# DIGITAL HEALTH IN FOCUS

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**DIGITAL HEALTH IN FOCUS**

# EDITORIAL

## Bridging the Gender, Digital Health, and Health Information System (HIS) Divide is a Moral Imperative

### By Tadesse Alemu

Digital technologies are nearly universal around the world, including in low- and middle-income countries. Their integration into health offers unparalleled opportunities to enhance the healthcare system and improve health outcomes in innovative ways, particularly for women and girls. Despite this potential, much work remains to be done to improve how digital technology affirms rather than retrenches inequality in health, including gender.

The gender, digital health, HIS divide has emerged as a major issue due to concerns that women are not able to reap the same benefits from technology as men. The disparity is especially common in developing countries, including Ethiopia, where women's access to healthcare and information is limited. Despite significant progress in the healthcare system, gender disparities in access to and use of digital health technologies and health information, including among health professionals, persist. Bridging the gap has significant implications for individuals and population health in general.

Women and children have oftentimes more interaction with the health system than men. As a result, the vast majority of data generated in the health system belongs to them. This is especially critical in Ethiopia where women account for roughly half of the population. However, women's access to and use of digital technologies and health information, including that of women health professionals, is limited. The situation is further compounded by cultural and socio-economic barriers, creating further difficulties for women health professionals to navigate digital health systems and access health information to make informed decisions. Women's participation in health decisions is also limited as the quantity and quality of positions held by female health workers

decreases the higher one moves up the health system hierarchy. Decisions about women's health are made without them present at the decision table. Such decisions do not empower women and may lack a gender perspective.

A lack of gender-sensitive digital health tools is another factor contributing to the divide. Due to a lack of female experts in the field, the design and development of digital health technologies are male-dominated. Many digital health tools are designed with a one-size-fits-all approach that fails to take into account women's unique healthcare needs and challenges. Tool design and development that does not embrace a gender perspective results in differences in digital tool utilization between male and female health workers further exacerbating the disparity.

Bridging the divide is a pressing concern. Without making digital health more inclusive of a diverse set of health needs, we may face even further gender disparities in the healthcare system. Part of this solution lies in increasing women's participation in the design and development of digital health technologies, providing affordable access to technology, and promoting digital literacy among women, including women health professionals. Furthermore, health information systems must collect and analyze gender-disaggregated data to better understand and address the unique healthcare needs of women, which will enable identification of disparities in health outcomes, and improve women's overall quality of life.

To address the gender-digital health-HIS divide, DHA is collaborating with MOH and the Data Use Partnership (DUP) in developing a national strategy to mainstream gender within the digital and the HIS spaces in Ethiopia.

# Moving Integration from a Workshop Set-up to Health Facilities: Ethiopia's Experience in Integrating Digital Tools

**By Biruhtesfa Abere**



Interoperability Development

Interoperability Implementation at Health Facility
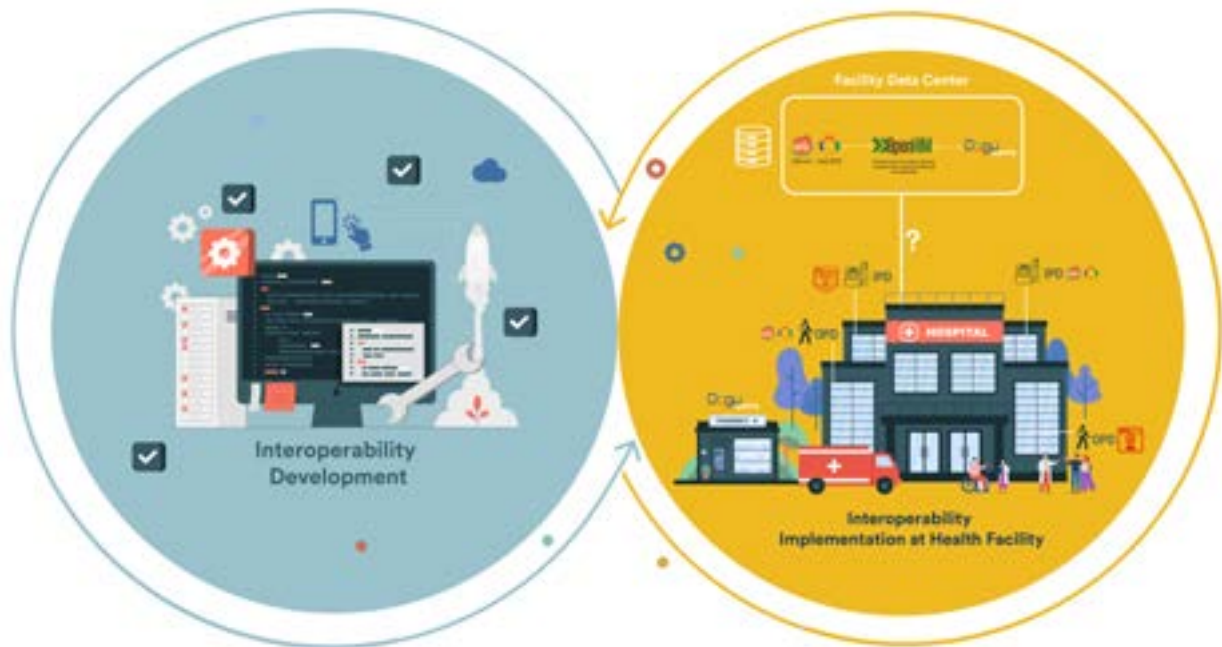
The implementation and adoption of multiple digital health solutions has pushed the interoperability agenda to the forefront of all digital health discussions. Interoperability plays a crucial role in connecting isolated systems to provide quick and easy access to health data, with the ultimate goal of improving health program decision-making. To facilitate this, countries have introduced eHealth architecture to develop blueprints for integrated systems development. Developing interoperability in a health program environment has become easier, with successful results. Healthcare software engineers have also started to adopt recommended standards and mediators to develop interoperability instead of traditional point-to-point integration methods. Ministries of Health and donors are also enforcing systems to be developed interoperability and data exchange standards. As a result, subsystems are being developed with known data standards like Fast Health Interoperability Resource

(FHIR) and interoperability mediators endorsed and acknowledged by various stakeholders and developers in the industry. The Ethiopian Ministry of Health is pushing towards these approaches and methodologies in achieving standardized data exchange among sub-systems.

USAID Digital Health Activity (DHA) is working on the development and implementation of the electronic medical records (EMR) system and the electronic logistics medical information system (eLMIS or Dagu-eAPTS) interoperability. OpenMRS is customized and contextualized based on the country's clinical services guidelines and is being implemented at select health facilities. Dagu is a facility logistics and stock management system available in over 1,085 health facilities. Dagu has an auditable and transactional pharmacy module that is customized based on the APTS (Auditable Pharmaceutical and Transactional System)

standard that allows pharmacies to provide service in multiple windows. Interoperability is developed between these two systems (OpenMRS and Dagu) and it is implemented in selected health facilities. The interoperability is developed based on the national interoperability and data exchange guidelines; OpenHIM was used as a mediator between the systems in order to authenticate, encrypt, transform, queue, validate and translate the data. Both systems are deployed in a server inside a data center within the health facilities compound together with the interoperability mediator to avoid dependency on internet connectivity.

In order to establish interoperability between digital tools, it is crucial for each system to operate independently and allow for the optimized data flow introducing a mediator to facilitate integration. Successful implementation of interoperability requires various aspects to be carefully considered, including:

**Infrastructure**

- **Dedicated Data Center:** To avoid relying on internet connectivity, it is recommended to deploy the systems and their interoperability layer locally. This requires a dedicated *mini* data center to be available at health facilities.

- **Reliable LAN infrastructure:** The majority of facilities lack a well-established local area network, which is essential for the efficient deployment and utilization of these systems and for achieving interoperability. Investing in infrastructure enables efficient exchange of data among digital tools, limits interruption and/or difficulty connecting to IT peripherals, lab machines, and other devices.

- **IT equipment** such as computers, tablets, and other IT equipment are crucial for enabling the use of digital health tools and establishing a platform for data flow interoperability. Unfortunately, many health facilities lack appropriate quantity of these essential tools, particularly when implementing EMRs. Even when equipment is available, it is often outdated, malfunctioning, or lacks sufficient specifications. This not only impedes the exchange of data but also obstructs the successful implementation of digital tools in healthcare facilities, making it difficult for end-users to utilize the tools efficiently and effectively.

**Client support system:** Health information technology (HIT) specialists play a critical role in ensuring systems and interoperability functions smoothly and that downtime is minimized. In instances where systems or mediators malfunction, human intervention is required to perform necessary maintenance and rebooting. HITs embedded within the facility provide prompt support and solutions to ensure speedy resolution. Failure to provide such support services can cause delays in restoring systems, interoperability, and services, resulting in frustration for end users.

**Health Workers:**

- Digital literacy is fundamental to any successful deployment, and utilization of digital tools. While there is forward movement in educating health graduates on digital technologies their remains gaps in building the competence of the health work force for efficient utilization of technology.

- The importance of health workers accepting digital tools cannot be overstated; it may even be more crucial than having the necessary equipment and infrastructure in place. It is essential to provide simplified solutions that meet requirements and ensure user acceptance.

The achievement of digital health tools interoperability relies on several key factors. While creating interoperability and demonstrating data exchange in a sandbox environment is uncomplicated, it is not the sole objective. The ultimate goal is to expand interoperability on a larger scale and establish standardized data exchange among disparate systems to enhance the quality of care and improve healthcare services. For this to happen, a methodological, case by case, and well thought-out approach including the factors stated above is important.

## Protecting Community Safety through Use of Digital Technologies

By Abraham Kassaye
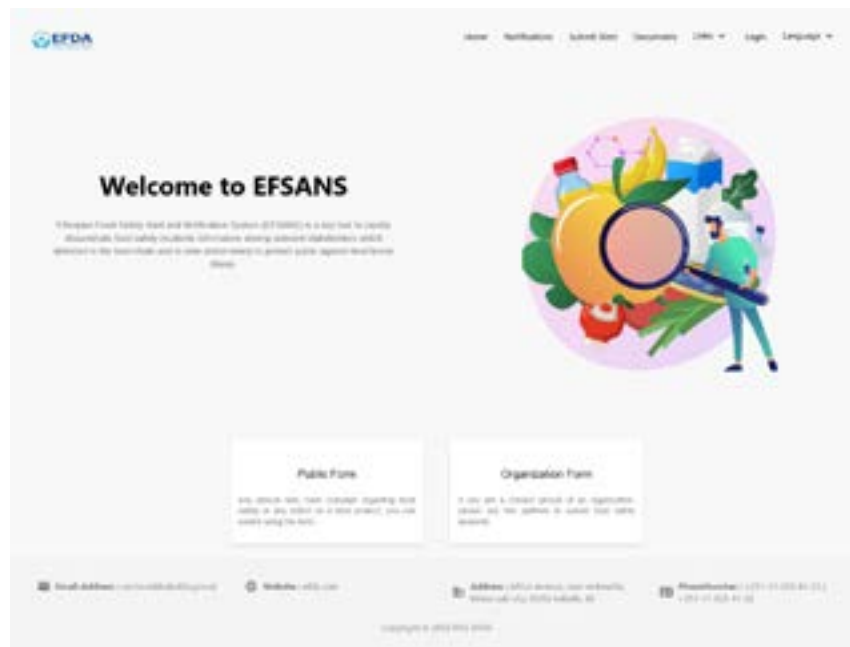


The Ethiopian Food and Drug Authority (EFDA), with the support of the Digital Health Activity, has recently introduced a Food Safety Alert application that enables the public and organizations to report food safety incidents. The system enables timely detection, notification and response to unsafe food incidents. Once the incidents are reported, EFDA reviews and disseminates the notification of the incidents to stakeholders as well as to the public.

Dagmawit Negatu, Director of the Food Registration and Licensing Directorate at the Food and Drug Authority, says "Since food safety is everyone's concern, the new system makes it convenient for the community to submit suggestions, and it supports the stakeholders as well to control incidents effectively". Previously, people could make reports to the authority regarding food safety by calling a toll-free shortcode 8442 or by reporting in person. Dagmawit says the implementation of the system nationally is a good opportunity for people who are not comfortable visiting authorities in-person or using a phone call.

Betre Getahun, Director of the Food Facility Inspection Directorate at EFDA, explains "The implementation of the system will increase the number of reports and improve the rapid response of the Authority".

Fasil H/Mariam, Director of the Information Technology Directorate of EFDA, on his part said, "We will continue to work with DHA to improve this application and also include an offline option in the future. In addition, we have completed our preparations to launch a mobile application for similar purposes." He also added that we would focus on improving the application by adding other features based on the suggestions from the community.

Similarly, DHA has been supporting EFDA to implement i-Verify, a tool for community reporting of counterfeit, expired or suspicious drugs in the market, and Adverse Events Following Immunization (AEFI) tool to report adverse effects following Covid-19 immunization. The food safety alert, the I-Verify and AEFI tools are being used to promote health and safety in Ethiopia.

## NATIONAL HEALTH DATA WEEK 2023

The importance of data in the health system cannot be understated because it supports health professionals to build real solutions for their clients. Effective information collection and management system is key in engaging with patients, leading to better treatment and saving valuable resources. Systemized data collection and analysis methods help rapid information flow and share it with other providers.

Eliminating data falsification and improving the quality of data nationally is one of the focus areas in the implementation of Health Sector Transformation Plan II (HTSP II) and HIS strategic plan. Health professionals need to have instant access to the most up-to-date and accurate information possible. Because the availability of accurate data in health care can mean the difference between life and death to patients. In many contexts, the gap in the use of information for evidence-based decision-making is also related to other factors, in addition to the lack of availability of quality data, tools, technology, system, and capacity to use the information.

In March 2023, National Health Data Week was celebrated with various events nationally including at health facility levels. The event was organized for the second time in Ethiopia to enhance data quality, access, sharing, and culture of evidence-based decision-making to improve health system performance. "Enhancing the engagement, capacity, and accountability of the private health sector: An action to improve the Health Information System" is this year's national health data week celebration theme.

DHA, Data Use Partnership (DUP), ICAP, and the Ministry of Health together organized an opening event at the skylight hotel which different participants from the health sector attended. DHA and other MOH partners showcased their works for the participants at the exhibition organized as a side event.



DHA staffs presenting the digitals the digital features of FANOS, National Dashboard, and the eLearning platform for the participants at the National Health Data Week exhibition.

At the second National Health Data Week launching event, H.E Dr. Dereje Duguma, State Minister of MOH, said,

> **Partners should support the private health sector to generate quality health data, to value and use data for actions and report the data regularly and consistently.**



H.E Dr. Dereje Duguma, State Minister of MOH at the National Health Week opening event

At the event, it is emphasized that the private health sector engagement is essential in the overall performance of health transformation, and an integrated system between the government and the private health sector is also needed for better implementation.

## A System Built at the Woreda Level Driving Facilities to be Models

By Gashaw Lulie

Estie Health Center is one of the largest health centers with a high patient load among the 11 facilities found in Estie Woreda, Amhara Region. Despite the congested environment, the health center staff and management are delivering high-quality care that meet clients expectations. Out of 11 health centers found in the woreda, it is a model health center in the information revolution (IR), which is a standard set by the Ministry of Health to increase demands for health information and opportunities to leverage advancements in information and communications technology.

Estie Health Center implements Dagu, a system that allows facilities to manage requests electronically, automates pharmacy services, and provides patient-level data and national-level stock visibility. Since the implementation of Dagu, the center established a performance monitoring team at the facility case team level, a well-structured, medical records unit, and a health management information system unit. DHA supported the health center in the system deployment, technical support and mentorship activities for Dagu implementation. As a result, the implementation of Dagu and other Integrated Pharmaceutical Logistics System tools in the health center helped to improve the availability of required essential drugs and supplies on top of proper management of the store and dispensary in the facility.

The health center drug store is fully implementing the Dagu system which improved their quality of services in many aspects including improvement in transferring in and stock-outs between facilities and obtaining quality reports from the pharmacy department.

Kidist Kassa Drug is Store Manager at Estie Health

Center who has participated in DHA's digital tools earned a champion certificate. She says,

> **"**
>
> **Using Dagu helps to reduce stock-outs and expired items. In addition, the facility's wastage rate is approaching zero.**
>
> **"**



Kidist Kassa, Drug Store Manager at Estie Health Center .

The proper implementation of the tools helped them to monitor essential drug availability, minimizing wastage rate and proper auditing of available drugs and other consumables in their facility. In addition, the proper management of commodities in the facility helped them to provide proper care for their clients and improve client satisfaction.

## OUR MAJOR ACTIVITIES FROM THE QUARTER IN SHORT

### Director of Bureau of Global Health Visit DHA supported Health Center

By Sami Tewfik

USAID delegates led by Beth Tritter, Director of COVID-19 Response Team in the Bureau of Global Health, visited Jan Meda Health Center under Addis Ababa City Administration Health Bureau. The health center is one of the pioneer facilities implementing the DHIS2 client tracker system, which is originally designed to capture direct COVID-19 client level service data electronically at the EPI unit. This is not only important for data quality but most importantly for tracking individual clients' completion of vaccination, certification, AEFI reporting, and visibility of logistics data.

The project has supported the ministry of health to deploy a client tracker in selected facilities all over the country. Jan Meda Health Center has been using the system for certification and a total of 5000+ individuals were registered and certificates for travelers were issued. The project is now expanding the use case including routine immunization. The delegates recognized the system and the project's effort to use the system beyond COVID-19.

## Pioneering a Paperless Journey both at Community and Referral Facilities: The Case of Daro Health Post (HP) and Tirunesh Beijing Hospital

By Emiru Driba and Zergu Tafese

Daro Health Post (HP) is one of the HPs in Anchar woreda, West Hararghe Zone of Oromia Region. It is located 119 kilometers from Chiro town, the zonal capital. The health extension workers (HEWs) at the HP deliver basic health education, preventive and curative services through static, home visits and outreaches. The HPs were collecting service delivery data using both the manual and electronic community health information system (eCHIS).

Over the last three years, the HEWs at Doro HP used eCHIS have been collecting routine household information and reporting activities. However, HEWs had to continue using the manual registers and tally sheets for two reasons: 1) all forms were not digitized, and 2) even for the digitized forms,

the government expected them to record the information twice using the eCHIS and the manual forms. This caused data collection burden, fatigue, and data quality issues.

Mrs. Mulu Terefe, a HEW at Daro HP, said: "I had to carry folders, cards, and tally sheets during home visits and outreach services, which was a lot of work and time-consuming." She is one of the best users of eCHIS and proudly explains the benefit:

> **eCHIS solved my burden and it makes my life easier. It is easy to access data for reporting and emergency situations.**



Mulu Terefe, a Health Extension Worker at Daro HP in Anchar woreda.

Now, Daro HP has gone paperless. HEWs at the HP carry only tablets during home visits. This has helped alleviate the burden of data collection during household registration and service delivery. HEWs also easily access all the data about community volunteers from the eCHIS tablet. The HP has become a model in the information revolution assessment verification conducted by DHA and the Zonal Health Department.

USAID's DHA provided capacity-strengthening training for HEWs and HC staff to implement all modules of eCHIS at the HP. DHA's ongoing mentorship and support helped address challenges, transfer knowledge, and encourage its adoption. This has helped Daro HP to become the first HP to go paperless in Ethiopia.

Mr. Hailu Ketema, the woreda health office head said: "It is important to serve the community from the heart. eCHIS application helps record the services provided to the community. Dedication is important to serve the community." He adds:

"

**The initiative requires continuous technical and financial support to sustain the current gains. So, strong collaboration is needed with the public and other stakeholders.**

"

Mr. Hailu Ketema, head of Anchar Woreda health office.

Referral facilities were also going paperless as a result of the tireless effort that has been made both by the public and DHA. Tirunesh Beijing hospital is one of the good examples, because of the implementation of the EMR system in the hospital. Staff at the record room handle client registration using the computer and send them to the doctor's room. Alemgena Werku, who has been working in the record room for over five years, is among the staff working in the room. She used to register clients on paper, but now she uses the EMR system. She explained "Before the implementation of EMR in the hospital each morning there was a long queue in the record room area because of the difficulties in locating patient records and the queue usually lasted the entire day, It was a huge relief for us after the system was implemented because it only takes a few minutes to get the patient records from the computer and transfer them to the doctor,"
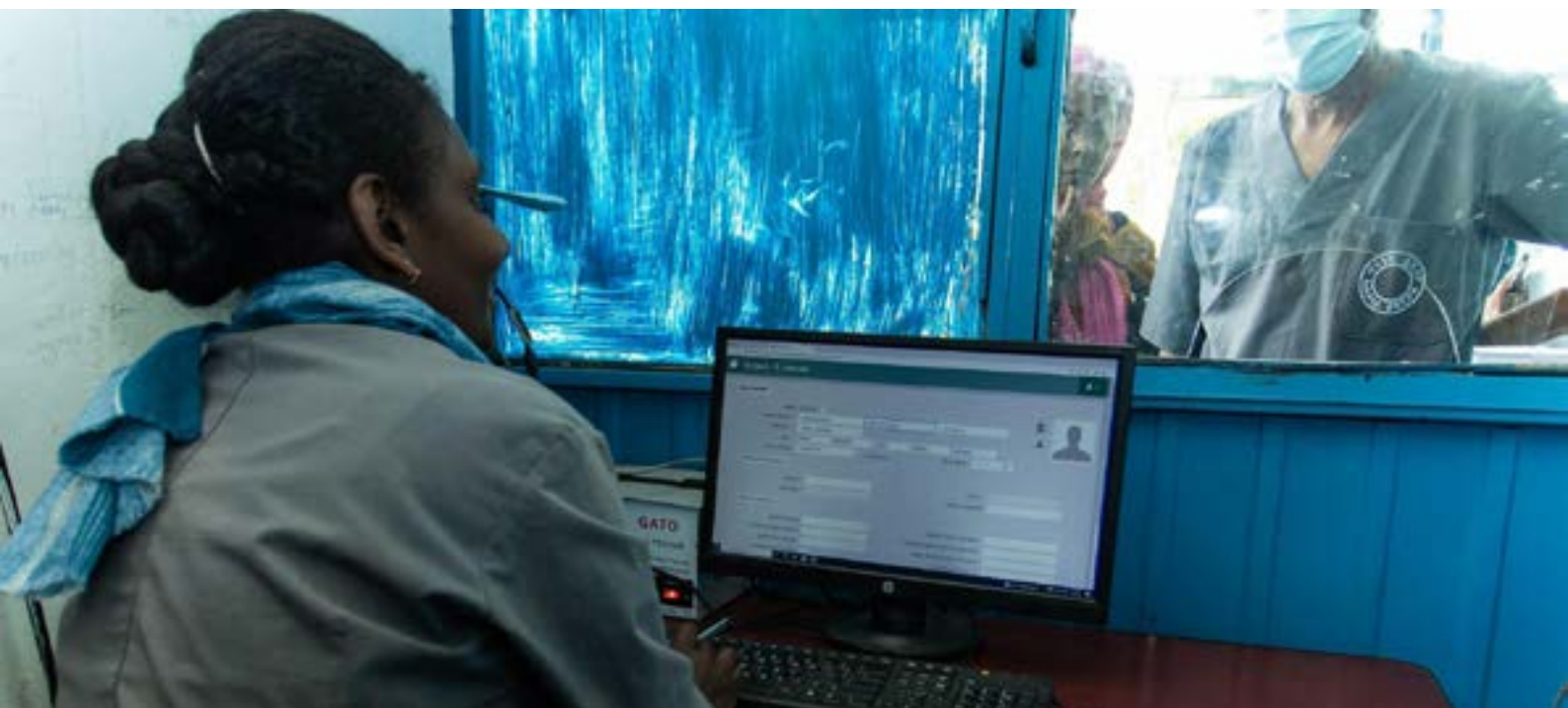


Alemgena Werku, a record room staff at Tirunesh Beijing hospital.

One of the regular attendants of the hospital Tirunesh Tekola said "I recall once taking two days to retrieve my medical record because it was difficult to locate the record, which was very disappointing for me at the time"

Dr. Samson, the medical director of the hospital, stated that the implementation of EMR in the hospital helped us to solve various issues. According to him, they want to improve the system's effectiveness by integrating the EMR with the pharmacy and adding interoperability with other hospitals, which will take additional efforts to maximize its impact.

DHA has been supporting the health facilities implementing EMR and eCHIS to improve the quality of care, patient outcomes and referral systems. Additionally, these systems support proper data recording, reporting and analysis of the data generated leading to use of data for action. Daro health post and Tirunesh Beijing hospital are some of the health facilities being supported by DHA pioneering paperless service in the country for the first time.

# No Reinventing the Wheel when Digitizing Health Programs: How Uganda and Ethiopia are Learning from Eachother to Strengthen Malaria Responses in Both Countries

By Alex Angel



"Our work has become easier and faster due to the use of these systems, and patients no longer have to wait as long to get services" – Health worker at Nano Gebriel HP in Ethiopia.

The USAID-funded President's Malaria Initiative (PMI) Uganda Malaria Reduction Activity (MRA) aims to strengthen malaria prevention at the community and household levels in five of the highest-burden regions (Acholi, Busoga, Karamoja, Lango, and West Nile). The project works with the Government of Uganda to strengthen technical, financial, and leadership capacity at all levels of the health system to increase access to malaria prevention and treatment and reduce new infections. It also helps private for-profit health facilities improve malaria case management and reporting.

In March 2023, the project manager of digitization from Uganda's Ministry of Health (MOH) and the digital health advisor from PMI-MRA went to Ethiopia to learn how innovations in its health information system, under the USAID-funded Digital Health Activity (DHA), could be applied to the malaria response in Uganda.

PMI-MRA staff visiting an Ethiopian health post.

DHA is leading an initiative to digitize public health in Ethiopia. DHA works at various levels of the health system: building out tooling for community health workers through the electronic community health information systems (eCHIS), digitizing the country's health information system (DHIS2) and the human resource for health information system. A critical DHA endeavor is an open-source electronic medical record (EMR) system that gives health professionals access to patient medical data, which is essential to provide high-quality, person-centered care. Paper patient records are now scanned and uploaded into the EMR system, accessible to any clinician or facility and reducing triage unit waiting time from 30 to fewer than three minutes. Other DHA-related gains are increased autonomy and accountability in the health system and a more responsive supply chain system to support it.

A visit to a health center with EMRs.

The goals of the technical exchange were to gain knowledge of how Ethiopia led national digitization; ensures sustainability; works with partners; and overcomes challenges, and to see how DHA is building an interoperable system to facilitate health information-sharing.

"Our colleagues in Ethiopia walked us through the guidelines for digital health tool implementation. They explained how critical it is to continuously adapt these tools and ensure involvement of parties within and outside the health system" said Carol Kamasaka, digital health advisor for PMI-MRA.

DHA is a long-term endeavor that develops and reviews curricula and eLearning materials at universities and training institutions across the country. The project has supported the development of in-service professional development curriculum and created mentors for capacity building.

"Health facilities manage their data and conduct routine performance review meetings at which heads of service units review their data before submitting to the DHIS2," continues Carol.
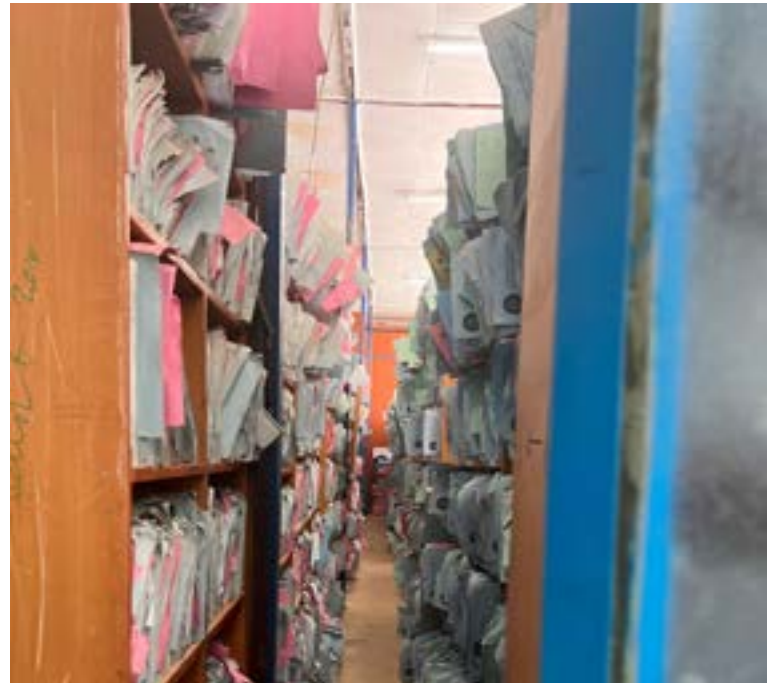


Scanning files into the EMR system has eliminated miles of paperwork and improved data accuracy and accessibility.

The success of the EMR system also relies on the investment the government has made in a virtual private network that health care providers use to access the health information system. Privacy upgrades for this server prevent unauthorized users from accessing patient data. The PMI-MRA team will support the MOH to adopt some of these best practices.

"Malaria starts in communities... deploying digital health tools like eCHIS and equipping our community health workers with tools and information can enable us to get real-time information on malaria cases and deploy interventions to reduce severe cases and death," said Carol.

> **A number of malaria-related deaths occur in the community but these data are barely captured. We can do more to track and capture information to find ways to prevent malaria.**

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