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MINISTRY OF HEALTH-ETHIOPIA

USAID
FROM THE AMERICAN PEOPLE

ANNUAL REPORT

DIGITAL HEALTH ACTIVITY (DHA)

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"We promise to continue learning, adapting, and upholding our principles of partnership to realize even greater results in year four and beyond."

Loko Abraham (MD)
Chief of Party
Digital Health Activity

Message from the Chief of Party

It is a pleasure to share with you the major achievements of the third year of implementing the USAID Digital Health Activity (DHA) (October 2021 to September 2022). DHA is designed to support the information revolution (IR) agenda of the Ministry of Health (MOH) which focuses on digitalization, data use, and governance of the health information system (HIS) to ensure that the entire health sector has the data and skills to improve the health and well-being of all Ethiopians. The DHA team leverages JSI's prior experience in supporting the HIS and harnesses the power of partnership to achieve results.

Our third year of implementation, like the previous two years, was marked by great achievements. Through intentional, government-aligned and led, and context-specific interventions, DHA has been working with the health sector to achieve universal health coverage and improve the provision of quality and equitable health services at all levels.

In the coming year, DHA will continue to consolidate current gains, document and disseminate best practices, and facilitate cross-learning. Country ownership and sustainability will remain the cornerstones of all our interventions as we design, develop, and deploy digital tools and nurture a culture of data use and innovation. We will actively work to bridge the gender-digital divide, ensure the resilience of our interventions, and proactively engage in recovery of the HIS in health institutions affected by the conflict in northern part of Ethiopia

All our work and achievements would not have been possible without the generous support and guidance of USAID. The MOH, regional health bureaus (RHBs), Ethiopian Food and Drug Administration (EFDA), Ethiopian Pharmaceutical Supplies Services (EPSS), and Ethiopian Public Health Institute (EPHI) have been our cherished partners and whatever we have achieved is a result of their trust, partnership, and steadfast leadership. We promise to continue learning, adapting, and upholding our principles of partnership to realize even greater results in year four and beyond.

Background

The Digital Health Activity (DHA) is a five-year (Oct. 2019-Sept. 2024), USAID-funded flagship project that supports the Ethiopian health sector to build a sustainable health information system (HIS). The DHA has made significant advancements in its three years of implementation despite the COVID-19 pandemic and social and political unrest in parts of the country. The Ministry of Health (MOH), regional health bureaus (RHBs), and related health sector agencies have worked with DHA as a reliable partner for digitalization, data use, and governance.

DHA has designed, developed, deployed, enhanced and maintained various digital tools in collaboration with the MOH and other partners.

The Activity has also been building the digital and data management skills and capacities of health workers and health institutions through training, supervision, and mentoring. In addition, the Activity provided gap-filling infrastructure support to health institutions to support the smooth implementation of the digital HIS.

DHA's interventions have been implemented in 100 focus woredas across all regions of the country. However, the benefits from DHA's interventions extend beyond these woredas. Generally, DHA has been working in the following major areas within the health system:

DHA's interventions have been implemented in

100

focus woredas across all regions of the country

- **Information technology systems and data repository**
- **Building data use culture**
- **Capacity building and governance**
- **Rehabilitation of the HIS in conflict-affected areas**

DHA collaborates with universities, health science colleges, professional associations, and youth enterprises and works closely with the health system at all levels in the planning, implementation, and monitoring of its interventions.

This annual report focuses on the major achievements of DHA's interventions during the third year of the project covering the period October 1, 2021 to September 30, 2022.

Equipping Health Extension Workers with Digital Technology

The electronic community health information system (eCHIS), is a family-centered, community-based health information system, primarily used by health extension workers (HEWs) during household registration, service delivery, and referrals. The agrarian, pastoralist, and urban eCHIS versions are tailored to each geographical context and are currently at different stages of implementation. DHA has been supporting all three eCHIS versions as part of Ethiopia's information revolution plan.

DHA developed components of the agrarian eCHIS modules, provided gap-filling infrastructure and technical support, and built the capacity of health workers. Currently, eCHIS is deployed in 7,800 health posts (HPs) across the country: DHA supported the eCHIS deployment in 2,719 (34%) of these health posts. More than half of the HPs supported by DHA are using eCHIS for service delivery, as compared with 29% at the national level.

Data from routine monitoring showed that eCHIS has helped improve activity processing time, accountability, data access, and service quality. A national level study led by DHA and jointly implemented with the MOH and local universities indicated near universal acceptability of eCHIS despite lower utilization. Future efforts will be geared toward consolidating gains, resolving utilization barriers, and applying the lessons learned to achieve targets and scale up the pastoralist and urban eCHIS versions.

"The eCHIS has helped me regain my confidence in treating children and following up with lactating and pregnant women. It helps me determine the disease classifications for sick children and recommends me the right medications."

Addis Demerew,
Bale health post, Anchar woreda, Oromia region

eCHIS is deployed in

7,800

health posts (HPs) across the country

DHA deployed eCHIS in

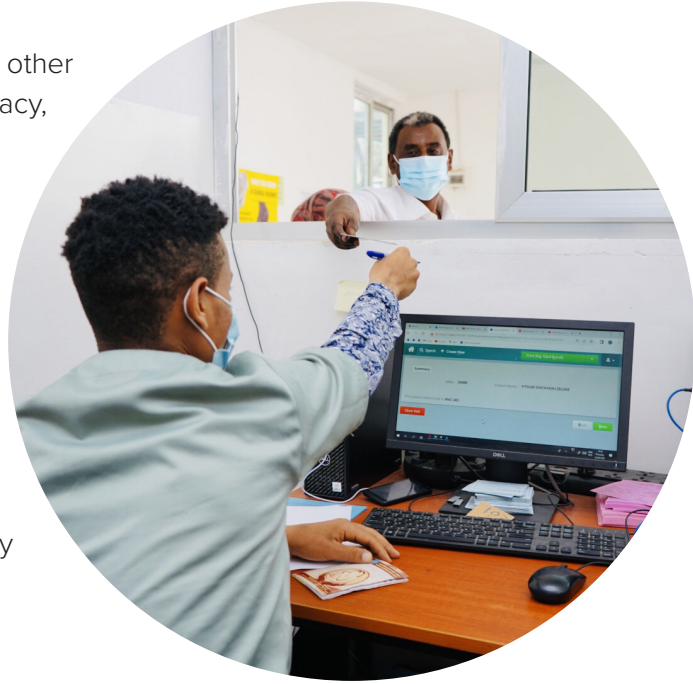
2,719

Health Posts

Helping Health Facilities Go Paperless

Digitalization is critical to fundamentally transforming the quality and coverage of health services. DHA has been helping health centers and hospitals go paperless through implementing the electronic medical records (EMR) system. EMR improves quality of care, patient outcomes, and safety through improved management of patients; reduction in medication errors; quick access to patient records for more coordinated, efficient care; and secured sharing of electronic client information among health professionals.

EMR is a resource intensive and time-consuming undertaking. DHA identified 10 health facilities (seven hospitals and three health centers) across Ethiopia for EMR implementation in two phases. In the first phase, five health facilities in Addis Ababa, including the three health centers, have been supported in their paperless journey, and Tirunesh Beijing has recently become the first hospital to go paperless. By integrating EMR with other services such as laboratory, pharmacy, and the district health information software 2 (DHIS2), DHA is facilitating easier and faster data exchange between multiple systems. DHA will continue supporting the maturity and utilization of EMR to maximize its impact. DHA also supported the migration of legacy data to EMR to allow a single system access to medical records for service delivery and research purposes.



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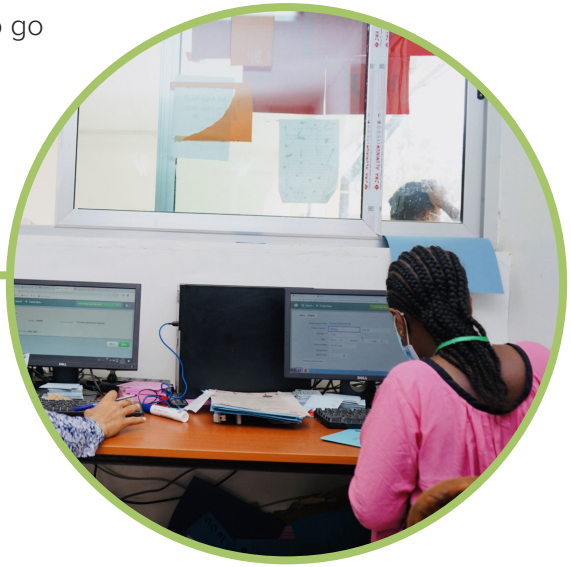


"We communicate with other departments, such as the laboratory unit, much faster now and, as a result, our patients receive faster care."

Mr. Ibrahim Kabato, a health officer at Ferensay Health Center

Digital Tools for Monitoring Multidrug-Resistant Tuberculosis

Multidrug-resistant tuberculosis (MDR-TB) is a form of tuberculosis (TB) infection caused by bacteria resistance to treatment with at least two of the most powerful first-line anti-TB medications: isoniazid and rifampicin. The principal patient-related factor that predisposes patients to MDR-TB is non-adherence to drugs susceptible TB treatment.

Ethiopia is one of the 30 highest MDR-TB burden countries. The proportion of treatment default, loss to follow-up, treatment failure, and unknown treatment outcomes are significant. Hence, reliable and quality epidemiological data is required for health providers, at all levels, to plan and provide effective MDR-TB care and control services as well as to monitor the performance of programmatic activities.

DHA customized a DHIS2 to track MDR-TB patients. The DHIS2 tracker, a DHIS2-based system for capturing individual level data of MDR-TB patients, demonstrated significant improvement in the quality of MDR-TB data, which supports better treatment and decision making. Data from manual forms were migrated to the MDR-TB tracker to allow health service providers and researchers to access complete data from a single platform. To date, 1,632 patients are registered on the MDR-TB tracker, representing 98% of all estimated MDR-TB patients in the country. DHA also supported the integration of the DHIS2 tracker with a laboratory information system to help improve the overall quality of services by reducing diagnostic turnaround time.

1,632 or 98%

of MDR-TB patients in the country are registered on the MDR-TB tracker

"This is the first digital system I am using in my career so far. With the enhanced use of this tool, we are able to properly track past treatment records, which is vital for MDR-TB patients."

Dr. Bekele Fekade,
St. Peter TB ward focal point

Digital Tools for Improved Health Workforce Management

Human resources for health (HRH), the most essential component of health care, requires careful management. The recruitment, deployment, placement, training, and growth of HRH requires technology solutions for more efficient and effective health service delivery. DHA supported the MOH to develop and implement an electronic health human resource information system (a program called iHRIS) and trained staff to use it.

Improving Last Mile Availability of Essential Health Commodities for Better Service Delivery

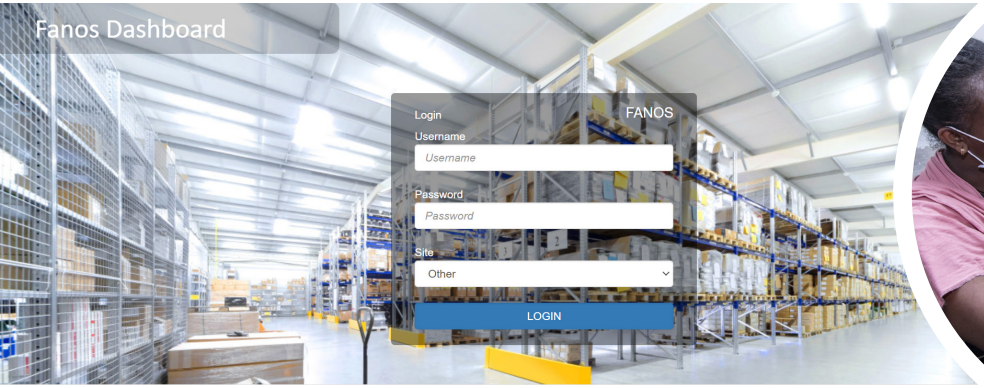
Providing quality health commodities and products to clients and patients at the last mile is central to achieving universal health coverage.

Digital tools play an important role by creating end-to-end visibility of the supply chain system. At health facility level, digital tools facilitate better stock management and reduce wastage and workload.

FANOS

Fanos

DHA has been supporting the development and deployment of digital tools for upstream and downstream supplies management. ''Fanos,'' which means lantern in the Amharic language, is a dashboard that provides end-to-end visibility of the supply chain system. DHA added additional dashboards and provided training to staff to use it for planning, commodity distribution, and procurement decisions.



Vitas

Vitas

Vitas is a supply chain management system that captures real time data on the movement, expiries, losses, and adjustments of health commodities. It gives the Ethiopian Pharmaceutical Supply Services (EPSS) information to forecast, procure, and distribute commodities across health facilities. DHA supported the transition from Vitas to Enterprise Resources Planning (ERP), the system expected to replace Vitas, in line with the request from EPSS.

The Activity trained staff at EPSS to manage the transition and provided 23 bar code scanners to EPSS and its 19 hubs. The barcodes enhance warehouse operations and facilitate quick scanning of reporting and requesting forms (RRFs), which significantly reduces processing time.

DHA trained staff at EPSS to manage the transition to ERP and provided 23 bar code scanners to EPSS and its 19 hubs.

Dagu

Dagu is a warehouse management system used at the health facility level. Dagu, which means ''information'' in the Afar language, provides information on the inventory and stock status of health facilities. The RRF and the Stock Transfer Vouchers (STV) are features in Dagu developed by DHA that help reduce data entry errors and turnaround time. The RRF enables offline and online syncing without the need to enter data manually. The STV enable automatic syncing of received items from EPSS at the facility level.

DHA customized Dagu for the Ethiopian Red Cross Society and for Public Health Emergency Management (PHEM) activities. The Dagu Antiretroviral Therapy (ART) module development and deployment was completed in 50 health facilities and, based on user feedback, Dagu installations were made easier and quicker at the facility level. The ART module enabled pharmacists to monitor patient compliance, treatment results, and adverse drug reactions and interactions and address other medication-related difficulties with ARV medications and treatments.

DHA trained over 300 end-users, developed dashboards, provided inventory support, and provided desktop computers to 400 health facilities during the year. The Activity also provides ongoing on-site technical support through on-the-job training, supportive supervision, and mentorship at the Dagu sites, which builds staff capacity and improves system use and the quality of data and RRF. Over 700 end-users received on-the-job training and almost 1,400 site visits were conducted. Currently, Dagu is deployed in 860 health facilities with the technical, financial, and material support of DHA.

Data from routine monitoring in six selected health facilities demonstrated a significant reduction in wastage rate (Table 1). A rapid assessment conducted by DHA also demonstrated that product availability was higher by 25% in health facilities that implemented Dagu or Dagu with eAPTs compared with facilities that did not implement either of the two systems. Four facilities that implemented either Dagu or Dagu with eAPTs saved stock worth over 21,000 USD within six-month period from expiring.

''The online RRF has simplified our job by speeding up the reporting time and minimizing data errors. We hope to see the utilization of the system grow''

Oliyad Habte,
Store Manager at Meda Welabu University, Goba Referral Hospital

Trends of wastage rate in selected health facilities following implementation of Dagu

	2013 E.C	2014 E.C	2015 E.C
Amanuel Hospital	1.7	1.05	0.27
Yekatit 12 Hospital	6.88	2.47	1.21
Kasanchis Health Center	27.46	6.65	2.17
Mikiland Health Center	-	1.07	0.43
Kolfe Health Center	33.46	10.51	0.25
Felege Meles Health Center	18.27	15.95	5.19

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mBrana

''Brana'' means a parchment in the Ge'ez language, an ancient Ethiopian language which now is widely used in the Ethiopian Orthodox Church. The application is a mobile-based, which is why it is called mBrana (the "m" standing for mobile). mBrana is a system for tracking vaccines and long-lasting insecticide treated nets (LLIN) distribution at the woreda level. DHA upgraded mBrana to work offline and provide notifications about vaccine transactions, stock outs, and issuing of medication to the dispensing unit. DHA deployed mBrana in woredas, trained staff to use it, conducted supportive supervision and follow-up visits, and procured and distributed 57 tablets.

At the end of the year, over 350 health facilities submitted vaccine request forms (VRFs) using mBrana. Over 14 million vaccine doses were received and 63% of the vaccines were distributed to health facilities using the system. Over two million COVID-19 vaccines in 277 woredas were received by mBrana. mBrana is now functional in 584 woredas (almost half of the woredas in the country).

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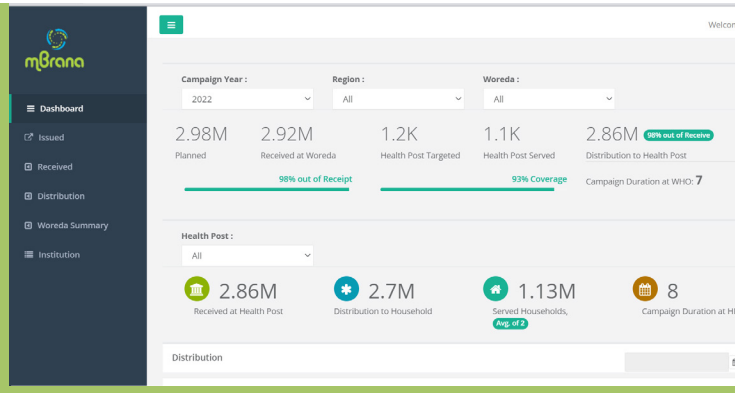

Electronic Regulatory Information System (eRIS)

The eRIS comprises multiple applications used by the Ethiopian Food and Drug Authority (EFDA) and its clients to improve transparency and efficiency. The various eRIS applications help conduct specific functions that include product registration, import permission, licensing, port clearance, retail outlets inspection, and product authenticity verification.

DHA supported EFDA in the maintenance and upgrading of the eRIS applications, including building notification features to alert clients and EFDA staff about changes in application status for possible follow-up actions and enabling geo-location confirmation during subsequent site visits to create transparency and accountability. The use of eRIS improves efficiency by reducing the time needed for market authorization, facility inspection, importation, and port clearance and improves public safety through developing and deploying food safety alerts and notifications. DHA has been supporting a smooth transition of eRIS to EFDA to ensure sustainability.

"The i-register dramatically improves the efficiency and transparency of the product registration process. Moreover, staff can now review registration applications from anywhere as long as they get connected to the internet, consequently, the number of clients served per day has significantly increased"

Mr. Mengistu Legesse,
Medicine and medical device registration assistant director, EFDA

Breaking Down Digital Siloes

Breaking down siloes and enabling systems to connect and communicate data increases efficiency and allows better informed decision making based on comprehensive data. This is possible when systems are interoperable. Interoperability creates easier access and transmission of data thereby fostering collaboration between work streams.

DHA established interoperability between EMR and eAPTs, a dispensing unit application, in two health facilities. This allowed health care professionals to make direct prescription orders from the EMR system to the dispensary unit. More than a quarter of prescriptions were communicated directly from the EMR to the eAPTS in these facilities throughout the year. DHA is doing similar work to integrate EMR, DHIS2, and other systems.

DHA established interoperability between EMR and eAPTs

Promoting Use of Quality Assured Data for Decision Making

A strong health information system is the foundation for informed decision making. Countries require reliable data for the planning and management of health services and for monitoring progress toward the Sustainable Development Goals, including universal health coverage.

DHA has been building the capacity of health institutions through providing IT infrastructure support, training, mentoring, supervision, and data quality assurance to transform institutional culture of using quality assured data for decision making. The success of Ethiopia's information revolution is measured by the creation of model health facilities that can generate, use, and share high quality data online. A health facility has to improve its IT infrastructure, data quality, and data use practices to the desired level (score more than 90 percent in the information revolution assessment score) to become a model facility.

Almost 90% of the health facilities supported by DHA achieved the desired data quality level (verification factor raging between 90%- 110%). Over 700 health professionals were trained on data quality, data analysis, and related data use topics. User-friendly analytic dashboards were developed and shared on selected program areas including COVID-19, and an in-depth analysis was conducted on malaria to provide quality evidence for decision makers. Of the 323 health facilities supported by DHA, 43 achieved model facility status. One hundred ninety health facilities are making remarkable progress towards attaining model facility status. Assessments in selected facilities show that these changes are translating into improvements in service quality and use.

"When data is made available in the form of visuals, it helps us make informed decisions."

Hailu Ketema,
Head of Anchar woreda health office,
West Hararghe Zone, Oromia Region

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Building Sustainable Human Resource Capacity for Digital Health Information Systems

Achieving sustainable development and universal health coverage requires the right mix and distribution of human resources for health (HRH). Building the capacity of HRH to produce, use, and share quality data is critical and believed to accelerate the attainment of these global commitments.

DHA has been collaborating with universities, health science colleges, and professional associations to sustainably build the capacity of health workers and health institutions to meet Ethiopia's information revolution objectives. To this effect, the Activity embedded relevant competencies into health workers training curricula, introduced online and offline pre-service and in-service eLearning initiatives, launched a blended learning approach, and trained health science college instructors to effectively deliver courses. To date, over 1,600 participants are enrolled in courses on Dagu, eCHIS, HMIS, and IPLS through the eLearning modality.

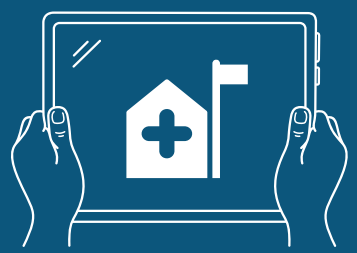
DHA, in collaboration with the MOH, identified and has been supporting Jimma, Gondar, and Haramaya Universities to become centers of excellence (COE) in eCHIS, electronic health architecture (eHA), and EMR, respectively. DHA has been providing technical, material, and financial support to these universities to accelerate their journey toward becoming COE in their designated areas. Upon attaining COE status, the universities will serve as technical hubs for designing, developing, maintaining, and upgrading digital tools. DHA also established 17 local youth groups to provide system installation, maintenance, troubleshooting and training support to health institutions. The youth enterprises supported 319 health institutions on digital tools, data use, and data quality.

"It was an eye-opening experience for me. After taking the Dagu 2 course, I even inquired for information on similar online training, and have taken five additional courses so far."

Ms. Saron Alemayehu, an instructor at Harar Health Science College

Statistics Corner: DHA by the Numbers

eCHIS



DHA deployed eCHIS in
2,719
health posts

1,401,305
households registered on eCHIS with DHA's support

2,388
DHA supported health posts using eCHIS for service delivery

6,017,510
individuals registered on eCHIS in DHA supported health posts

DHIS2 Tracker

53
Treatment Initiation Centers use MDR-TB tracker

98%
of MDR-TB patients in the country are registered on the MDR-TB tracker

EMR

10
health facilities are implementing EMR system

2 million
individual records moved to EMR system

Vitas

44 billion
worth of commodities were managed using the system

Dagu

Dagu deployed in

864

health facilities

394

health facilities using Dagu system for RRF reporting

32

health facilities implementing Dagu-eAPTS

50

health facilities implementing Dagu-ePMIS

mBrana

584

woredas implementing mBrana system

172

woredas using mBrana for LLIN distribution

444

woredas using mBrana for Covid-19 and other vaccination distribution

Training

7,960

health service provider trained

1,802

women health service provider trained

IT equipment donated to health institutions

200

computers

23

Barcode scanners

340

Smart phones

Supportive Supervision/Mentorship

Number of health institutions that received supportive supervision and mentorship by system type:

536 on Dagu and IPLS

64 on mBrana

64 on eCHIS

1285 on DHIS2

RDQA

88.9% of the health facilities assessed have data quality within acceptable range

IR support

43 model health institutions created

HSC & Universities support

16 health science colleges (HSC) supported

5 universities supported by DHA

Technical and financial support

52 woreda health offices received technical and financial support

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