Regional Health Data Integration to Advance Universal Health Coverage in East, Central, and Southern Africa: Insights from the 76th Health Ministers' Conference

Abstract

Integrated and interoperable health data systems are foundational to strengthening health systems, improving disease surveillance, and accelerating progress towards universal health coverage. However, fragmented digital infrastructure and limited cross-border data exchange constrain coordinated public health action in the ECSA region

Strengthening regional health data integration in the ECSA region is critical for evidence-based decision-making and health system performance. This paper reviews country experiences from the 76th Health Ministers' Conference using a desk review of presentations, rapporteur reports, and session proceedings, which were synthesized and organized into thematic areas to inform analysis.

Six themes were generated from the review, namely: Digital governance; Health information system integration; Digital workforce capacity; Community digital health innovations; Digital supply chain systems; and Data use for policy. Findings highlight expanding digital health platforms such as DHIS2, electronic medical records, laboratory systems, and national data warehouses supporting surveillance, service delivery, and workforce capacity.

Despite progress, challenges in interoperability, governance, cybersecurity, and sustainable financing remain. Strengthened regional collaboration and digital governance frameworks are essential to accelerate UHC and achieve SDG 3.

Keywords: Digital health integration, Interoperability, Health information systems, Universal Health Coverage (UHC), Regional health systems, Data governance.

Introduction

In recent years, the importance of interoperable health data systems has become increasingly evident in addressing complex public health challenges. Weak digital infrastructure and limited data integration can delay outbreak detection and constrain coordinated responses across national borders. Under the monitoring framework of the International Health Regulations (2005), many countries continue to report gaps in real-time surveillance and data interoperability, which can undermine preparedness and response capacity[1].

The World Health Organization Global Strategy on Digital Health highlights interoperability, governance frameworks, and workforce capacity as essential components of effective digital health systems[2]. Across Africa, regional initiatives have also prioritized digital transformation in the health sector. The African Union Digital Transformation Strategy for Africa calls for harmonized digital infrastructure and governance frameworks to support social and economic development[3]. Similarly, the Africa Centers for Disease Control and Prevention has emphasized interoperable surveillance systems and integrated data platforms as essential components of epidemic preparedness and response[4].

Regional collaboration is facilitated through the ECSA- HC, which brings together ministries of health to coordinate regional health policy and systems strengthening initiatives. The ECSA-HC Strategic Plan 2024–2034 identifies digital health integration and knowledge management as key priorities for advancing UHC and strengthening regional health security[9].

This paper presents country experiences shared during Session 4 of the 76th Health Ministers' Conference. It assesses progress in integrating digital health data systems across the region, identifies key implementation themes, and highlights policy priorities for strengthening regional health data interoperability

Description

This paper summarizes policy discussions and conference proceedings related to digital health integration in the ECSA region. The analysis focused on Session 4 of the 76th Health Ministers' Conference organized by the ECSA-HC and held in Eswatini from 3–5 February 2026.

Participants included Ministers of Health, senior government officials, technical experts, development partners, and representatives from regional and international organizations. The conference serves as the highest governing platform for regional health policy dialogue within ECSA-HC.

Data sources included official conference materials, such as country presentations, rapporteur summaries, background documents, and recorded

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session proceedings. These materials represent formal documentation of policy discussions and national experiences related to digital health systems.

Thematic content analysis was conducted to identify patterns related to digital health integration and regional collaboration. Coding themes were initially derived from conference materials and subsequently organized according to the WHO health system building blocks framework[8]. Six thematic areas were identified: digital governance frameworks, health information system integration, workforce capacity development, community digital health innovations, digital supply chain and laboratory systems, and the use of health data for policy and decision-making.

To enhance analytical reliability, findings were triangulated across multiple data sources, including presentations and rapporteur reports. However, as the analysis was based on conference documentation, the findings primarily reflect reported experiences and achievements.

The study was based on publicly available conference materials and did not involve individual-level data; therefore, ethical approval was not required.

Lessons learnt

Six themes were generated during the review of the documents, namely: i) Digital governance; ii) Health information system integration; iii) Digital workforce capacity; iv) Community digital health innovations; v) Digital supply chain systems; and vi) Data use for policy, as summarized in ***Table 1***.

Table 1. Thematic findings on regional digital health integration and alignment with health system strengthening and SDG targets

Theme	Country examples	WHO building block	Policy implications	Contribution to SDG 3
Digital governance	Zambia data protection legislation; Uganda digital governance frameworks	Leadership and governance	Harmonize legal frameworks for cross-border data sharing	Strengthens preparedness and health security (SDG 3.d)
Health information system integration	Tanzania DHIS2 integration; Malawi MAHIS development; Lesotho electronic registers	Health information systems	Promote interoperable national architectures	Supports UHC monitoring (SDG 3.8)
Digital workforce capacity	Colleges without Walls regional training initiative	Health workforce	Expand digital skills training for health professionals	Strengthens workforce capacity (SDG 3.c)
Community digital health innovations	Persown Connect model; Tanzania M-Mama referral system	Service delivery	Integrate community digital platforms into national systems	Improves maternal and primary care access (SDG 3.1)
Digital supply chain systems	Electronic logistics management systems in Tanzania and Lesotho	Medicines and technologies	Strengthen digital monitoring of medicines and diagnostics	Improves equitable access to essential medicines
Data use for policy	Eswatini dashboards; Uganda and Zambia health data warehouses	Governance / information systems	Develop regional health data repositories	Supports evidence-based decision-making

Digital governance

ECSA-HC Member States have made steady progress in strengthening digital governance, with notable examples including Zambia's implementation of data protection legislation and Uganda's development of comprehensive digital governance frameworks. These advancements enhance leadership, accountability, and the secure management of health data within national systems. Harmonization of legal and regulatory frameworks is critical for enabling cross-border data exchange and improving interoperability across health information systems. Strengthened digital governance supports public health preparedness, enhances health security, and aligns with SDG 3.d on early warning and risk management. Collectively, these efforts are laying a strong foundation for more integrated, resilient, and responsive health systems across the ECSA region.

Digital workforce capacity

The ECSA-HC Secretariat has advanced digital health integration across Member States to strengthen health systems and accelerate progress toward UHC. A key initiative is the Colleges without Walls program, a decentralized, digitally enabled platform providing continuous professional development to health workers within their communities, improving workforce capacity, retention, and equitable access. Complementary interventions, such as the M-Mama referral system and the Safer Births Bundle of Care, enhance maternal and newborn health through timely diagnosis and referral. Analytical tools like the Thanzi Model support health financing reforms, while regional systems, including digital SLIPTA, strengthen surveillance, laboratory quality, and cross-border data sharing.

Community digital health innovations

Community-level digital health innovations also play a significant role in expanding access to services. The Persown Connect model demonstrates how integrated digital health tools can enhance primary health care delivery in underserved communities. Frontline health workers are equipped with digital care kits including diagnostics, AI-assisted workflows, and telehealth. Training in digital literacy and entrepreneurship enables efficient service delivery without increasing wage costs. Real-time community data are integrated into national systems using open standards, strengthening supervision, outbreak detection, and evidence-based decision-making.

Health information system integration

Country experiences illustrate progress toward integrated digital health ecosystems. Tanzania has developed interoperable platforms, including DHIS2, electronic medical records, logistics, and surveillance systems, supporting reporting and service delivery. Malawi is consolidating systems through the Malawi Health Information System, while Uganda has transitioned to nationally governed, integrated digital platforms. Zambia has strengthened governance through data protection legislation and is developing a national health intelligence data center. Lesotho uses DHIS2 as a national data warehouse alongside electronic registers and supply chain systems. Eswatini has expanded electronic client systems and dashboards, improving monitoring, analytics, and preparedness under the Integrated Disease Surveillance and Response framework.

Digital supply chain systems

Country experiences from Tanzania and Lesotho show that while electronic logistics management information systems (eLMIS) are in place, fragmented and non-interoperable digital supply chain systems continue to limit effectiveness, contributing to persistent stock-outs of medicines and diagnostics.

A key lesson is, systems must be integrated within national digital architectures, enable real-time data exchange, and be linked to decision-making processes to improve forecasting and distribution. Strengthening digital monitoring of medicines and diagnostics is essential to improve equitable access.

Sustainable financing, strong governance, and capacity for system maintenance and data use are critical to transition from fragmented, donor-driven tools to integrated, government-owned digital supply chains.

Data use for policy

Across the region, health data generation has improved through digital platforms, surveillance, and reporting systems; however, translation into policy and decision-making remains limited. Country experiences, including Eswatini's dashboards and data warehouses in Uganda and Zambia, highlight progress. Weak data-to-action mechanisms, limited analytical capacity, and poor governance integration constrain use. Strengthening data use requires institutionalizing review platforms, improving dashboards and analytics, and building policymaker capacity. Stronger linkages between community and national systems are essential.

The conference adopted resolution ECSA/HMC76/R4 commits Member States to strengthen data integration, interoperability, governance, cybersecurity, and establish regional data repositories to support UHC and preparedness.

Discussion

The findings demonstrate increasing regional momentum toward digital health integration as a strategy for strengthening health systems and advancing UHC. Countries across the ECSA region are investing in digital health platforms, governance frameworks, and workforce development initiatives.

Digital health systems can significantly improve service delivery by strengthening referral networks, improving patient tracking, and enabling more efficient supply chain management. Similar benefits have been documented in other low- and middle-income settings where integrated digital health platforms improved continuity of care and health system efficiency[5].

Community-based digital health initiatives also have the potential to expand primary health care coverage in underserved areas. Digital tools supporting community health workers can improve early detection of disease outbreaks and enhance routine service delivery[6].

Despite these advances, interoperability remains a major challenge. Many digital systems continue to operate independently, limiting the ability of policymakers to generate comprehensive health intelligence. Strengthening interoperability standards and governance frameworks is therefore essential for maximizing the benefits of digital health investments[2].

Regional collaboration provides an important opportunity to address these challenges. Harmonized digital standards and shared governance frameworks can facilitate cross-border data exchange and improve regional surveillance capacity. Evidence from regional disease surveillance initiatives shows that coordinated data sharing can significantly strengthen epidemic preparedness and response[4].

The ECSA-HC Strategic Plan also emphasizes the importance of regional knowledge management and digital health systems in strengthening health system resilience and advancing UHC[9].

Recommendations

Strengthen interoperable and integrated digital health systems

Member States should adopt common regional standards and establish integration layers linking DHIS2, EMRs, logistics, and surveillance systems, enabling seamless cross-border data exchange and coordinated regional responses to public health threats.

Institutionalize digital health governance and sustainable systems

Countries should transition from fragmented, donor-driven pilots to government-owned systems embedded in national frameworks, while strengthening data governance, cybersecurity, and regional coordination to

ensure trust, sustainability, and aligned implementation.

Invest in enabling systems, capacity, and data use

Governments should invest in infrastructure, national data platforms, and workforce capacity, while institutionalizing data-to-action mechanisms and strengthening regional collaboration to promote shared learning, harmonization, and evidence-based decision-making across the ECSA region.

Conclusion

Regional health data integration is essential for strengthening health systems and advancing UHC across ECSA region. Experiences presented at the 76th Health Ministers' Conference demonstrate that member states are making important progress in developing digital health infrastructure, governance frameworks and workforce capacity.

However, sustained investment in interoperability standards, data governance and digital workforce development will be required to fully realize the benefits of integrated health information systems. Strengthening regional collaboration and establishing shared data platforms can enhance evidence-based decision-making and improve preparedness for future health emergencies.

Accelerating these efforts will contribute directly to achieving SDG 3 and building resilient, data-driven health systems across the region.

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