Mid-Term Review (MTR) of the Health Sector Strategic Plan V (HSSP V)

Data Management Report

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Acronyms / Glossary

Afya e-HMS	Afya Electronic Hospital Management System
API	Application Programming Interface
CDH	Centre for Digital Health
CHMT	Council Health Management Teams
DHIS2	District Health Information System Version 2
DHS	Demographic Health Survey
EMR	Electronic Medical Records
GOTHOMIS	Government of Tanzania Health Operation Management Information System
HIS	Health Information System
HMIS	Health Management Information System
HMS	Hospital Management System
HSSP V	Health Sector Strategic Plan V
ICT	Information and Communication Technology
MOH	Ministry of Health
MTR	Mid-term Review
TDHS	Tanzania Demographic Health Survey
UCS	Unified Community Systems

Executive Summary

The midterm review of the Health Sector Strategic Plan V (HSSP V) highlights significant progress and persistent challenges in the data management and Information communication and Technology (ICT) landscape. The overarching goal remains the development of an interoperable ICT system to enhance health information exchange, decision-making, and service delivery.

Key Achievements

- System Harmonization: Consolidation of 12 electronic systems into 21 main platforms, reducing redundancy.
- Interoperability Progress: Alignment of Electronic Medical Record (EMR) systems with DHIS2 is underway and expected to be completed by December 2024.
- EMR Expansion: Over 3,000 Primary Health Care (PHC) facilities now utilize EMR systems.
- Capacity Building: Continuous ICT training and the introduction of ICT champions have improved knowledge dissemination.
- Visualization Tools: Enhanced Health Management Information Systems (HMIS) with dashboards for data-driven decision-making.

Challenges

- Human Resource Gaps: A shortage of ICT personnel at grassroots levels limits system implementation and maintenance.
- Infrastructure Deficiencies: Many facilities rely on outdated or non-existent ICT infrastructure, with only 34% computer availability as per SARA 2023.
- Interoperability constraints: Challenges in unique identifiers (e.g., NIDA IDs limited to adults), inconsistent coding standards of medicines and diseases across systems, and inadequate computing power hinder effective data exchange.
- Independent Systems: : Proliferation of siloed systems complicates integration efforts

Lessons Learned

- Strategy Implementation: The digital health strategy has been pivotal in achieving milestones but highlights the need for stronger coordination across lower levels.
- Importance of Quality Checks: Embedded quality checks and periodic M&E assessments ensure robust data collection and reliability.

Recommendations and Next Steps

- Prioritize ICT infrastructure upgrades and equitable supply to all facilities.
- Scale up GoTHoMIS and telemedicine solutions to lower-level facilities for wider access.
- Strategically deploy ICT personnel for real-time support and troubleshooting at district and lower-level facilities.
- Harmonize program-specific and surveillance systems within the HMIS.
- Continue fostering interoperability with a focus on universal identifiers and high-computing infrastructure.

Conclusion

While commendable progress is evident, the review underscores the urgency of addressing resource gaps, harmonizing systems, and enhancing infrastructure to achieve the full potential of HSSP V. Accelerated investments in ICT and data management are critical for driving informed decision-making and achieving health sector goals.

1. Background

The Health Sector Strategic Plan V (HSSP V) emphasizes the critical role of Information Communication and Technology (ICT) and data systems in enhancing productivity, efficiency, and the quality of healthcare services in Tanzania. ICT applications are integral across four key areas of the health sector:

- Data Management, Processing, and Reporting: These systems cover both administrative and service delivery aspects, ensuring accurate and timely information flow for decision-making.
- Medical Decision-Making Support: ICT tools facilitate clinical decisions, improving patient outcomes through evidence-based practices.
- E-Learning for Health Workers: Online platforms provide continuous learning opportunities to strengthen the skills and knowledge of healthcare providers.
- Communication and Information Sharing: ICT bridges the gap between health institutions and the general public, promoting health awareness and education.

Additionally, the Health Information System (HIS) serves as a cornerstone in evaluating the health sector's performance and monitoring progress towards the targets set in HSSP V. The HSSP V's theory of change underscores monitoring, evaluation, and ICT infrastructure as fundamental components and critical inputs for the health system. Leveraging digital technologies and robust data management systems is vital for enhancing health service delivery and tracking progress of the HSSP V. The HSSP V strategic outcome for ICT targeted an interoperable ICT system in place, that meets international standards of communication, data storage and exchange of information, and that facilitates delivery of quality services to the population. This report presents the midterm status of implementing ICT and data management strategies.

2. Results I

The HSSPV set various commitments around Information communication and technology and the health systems. Below is the status of the commitments.

Commitment	**Progress**
Expand the use of electronic medical records systems, including back-up systems, that seamlessly interact and exchange information with the national HMIS, in all health facilities from PHC to national hospital level	EMR utilized in all facilities at higher levels, for PHC > 3000 have EMR in place.
Deploy ICT experts locally for infrastructure management and staff training	This is ongoing. At the grass-root level, the department trains ICT champions among health workers who, in turn, train others coupled with e-learning materials.
Identify essential health apps and ensure availability and training for health workers	Systems harmonization and interoperability are ongoing. Twelve main systems have been harmonized, reducing the total from 33 main systems

	to 21. For other applications, those with similar functionalities are currently being reviewed for harmonization
Maintain HMIS central data warehouse and improve data visualization tools	HMIS equipped with visualization modules, data dashboards and flexibility for adjustment

2.1 Computer and internet access ability

The availability of computers with internet access remains limited across health facilities in Tanzania. According to the SARA 2023 report, only 34% of health facilities have computers with internet access, and this figure drops to 27% for dispensaries. The Ministry of Health along with other stakeholders have been working to increase availability of computers in the facilities.

A minority of health facilities utilize the Government of Tanzania Hospital Management Information System (GOT-HoMIS) as an electronic medical record system and data aggregation tool. Health centers has the highest proportion (44.9%) using GOT-HoMIS while only 10.6% of dispensaries use thesystem. Expanding GOT-HoMIS usage is a priority for PO-RALG and Ministry of Health.

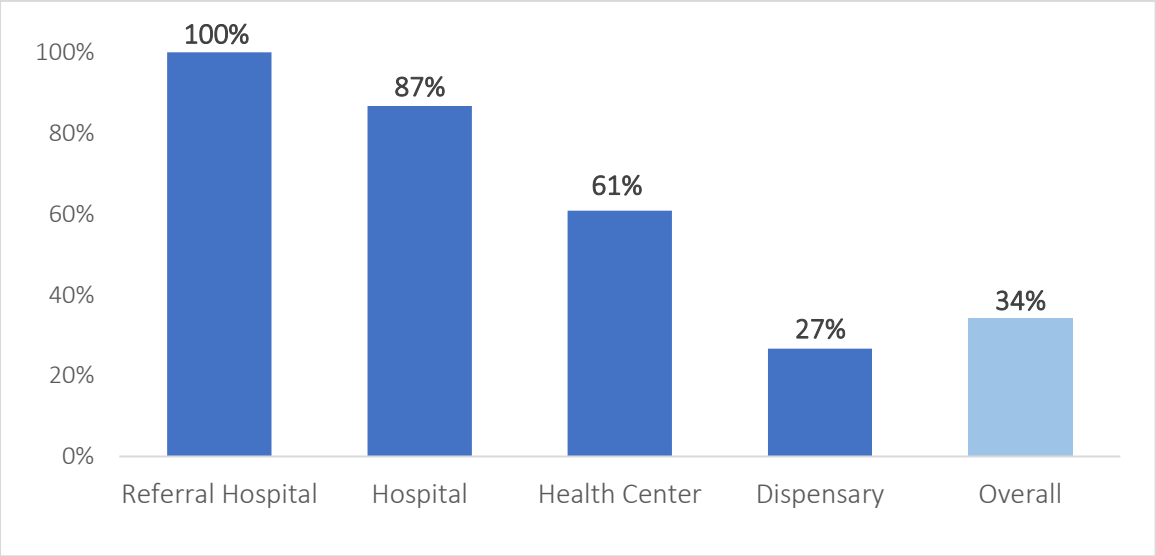

Figure 1: Health facilities with computer and internet access (SARA 2023)

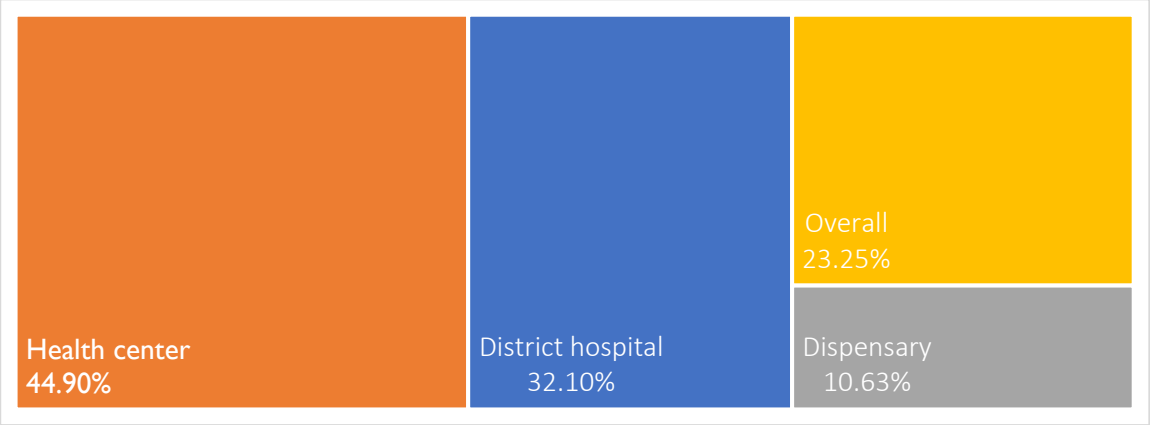

Figure 2: Facilities using GOT-HOMIS (SARA 2023)

2.2 Human resource and Capacity-Building

There is a shortage of ICT personnel at grass-root levels, the regional and district ICT personnel are responsible; *"At the lower level, from health centers downward, there are no ICT staff. The ones being utilized are those working at the district level. So, they serve the respective facilities within their district. When you come to the RRH level, I can give you an example: in all 28 RRHs (Regional Referral Hospitals), there are only 6 permanent employed staff. The rest are on contracts.(Respondent 1)"*

Health Information System Program (HISP), in collaboration with the Ministry of Health,supports capacity-building efforts by conducting DHIS2 academies and specialized training, information systems development, and DHIS2 implementations. Additionally the ICT team has been training Champions among the health care workers who in turn train others on the system use and related activities, This has been instrumental in capacitating the lower-level personnel

2.3 Data system, HSSP V monitoring and data use

Despite the availability of dashboards and scorecards for data visualization, data use for decision-is slowly improving. CHMTs and RHMTs have reported leveraging routine system data for planning and response while data use at lower level facilities in very low. Some respondents highlighted that information was used to adjust priorities, such as outreach efforts, based on available opportunities for flexibility. However, the MTR found that similar levels of data use were not evident at the national level. Information remains fragmented and is not widely shared. The challenges faced by the MTR analytical team in obtaining data demonstrate that information plays a limited role in top-level management. Comprehensive data integration occurs only during annual performance reviews. While there is existence of the Tanzania National Health Data Portal, that is designed to share aggregated data from DHIS2, the portal requires regular maintenance and updates, as it currently lacks completeness in the available information. Some indicators have no latest data that can be used in monitoring the HSSP V.

Surveys data is still the vital source of population and community data, such as those collected through the Tanzania Demographic and Health Survey (TDHS), STEPs survey, the HIV/AIDS and Malaria Indicator Survey, and the Population and Housing Census. The 2015/16 TDHS and other surveys served as a baseline for numerous HSSP V indicators and served as references for the present review. Maintaining a regular system of high-quality surveys, including a DHS conducted at least every five years, is essential for analyzing population health trends.

The use of planning and reporting tools in health facilities shows mixed adoption. Only 47% of facilities reported using the PlanRep software for planning and resource allocation, while approximately 37.5% had digitized systems for collecting and analyzing patient feedback, indicating limited adoption across the sector. In inventory and supply chain management, the Medical Stores Department (MSD) and zonal stores consistently used the eLMIS system, but only 50% of facilities reported using it, with significant variations in usage frequency.

3. Execution of interventions that contributed to progress

3.1 Tanzania Digital Health Strategy 2019 – 2024

The implementation of the Tanzania Digital Health Strategy 2019–2024 has been instrumental in driving the ICT initiatives under HSSP V. The strategy integrated digital health initiatives to enhance data collection, interoperability, and accessibility, which are essential for improving health outcomes and supporting the continuous measurement of health sector performance. However, apparent challenges of system fragmentation have been prevalent. The Tanzania Digital Health Strategy 2025–2030 is presently developed to address the challenges that hindered the implementation of the previous strategy (2019–2024). The development of the digital health investment roadmap for 2025–2030 is in progress with the work supported by of UNICEF.

3.2 Roll out of electronic medical record systems

Sequel to the deployment of the medical record systems at lower-levels, the Ministry of Health developed and launched the Hospital Management System (HMS), an EMR system for patient-level management for all regional hospitals. Amana Regional Referral Hospital (RRH) was the first pilot hospital for the system. The system maintains patient information from registration, consultation, diagnosis, treatment, inventory and dispensing, billing, and reporting.

3.3 Interoperability and harmonization

An evaluation of the national EMR process was conducted, which led to the establishment of the interoperability adapter, which has proven crucial in the development of the universal health Application Programming Interface (API) guideline. That universal health API guideline will facilitate seamless data exchange across health systems to avoid client data duplication. It will also and integrate with national platforms such as EMR and DHIS2. Interoperability guidelines have been established, including criteria for transitioning healthcare facilities to paperless reporting and readiness assessment standards.

The Ministry of Health has put efforts in place to ensures the ICT systems are firstly harmonized (Merging Multiple systems performing similar functions) and the interoperability of the existing system. The efforts in ensuring the DHIS 2 as the main health information system by ensuring all other Electronic Medical Records (EMRs) are interoperable/linked meaning data collected from the systems are directly submitted into DHIS2 with complete EMR interoperability expected by December 2024.

Currently, the Public healthcare facilities in Tanzania utilize various EMRs systems tailored to their levels of service. Primary health care facilities rely on GoT-HoMIS (> 3000 PHCs uses it), while all 28 regional hospitals use Afya eHMS. Zonal hospitals and specialized hospitals employ a mix of systems which include Afya eHMS, E-Medical, Medipro, Inaya, and Nationa hospital employs the GIVA system. To enhance ownership, sustainability, interoperability, and cost-efficiency, the Ministry of Health plans to phase out vendor-dependent systems like Medipro, and E-Medical, replacing them with unified, government-owned systems. For private healthcare facilities, the Ministry provides regulatory oversight through the Integrated Hospital Management Information System Guidelines, offering guidance on system deployment while leaving management responsibilities to the facilities themselves.

3.4 Enhanced community level digital patient monitoring system

Development of the Unified Community System (UCS) to enhance health service delivery at the community level. UCS facilitates the identification and enrollment of patients accessing HIV, malaria, family planning, TB, and leprosy; reproductive, maternal, newborn, child, and adolescent health; and gender-based violence support. Designed for community health workers (CHWs), UCS enhances referrals and linkages from community-based services to formal health care delivery and, ultimately, improves the performance monitoring of community health services and workforces for better health outcomes.

4. Challenges in implementing interventions

4.1 Human Resource Gaps

A significant shortage of skilled ICT personnel, especially at the grassroots level, hampers the effective implementation, operation, and maintenance of digital health systems. This lack of technical expertise often results in delayed troubleshooting and limited system utilization, ultimately affecting service delivery and data quality. Furthermore, the absence of local capacity to manage and support these systems increases reliance on external support, which is unsustainable in the long term.

4.2 Infrastructure Deficiencies

Many health facilities across Tanzania continue to operate with outdated or inadequate ICT infrastructure, limiting their ability to adopt digital health solutions. According to the SARA 2023 report, only 34% of health facilities have access to computers, and many still lack stable internet connectivity and reliable power supply. These infrastructural shortcomings exacerbate the digital divide, particularly in rural and remote areas, where offline functionality and alternative power sources like solar are crucial for system resilience.

4.3 Interoperability Constraints

The lack of system interoperability poses a major barrier to effective data exchange and integration. Key issues include the absence of universal unique identifiers for certain population groups (e.g., limited coverage of NIDA IDs to adults), inconsistent coding standards for medicines and diseases, and inadequate computing power to handle large datasets. These constraints lead to data fragmentation, inefficiencies in monitoring and evaluation, and limited decision-making capacity.

4.4 Fragmented Systems

The proliferation of siloed and independent health information systems undermines efforts to integrate data and coordinate health services effectively. Each system typically operates in isolation, with its own protocols, standards, and data structures, resulting in duplication of efforts, inconsistent reporting, and a lack of real-time insights. This fragmentation complicates the monitoring of health sector performance and reduces the efficiency of healthcare delivery at all levels.

4.5 Recommendations

The review underscores the urgent need for targeted interventions to improve Tanzania's digital health infrastructure, particularly in the implementation and monitoring of the Health Sector Strategic Plan V (HSSP V).

a) **Integration and Harmonization of Systems**
Prioritizing the integration and harmonization of digital health systems is essential to streamline operations, minimize redundancies, and enhance interoperability. Consolidating program specific tools into a unified framework will enable seamless data sharing and coordination. The Ministry of Health, in collaboration with the e-Government Agency (eGA) and other stakeholders, should lead these efforts. Additionally, improving internet connectivity and enabling offline functionality for critical systems will address operational challenges, especially in underserved regions.

b) **Capacity Building and Support**
Strengthening the capacity of health workers to effectively use digital tools is critical. Comprehensive nationwide training programs should address both the technical aspects of system usage and the importance of data quality and reporting. To ensure sustained system operations, ICT personnel should be strategically deployed to health facilities, particularly at the lower levels, to provide real-time technical support and guidance.

c) **Enhanced Inventory and Supply Chain Management**
Broader adoption of the electronic Logistics Management Information System (eLMIS) will improve inventory and supply chain efficiency. Facilities should integrate eLMIS into daily operations to enhance resource tracking. Additionally, expanding the use of planning tools like PlanRep and introducing digital mechanisms for capturing patient feedback will further optimize planning and service delivery processes.

d) **Improving Data Availability, Quality, and Use**
Addressing deficiencies in the theory of change requires immediate action to improve data reliability for decision-making. This involves strengthening accountability mechanisms and fostering collaboration among stakeholders. Regular performance reviews and integrated

dashboards will enhance transparency and monitoring. Better coordination between the Ministry of Health, PORALG, development partners, and the private sector will also address infrastructure and operational gaps.

e) **Ensuring Sustainability**
Sustainability should be a central focus of digital health system design. Infrastructure improvements, such as installing solar power systems in remote areas, will ensure continuous system functionality. By addressing human resource gaps, harmonizing systems, and building local capacity, Tanzania can create a resilient digital health ecosystem, ultimately improving health outcomes and supporting the effective monitoring of strategic health initiatives.

Annexes
Evaluation questions for the thematic area

1. Evaluation Question	2. Sub-question
Does the data systems available support continuous measurement of health sector performance and monitoring of HSSP V indicators	What is the current state of data systems? How comprehensive are the data systems?
What are the challenges related to data centralization and accessibility in the monitoring of HSSP V indicators?	How effective is the current data system in integrating various sources? What obstacles exist in data accesibility and sharing?
How effective is the Health Sector Digital Strategy in supporting data-driven budgeting, planning, and practice?	How effective is the health Sector Digital Strategy? Is there any evidence that the health facilities or the councils make use of their own data for budgeting and planning process? How about adherence of different parallel heath projects and programs to the Health Sector Digital Strategy?