done.

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Results

Overall Progress in Emergency Preparedness and Response Capacities

At baseline, only a few countries met key EPR benchmarks, with multisectoral simulation exercise (SIMEX) or After-action review (AAR) (3; 37.5%), Incident Management System (IMS) established with ≥1 district Incident Manger (IM) (3; 37.5%), and ≥40% female Field Epidemiology Training Program (FETP) representation (3; 37.5%) being the most attained indicators. Moderate attainment was also observed for functional Rapid Response Team (RRT) (2; 25.0%), district-level FETP (2; 25.0%), and One Health action plan (2; 25.0%), while several indicators such as Risk Communication and Community Engagement (RCCE) plans, RCCE core capacity, and 7-1-7 targets (0; 0.0%) had no countries meeting the benchmark. Limited progress was noted in technical and operational areas, including clinical guideline development (1; 12.5%), Integrated Disease Surveillance and Response (IDSR) training coverage at district (1; 12.5%), Essential Health Service (EHS) package revision (1; 12.5%), and female representation in IMS and IDSR (1; 12.5%), reflecting weak benchmark at baseline. Importantly, critical system-level indicators such as ≥3 core capacities per axis ≥3.5 (0; 0%), ≥80% labs achieving ≥3-star SLIPTA (0; 0%), and Points of entry (PoE) emergency preparedness plans (0; 0%) were not attained by any country.

Substantial improvements were observed across key preparedness indicators between baseline and endline, particularly in multisectoral SIMEX/AAR (from 37.5% to 87.5%), clinical guideline development (from 12.5% to 62.5%), RRT availability (from 25.0% to 75.0%), and RCCE plans (from 0% to 50.0%), each showing a 50% increase (table 1).

Table 1: Benchmark progress between baseline and endline in eight countries

Indicators	Baseline		Endline		Difference score (%)
	#	%	#	%	
Multisectoral SIMEX/AAR conducted	3	37.5	7	87.5	+50.0
Clinical guidelines for priority events developed	1	12.5	5	62.5	+50.0
≥1 trained, functional RRT in place	2	25.0	6	75.0	+50.0
RCCE plans and Standard operating procedures (SOPs)	0	0.0	4	50.0	+50.0
IMS established with ≥1 district IM	3	37.5	6	75.0	+37.5
≥1 district-level FETP (≥1year tier) completed	2	25.0	4	50.0	+25.0
Costed One Health action plan developed	2	25.0	4	50.0	+25.0
≥1 district staff trained on IDSR	1	12.5	3	37.5	+25.0
EHS package revised to include Non-Communicable Diseases (NCDs) and Mental Health (MH)	1	12.5	3	37.5	+25.0
RCCE core capacity reached level 4 (R5.3)	0	0.0	2	25.0	+25.0
National Action Plan for Health Security (NAPHS) developed/ updated	4	50.0	5	75.0	+25.0
≥60% of events met 7-1-7 targets	0	0.0	1	12.5	+12.5
Cross-border response protocols signed	4	50.0	5	62.5	+12.5
≥30% female FETP at district level	3	37.5	4	50.0	+12.5
≥3 core capacities per axis scored ≥3.5	0	0.0	0	0.0	0.0
≥80% labs achieved ≥3 star SLIPTA	0	0.0	0	0.0	0.0
≥40% IMs are female	1	12.5	1	12.5	0.0
≥40% IDSR trainees are female	1	12.5	1	12.5	0.0
≥8 PoEs developed contingency plan	0	0.0	0	0.0	0.0
Mean Difference Score					**+22.3**

Across countries, the largest improvements from baseline to endline were observed in Ethiopia (+9; 82%) and São Tomé and Príncipe (STP) (+8; 80%), indicating substantial gains in capacity over the implementation period. Moderate progress was seen in Kenya (+7; 87.5%), Burundi (+5; 70.5%), Zambia (+3; 37.5%), and Democratic Republic of Congo (DRC) (+2; 33%), reflecting steady but less pronounced improvements. In contrast, Rwanda (+3; 50%) and Malawi (+3; 75%) recorded relatively smaller gains.

ECSA-HC's Contribution to EPR

Cross-Border Surveillance and PoE Readiness: Countries such as Burundi, Tanzania, Mozambique, Malawi, Zambia, and Zimbabwe benefited from ECSA-HC coordinated mechanisms that facilitated information sharing, joint risk assessment, and synchronized response actions.

Workforce Readiness: Regional training programs (7-1-7, FETP and Public Health Emergency Management (PHEM)) and SIMEX were conducted to enhance EPR. Simulation exercises, in particular, played a critical role in testing preparedness plans, clarifying roles and responsibilities, and identifying operational gaps.

Emergency Coordination: ECSA-HC support to strengthening of PHEOC, risk profiling and risk informed planning, NAPHS, AAR in various countries and all-inclusive regional training for JEE writers reinforced evaluation-driven planning and emergency coordination systems.

Digital Systems: ECSA-HC's support of digital cross-border surveillance in Rwanda and event based surveillance in DRC, Zambia, São Tomé and Príncipe and Malawi and digital Stepwise Laboratory Quality Improvement Process Towards Accreditation (SLIPTA) tool contribute to advancing EPR and laboratory quality monitoring.

Laboratory Systems: Contributed to Quality Management System (QMS), SLIPTA audits, and regional auditor training leading to accreditation. It advanced biosafety and biosecurity through training, national frameworks, and policy development, External Quality Management (EQA) systems and a regional biomedical engineering toolkit.

AMR: supported a regional surveillance framework, integration into pre-service curricula and development of guidelines, One Health AMR strategies, regional collaboration with partners, and evidence-to-policy translation in multiple countries.

Discussion

Limited EPR capacity observed in this paper is consistent with literature including Africa Policy Research Institute, which highlights limited pandemic preparedness and containment capacity across SSA and Aaron F. Bochner et al on 7-1-7 framework performance [5,6]. While many assessed indicators are outcome-based and do not directly capture core system/established capacity, JEE scores provide a more reliable proxy and reveal persistent gaps across assessed countries.

Although a formal contribution analysis was not conducted, ECSA-HC's interventions plausibly contributed to observed improvements at both national and regional levels. Several indicators improved by up to 50% between baseline and endline, though attribution cannot be solely assigned to ECSA-HC due to concurrent country-led initiatives and partner support. Limited change in JEE average scores (≥3.5) suggests that deeper systemic reforms and sustained investments are required. Similarly, modest gains in workforce development and laboratory quality systems, such as FETP and SLIPTA, likely reflect the longer timelines needed for measurable impact. Greater gains in Ethiopia and São Tomé and Príncipe are attributable to earlier project implementation and more intensive support, whereas Kenya, Rwanda, DRC, and Zambia showed comparatively smaller progress despite stronger baseline capacity.

ECSA-HC interventions, guided by baseline assessments, emphasized equity by targeting countries with the greatest capacity gaps while promoting value-for-money. Standardized curricula and frameworks supported contextual adaptation and institutionalization at country level, enhancing sustainability. Evidence from comparative studies supports the effectiveness of regional approaches and similar models[7,8]. However, challenges related to earmarked funding with limited flexibility, variable national capacity, and weak multisectoral coordination persist at country level. A key policy implication from this paper is that sustained investments in health security across SSA should prioritize equity-focused, regionally coordinated approaches that target countries with the greatest capacity gaps, while simultaneously strengthening domestic financing, multi-sectoral coordination, and long-term ownership. It is recommended that future research address limitations, including independent evaluations, formal contribution analyses, and comprehensive financial assessments.

Study Limitations: Most authors from the same institution may limit assessment independence. Secondly, the lack of external reviewers and a formal contribution analysis framework may have affected objectivity and attribution of outcomes. Finally, the study did not include a financial analysis and faced challenges with short evaluation timeframes, secondary data quality, and heterogeneity across countries.

Conflict of interest: The authors declared no conflict of interest.

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