



Data.FI Annual Performance Report 2023

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Cover photo: PO-RALG Data.FI focal person, Mary Shadrack (seated right) and Stella Mujaya, Data.FI Tanzania Country Lead, (seated left), listen to the district medical officer from Kongwa District Council Dr. Thomas Samwel, as he explains the improved health outcomes in his council since the beginning of Data.FI support. August 2023. Photo by Data.FI/Tanzania.

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Abbreviations

ACHIEVE	Adolescents and Children HIV Incidence Reduction, Empowerment and Virus Elimination project
AEFI	adverse events following immunization
AES	Área de Estadística (Statistics Area, Honduras)
AFENET	African Field Epidemiology Network
AFRH	Association for Fertility and Reproductive Health
AGYW	adolescent girls and young women
AI	artificial intelligence
ANC	antenatal care
APPR	Automated Partner Performance Reporting system (Nigeria)
ART	antiretroviral treatment
ARV	antiretroviral
BI	business intelligence
BPAA	blended performance assessment approach
CARD	Comprehensive Access Review Dashboard
CCCRN	Center for Clinical Care and Clinical Research
CCMM	Continuity of Care Maturity Model
CDC	Centers for Disease Control and Prevention
CDR	Central Data Repository (Eswatini)
CENC	Conférence épiscopale nationale du Cameroun (National Episcopal Conference of Cameroon, NECC in English)
CHAI	Clinton Health Access Initiative
CHISA	Consolidated Health Informatics South Africa
CHISU	Country Health Information Systems and Data Use
CHMT	Council Health Management Team (Tanzania)
CHP	Care and Health Program (Cameroon)
CHW	community health worker
CLHIV	children living with HIV
CMIS	client management information system
CoP	community of practice
COP	country operational plan
CQI	continuous quality improvement
CRDM	Collaborative Requirement Development Methodology
DAS	Dirección de Área de Salud (Health Area Directorate, Guatemala)
Data.FI	Data for Implementation project
DATIM	Data for Accountability, Transparency and Impact Monitoring system
DCPEV	Direction de Coordination du Programme Elargi de Vaccination (Directorate of Coordination of the Expanded Immunization Program, Côte d'Ivoire)
DDRIS	Dirección Departamental de Redes Integradas de Servicios de Salud (Departmental Directorate of Integrated Health Service Networks, Honduras)
DGRISS	Dirección General de Redes Integradas de Servicios de Salud (General Directorate of Integrated Health Service Networks, Honduras)
DHD	Digital Health Division (Malawi)
DHIS2	District Health Information Software, Version 2
DMT	Data Management Team (Eswatini)

DOD	Department of Defense
DQA	data quality assessment
DREAMS	Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe
DRISS	Desarrollo de la Red Integral de los Servicios de Salud
DSNIS	Direction du Système National d'Information Sanitaire (Directorate of the National Health Information System, Burundi)
DS-TB	drug-sensitive tuberculosis
DTI	Dirección de Tecnología de la Información (Information Technology Directorate, Guatemala)
DTIC	Departamento de Tecnologias de Informação e Comunicação (Mozambique)
EAC	enhanced adherence counselling
e-CIF	electronic case investigation form
EDC	Educational Development Center (Guatemala)
EGPAF	Elizabeth Glaser Pediatric AIDS Foundation
EID	early infant diagnosis
EIR	Electronic Immunization Registry (Jamaica)
eLMIS	electronic Logistics Management Information System (Eswatini)
EMR	electronic medical records
EOC	emergency operations center
EPI	Expanded Programme on Immunization
ETL	extract, transform, and load
FACT	Family AIDS Caring Trust (Zimbabwe)
FCDO	Foreign, Commonwealth and Development Office (United Kingdom)
FGH	Friends in Global Health (Nigeria)
FMWA	Federal Ministry of Women Affairs (Nigeria)
FMWASD	Federal Ministry of Women's Affairs & Social Development (Nigeria)
FP	family planning
FSW	female sex worker
FY	fiscal year
GBV	gender-based violence
GIS	geographic information system
GLPI	Gestion Libre de Pack Informatique (HIV ticketing platform, Côte d'Ivoire)
HCJ	Health Connect Jamaica
HCW	healthcare worker
HREC	health research ethics committee
HIC	Health Information Center (South Africa)
HIMSS	Healthcare Information and Management Systems Society
HIS	health information system(s)
HIS CoP	Health Information System Community of Practice (Nigeria)
HMIS	health management information system
HMT	health management team
HPV	human papillomavirus vaccine
HRD	Human Resources Department (South Africa)
HRH	human resources for health

IBSS	Integrated Biological and Behavioral Survey
IHP	Integrated Health Program (Nigeria)
IHVN/UMB	Institute of Human Virology/University of Maryland
IIT	interruption in treatment
iMES	Integrated Monitoring and Evaluation System
IP	implementing partner
IRB	institutional review board
ITT	Informatics Task Team (Nigeria)
JEE	Joint External Evaluation
JSON	JavaScript Object Notation
KP	key population
LAMISPlus	Lafiya Management Information System (Nigeria)
LGA	Local Government Area (Nigeria)
LIMS	laboratory information management system
LIP	local implementing partner
LMIS	logistics management information system
LODIIS	Lesotho OVC-DREAMS Integrated Information System
MCH	maternal and child health
M&E	monitoring and evaluation
MER	monitoring, evaluation, and reporting
MFFE	Ministère de la Femme, de la Famille et de l'Enfance (Ministry of Women, Family and Children, Côte d'Ivoire)
MIS	management information system
MISAU	Ministério da Saúde (Ministry of Health, Mozambique)
ML	machine learning
MOF	Ministry of Finance (Guatemala)
MOH	Ministry of Health
MOHW	Ministry of Health and Wellness (Botswana)
MOHW	Ministry of Health and Welfare (Jamaica)
M-RITE	MOMENTUM Routine Immunization Transformation and Equity project
MRSDC	Región Metropolitana de Salud del Distrito Central (Metropolitan Health Region of the Central District, Honduras)
MSHP	Ministère de la Santé et de l'Hygiène Publique (Ministry of Health and Public Hygiene, Côte d'Ivoire)
MSM	men who have sex with men
NCD	non-communicable disease
NCDC	Nigeria Centre for Disease Control
NCWA	National Council on Women Affairs (Nigeria)
NDOH	National Department of Health (South Africa)
NDR	National Data Repository (Nigeria)
NECC	National Episcopal Conference of Cameroon
NEPWHAN	Network of People Living with HIV Nigeria
NHREC	National Health Research Ethics Committee (Nigeria)
NGO	non-governmental organization

NIMC	National Identity Management Commission (Nigeria)
NISRN	National Integrated Sample Referral Network (Nigeria)
NOMIS	National OVC Management Information System (Nigeria)
NPHCDA	National Primary Health Care Development Agency (Nigeria)
OHA	Office of HIV/AIDS
OHSP	One Health Surveillance Platform
OpenLMIS	open-source Logistics Management Information System
OTZ	Operation Triple Zero
OVC	orphans and vulnerable children
PAHO	Pan-American Health Organization
PAI	Programa Ampliado de Inmunizaciones (Expanded Program on Immunization, Honduras)
PASMO	Organización Panamericana de Mercadeo Social (Pan-American Social Marketing Organization)
PBWF	pregnant and breastfeeding women
PEPFAR	United States President's Emergency Plan for AIDS Relief
PHI	personal health information
PHI	Pro-Health International (Nigeria)
PHIS3	Public Health Information System, Solution and Surveillance project
PII	personally identifiable information
PIMS	Patient Identity Management System (Nigeria)
PLHIV	people living with HIV
PMTCT	prevention of mother-to-child transmission
PNC ITS-HIV/SIDA	Programa Nacional de Control das ITS HIV/SIDA (National HIV/AIDS Control Program, Mozambique)
PNLS	Programme National de Lutte contre le Sida (National AIDS Control Program, Burundi)
PNLS/IST	Programme National de Lutte contre le Sida et infections sexuellement transmissibles (National AIDS and STI Control Program, Burundi)
PNOEV	Programme nationale de prise en charges des Orphelins et autres Enfants rendues Vulnérables du fait du VIH/Sida (National OVC Program, Côte d'Ivoire)
PNS	Programa Nacional de Prevención y Control de ITS, VIH y Sida (National AIDS and STIs Prevention and Control Program, Guatemala)
PNSR	Programa Nacional de Salud Reproductiva (National Reproductive Health Program, Guatemala)
POC	point of care
PO-RALG	President's Office – Regional Administration and Local Government (Tanzania)
PrEP	pre-exposure prophylaxis
PROGISSA	Programme de Gestion Informatique du Secteur de la Santé (IT Management Program for the Health Sector, Burundi)
PROSAN	Programa de Seguridad Alimentaria y Nutricional (Food and Nutrition Security Program, Guatemala)
QI	quality improvement
RADET	Retention and Audit Determination Tool
RAFG	Reaching an AIDS-Free Generation (Burundi)
RDQA	routine data quality assessment
READY	Refining Evidence and Assumptions to Drive Yearly targets
ReCAP+	Cameroonian Association for People Living with HIV/AIDS
RISE	Reaching Impact, Saturation, and Epidemic Control
RISS	Recent HIV Infections Surveillance System

RMNCH	reproductive, maternal, neonatal, and child health
RMNCAH	reproductive, maternal, neonatal, child, and adolescent health
RTSL	Resolve to Save Lives
SALMI	Sistema Informático de Administración Logística de Medicamentos e Insumos (Logistics Administration System for Medications and Supplies, Honduras)
SEOC	Standing Emergency Operations Center
SESAL	Secretaría de Salud (MOH, Honduras)
SFH	Society for Family Health (Nigeria)
SIGSA	Sistema de Información Gerencial de Salud (Health Management Information System, Guatemala)
SIMS	site improvement through monitoring system
SMOH	State Ministry of Health (Nigeria)
SNU	subnational unit
SOP	standard operating procedure
SORMAS	Surveillance Outbreak Response Management & Analysis System (Nigeria)
STI	sexually transmitted infection
TB	tuberculosis
TB DIAH	TB Data, Impact Assessment and Communications Hub
TCV/MR	typhoid conjugate vaccine/measles rubella
TFGH	Task Force on Global Health
TLD	tenofovir disoproxil, lamivudine, and dolutegravir
TWG	technical working group
VMMC	voluntary medical male circumcision
UAT	user acceptance testing
UGI	Unidad de gestión de la información (Information Management Unit, Honduras)
UID	unique identification
UI/UX	user interface and experience
UNAIDS	Joint United Nations Programme on HIV/AIDS
UPE	Unidad de Planificación Estratégica (Strategic Planning Unit, Guatemala)
USAID	United States Agency for International Development
UVS	Unidad de Vigilancia de la Salud (Health Surveillance Unit, Honduras)
VL	viral load
VLS	viral load suppression
WAR	West Africa Region
WHO	World Health Organization
XSS	cross-site scripting

Executive Summary

Data for Implementation (Data.FI) is a global project that helps countries strengthen and sustain access to key, high-quality data to strengthen primary healthcare systems and accelerate and maintain HIV and COVID-19 epidemic control. We provide end-to-end solutions in the data ecosystem that serve public health goals and protect clients' rights—from streamlining information needs to building sustainable and scalable data systems that support robust analysis and continuity of client care. We provide rapid insight for decision making and employ evidence-based approaches to ensure that data are used to inform meaningful change and save lives. We strengthen government capacity for health information system (HIS) governance and build local partner capabilities in line with the United States Agency for International Development's (USAID's) sustainability goals. We create solutions that can be scaled to achieve large-scale impact.

Data.FI is a six-year (2019–2025) global, field-supported mechanism with a \$110 million ceiling. Data.FI, funded by the United States President's Emergency Plan for AIDS Relief (PEPFAR) through USAID, and COVID-19 relief authorization through USAID's Global Health Bureau, is implemented by a consortium of digital health and analytics organizations. It is led by Palladium, in partnership with the JSI Research & Training Institute (JSI), the Johns Hopkins University Department of Epidemiology, Right to Care, Cooper/Smith, DT Global (formerly IMC Worldwide), Jembi Health Systems, and Pendulum (formerly Macro-Eyes).



Senior Technical Advisor Eric Ramirez at OVC MIS training workshop in Zimbabwe, May 2023. Photo by Data.FI/Zimbabwe.

During this reporting period (October 1, 2022–September 30, 2023), Data.FI implemented work in 26 countries and provided support to USAID at the central level. This report summarizes our work during the fourth year of implementation across the following impact areas:



Catalyzing Innovation to Find Breakthrough Solutions

To catalyze positive and equitable health outcomes, Data.FI **leverages thought leadership and cutting-edge technologies** across our extraordinary consortium of partners. Together, we are working to **create and source novel solutions and forge new strategic partnerships** to address the challenges that impede countries from meeting their health goals.

Data.FI developed a machine learning (ML) model to improve HIV testing efficiency in Nigeria. The machine learning model improves the efficacy of the HIV screening process by using a wider array of patients' data to test for HIV and has been integrated into the HIV testing services module of the Lafiya Management Information System (LAMISPlus) web and mobile test environments. Data.FI will be working with implementing partners (IPs) over the next fiscal year in a phased rollout of the model at service delivery sites, with the expectation of improving HIV testing yields.

In Guatemala, we developed two dashboard solutions: One integrates data from the Ministries of Health, Finance, and Agriculture on maternal-child health; another measures the quality of health spending. The former is now used to provide visual insights to decision makers at the Ministries of Health, Agriculture, and Finance on urgent issues. The second dashboard provides the Information Technology Directorate (DTI) of the Ministry of Health (MOH) with access to the 90 budget-executing units at an operational level, allowing the DTI to generate detailed reports on the execution of programmatic and financial targets and monitoring of investments and detailed monitoring acquisitions.

Data.FI developed a dashboard to display social listening data on COVID-19 vaccine hesitancy for the MOH in Burkina Faso. The dashboard utilizes the YouScan platform to analyze public sentiment about COVID-19 and allows the MOH to track and dispel misinformation. At the request of the Ministry, Data.FI added tabs for rumors related to other diseases such as dengue fever, cervical cancer, and malaria. The Director of Communications and Press Relations, Ms. Wind Touingnan Raïssa Ouedraogo, shared that the dashboard “improves decision making, as the application is used to prepare the daily news review, which is then sent to the head of the department—Eric Tougma, Director of the Cabinet, and Demele Dabire Estelle, Secretary General of the Ministry—and to the heads of the structures for correction in the event of rumors. This process enables us to react quickly to rumors and to monitor them closely.”



Accelerating Data Analysis and Use

Data.FI takes a systems approach to strengthening data use. We build inclusive systems that configure and integrate community, facility, laboratory, and pharmacy information systems. Through performance monitoring platforms and “situation rooms,” Data.FI **promotes robust and country-led analytical solutions and data review mechanisms**, enabling greater access to reliable data for decision makers and implementers. During the performance period, Data.FI implemented situation room meetings in Burkina Faso, Guatemala, Honduras, Nigeria, and Tanzania.

Under the direction of the respective State Ministries of Health (SMOHs), **situation room stakeholders in Akwa Ibom and Taraba States have improved wraparound services to children living with HIV (CLHIV)** who have unique challenges in accessing services and care retention. These actions, catalyzed by increased access to data and a standardized method for pinpointing bottlenecks and identifying action plans with accountability, have led to a tremendous improvement in viral load suppression (VLS). In January 2023, 92 percent of CLHIV on antiretroviral treatment (ART) were virally suppressed and this has been maintained through the end of the fiscal year (September 2023)—a 20-percent improvement in six months. Throughout the year, Data.FI has also facilitated efforts to strengthen community support for orphans and vulnerable children led by the Federal Ministry of Women’s Affairs and Social Development (FMWASD) to ensure that over 80 percent of CLHIV in USAID-supported states are receiving community-based services provided by implementing partners that work with orphans and vulnerable children.

Also in Nigeria, Data.FI collaborated with DT Global and the Vaccine Confidence Project, funded by the United Kingdom’s Foreign, Commonwealth & Development Office (FCDO), to strengthen the capacity of Local Government Area (LGA) officials to **leverage vaccination and supply chain data to expand routine immunization and COVID-19 coverage in Cross River State**. A training event was held in July 2023 to use the National Primary Health Care Development Agency’s (NPHCDA’s) Surveillance Outbreak Response Management & Analysis System to develop costed micro-plans for expanding vaccination, and afterwards these plans were implemented by Local Governance Area staff. In September, the NPHCDA conducted a 10-day vaccination campaign, which resulted in **an increase in vaccination rates in Cross River from 39 percent at the end of 2022 to 47 percent by September 2023**. Currently, the option to integrate COVID-19 vaccination into other routine immunization services is being considered as a measure that would help reach a 70-percent vaccination coverage target by December 2023.

In Guatemala, following six months of regular, Data.FI-initiated HIV situation room meetings in the Departments of Quetzaltenango, Santa Rosa, San Marcos, and Guatemala Central, **the National Directorate for Primary Health Care and the National HIV Program convened a hybrid gathering to share experiences implementing new data use approaches**. Data.FI provided technical assistance to the government to share tangible improvements in performance along the HIV cascade and launch a learning network for USAID-supported departments. In the coming year, we intend to pair established situation room leaders with public health officials in neighboring departments who have expressed interest in receiving support to use data to improve services.

In Honduras, the project has worked with the MOH to implement data use activities to accelerate HIV epidemic control. **Since July 2022 over 300 situation room meetings have been held, allowing stakeholders to interpret data, identify performance challenges, and**

collaboratively identify change ideas. In March 2023, the National Coordinator of Surveillance of Infectious Diseases decided to officially incorporate the Data.FI strategy for data use into the national situation room guidelines that are being updated by the government. In addition, the Health Surveillance Unit issued an official notification in March 2023 to activate the situation room in the Cortes Health Region, and proposed cascade training of the methodology for data use at the national level, a recognition of the exceptional technical assistance that Data.FI provides.

Data.FI is **supporting MOHs to improve the visualization of COVID-19 data in multiple countries**, working closely with ministry staff to select tools and indicators to align with country contexts and priorities. In Botswana, we supported the Ministry of Health and Wellness (MOHW) to develop a dashboard using the open-source Talend Open Studio extract, transform, load software and Apache Superset to visualize COVID-19 cases, deaths, and vaccinations. In Malawi, Data.FI worked with the MOH's Expanded Programme on Immunization and its Digital Health Division to revise their existing Tableau dashboard to incorporate additional analyses on vaccine coverage, enabling teams at the national and subnational levels to triangulate estimates of vaccine coverage from digital and paper-based systems. And in Burkina Faso, Data.FI supported the MOH to implement a sustainable lower-cost alternative to an existing Power BI COVID-19 vaccine dashboard with high recurring subscription costs. We developed a dashboard in R Shiny, automating the data transfer from the Ministry's vaccination database via a Digital Health Information Software Version 2 (DHIS2) application programming interface and building a Shiny server on the MOH server to host the dashboard for free, enabling long-term maintenance of the solution.



Red road in Mlilwane, Eswatini. Photo by Ashleigh Ozment.



Optimizing and Scaling Health Information Systems and Digital Solutions

Data.FI works closely with local stakeholders to build and maintain systems that interface with existing digital ecosystems. We do this by **collaborating closely with partners** to gather requirements, improve business processes, and support data sharing and interoperability across existing and emerging platforms.

In **Eswatini we are optimizing an integrated primary healthcare electronic medical records system—the Client Management Information System (CMIS)—and building out an analytics platform to support improved patient care.** The CMIS is in use at 237 of 327 healthcare facilities in the country, and in fiscal year (FY) 2023, in partnership with the MOH, we upgraded the system to include various new functionalities and tools, including commodity stock management, SMS verification alerts, improved security, and gender-sensitive and priority population data capture and use. Data.FI/Eswatini also achieved interoperability with the Data for Accountability, Transparency and Impact Monitoring (DATIM) system by uploading the five targeted PEPFAR monitoring, evaluation, and reporting (MER) indicators related to ART. As the CMIS has over 85 percent of HIV patient data for the country, the majority of PEPFAR routine reporting is now automatic.

Since 2020, Data.FI has supported PEPFAR and the Government of Burundi's goals of enhancing the primary HIV electronic medical records system in the country—SIDAInfo. Burundi now has a web-based electronic medical records system and a biometric unique ID solution, which provides clients with a unified record across all HIV service provision sites, across 362 HIV service provision sites. This year, **Data.FI finalized development of IBIIMO (a laboratory information module) and the Recent HIV Infections Surveillance System (RISS) integration into SIDAInfo.** The IBIIMO module, which facilitates the real-time availability of viral load and early infant diagnosis results, has contributed to a reduction in turnaround time of laboratory results to care sites and has supported real-time decision making in client care. The integration of recency testing data into SIDAInfo has significantly reduced duplicate testing, saving both resources and client time.

In Nigeria, Data.FI has **continued to support the development and expansion of LAMISPlus**, working with stakeholders to update the system to meet emerging priorities and scale it across the country. In FY23 Data.FI/Nigeria led the process of migrating and deploying the LAMISPlus application to 617 health facilities across the 17 USAID implementing states in Nigeria.

Also in Nigeria, Data.FI has been working with the **Federal Ministry of Women Affairs (FMWA) and PEPFAR to enhance and scale the National OVC Management Information System (NOMIS).** To date, Data.FI has successfully deployed NOMIS across 43 USAID-supported community-based organizations, working with four USAID prime partners—the Center for Clinical Care and Clinical Research (CCCRN), the Association for Fertility and Reproductive Health (AFRH), the Society for Family Health (SFH), and Pro-Health International (PHI). This deployment spans 229 Local Government Areas across 15 USAID-supported states. In addition, Data.FI/Nigeria successfully deployed NOMIS in 36 sites supported by the U.S. Department of Defense across 31 Local Government Areas in 21 states. In addition, Data.FI collaborated with USAID-funded partner CCCRN to develop the mobile version of NOMIS called the NOMIS Child Monitor. The app was developed by CCCRN and enhanced and taken to scale by both Data.FI and CCCRN.

Working to support the local partner Health Connect Jamaica (HCJ), Data.FI **supported the design and customization of the open-source Logistics Management Information System (OpenLMIS) digital solution to support COVID-19 vaccine supply chain management.** Data.FI developed and incorporated an additional analytics module to OpenLMIS to facilitate improved data visualization and analysis and procured the servers to host the system. We also trained HCJ staff on using and managing the OpenLMIS instance. The solution allows HCJ to manage the distribution of COVID-19 vaccines across a network of private health service providers. Previously, the organization lacked a digital system to track commodities. Going forward, HCJ plans to build out the system's capabilities to support distribution of antiretroviral treatment.



Applying Strategic Information and Learning

Data.FI supports USAID and partner governments to rapidly collect and use routine and non-routine data to support local health programming. We also support USAID to answer key learning questions, adapt and create methods and approaches to document activities, and catalogue learning with USAID and the broader digital and public health community.

Data.FI continues to coordinate a digital health-focused collaborative learning agenda bringing together USAID and three other partners **to capture and compare learnings about the extent to which COVID-19 vaccine digital health investments strengthened the digital health enabling environment** across 13 countries (Burkina Faso, the Democratic Republic of the Congo, Ghana, Guatemala, Haiti, Honduras, Kenya, Mali, Niger,



Data.FI Data Use Advisor Michelle Guanti Lasso (at right, in white) leading a situation room meeting with representatives from local clinics in the Comarca Guna Yala health region. Photo by Data.FI/Panama.

Senegal, Suriname, Tanzania, and Vietnam). In this reporting period, Data.FI facilitated a virtual participatory workshop to synthesize key themes and recommendations across countries and served as guest editors for a journal supplement which will synthesize learnings from the COVID-19 vaccine response for the broader development community and provide recommendations for future programming for donors, MOHs, and implementers.

At the request of USAID/Washington, Data.FI **conducted vaccine hesitancy surveys in the Democratic Republic of the Congo, Ghana, and South Africa**, using project resource partner Premise's network of lay data contributors. We utilized a custom questionnaire based on prior vaccine hesitancy surveys conducted by the World Health Organization (WHO), Breakthrough ACTION, the U.S. Centers for Disease Control and Prevention (CDC), and others to capture people's attitudes towards COVID-19 vaccination. Results from the survey have been presented to USAID Missions, which have indicated plans to use the results to guide future vaccine outreach programming efforts.

Data.FI completed **hybrid virtual and in-person country-level data quality assessments (DQAs) on COVID-19 vaccine data in Bangladesh, Ecuador, Kenya, Tanzania, and Uganda**. These multi-country DQAs were intended to assess the accuracy and reliability of data provided during the course of the COVID-19 vaccination programs supported by USAID. Our assessment found that there were some data quality issues for COVID-19 data across countries, with mostly minor discrepancies between data in source documents and what was reported to USAID. The summary of the country-level DQAs provides lessons learned for pandemic preparedness and data quality initiatives in emergency environments. Results show the advantage of using electronic reporting systems to reduce data quality issues in reporting and suggest a need for standard operating procedures and internal guidelines for data collection, as well as clearly defined indicators for USAID reporting.

In Nigeria, **the project supported USAID to implement the blended performance assessment approach** which integrates site improvement through monitoring system (SIMS), continuous quality improvement (CQI), USAID's Enhanced Site Management, and DQA approaches into a single strategy to improve quality of care. During this reporting period, Data.FI/Nigeria conducted a SIMS/blended performance assessment in 54 sites across the country.



Strengthening Local Partners and Digital Health Capacity

Data.FI aims to strengthen host country **enabling environments** to support and sustain primary healthcare delivery, and the national HIV and COVID-19 responses through the implementation of robust and resilient information systems and digital solutions. We collaborate with local stakeholders to strengthen partnerships and to build on local knowledge, networks, and assets. We support the establishment of **country-led governance structures** that provide **leadership and governance** to design and execute **digital health strategies** that are supported by enabling **policies and legislation**. We also provide **capacity-building** support to local partners and governments.

In **South Africa**, Data.FI made major strides to transition the **Consolidated Health Information South Africa (CHISA) system to local stewards**, working this year to migrate the tuberculosis and HIV analytics dashboard and data from the Data.FI-hosted environment to the official National Department of Health (NDOH) data and analytics site. To manage the transition, we developed a four-phase plan that was implemented and completed on time. This year we also successfully transitioned management of the Knowledge Hub, an e-learning platform that offers online courses and webinars for over 133,000 public and private-sector health providers in South Africa, to the Human Resources Department at the NDOH. This transition represents a huge step toward the long-term sustainability and institutionalization of the system.

In September 2023, Data.FI **conducted a training of trainers from the central and provincial levels in Burundi** to conduct routine data review meetings following the project's situation room methodology. The training results included detailed action plans for improving data quality and linkage of HIV clients in three priority provinces. Through the Global Fund to Fight AIDS, Tuberculosis and Malaria, Data.FI also procured equipment, including computers and fingerprint readers, to support the establishment and institutionalization of situation rooms across sites implementing the national HIV data platform, SIDAInfo. During this workshop, Data.FI also supported the MOH to launch a "Data Use for Improvement" strategy—building the capacity of MOH officials from the National Planning, Monitoring and Evaluation Division, Health Management Information Systems, and the HIV Program, as well as MOH officials from the provincial and district levels to interpret data, identify performance problems, and work collaboratively to action short- and long-term solutions to address variable levels of linkage to HIV care for newly diagnosed individuals.

As part of our ongoing support to the Eswatini MOH, Data.FI supported the development of an initial department roadmap for **the newly created Strategic Information Department that will be responsible for health information system leadership and governance**. Data.FI also accompanied the Strategic Information Department on a South-to-South learning experience to Rwanda and assisted the MOH during the assessment of the electronic Logistics Management Information System (eLMIS) and its integration with the CMIS.

In Nigeria, Data.FI **established a successful partnership with the FMWA and PEPFAR implementing partners to establish the NOMIS Informatics Task Team (ITT)**. This team is responsible for overseeing NOMIS governance, sustainability, and enhancement plans within the country. The NOMIS ITT is comprised of 42 members and is organized into three distinct subgroups: the DevOps Team, responsible for programming and application development and improvement; the Business/Quality Assurance Team, responsible for application testing and providing feedback; and the Governance Team, tasked with offering advisory input on the application's governance.

In Honduras, Data.FI supported **local technical working groups to identify and document business processes related to COVID-19 vaccination**, including laboratory, vaccine logistics, vaccination registry, and surveillance of COVID-19 cases. This involved close collaboration with Honduras stakeholders, including the Health Surveillance Unit, the Information Management Unit, the Statistics Area, the General Directorate of Integrated Health Services Networks, General Directorate of Normalization, the headquarters in the metropolitan health regions of the Central District and San Pedro Sula, the Expanded Program of Immunizations, and the National Biological Warehouse—to support the Information Management Unit to select and transfer vaccination data stored in DHIS2. This assistance strengthens existing capabilities and facilitates future data migration processes.

Introduction

Data for Implementation (Data.FI) is a global project that helps countries use, strengthen, and sustain access to high-quality data to achieve their primary healthcare goals and accelerate and maintain HIV and COVID-19 epidemic control. We do this by leveraging expertise in program implementation, measurement, digital health, data science, and data use to help the United States Agency for International Development (USAID) and partners ask better questions, identify innovative solutions to unsolved problems, and pivot programming to better meet evolving patient and population health needs.

Through our experienced partnerships, Data.FI provides end-to-end solutions in the data ecosystem that serve public health goals and protect clients' rights. We build sustainable and scalable government-owned systems that support robust data analysis and continuity of client care. We work across all technology platforms and support countries whose health information systems (HIS) are at different levels of maturity, aligning our interventions to each country's unique data and information system landscape. We create tools, policies, and procedures for partners who collect and manage data, offering an overarching vision of how data should and can be used responsibly. We transform routine data into visualizations that highlight a health system's performance.



Data.FI quality improvement team reviewing processes for TB service provision with facility staff at Federal Medical Centre Yenagoa, Bayelsa State. Photo by Data.FI/Nigeria.

Data.FI provides rapid insight for decision making, using advanced analytics supported by fit-to-purpose technologies. We help USAID and partners diagnose performance and public health challenges to best focus resources. We combine traditional data sources with non-traditional data sources, such as satellite imagery and commercial data, to fill data gaps and inform healthcare interventions. We apply advanced modeling techniques to illuminate unseen patterns, enabling users to plan with timely and actionable information.

We develop and employ evidence-based approaches to ensure that data are used to inform meaningful change and save lives. This begins with defining an analytical framework for decision making and includes aligning data needs and employing measurement tools and frameworks. We work with USAID and partners to improve data sources, hone analytical skills, and catalyze program pivots.

Data.FI strengthens government capacity for HIS governance and builds local partner capabilities in line with USAID's local partner transition goals. We leverage our existing network of in-country relationships to build government trust, coordinate stakeholders, and expand the pool of local partners able to respond to primary healthcare, HIV, and COVID-19 priorities, and strengthen pandemic preparedness for global health security. We create scalable solutions.

PROJECT SCALE

Data.FI is a six-year global project (2019–2025) funded by PEPFAR and USAID; it is comprised of a consortium of organizations with expertise in digital health and analytics. Led by Palladium, we partner with the JSI Research & Training Institute, the Johns Hopkins University Department of Epidemiology, Right to Care, Cooper/Smith, DT Global, Jembi Health Systems, and Pendulum. The project is a USAID field-supported mechanism, with a \$110 million ceiling.

During this reporting period (October 1, 2022–September 30, 2023), Data.FI implemented work plans in Botswana, Burkina Faso, Burundi, Cameroon, the Central America Region (El Salvador, Guatemala, Honduras, Panama), Eswatini, Jamaica, Malawi, Mozambique, Nigeria, South Africa, the Southern Africa

Region (Botswana, Eswatini, Lesotho, and Namibia), Tanzania, the West Africa Region (Benin, Burkina Faso, Côte d'Ivoire, Ghana, Liberia, Mali, Senegal, Sierra Leone, and Togo), and Zimbabwe.

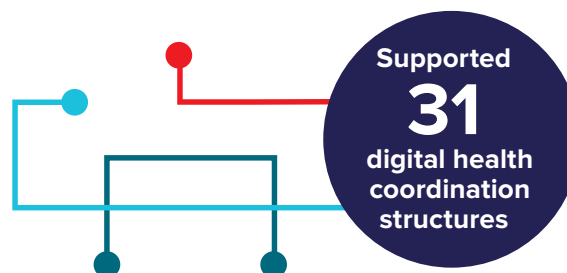
This year, the project made important progress enhancing digital HIS, strengthening data management and data availability through digitization of information systems, supporting data analytics that pinpoint inefficiencies in prevention, care, and treatment cascades, developing data standards and structures to ensure quality in electronic medical records (EMRs), and supporting local partners to use data for decision making. This report summarizes our work during this reporting period.

REPORT STRUCTURE

We present our achievements over the past fiscal year by highlighting our work across the following impact areas:

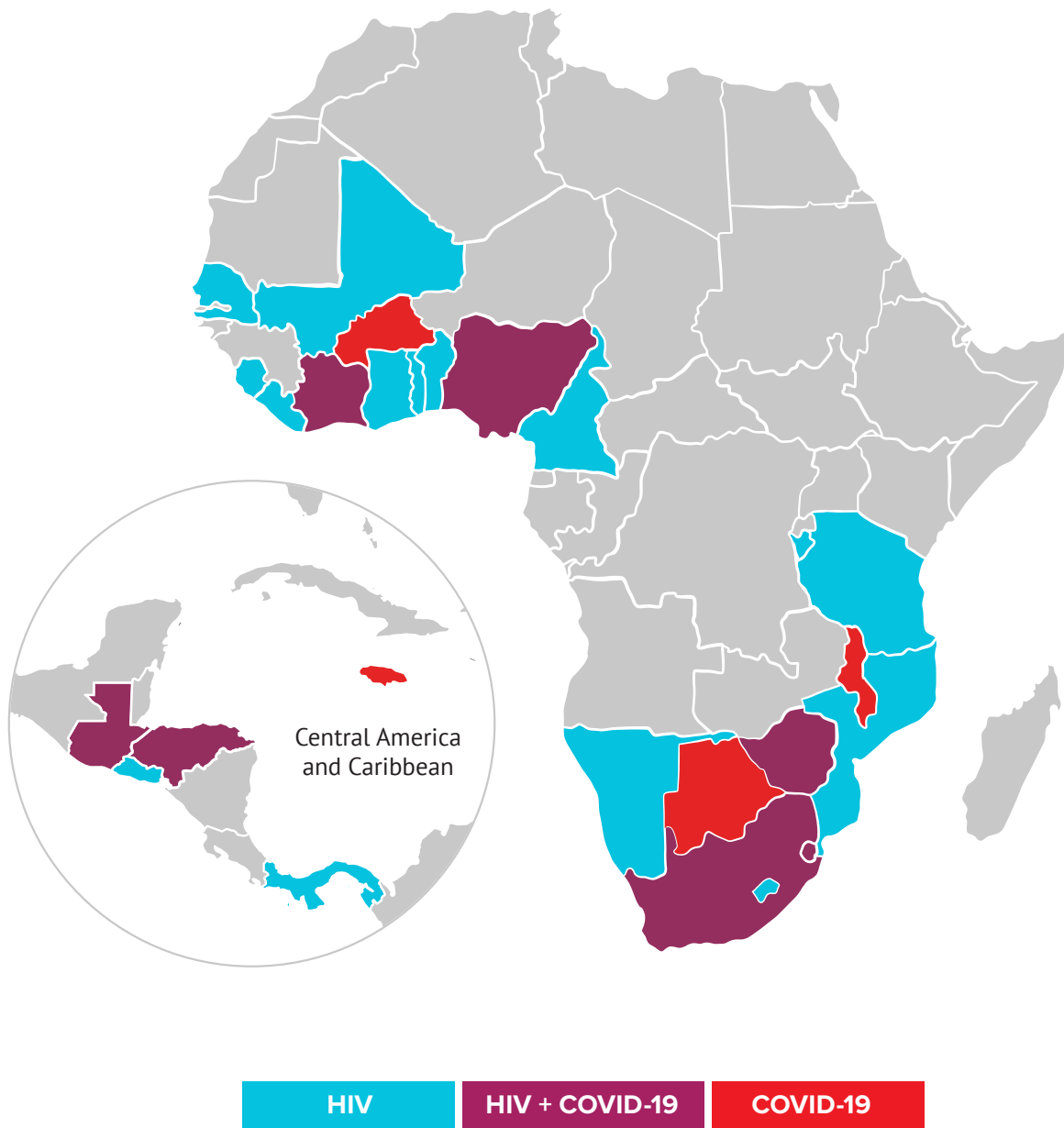
- **Catalyzing Innovation to Find Breakthrough Solutions**
- **Accelerating Data Analysis and Use**
- **Optimizing and Scaling Health Information Systems and Digital Solutions**
- **Applying Strategic Information and Learning**
- **Strengthening Local Partners and Ecosystem Governance**

We will also update on our efforts to support gender equality and our global communications footprint. A Financial Summary, Project Indicator Results, and a list of Data.FI products are provided in the appendices.



Data.FI's Reach

Data.FI is scaling digital, analytical, and data use solutions. We worked in 26 countries in this reporting period to improve HIV, COVID-19, and broader health outcomes.



Catalyzing Innovation to Find Breakthrough Solutions

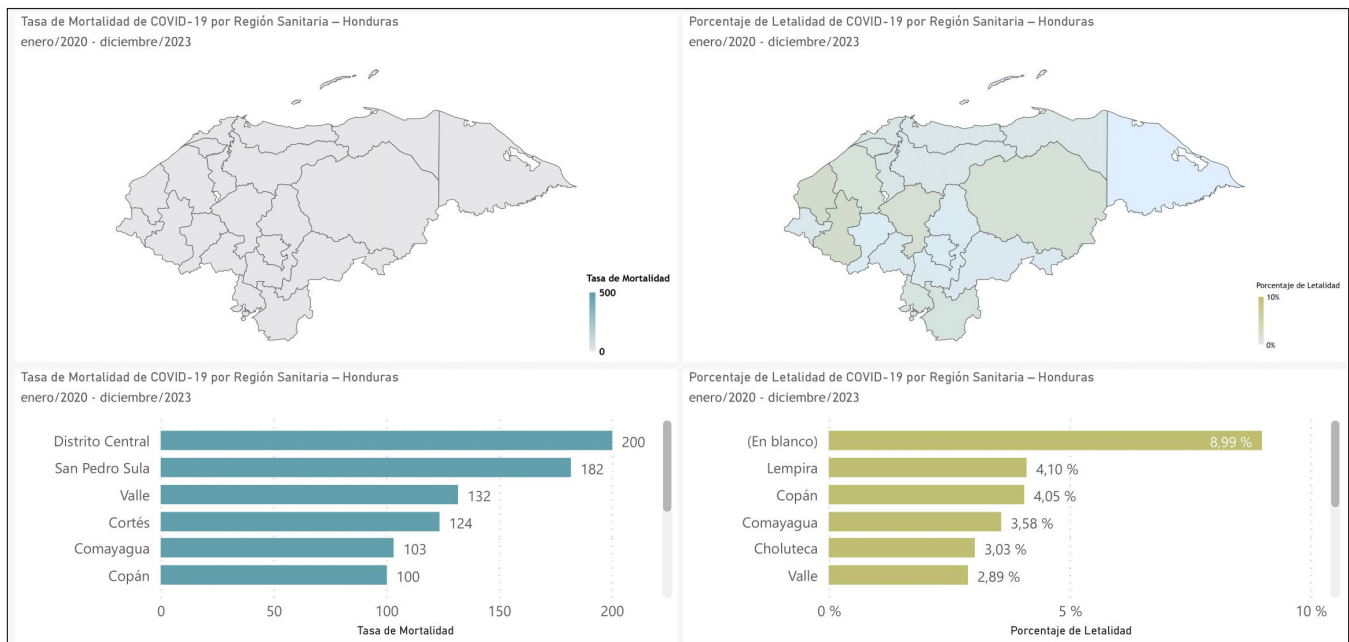


Despite significant advancements, the HIV community has made uneven progress in meeting the global 95-95-95 targets, and the COVID-19 pandemic has brought new challenges to the forefront, requiring novel ways of working toward meeting primary healthcare and global health security goals. To catalyze positive and equitable health outcomes, Data.FI

leverages thought leadership and cutting-edge technologies across our extraordinary consortium of partners. Together, we have created and sourced novel solutions and forged new strategic partnerships to address the challenges that impede countries from meeting their health goals. Some highlights from this reporting period are provided here.



Bauchi State Emergency Operations Center stakeholders in a data use group participate in a work activity. Photo by Data.FI/Nigeria.



Screenshot of the Honduras COVID-19 interactive dashboard; mortality and lethality rate. Photo by Data.FI/Honduras.

In Honduras, Data.FI built a vaccine allocation tool to assist Honduras MOH authorities in planning the allocation and distribution of vaccines, including COVID-19 vaccines.

As part of the tool development process, we worked together with the National Immunization Program to adapt the vaccine management scenarios to the Honduran context, including distribution of health facilities and stockpiles as well as demographic patterns. We also supported the alignment of the processes by which data on vaccine consumption, distribution, and need were organized, collected, and presented. Data.FI developed a prototype of the tool in R Shiny, including vaccine distribution scenarios and maps, and validated this tool with a technical working team for functionality and performance. We are finalizing this tool for delivery to the MOH in the coming months, with planned integration with the logistic information system (Sistema Informático de Administración Logística de Medicamentos e Insumos, SALMI) implemented at the health establishment level. The tool can be adapted for use with other vaccines.

In Nigeria, Data.FI developed a machine learning model to improve HIV testing efficiency.

Manual screening processes for HIV testing services (HTS), as currently used, rely on a few behaviors and clinical history of patients which do not account for contextual variables endemic to their geographical locations that can increase their risk of HIV infection. A machine learning (ML) model based on patient history as well as environmental factors can more accurately assess the risk of HIV infection and improve the efficacy of testing services.

With the successful deployment and adoption of the Lafiya Management Information System (LAMISPlus) electronic medical records (EMR) system across healthcare sites in Nigeria, high-quality routine patient-level data across the HIV cascade are now available for millions of patients. To improve HIV testing efficiency, which currently relies on a manual screening tool, Data.FI developed a **ML model to predict the risk of HIV infection among patients who come for HIV testing** services. The model is built on millions of patients' socio-demographic, behavioral, and clinical data points, and generates a risk score for patients



As part of a LAMISPlus monitoring visit, Data.FI staff go through the system records with a data entry clerk at Randle General Hospital in Lagos State. Photo by Data.FI/Nigeria.

at point-of-service sites. This risk score can be used to screen in-patients for testing and refer high-risk patients who test negative for HIV to prevention services. The ML model improves the efficacy of the HIV screening process by using a wider array of patients' data to test for HIV and has been integrated into the HTS module of LAMISPlus web and mobile test environments. Data.FI will be working with implementing partners (IPs) over the next FY in a phased rollout of the model at service delivery sites, with the expectation of improving HIV testing yields.

In Burkina Faso, Data.FI developed a dashboard to display social listening data on COVID-19 vaccine hesitancy.

Understanding public sentiment toward COVID-19 vaccines and proactively addressing misinformation are key steps to improving vaccine uptake. Data.FI developed a **social listening dashboard** in partnership with the Burkinabe MOH that allows the ministry to **monitor conversations related to COVID-19** on social media platforms in real time. The dashboard utilizes the YouScan platform to analyze public sentiment about COVID-19 and allows the MOH to track and dispel misinformation.

At the request of the MOH, Data.FI added tabs for rumors related to other diseases like dengue fever, cervical cancer, and malaria. The Director of Communications and Press Relations, Ms. Wind Touingnan Raïssa Ouedraogo, praised the dashboard because it “improves decision making [and] enables us to react quickly to rumors and to monitor them closely.”

Data.FI developed a comprehensive user guide for the rumor management dashboard and trained members of the COVID-19 Communication of Health Risks and Community Engagement Unit (Communication des risques sanitaires et d'engagement communautaire, CREC) on the social listening dashboard. To ensure sustainability of the social listening dashboard beyond the end of the Data.FI project, our team installed an open-source (Shiny) web framework on the MOH's server and trained MOH developers to host and maintain it.

In recognition of the social listening dashboard's successful impact, the MOH has requested an expansion of the platform's scope to monitor information and debunk false rumors pertaining to areas such as malaria, cervical cancer, malnutrition, food poisoning, and other matters of public health interest. Currently, Data.FI is expanding the



Dr. George Tiendrebeogo, Director of Laffi Consulting, presents the second prize award to Data.FI Data Analyst Assetou Zongo for the Burkina Faso social listening dashboard. Photo by Data.FI/Burkina Faso.

dashboard settings to track these high-priority areas. At a recently held symposium to capitalize on lessons learned during the COVID-19 pandemic, the MOH awarded second place to Data.FI for the project's work on the dashboard.

In Mozambique, and in collaboration with a CDC partner, Data.FI scaled a machine learning model that predicts interruption in treatment.

Data.FI developed and deployed an ML model in Mozambique that predicts which clients are at greatest risk of interruption in HIV treatment (IIT). This activity uses advanced artificial intelligence (AI) and ML to predict client behavior ahead of upcoming appointments and empowers healthcare workers without the need for advanced computer literacy or internet connectivity. This year, Data.FI established a

data access agreement with Friends in Global Health (FGH), a Centers for Disease Control and Prevention (CDC) IP in Mozambique, to access de-identified historical records of patient encounters for model training. This marks an expansion of Data.FI's work to a new province, demonstrating the scalability of model deployment.

Using the new data, the ML model performed successfully and met performance benchmarks set in previous deployments. Data.FI re-engineered the OpenMRS module to use a different OpenMRS version, an update that allowed for more efficient model processing. The model will be deployed in FY24 in the Zambezia province. **Collaboration among FGH, CDC, the USAID Mission, and Data.FI has led to broader discussions on how ML could be scaled to other use cases within OpenMRS.**



Fish market in Ihla, Mozambique. Photo by Stéphane Neckebrock.

In southern Africa, Data.FI is elevating a community of practice on community-based information systems.

Many healthcare systems focus on data collection without adequately incorporating service delivery. Unfortunately, data are rarely used to provide care and monitor programs. Moreover, the fragmentation of digital systems results in a disease-centered approach rather than a patient-centered one. Patient information is scattered across different systems, making continuity of care particularly difficult to integrate with primary healthcare. While many countries share these challenges, there are few opportunities and platforms for cross-country learning about community HIS. **Data.FI, in collaboration with the Digital Square team at PATH, initiated an activity to develop a regional**

community of practice (CoP) to facilitate cross-country learning as countries develop or enhance their community-based information systems.

This CoP will serve as a **regional platform to facilitate cross-country sharing of learning**, best practices, and expertise. Through the community, stakeholders will advocate for the adoption of global standards and guidelines in digital community health programs. Currently, Data.FI is engaging four countries in the region (**Botswana, Eswatini, Lesotho, and Namibia**) to conduct baseline analyses to support the development or strengthening of patient- and health worker-centric systems ahead of a regional workshop scheduled in November 2023. Results from this process will include a roadmap to strengthen community digital health programs, with country-specific strategies.



From left to right: Martin Kinyua (Data.FI), Theunis Hunter (USAID), Christy Mulinder (Data.FI), Elbie Vosloo (NDOH Digital Health Unit), S'fiso Phakathi, Dakalo Nemushungwa, and Chris Githu (all three Data.FI). Meeting to discuss the COP23 workplan. Photo by Data.FI/South Africa.

In Eswatini, Data.FI trained facility champions to provide supportive supervision on CMIS use.

Maintaining HIS in real-time, point-of-care settings is challenging. Staff attrition often undermines gains made in system adoption and sustained use despite efforts to ensure that all staff are trained. A long-term approach is required for digital systems to be truly sustainable and beneficial to all stakeholders.

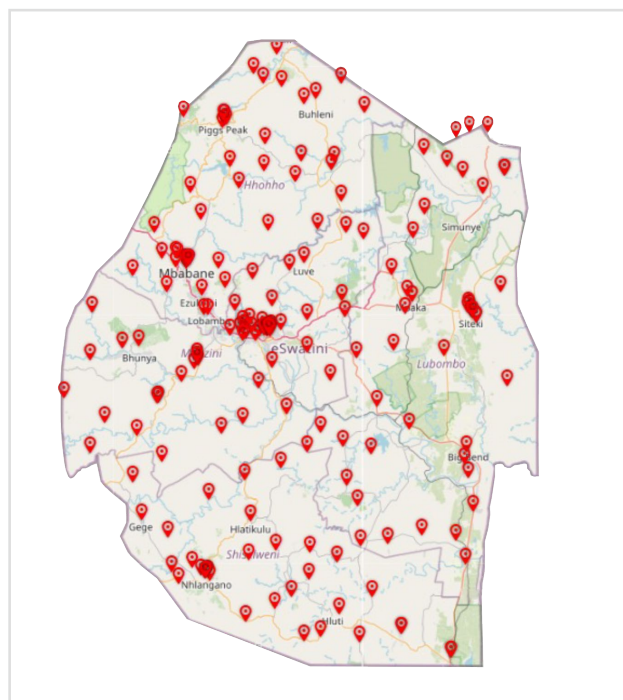
Additionally, PEPFAR's *Five-year Strategy: Fulfilling America's Promise to End the HIV/AIDS Pandemic by 2030* calls for robust government efforts to support HIV prevention and treatment in PEPFAR-supported projects. Ultimately, digital health implementation models should improve HIV patient outcomes.

Data.FI/Eswatini is using facility champions to provide supportive supervision and post-training support for the client management information system (CMIS) application and use of the system dashboards. Facility champions are healthcare workers, usually facility-based nurses and data clerks who are hand-picked and trained to advocate for CMIS user buy-in and use at the facility level. Over time, their role has expanded to include championing the use of additional CMIS enhancements such as using CMIS dashboards and acting as first-line troubleshooters on any system- or data-related issues. Using facility champions is an innovative approach to improve HIV clinical outcomes, as they have solidified CMIS system acceptance and use by the MOH staff at the facility level, leading to better system uptake overall.

Moreover, in August 2023, the government of Eswatini started talks with universities to integrate the CMIS into the curricula for incoming nurses. This had been initiated in 2019 but was disrupted by the COVID-19 pandemic. Reviving the CMIS higher education training program is a major step towards institutionalizing the system more broadly within Eswatini's national health infrastructure.



Taking a blood sample at a local health facility. Photo by Data.FI/Eswatini.



Distribution of Eswatini health facilities that use CMIS. In-country CMIS coverage is over 70 percent.



A postpartum consultation room in a maternal health clinic in Santa Cruz de Quiché. Photo by Data.FI/Guatemala.

In Guatemala, Data.FI developed dashboard solutions to integrate ministry data on maternal and child health (MCH) and to measure the quality of health spending.

Despite significant investments from USAID and other donors on HIS strengthening in Guatemala, there are very few instances of cross-sector data use or unified, integrated databases; ministries and departments usually compiled and used data separately. In Guatemala, almost half of all children suffer from chronic malnutrition. This year, the Guatemalan MOH identified Data.FI as the primary USAID IP for HIS-strengthening initiatives, and Dr. Edwin Montúfar, the Vice Minister of Primary Care, asked the project to help integrate MCH data from multiple sources into an integrated tool that would allow the MOH to better understand and respond to this health challenge.

With USAID approval, the project established a multi-phase approach to **integrate data on indicators** across various informational sources under the MOH and **Ministry of Finance (MOF)**. Data.FI worked with both ministries to secure a data-sharing agreement and cleaned disparate data sources for integration into a single database, allowing for the development of a visual prototype that was validated by the MOH and adapted by the vice minister.

Now, the dashboard delivers visual insights to MOH, Ministry of Agriculture, Livestock and Food (Ministerio de Agricultura, Ganadería y Alimentación), and MOF decision makers on urgent issues. For instance, the solution pinpoints municipal areas of high child malnutrition, enables the Ministry of Agriculture, Livestock and Food to monitor emergency food delivery to these locations, and enables the MOF to align conditional cash transfer programs with

populations in the greatest need. Moreover, health staff at the local level can **provide individual follow-up at the community level** for malnourished children, **promoting locally led solutions** through a network of government institutions responsible for the distribution of micronutrients or food to those in need.

Since February 2023, the Vice Minister of Primary Healthcare and technicians used the dashboard in the field to guide national strategies to tackle malnutrition. With support from Data.FI, the government formed a technical working group (TWG) that included the Epidemiology Unit, the Information Technology Directorate (Dirección de Tecnología de la Información, DTI), the Departmental Directorate of Integrated Health Service Networks (Dirección Departamental de Redes Integradas de Servicios de Salud, DDRIS), and the National Reproductive Health Program (Programa Nacional de Salud Reproductiva, PNSR) to define additional indicators for inclusion into the dashboard. Data.FI has finalized the visual prototype for the dashboard, which prioritizes indicators in neonatal health, such as children under five years of age suffering from acute diarrhea or respiratory infections, the use of micronutrients by pregnant women, access to family planning (FP) and prenatal care, and the availability of drinking water.

“I want to offer our thanks for the opportunity to work with the Data.FI team. They have demonstrated how to present information in a graphical and useful way to improve health interventions.”

— Dr. Edwin Montúfar, Vice Minister of Primary Healthcare

In this reporting period, Data.FI also finalized substantial improvements for a tool to measure the quality of health spending and facilitate interconnectivity between the Ministries of Finance and Health. Reconfiguring an earlier tool that extracted reports from the MOF, we worked with both the MOH and MOF to provide the MOH's DTI with access to the 90 budget-executing units at an operational level. This allowed the DTI to generate detailed reports on the execution of programmatic and financial targets and monitoring of investments and detailed monitoring acquisitions. The new tool expedites the creation and comparison of reports, significantly improving the quality of data delivered and received. Data.FI also made technological improvements to the tool to verify compliance with MCH care standards, as it will be used by the PNSR and allow it to encourage health workers at the local and national levels to maintain updated information.

Best Practices

- Empowering local actors to champion technological changes can promote easier and sustainable adoption of new technologies.
- Mission staff have a range of options available to determine population attitudes towards health programs in addition to traditional door-to-door or phone surveys. Smart phone apps and social media tracking software can be used to collect such data rapidly to understand broad and swiftly changing trends in population perceptions.
- As EMR systems start to reach high-level maturity, countries should look towards proactive data-driven patient and population health management. Starting with clear questions, Missions can then look to a variety of methods from advanced analytics to ML to answer them. The selection of methods should be determined by the predictive or retrospective nature of questions, type of data, and technical infrastructure available to implement the chosen methods.

Accelerating Data Analysis and Use



Governments and health program managers require data to measure progress against targets, allocate limited resources to reach the populations most in need, rapidly course-correct underperforming programs, and determine whether they are addressing the most urgent needs. USAID missions need frequent and high-quality data to monitor global health investments on a continuous basis for accountability and oversight and to plan and manage the programs they support.

Data.FI improves systems, analytic platforms, and data sources, employing change management processes that institutionalize data use to support local governments, USAID, and IPs to derive insights from data. We synthesize data across multiple sources and develop user-centered decision-support tools and dashboard-enabled data visualizations to inform action. We also support the institutionalization of processes and systems for continuous data review, and train staff to proactively address challenges and make programmatic changes that achieve meaningful impact.



RISE Deputy Chief of Party Yemisi Ogundare speaks at the Taraba State Situation Room commissioning event. Photo by Data.FI/Nigeria.

PERFORMANCE IMPROVEMENT THROUGH DATA REVIEW

Data.FI promotes data use for improvement through a technology-enabled strategy that supports decision makers to analyze data in real time and implement change management practices through situation rooms. We also collaborate with USAID missions and host-country governments to co-create national strategies that embrace data use for performance improvement.

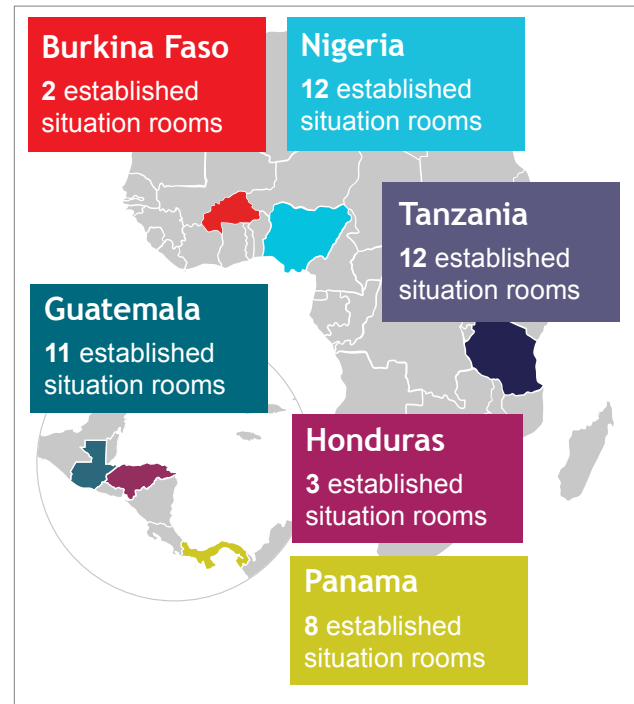
Since project kickoff and through this reporting period, Data.FI has engaged more than 30 stakeholder groups across Burkina Faso, Guatemala, Honduras, Nigeria, Panama, and Tanzania and supported more than 2,000 situation room meetings. As a result, governments have documented more than 70 instances of data use, describing progress tackling persistent public health challenges and finding tangible solutions to address performance issues across the HIV cascade, in maternal health, and with the COVID-19 pandemic. Government collaborators have celebrated progress in national events and committed to scaling, diversifying, and sustaining this data use solution with domestic resources.

Putting the Solution into Action

The scale and scope of Data.FI's "Data Use for Improvement" solution can be customized to a specific country's priorities and digital maturity. Situation rooms can be implemented at subnational and national levels and can focus on any health area. Data.FI currently supports situation rooms that **target performance improvement of HIV, maternal, newborn and child health, and global health security programming**. The nature of the analytics and visualization and the frequency of data review depends on data availability in each country. For this solution to be most effective, regular participation and the buy-in of stakeholders, such as country PEPFAR teams, IPs, and MOH staff is vital.

This reporting period, Data.FI documented the following:

- **79 instances of meaningful data use** across six countries



Global distribution of Data.FI-supported situation rooms.

- Given Data.FI's **mandate to build government capacity in data use for improvement methods**, 66 percent of instances documented were led by government actors; with 70 percent implemented at the state/departmental level, 22 percent at the district/council level, and 9 percent at the national level. Another 18 percent of data use cases represent meaningful engagement of partners. Next year, we anticipate forging stronger relationships between government and partners.
- The majority (59%) focused on finding **public health solutions to challenges**, while 19 percent were focused on improving data quality via manual records cleaning, improving alignment of systems, or implementing validation rules.
- **Ninety-one percent demonstrated improvement**, 51 percent had articulated a clear target for achievement with stakeholders, and another 34 percent made progress without designating a target. Next year, we will work with field teams to ensure that stakeholders coalesce around ambitious and achievable micro-targets.



QI team reviewing client folders at Taraba State Specialist Hospital for quality service provision per the national guidelines. Photo by Data.FI/Nigeria.

In Nigeria, Data.FI supports efforts to improve HIV outcomes among pediatric patients.

Under the direction of the respective State Ministries of Health (SMOHs), situation room stakeholders in Akwa Ibom and Taraba States have improved wraparound services to children living with HIV (CLHIV) who have unique challenges in accessing services and care retention. Throughout the year, Data.FI has also facilitated efforts to strengthen community support for orphans and vulnerable children (OVC) led by the Federal Ministry of Women's Affairs & Social Development (FMWASD) to ensure that over 80 percent of CLHIV in USAID-supported states are receiving community-based services provided by OVC IPs.

Together, MOH officials and clinical IPs have the mandate to identify undiagnosed CLHIV which, according to UNAIDS Spectrum estimates, represent a significant proportion of the undiagnosed

population. Between November 2022—February 2023, a total of 785 pediatric contacts to index cases were tested, identifying 29 new positives. Stakeholders implemented a series of corrective actions to rapidly expand the numbers of pediatric contacts tested and tested 4,518 children between March and June 2023, resulting in 36 new CLHIV diagnoses. The relative decline in testing yield, from 3.7 percent to 0.8 percent, may suggest a shift in the epidemic in Taraba State, as it is becoming increasingly more difficult to identify previously undiagnosed CLHIV. Data.FI/Nigeria is working on data analysis to help inform strategies for index testing in the coming year with the aim to better understand how to more efficiently identify new versus latent infections.

Near complete (99%) transition to the tenofovir disoproxil, lamivudine and dolutegravir (TLD) drug regimen, a game-changing, one-pill-per-day treatment program that is known for accelerating viral load suppression (VLS), was attained in 2021

among adults in Nigeria. However, at that time only 50 percent of the 5,476 CLHIV on ART had transitioned to TLD. Situation room stakeholders applied several quality improvement (QI) cycles, seeking to understand and pinpoint where solutions were falling short for pediatric populations specifically. These solutions included the weekly review of pediatric data

during SMOH-level situation room meetings, which analyzed data from client-level databases like the Retention and Audit Determination Tool (RADET), in-depth review of client-level folders, and coordinating with OVC partners at the community level to improve pediatric nutrition. By March 2023, pediatric TLD transitions reached 98 percent.

CLOSER LOOK

Suppressing Viral Load among Children Living with HIV in Taraba State

Situation room analyses have also focused on improving pediatric treatment outcomes in Taraba State, where VLS among CLHIV on ART was 61 percent in January 2022. In response, stakeholders implemented several change actions: They launched a state-level TWG focused on improving pediatric HIV services. Data.FI built the capacity of stakeholders for data interpretation, analysis, and QI. In turn, the pediatric TWG refreshed case worker adherence counselling skills emphasizing pediatric-focused skills and collaborated with two IPs—Jhpiego's Reaching Impact, Saturation, and Epidemic Control (RISE) project, and the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF)—to implement Operation Triple Zero (OTZ). OTZ aimed to achieve zero

missed appointments, zero missed antiretroviral (ARV) drugs, and zero viral load (VL) for CLHIV. These actions, catalyzed by increased access to data and a standardized method for pinpointing bottlenecks and identifying action plans with accountability, have led to a tremendous improvement in VLS.

By July 2022, VLS was up to 72 percent, and by January 2023, **92 percent of CLHIV on ART were virally suppressed**. This has been maintained—a 20-percent improvement since the situation room stakeholders prioritized improving performance. Moreover, this progress has been maintained through September 2023.

Figure 1. Impact of data use interventions on VL suppression rate, Taraba State, Dec. 2021—Jan. 2023

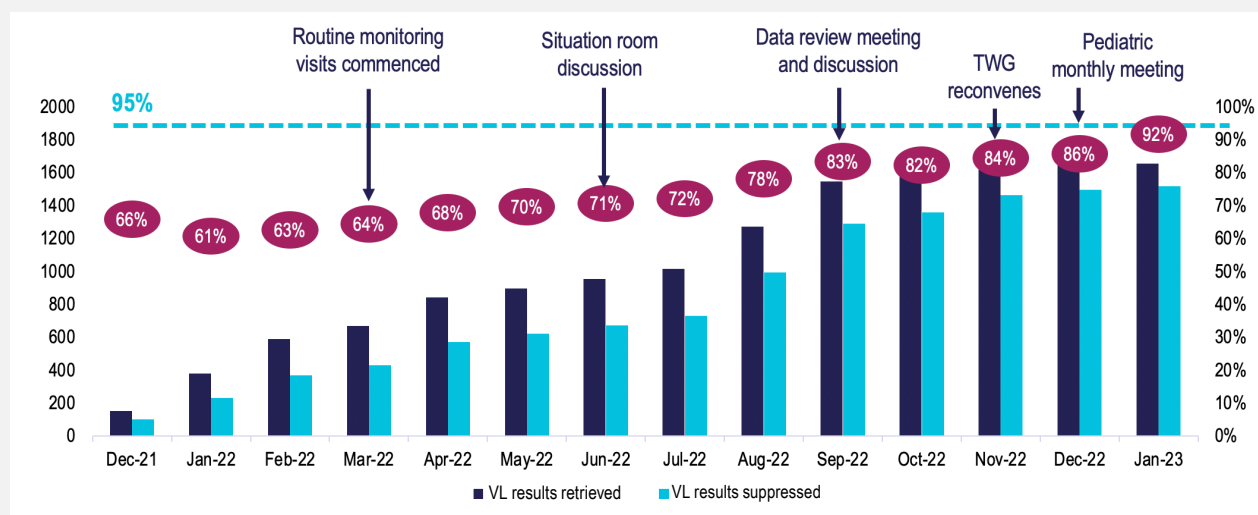
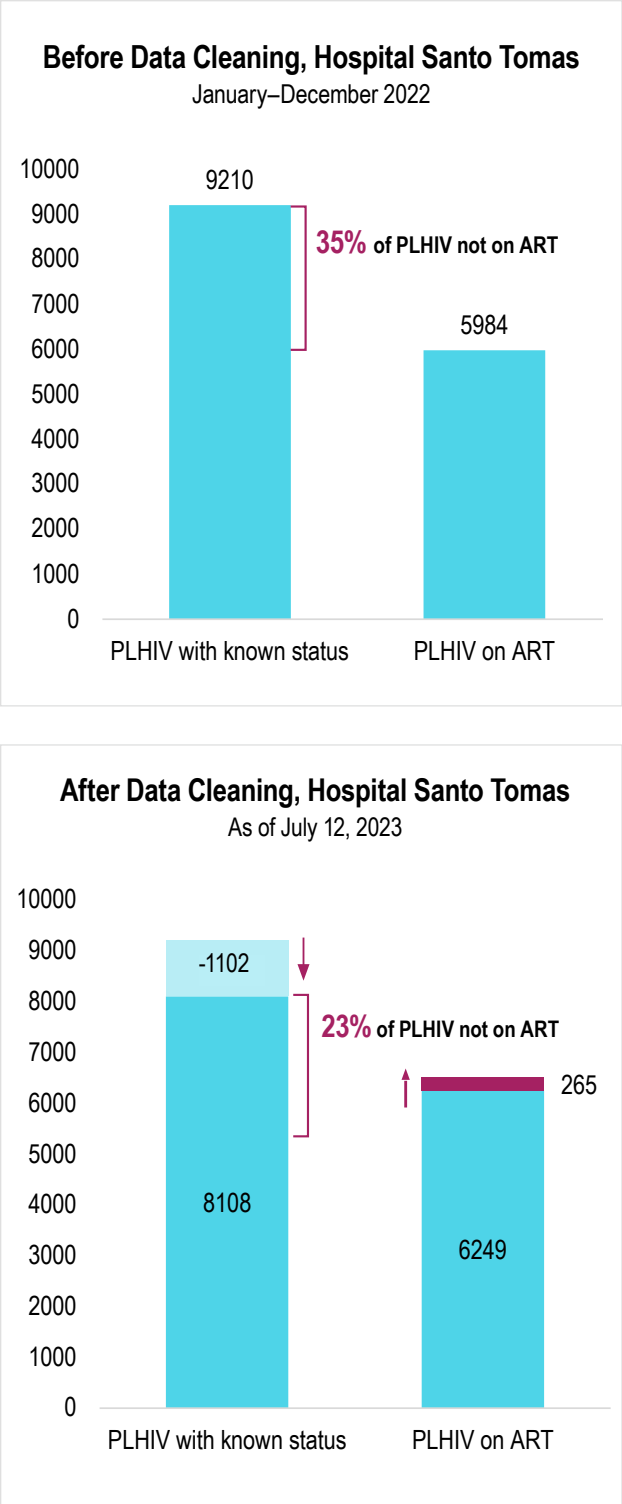


Figure 2. Impact: Reduction of PLHIV not on ART, as of July 12, 2023



In Panama, Data.FI supported the HIV Program to improve viral load suppression among KPs.

This FY, Data.FI provided technical assistance to Panama's National Program for HIV/AIDS and Sexually Transmitted Infections to launch a "Data Use for Improvement" strategy in seven out of the country's 15 health regions and a plan to cover all regions by the end of the fiscal year. We are supporting the program to build tools and capacity for data use and evidence-based decision making, including the design of an Excel-based tool for aggregating HIV data from various sources that will be used for ad hoc analytics while the country works on defining a more sustainable information system architecture.

In the San Miguelito health region, situation room stakeholders from the MOH, IntraHealth, and healthcare facilities focused on strengthening VLS for key populations (KPs), including men who have sex with men (MSM) and transgender individuals. Health facility leaders coordinated with pharmacy, laboratory, mental health, and social work departments to organize a campaign to improve care retention and treatment adherence. As part of the actions taken, additional clinic space was allocated for intensified adherence counselling, and opening hours were extended to facilitate access to treatment and to provide multi-month dispensing when feasible. Furthermore, a comprehensive care pathway was established, including psychosocial support, as well as laboratory services for STIs or other health-related services if needed. Following these efforts, situation room stakeholders have calculated an improvement in VLS among KPs, from 75–82 percent within three months. Stakeholders are planning to engage in a reflection cycle to determine which solutions have had the most impact and can be expanded.

In Guatemala, national health leaders share new data use initiatives.

Following six months of regular HIV situation room meetings in **Guatemala's Departments of Quetzaltenango, Santa Rosa, San Marcos, and**



Guatemala Ministry of Health gathering of leaders and stakeholders to share experiences implementing new data use approaches. September 20, Guatemala City. Photo by Data.FI/Guatemala.

Guatemala Central, the National Directorate for Primary Health Care and the National HIV Program convened a hybrid gathering to share experiences implementing new data use approaches. Data.FI provided technical assistance to the government to share tangible improvements in performance along the HIV cascade and launch a learning network for USAID-supported departments. In the coming year, we intend to pair established situation room leaders with public health officials in neighboring departments who have expressed interest in receiving “Data Use for Improvement” support.

Dr. Ana Gomez, epidemiologist with the Quetzaltenango Desarrollo de la Red Integral de los Servicios de Salud (DRISS), shared a six-month progress update since the data use for improvement strategy was adopted in the municipality in March 2023. Linkage of newly diagnosed patients to HIV comprehensive care units reached 92 percent in July and has remained steady since then, a 4-percent improvement since December 2022.

“We must institutionalize this approach, which is based on data analysis paired with teamwork...Thanks to Data.FI, we are focused in our efforts and we see real, tangible progress.”

— Dr. Juan Pablo Velasquez, Director of the San Marcos DRISS

Held
1,024
data review
meetings

In Nigeria, Data.FI supports officials to triangulate supply chain data to accelerate COVID-19 vaccination coverage.

Data.FI/Nigeria collaborated with DT Global and the United Kingdom's Foreign, Commonwealth & Development Office (FCDO) Vaccine Confidence Project to strengthen the capacity of Local Government Area (LGA) officials to leverage vaccination and supply chain data to expand routine immunization and COVID-19 vaccination coverage in Cross River State. A July 2023 event was designed to use the National Primary Health Care Development Agency's (NPHCDA's) Surveillance Outbreak Response Management & Analysis System (SORMAS) to develop costed micro-plans for expanding vaccination. These plans were implemented by LGA staff immediately following the training.

In September, the NPHCDA conducted a 10-day vaccination campaign, which resulted in an **increase in vaccination rates in Cross River from 39 percent at the end of 2022 to 47 percent by September 2023**. Currently, the option to integrate COVID-19 vaccination into other routine immunization services is being considered as a measure that would help reach a 70-percent vaccination coverage target by December 2023.

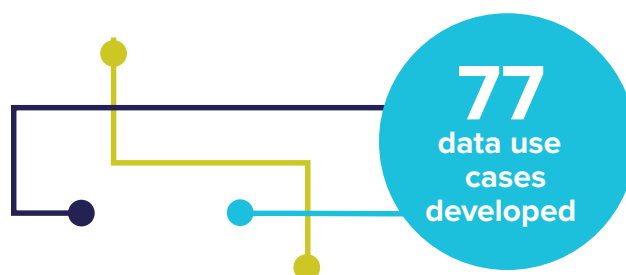


A COVID-19 vaccination campaign in early 2023. Photo by Data.FI/Burkina Faso.

In Burkina Faso, Data.FI-supported situation rooms enabled stakeholders to identify high-impact activities to increase COVID-19 vaccination coverage among most vulnerable populations.

At the beginning of 2023, Burkina Faso registered one of the lowest COVID-19 vaccination coverage rates on the African continent, with only 19 percent of the general population fully vaccinated. At the invitation of the Expanded Program on Immunization, Data.FI/Burkina Faso developed a COVID-19 vaccination dashboard to allow for real-time monitoring inside the two situation rooms, which were launched in February 2023. Stakeholders in the Central Region, including MOH authorities, successfully increased general population coverage to 29 percent by July 2023 by engaging civil society organizations (CORAB and CICdoc) in situation room discussions and encouraging them to conduct community outreach to hard-to-reach, marginalized communities in the districts with the lowest vaccination rates.

Given relatively slow vaccination uptake among the general population, stakeholders focused on vaccinating the most at-risk population, namely people 60 years old and above, especially those who have one or more co-morbidities. CORAB launched a communication campaign among associations for the elderly to sensitize them to the importance of vaccination by going household to household, disseminating public service announcements at marketplaces, and creating WhatsApp communications groups. By July 2023, **vaccination coverage of this population group increased from 7 percent to 69 percent**, an important public health achievement catalyzed by Data.FI's data-driven approach to planning.





Meeting with local IPs to discuss data use solutions. From left: Nelson Lorenza (PSM International), Monica Palencia (FANCAP), Dr. Ramon Soto (USAID), Javier Calix (IntraHealth), Liziem Valladares (Data.FI), Juan Valladares (PSM International). Photo by Data.FI/Honduras.

In Honduras, Data.FI is working with the MOH to implement data use for improvement activities to accelerate HIV epidemic control.

Since July 2022, Data.FI/Honduras has held more than 300 situation room meetings with stakeholders to interpret data, identify performance challenges, and collaboratively identify change ideas with the MOH. In March 2023, the National Coordinator of Surveillance of Infectious Diseases decided to officially incorporate the *Data.FI Strategy for Data Use* into the national *Situation Room Guidelines* that are being updated by the government. In addition, the Health Surveillance Unit (Unidad de Vigilancia de la Salud, UVS) issued an official notification in March 2023 to activate the situation room in the Cortes Health Region, and proposed cascade training of the methodology for data use at the national level, a recognition of the vital technical assistance that Data.FI provides. We are coordinating with other external cooperation implementers to implement the data use strategy in health regions where they are working. We are also coordinating with the Clinton Foundation's Health

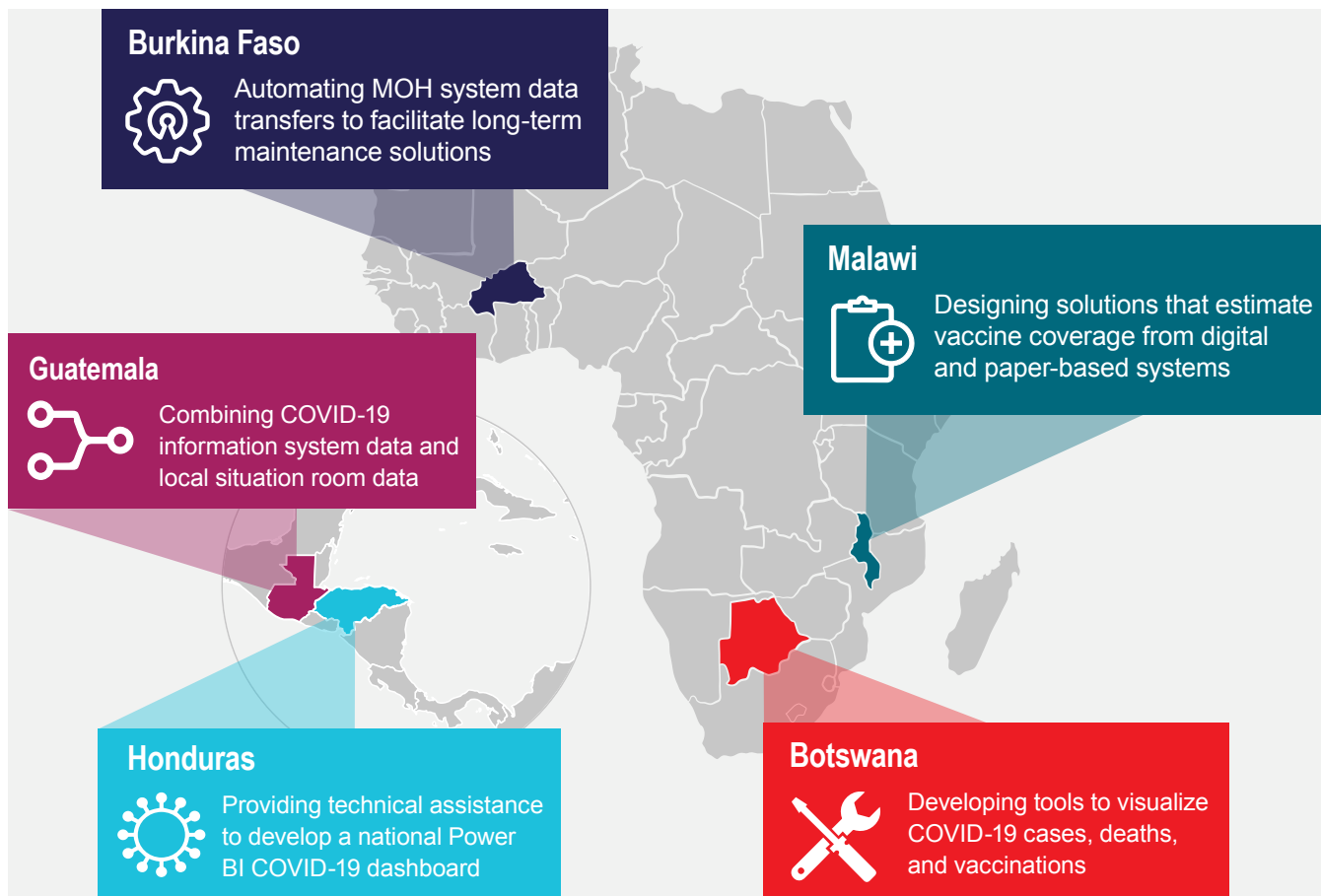
Access Initiative to reach neglected areas of the country for COVID-19 response.

With real-time access to data and well-crafted remediation plans laid out with broad stakeholder engagement, health management teams (HMTs) are supported to translate data analyses into strategies for implementation in the field and ultimately improve patient outcomes. In San Pedro Sula, the HMT investigated low linkage rates of known HIV patients to comprehensive care services for HIV—where only 30 percent of cases were linked to care. Data.FI provided intensive program management support to the HMTs to address missing and poor-quality data by organizing a major data cleaning effort across all six facilities.

By February 2023, 90 percent of the patients had either been linked to care or returned to care as a result of our data cleaning efforts.

“We no longer view data passively; with Data.FI’s support, we jump into action in the field and are improving outcomes for our HIV-positive population.”

— Dra Alma Barahona, Regional Epidemiologist,
San Pedro Sula, Honduras



HIGH-IMPACT ANALYSES AND ANALYTICAL TOOLS

Decision makers often lack the visibility needed to make high-impact, equitable, and efficient resource allocation decisions. Data.FI brings to bear advanced analytics to answer priority questions. We:

- Work with stakeholders to assess critical information needs tied to key decisions. For routine analytics this may include developing a logic model for performance improvement.
- Triangulate available health services, surveillance, laboratory, commodity, finance, human resources for health (HRH), infrastructure, and population data.
- Develop, test, and deploy data visualizations, including maps.

- Automate reports and predictive analytics.
- Strengthen capacity in data use, data visualization, analytics, and geographic information systems (GIS).

In Africa and Latin America, Data.FI worked in partnership with government departments to strengthen the availability of COVID-19 and routine immunization data through dashboards.

Data.FI is supporting MOHs to improve the visualization of COVID-19 data in multiple countries, working closely with ministry staff to select tools and indicators to align with country contexts and priorities. In **Guatemala**, Data.FI developed Excel-based dashboards for DDRIS (previously called

DAS), combining data from the official COVID-19 information system and locally collected data in the situational rooms.

In **Botswana**, we supported the Ministry of Health and Wellness (MOHW) to develop a dashboard using the open-source Talend Open Studio extract, transform, load (ETL) software and Apache Superset to visualize COVID-19 cases, deaths, and vaccinations. As part of this work, we developed a comprehensive capacity-building plan for system administrators, analytic developers, and end-users to support the handover and sustainability of the platform.

In **Malawi**, Data.FI worked with the MOH's Expanded Programme on Immunization and its Digital Health Division (DHD) to revise their existing Tableau dashboard to incorporate additional analyses on vaccine coverage, enabling teams at the national and subnational levels to triangulate estimates of vaccine coverage from digital and paper-based systems. We also included new facility-level analyses and analytics on data quality indicators. Through the development process, we worked with the DHD to refine and streamline the ETL process using application program interfaces (APIs).

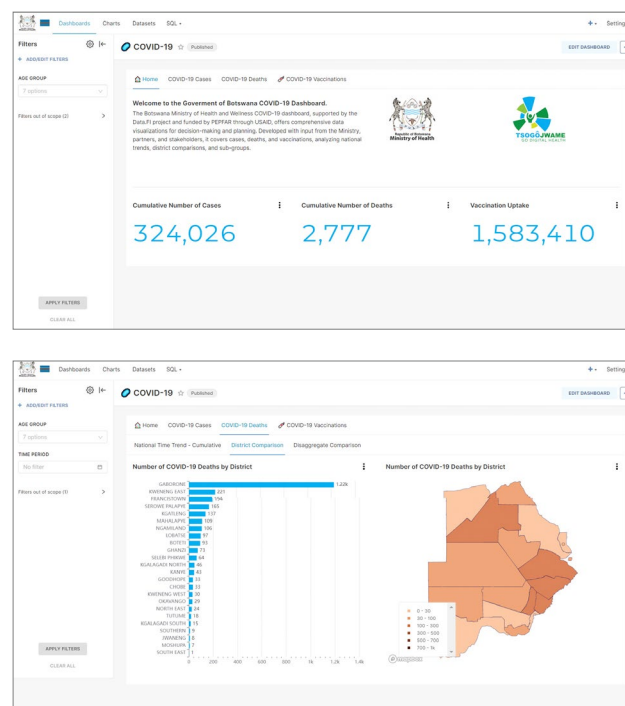
In **Burkina Faso**, Data.FI supported the MOH to implement a sustainable lower-cost alternative to an existing PowerBI COVID-19 vaccine dashboard with high recurring subscription costs. We developed a dashboard in R Shiny, automating the data transfer from the MOH DHIS vaccination database via a DHIS2 API and building a Shiny server on the MOH server to host the dashboard for free, enabling long-term maintenance of the solution.

In **Honduras**, Data.FI provided technical assistance to the MOH to develop a national PowerBI COVID-19 dashboard that provides visualizations of key national indicators on morbidity, mortality, and vaccination. We worked with a technical group comprised of officials from multiple departments—including surveillance, statistics, monitoring and evaluation (M&E), immunizations, and service delivery—to define prioritized indicators and their data flow, rectify data quality issues between

data from health networks and the central level, and implement the ETL processes to connect the data sources.

These dashboards will soon be updated to the official webpage of the Honduran MOH (Secretaría de Salud, SESAL), enabling data access for the broader public. Based on the high quality of technical assistance and user-focused design process facilitated by Data.FI, the **Honduras MOH requested additional support to develop a dashboard for all prioritized routine immunizations for children under five**. Data.FI is completing the development of the functional dashboards for the Expanded Immunization Program (PAI in Spanish), with guidance on indicators and data flows and technical documentation on the configuration and maintenance of the dashboard and the dashboard user manual.

187
analytical
solutions



Screenshots of the Botswana COVID-19 dashboard. Top: cumulative numbers. Bottom: mortality by district.



Copán Ruinas, Honduras. Photo by Maximiliano Dobladez.

Data.FI is providing targeted support to governments and USAID to visualize HIV cascade data.

In **Mozambique**, Data.FI has been supporting the MOH (Ministério da Saúde, MISAU) since 2021 to develop an **ETL tool to enable the linkage of data from disparate data sources** such as program targets, population estimates, master facility lists, and laboratory data to simplify HIV program reporting. We enhanced the ETL tool architecture and its user interface to enable dashboards from multiple business intelligence platforms to one central web-application and integrated both PowerBI and Tableau dashboards to build efficiencies in data and information consumption for the MISAU HIV program. The ETL tool now incorporates data on key indicators from prevention of mother-to-child transmission

(PMTCT), IIT, and KP programs to produce real-time visualizations. This year, Data.FI developed a sustainability plan for the ETL tool, in preparation for the handover of the tool and dashboards to MISAU. As part of this effort, we collaborated with MISAU and the Departamento de Tecnologias de Informação e Comunicação (DTIC) of the MOH to develop documentation for the ETL tool, including policies on change management, user accounts, and information on the ETL data model, tool architecture, user manual, installation, deployment, and troubleshooting guide.

In **Guatemala**, Data.FI has been working alongside staff from the Information Technology Directorate (formerly the Health Management Information System, formerly the Sistema de Información Gerencial en Salud, SIGSA) to organize, align, and

integrate data from the official health management information system. To this end, Data.FI is supporting the development of a data repository that will provide analytics and visualizations on various program elements, including HIV. We assisted the DTI to automate the process for integrating HIV information, reducing the consolidation time from 45 to five days, and supporting the National HIV Program (PNVIH) to develop an updated version of the national HIV dashboard that will integrate data from the national HIV information system with information from PEPFAR and other partners. This analytical solution allowed the MOH to display monthly updated data from its official information system for use by decision makers, technical staff, and service providers in the health regions.

In addition, **Data.FI is supporting a process (or “middleware”) to collect and integrate data from USAID-supported IPs.** This year, we developed the first version of a dashboard that synthesizes HIV reporting indicators from two IPs (IntraHealth and the Pan-American Social Marketing Organization, PASMO). We are currently working on version 2.0 of the dashboard that will include more indicators and analytics to assist USAID to drill down existing gaps with data from an expanded group of implementing partners.

In **Nigeria**, Data.FI continues to support USAID’s Comprehensive Access Review Dashboard (CARD), which is used by USAID/Nigeria to visualize all

aspects of its PEPFAR programming across partners. Based on user feedback, this year we improved the user interface and experience (UI/UX) of the platform by updating the navigation feature and adding a customizable widget to ensure that users can easily and effectively interact with the contents and functionalities of the CARD based on their specific needs. We also integrated role-based access controls to improve data security and expanded the organization unit menu to accommodate IPs providing interventions in other public health areas. Further, we expanded the visualizations available on CARD to include treatment, mortality, and loss to follow up (TX_ML), cervical cancer screening and treatment, pre-exposure prophylaxis (PrEP), and KP preventive interventions. We are also strengthening the capacity of other partners to support USAID’s CARD. This year, Data.FI provided technical support to the USAID-funded TB Data, Impact Assessment and Communications Hub (TB DIAH) project to integrate TB program data and trained their technical team to develop interactive Tableau dashboards for embedding on the CARD.



Best Practices

- Support decision makers to shift their practices and behaviors around decision making to consult available data in collaboration with others, as decisions are best informed by multiple perspectives.
- Time invested in implementing corrective action is well spent! Accountability mechanisms and project management allow us to determine whether lagging performance is a result of weak implementation or implementation of the weak ideas.
- By using the data, we have available now, we create a virtuous cycle. Those who collect the data will know that there is interest in what is being reported, data quality will improve, and redundancies will be addressed.

LEAVING A LEGACY

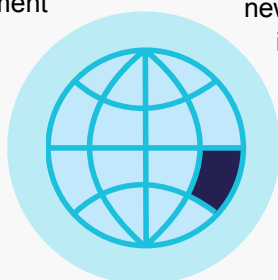


TRANSITIONING HIS SOLUTIONS AND PROMOTING LOCALIZATION

Over the coming weeks, Data.FI is closing its activities in three countries: Burundi, Côte d'Ivoire, and Tanzania. For three years, Data.FI has worked closely with stakeholders in each country to build and maintain HIS that meet local healthcare needs and interface with existing digital ecosystems. Now, we have transitioned full management of these systems to local partners.

Although the HIS in each context will continue to undergo augmentation and improvement, the project has built a strong foundation to pursue future endeavors. Not only are the digital systems themselves much improved, but we have observed the growing confidence of local health officials in using these systems, as well as a greater institutionalization of data use for improvement at both national and local levels. As a result, in only a short period of time, all three countries have seen marked improvements in their HIV health outcomes.

We believe this is a legacy that all stakeholders can be proud of.



TANZANIA

In **Tanzania**, Council Health Management Teams (CHMTs) are the primary gatekeepers of local health challenges. They are well-informed in the needs of their communities, but when Data.FI began its work in-country, CHMTs struggled to use health data to inform decisions on programs and resource allocation. Further, said data was often siloed, with little coordination between national and local authorities.

Following digital development best practices and informed by a rapid landscape analysis, Data.FI responded to these challenges by enhancing the government-owned HIS, Tanzania's Integrated Monitoring and Evaluation System (iMES), with new analytics and visualizations, DHIS2 interoperability, and a range of new health indicators. The project also helped institute a weekly schedule of situation room meetings, during which CHMT members could examine iMES data and plan targeted interventions, as well as a series of QI meetings whereby CHMTs learned how to

PO-RALG Deputy Permanent Secretary for Health, Dr. Charles Mahera (middle) visiting Kinondoni Municipal Council situation room. Far left, Dr. Samuel Laizer, District Medical Officer; second left, Stella Mujaya, Data.FI Tanzania Country Lead. Far right, Dr. Pius Kagoma, Coordinator for Quality Improvement and Clinical Services at PO-RALG; second right, Dr. James Kengia, Coordinator of Research and Publications at PO-RALG. August 2023. Photo by Data.FI/Tanzania.

develop and use indicators on reproductive, maternal, neonatal, child, and adolescent health (RMNCAH), PMTCT, and other non-communicable diseases (NCDs). These efforts were meant to build both the human and technical capacity of the Tanzania HIS, encouraging a positive feedback loop by which CHMTs cascaded their knowledge to teams at the health-facility level and had the opportunity to explore a wide range of health indicators,

Data.FI support has delivered promising results. Health outcomes have improved in a range of areas (see Figure 3), and the councils have made substantial progress towards (and in some cases have surpassed) their 95-95-95 targets. To ensure these

gains are sustained, Data.FI oversaw the selection of three situation room champions to facilitate CHMT meetings moving forward. Additionally, councils have developed sustainability plans detailing their commitment to continue weekly situation room meetings and incorporating a situation room budget into the comprehensive council health plans. Our closing interviews with CHMT members have shown that they feel equipped with both the expertise and experience in health management to continue QI initiatives after Data.FI support ceases.

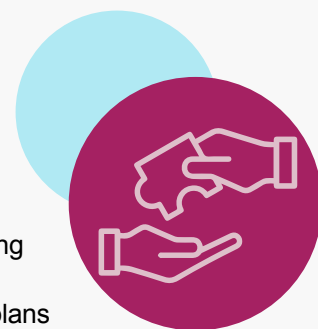
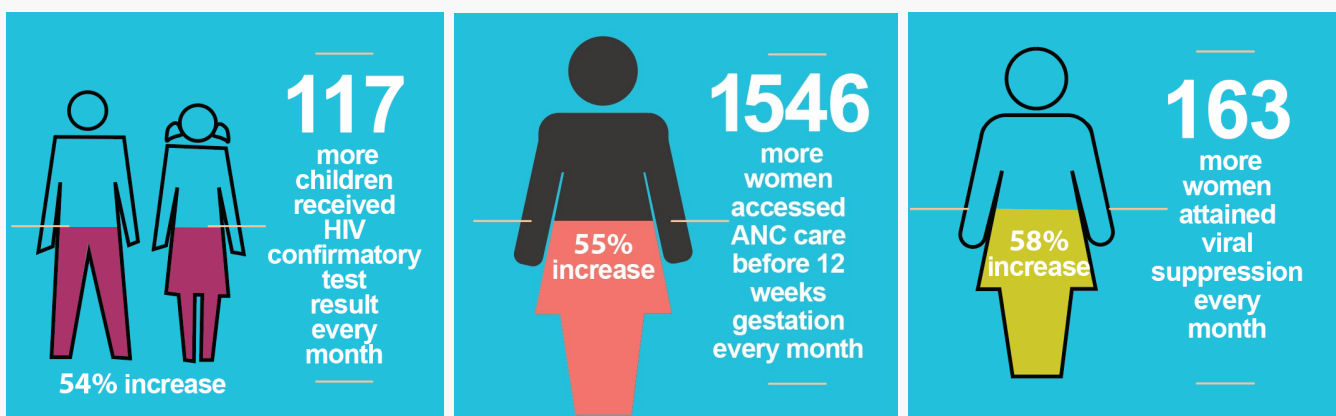


Figure 3. Improvements in Tanzanian HIV health outcomes since commencement of Data.FI support



“With the Data.FI project, we have acquired knowledge that makes us feel confident, and we now approach data-led discussions knowing we can understand what the data says and can translate the data into usable information. Personally, I will not forget Data.FI.”

— CHMT member Kinondoni

Sikujua Mecktilda of the Bahi District Council registers for the PO-RALG handover event meeting on September 13, 2023. Photo by Data.FI/Tanzania.

CÔTE D'IVOIRE

The OVC program in **Côte d'Ivoire** (Programme national de prise en charge des orphelins et enfants rendus vulnérables du fait du VIH PNOEV) encompasses a standardized set of interventions designed to mitigate the impact of HIV/AIDS on OVC and their families. The other major in-country OVC program is Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS). However, prior to Data.FI support, PNOEV and DREAMS operated separate databases and there was little capacity for centralized information management for OVC data.

Since 2021, Data.FI worked to strengthen the OVC and DREAMS databases and consolidate them into a single database, one that used an OpenMRS platform to support the management of evolving information requirements and foster a sense of ownership. The upgraded OpenMRS database implemented mechanisms for duplicate record removal, the inclusion of new household members, activation of the graduation module, and integration of the DREAMS code into the OVC forms. It also facilitates the extraction of beneficiaries who are no longer active (i.e., deceased, transferred to other sites, or lost to follow-up). We aligned the appropriate OVC management protocols to augment data quality and instituted database security measures.

These endeavors always responded to the informational requirements of the principal

stakeholders—namely PEPFAR, PNOEV, IPs, and NGOs—engaged in the care and support of OVC and their families. Indeed, Data.FI has maintained a localization strategy throughout its time in Côte d'Ivoire. All configurations were made alongside PNOEV staff and in partnership with national collaborators, NGOs, and IPs involved in OVC interventions. This broad-based effort ensured that all specific needs pertaining to report generation and data listings were met.

This fiscal year we successfully transitioned management of the new database to the government and oriented all relevant stakeholders on its use and maintenance, as well as enhancing the administration and maintenance expertise of the PNOEV IT specialists. This involved delivering user manuals, data migration modules, risk management plans, and administration guides, and our comprehensive efforts have fostered a more robust and informed decision-making process within all levels of the program.

The project also bolstered the PNOEV's capacity to manage the database through capacity-building activities, including the configuration and deployment of a ticketing platform, as well as the establishment of a proficient help desk team to provide Level 1 and 2 support for the enhanced OVC/DREAMS database.



Screenshot of ticketing platform for use by clinicians, part of the Côte d'Ivoire OVC system.



Data.FI/Burundi supported capacity building of local and government partners in data quality and data use. Photo by Data.FI/Burundi, JSI.

BURUNDI

In 2019, USAID, in partnership with the Government of **Burundi**, engaged Data.FI to support the MOH in strengthening the HIV information system to improve the national response to the epidemic. In 2020, Data.FI conducted an assessment of the country's EMR system, SIDAInfo, which served as a roadmap to improve information systems for the HIV response.

We have since supported enhancements to SIDAInfo to ensure its interoperability with the DHIS2, the national HIS platform, and also with the M2SYS server that supports the new fingerprint-based UID system. To do this, Data.FI worked collaboratively with the National AIDS and STI Control Program (Programme National de Lutte contre le Sida et infections sexuellement transmissibles, PNLS/IST), the Directorate of the National HIS (Direction du Système National d'Information Sanitaire, DSNIS), and two USAID-funded IPs to develop and roll out a web-based version of the original SIDAInfo access-based system.

In addition, building on more than two years of our partnership with PNLS and USAID/Burundi, Data.FI collaborated with the SIDAInfo/UID TWG and other stakeholders to redesign and upgrade the SIDAInfo software with two new modules, the lab module (IBIPIMO), and Recent HIV Infections Surveillance System (RISS) module.

By the end of September 2023, the **SIDAInfo/UID system had been scaled to 362 sites receiving direct PEPFAR support countrywide, covering 90 percent of all people living with HIV (PLHIV) on ART**. Among these sites, 180 are high-volume, 105 are medium-volume, and 74 are low-volume. The enhanced web-based EMR enables individual clients to have a unified record across all HIV service provision sites, improving quality of data and services delivered. These two integrated solutions now mean that clients can be easily identified if they need to transfer to (or temporarily access care at) a new health facility, and that the service provider will have the client's most up-to-date medical record on hand to support continuity of care.

Collectively, clinicians now have client information of a higher quality and volume, and as a result the country has seen meaningful gains toward 95-95-95. The high-point of Burundi's journey came when the U.S. Global AIDS Coordinator, Ambassador John Nkengasong, acknowledged Burundi as the only francophone African country so close to meeting the UNAIDS goals and awarded its government with an honorary plaque—this was a moment of intense personal and professional satisfaction for Burundi's HIV healthcare community. Indeed, Ambassador Nkengasong noted that “Burundi's progress towards 95/95/95 is remarkable.”

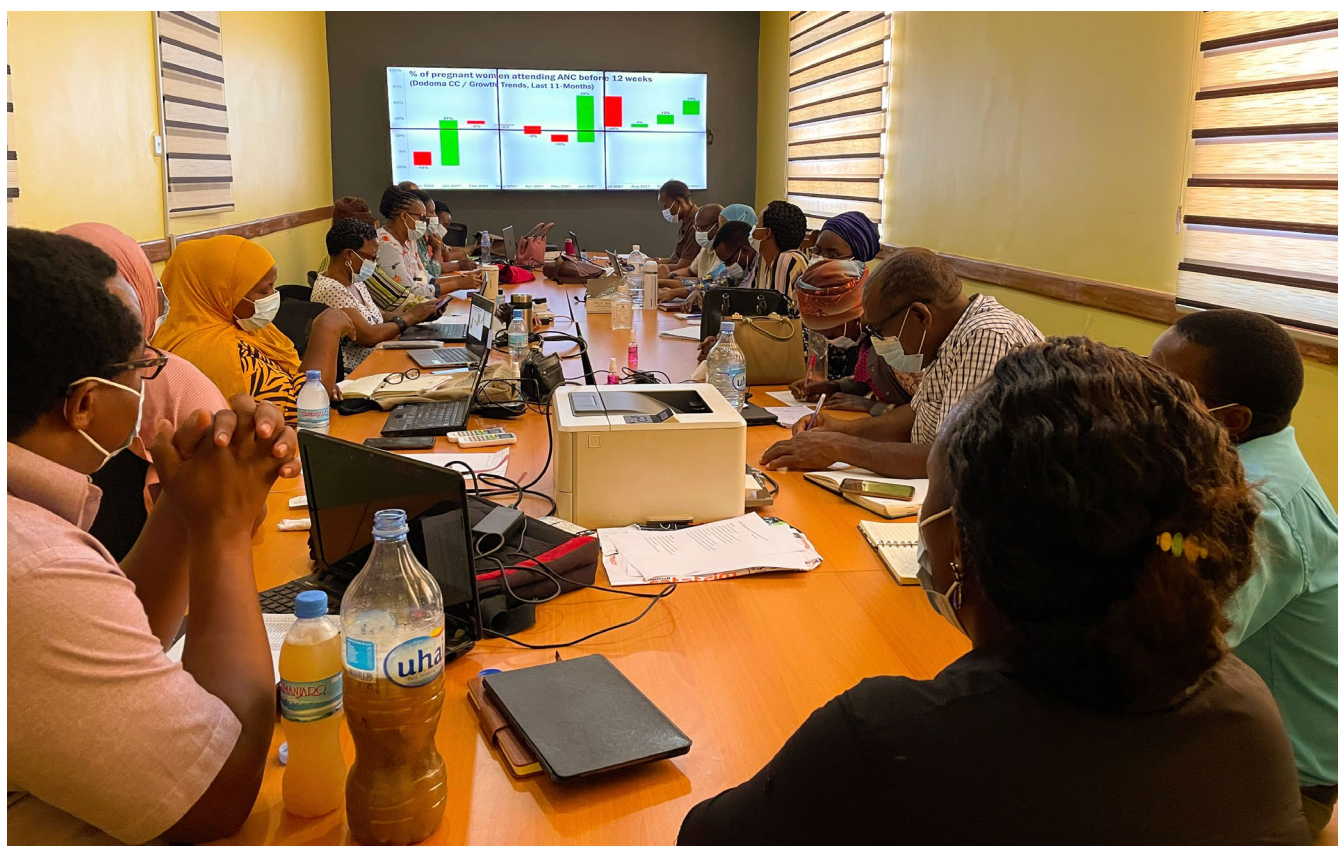
Optimizing and Scaling Health Information Systems and Digital Solutions



Data.FI optimizes information systems to improve client care, inform resource allocation at the planning level, and promote accountability. This requires a reorientation of source systems to meet client care management objectives, and harmonization of reporting systems designed to capture the data needed and used to plan and improve programs and track investments. Data.FI works closely with local stakeholders to build and

maintain systems that interface well within existing ecosystems. We do this by gathering requirements and collaborating closely with partners to improve business processes, and to support data sharing and interoperability across existing and emerging platforms.

COVID-19 has amplified the importance of sustainable systems—systems aligned with the local context, governed by a coordinated stakeholder team in-country, and supported by a CoP using



Dodoma City CHMT reviewing action plan and performance progress on the ANC early booking indicator during a situation room meeting. Photo by Data.FI/Tanzania.

open-source solutions and leveraging existing global goods. There is also a need to design systems more flexibly, with clear change management processes, to accommodate changing health service delivery strategies, and to allow for immediate agility in measurement and future resilience to emerging pandemic threats. This is the challenge and opportunity we are working to build upon across sub-Saharan Africa, Central America, and the Caribbean.

DEVELOPING AND ENHANCING EMR AND LAB SYSTEMS

In Eswatini, Data.FI is optimizing an integrated primary healthcare EMR and building out an analytics platform to support improved patient care.

In March 2022, Data.FI began supporting the Eswatini MOH's health information management system (HIMS) unit in their stewardship of the Client Management Information System (CMIS)—a centralized, online, patient-line, point-of-care (POC) EMR in use at 237 of 327 healthcare facilities in the country. In FY23, in partnership with the MOH, we upgraded the system to include the following functionalities and tools:

- **Essential vaccine management.** The enhanced system was effectively utilized during the recent national human papillomavirus vaccine (HPV) campaign aimed at preventing HPV-related diseases for young girls between the ages of 9–14 years.
- **Commodity stock management.** Although this functionality was built for the HPV campaign, this module can be adapted for other programs. The team will be piloting the use of this module for COVID-19 vaccine tracking in the upcoming financial year.
- **SMS verification alerts.** Automatic appointment reminders for all clients on ART can now be sent to remind them of their upcoming appointments. All phone numbers are validated when patients present at the clinic.



Hlathikhulu blood transfusion center. Photo by Data.FI/Eswatini.

- **Improved security.** Updates were aligned to ISO/IEC 27002:2022 and included encryption of personally identifiable information/personal health information (PII/PHI), restrictions to client profile access, password strengthening, and password expiry. We conducted a sprint exercise focusing on system security to proactively and preventatively address a range of potential cybersecurity issues that could arise in the future.
- We updated the HIV testing module to support **gender-sensitive and priority population data capture and use.** We also enhanced the KP module to include sub-populations and enabled entry for preferred gender.
- **CMIS speed** was improved through optimization of code and database queries. No new speed issues were reported.



Data.FI Regional Engineer Mandla Msibi facilitates a CMIS training to frontline healthcare workers. Photo by Data.FI/Eswatini.

- **CMIS usability tracker dashboard.** We developed and deployed a cloud-based dashboard showing active facilities to enable proactive assistance to facilities that are facing downtime episodes, allowing for faster resolution of any system issues. This dashboard is near real-time, refreshing at five-minute intervals. Two months following the deployment of this tool, CMIS uptime increased from 94 percent to 96 percent. In addition to improving uptime, the CMIS usability tracker facilitates data completeness monitoring, enabling IPs to target mentorship support for data entry.

Data.FI/Eswatini achieved **interoperability** with the Data for Accountability, Transparency and Impact Monitoring (DATIM) system of tools by uploading the targeted five ART-related monitoring, evaluation, and reporting (MER) indicators. As CMIS has more

than 85 percent of HIV patient data for the country, the majority of PEPFAR routine reporting is now automatic. This **advance will not only quicken the reporting process but will also ensure a reduction in transcription errors.** A pilot exercise was conducted in quarter two (January – March) by uploading HIV data for non-PEPFAR health facilities. The data was uploaded for five MER indicators, namely Tx_CURR, Tx_NEW, Tx_PVLS, Tx_RTT, and Tx_ML.¹ Having conducted the successful pilot, discussions are underway to adopt this platform as the standard for national HIV data import into DATIM.

Dashboards within CMIS were developed and deployed at 182 facilities. Data.FI developed the reporting and analytics platform in the CMIS and disease-specific dashboards for HIV, ART and HTS,

¹ Tx_CURR: Number of adults and children currently receiving antiretroviral therapy. Tx_NEW: Number of adults and children newly enrolled on antiretroviral therapy. Tx_PVLS: Percentage of ART patients with a suppressed viral load (VL) result (<1000 copies/ml) documented in the medical or laboratory records/laboratory information systems (LIS) within the past 12 months. Tx_RTT: Number of ART patients with no clinical contact (or ARV drug pick-up) for greater than 28 days since their last expected contact who restarted ARVs within the reporting period. Tx_ML: Number of ART patients (who were on ART at the beginning of the quarterly reporting period) and then had no clinical contact since their last expected contact.

antenatal care (ANC), tuberculosis (TB), voluntary medical male circumcision (VMMC), cervical cancer, pre-exposure prophylaxis (PreP), and NCD. Dashboard development hinges on a user-centered design approach that includes substantial engagement of stakeholders at the facility level, including healthcare workers, facility managers, and program representatives. Engagement of facility-based users ensures that CMIS facility dashboards are responsive to data needs at service delivery level, including facilitating patient follow-up for missed services and for improved service provision. At the facility level, dashboards are readily available and accessible through the central CMIS. Data.FI implemented a cascade training approach where we trained a mix of trainers at the facility, regional, and national levels.

Data.FI developed a **data repository that allows for extraction of as many as 24 de-identified datasets**, both from CMIS and Data Management Team (DMT) sources. We then built a provisional analytics platform using Superset for the repository.

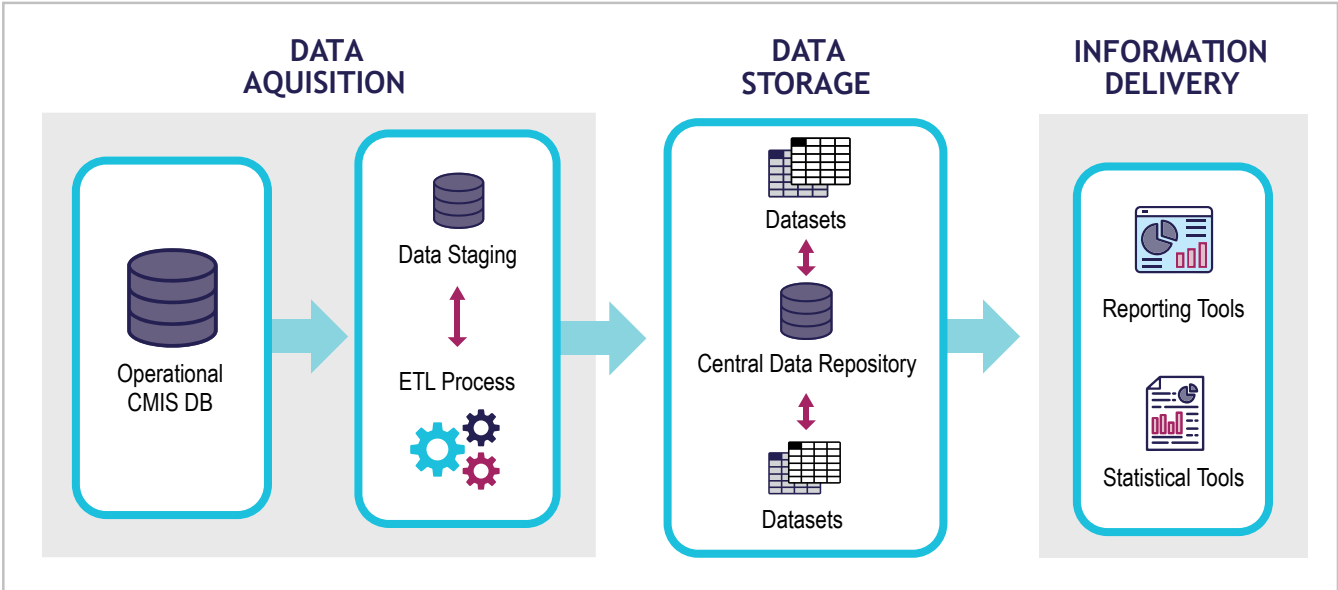
The Central Data Repository (CDR) is used as a repository for all transactional data in the CMIS and DMT sets. Deidentified client-level data is extracted from the CMIS daily and uploaded to the CDR using an ETL process. The architecture consists of the

CDR being divided into three main blocks, namely the (1) data acquisition area, (2) the data storage area, and (3), the information delivery component (see Figure 4).

The data acquisition block defines the source systems where data will originate and, in our case (i.e., the CMIS and DMT), for transactional data. It also contains a staging database where data extracted from the operational CMIS will reside for further processing. The data storage area has the data repository where data will be uploaded from the staging database. Datasets for the different components/programs are stored in the data repository, with the patients de-identified for security/privacy purposes. The information delivery block facilitates the analysis and visualization of data. Currently, 24 datasets have been developed and can be accessed in the CDR. A Superset data visualization tool has temporarily been deployed as the visualization and data extraction layer for end-users.

Further, to support sustainability and to improve efficiency, we **deployed a training portal in all facilities running the CMIS**. This platform enables continuous capacity building and self-help for CMIS users, through videos, release notes, standard operating procedures (SOPs), and manuals.

Figure 4. CMIS system architecture and structure



In Burundi, Data.FI-supported EMR enhancements have improved client care and clinical decision making.

Since 2020, Data.FI has supported PEPFAR and the Government of Burundi's goals of enhancing the primary HIV EMR in the country—SIDAInfo. Burundi now has a web-based EMR, and a biometric unique ID (UID) solution, which provides clients with a unified record across all 362 HIV service provision sites.

As we did in Eswatini, Data.FI finalized development of IBIPIMO (a laboratory information module) and the Recent HIV Infections Surveillance System (RISS) integration into SIDAInfo. The IBIPIMO module, which facilitates the real-time availability of VL and early infant diagnosis results, has contributed to a **reduction in turnaround time of lab results to care sites** and has supported real-time decision making in client care. The integration of recency testing data into SIDAInfo has significantly **reduced duplicate testing**, saving both resources and client time. We developed dashboards for both the IBIPIMO

module and the RISS module to enable data use for clinical care. We also redesigned PMTCT functionality within SIDAInfo to comply with new HIV and PEPFAR guidelines, and address user feedback. To facilitate the reporting process, Data.FI provided technical support for SIDAInfo and DHIS2 interoperability. Data.FI supported DSNIS and the IT Management Program for the Health Sector (Programme de Gestion Informatique du Secteur de la Santé, PROGISSA) to redesign the point-to-point interoperability between the two systems, to take into account changes made to DHIS2 (new version, codes, etc.).

To build local capacity to use the system, Data.FI provided additional equipment to sites to fix connection issues, and remote and in-person coaching to users. We also developed three video tutorials, which are embedded in the EMR, to ensure clear instruction for SIDAInfo users. We provided technical assistance in data security and worked with the MOH to launch an information security charter that includes clear guidance for government and IPs. Data.FI also supported the SIDAInfo/UID and DHIS2 TWGs, which met regularly, to oversee the implementation of the HIV information system.



The SIDAInfo manager at Kabezi Hospital in Burundi (in the white lab coat) discusses the new web-based EMR with Apollinaire Kavungerwa of USAID/Burundi (first from left), as well as Valentin Nitereka (back to the camera) and Serge Bisore of Data.FI (second from left). Photo by Data.FI/Burundi, JSI.



Community health extension workers and a medical record officer walk through town while on route to a patient's house in Ondo, Nigeria. Photo by Dominic Chavez.

Scaled
systems to
1,441
sites

In Nigeria, Data.FI has scaled a home-grown, information system for its free, sustainable, and unconstrained use.

Since 2019, Data.FI has supported the development of LAMISPlus, working with stakeholders to update the system to meet emerging priorities and scale it across the country. In FY23 Data.FI/Nigeria led the process of migrating and **deploying the LAMISPlus application to 617 health facilities** across the 17 USAID implementing states in Nigeria. There are about two million PEPFAR-supported clients reported as currently on ART in DATIM—and LAMISPlus supports about 35 percent of the total clients.

We also developed and successfully deployed **LAMISPlus Sync** (module 2.1:5), a system used to automatically sync data across health facilities. As a result, 617 USAID-supported health facilities seamlessly synced data to the LAMISPlus Central Sync facilitating the generation of flat file used for quarter three (April – June) PEPFAR reporting. LAMISPlus Sync is a data quality and data

management tool designed to enable a **unified client record** and **centralized access to HIV patient-level data for analysis**, reporting, program performance monitoring, and stakeholder decision making. LAMISPlus sync also enables Data.FI and USAID to track LAMISPlus deployment and EMR versions used across health facilities and notifies the Data.FI team if a facility needs technical support.

Data.FI has successfully **integrated the LAMISPlus with other digital health systems** in Nigeria:

- Working with the Clinton Health Access Initiative (CHAI), we have achieved **laboratory information management system (LIMS) integration** with LAMISPlus. Now, there is **bidirectional and automatic data exchange**, in that samples for PCR testing sent from health facilities and results received from the laboratories are automatically logged in both systems simultaneously. This has reduced VL result turnaround time, and improved clinical decision making and client care.



Data.FI Data Use Advisor Chidimma Ogbonna (left) going through LAMISPlus with the data entry clerk during a monitoring visit at Ikorodu General Hospital in Lagos State. Photo by Data.FI/Nigeria.

- Data.FI collaborated with the Government of Nigeria, USAID, CDC, and the Public Health Information System, Solution and Surveillance (PHIS3) project to develop a **Patient Identity Management System (PIMS) module** on the LAMISPlus. The module is used to de-identify patients across various HMIS, thereby improving patient quality of care and enhancing data quality to support health service decisions.

Data.FI/Nigeria continues to engage and collaborate with PHIS3, the technical partner supporting the Government of Nigeria in the development of the **National Data Repository (NDR)** to enhance the quality and efficiency of data integration and reporting to this system from LAMISPlus. Data.FI's collaboration with PHIS3 involves the improvement and optimization of the NDR module and the biometric module on LAMISPlus, as well as support to USAID IPs to ensure seamless reporting into the NDR. The NDR

module is designed to extract HIV-related data in an XML format or JavaScript Object Notation (JSON) format through an API for upload and reporting to the NDR. Data.FI supports EMR–NDR data uploads (XML extraction and import), EMR–NDR auto-synchronization via API, and EMR biometrics data deduplication and validation exercises.

During the reporting period, Data.FI/Nigeria also **optimized the LAMISPlus web and mobile versions** from 2.0 to 2.0.5 and 1.0 to 1.0.3 respectively. This included the implementation of updated modules in the web platform for patients, triage, laboratory, HIV testing, PrEP, PMTCT, LIMS, NDR, biometrics, and the quick sync.

To improve **information access security**, we successfully implemented a two-factor authentication on the LAMISPlus sync and started enforcing strong passwords to reduce risks associated with credentials management. The Data.FI/Nigeria team worked with the HQ team to review server configuration for the suite of systems—LAMISPlus, NOMIS, and the Automated Partner Performance Reporting (APPR) system—to ensure security best practices are implemented and up to date. Systems have been **tested against common vulnerabilities** such as cross-site scripting (XSS) and data injection attacks. Information security SOPs and checklists were developed to provide sets of instructions on data access to the systems, including remote access and data sharing with different organizations using the three systems. Also, we worked to ensure that the procedures for data access and sharing are transparent and consistent with best practices, are performed consistently with minimal variability, and are compliant with local legal obligations and USAID's guidelines. The team also worked on SOPs and checklists to improve security of the local server installations and guide server administrators in the implementation of the system security best practices.

Lastly, Data.FI, in collaboration with PHIS3 and the Government of Nigeria, provided support in the development of the **national biometric recapture SOP** to provide guidance for biometric recapture across all implementing health facilities supported by PEPFAR in Nigeria.

SCALING DIGITAL SOLUTIONS FOR OVC INFORMATION SYSTEMS

In **Nigeria**, Data.FI has been working with the Federal Ministry of Women Affairs (FMWA) and PEPFAR to enhance and scale NOMIS. To date, Data.FI has successfully deployed NOMIS across 43 USAID-supported community-based organizations, working with four USAID prime partners—the Center for Clinical Care and Clinical Research (CCCRN), the Association for Fertility and Reproductive Health (AFRH), the Society for Family Health (SFH), and Pro-Health International (PHI). This deployment spans 229 LGAs across 15 USAID-supported states. In addition, Data.FI/Nigeria successfully deployed NOMIS in 36 sites supported by the United States Department of Defense (DOD) across 31 LGAs in 21 states. In addition, Data.FI collaborated with USAID-funded partner CCCRN to develop the mobile version of NOMIS called the NOMIS Child Monitor. The app was developed by CCCRN and enhanced and taken to scale by both Data.FI and CCCRN.

In **Côte d'Ivoire**, Data.FI continued our work on the integrated **OVC/DREAMS database** together with the National OVC Program (Programme Nationale de prise en charges des Orphelins et autres Enfants rendues Vulnérables du fait du VIH/Sida, or PNOEV). The integration of OVC and DREAMS data into one database with two interfaces reduces the risk for duplication of data on beneficiaries across the two programs and strengthens information for national-level decision making. During this reporting period, we made several enhancements to the database, including the addition of 19 new automated data reports for the DREAMS program, the incorporation of validation rules to align program requirements for adolescent girls and young women (AGYW) eligibility for program enrollment and services, and an HIV ticketing platform.

The launch of the HIV ticketing platform, Gestion Libre de Pack Informatique (GLPI), enables

users to document both database problems and the responsiveness of database managers in resolving them. After an online review of open-source applications, the GLPI ticketing platform was selected to implement the technical help desk ticketing solution. Under the leadership of PNOEV, Data.FI fully configured GLPI on the PNOEV server. Today, through the established OVC/DREAMS database and configured listings and reports, PNOEV and key stakeholders can easily extract key performance data to measure progress and support decision making.



Group of students in northeast Nigeria. European Union 2018, photo by Samuel Ochai.

STRENGTHENING LOGISTICS, COMMODITY, AND SURVEILLANCE SYSTEMS

In partnership with other USAID IPs, Data.FI is developing an information module using **Kawok** (a CommCare-based system) that will provide information on the **availability of FP and MNCH products** in the Ixil health region of **Guatemala**. Kawok has already been in use for several years in this region, and the new product tracking feature will improve the delivery of medical supplies to users and health facilities. This module is expected to be completed in December 2023.

Data.FI supported local partner **Health Connect Jamaica** (HCJ) with the design and customization of the open-source **Logistics Management Information System** (OpenLMIS) digital solution to support COVID-19 vaccine supply chain management. Data.FI developed and added an additional analytics module to OpenLMIS to facilitate improved data visualization and analysis and procured the servers to host the system. We also trained HCJ staff on using and managing the OpenLMIS instance. The solution allows HCJ to manage the distribution of COVID-19 vaccines across a **network of private health service providers**. Previously, HCJ lacked a digital system to track commodities. HCJ plans to build out the system's capabilities to support ART distribution in the future.

Data.FI/Nigeria supported a six-day design thinking workshop on **SORMAS optimization** with 28 participants from various organizations including the Nigeria Centre for Disease Control (NCDC), the Task Force on Global Health (TFGH), the African Field Epidemiology Network (AFENET), the Institute of Human Virology/University of Maryland (IHVN/UMB), and Georgetown University. The workshop objective was to define and document functional system requirements to meet SORMAS optimization needs. This included virtual sessions applying Collaborative Requirement Development Methodology (CRDM) to identify and solve prominent challenges with the system, working with system engineers to enhance the functionality of the SORMAS, and building a CoP for continuous improvement of the system. The result of the workshop was a comprehensive roadmap outlining a prioritized sequence of activities to achieve an optimized SORMAS system in Nigeria.

Data.FI/Nigeria later supported a follow-up workshop on SORMAS optimization, from the NCDC, WHO, Resolve to Save Lives (RTSL), IHVN/UMB, and Georgetown University. At the end of the workshop, stakeholders produced a data dictionary encompassing all disease areas to facilitate the development of electronic case investigation forms (e-CIFs), and work is progressing to meet all objectives.



Series of OpenLMIS training materials produced for Health Connect Jamaica.



A healthcare worker measures and records mid-upper arm circumference (MUAC) into CMIS at the point of care. Photo by Data.FI/Eswatini.

Data.FI has also been supporting **vaccine information systems** in Côte d'Ivoire. The National HIS, based on DHIS2, now has complete aggregated COVID-19 vaccination data available to help inform vaccination progress and outcomes. Data.FI developed a vaccination data pipeline for **importing historical data into DHIS2** and assisted the Directorate of Coordination of the Expanded Immunization Program (Direction de Coordination du Programme Elargi de Vaccination, DCPEV) in developing an Excel template and supporting the entry and integration of all historical vaccination data. Data.FI facilitated workshops attended by 113 health districts, during which the historical data were captured. Initial validation of the data was carried out by the DCPEV with support from Data.FI. Data was then transformed and imported into DHIS2. **One hundred percent of historical district data** (representing 92 percent of the country's historical data available at the DCPEV) received from 113 health districts has been imported into DHIS2.

INTEGRATING INFORMATION SYSTEMS FOR ADVANCED ANALYTICS

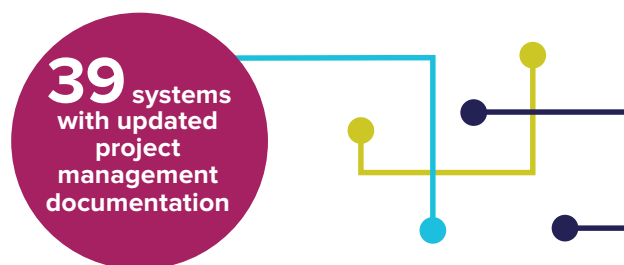
Data.FI is integrating data sources and building analytics platforms that enable precision programming. The achievement of better and more equitable health outcomes in the context of a global pandemic and diminishing donor resources requires programming informed by accurate, high-impact analytics.

In **South Africa**, Data.FI worked with the NDOH to build out the **CHISA platform**. CHISA is an analytics platform that pulls data from a national data warehouse through which disparate HIS source system data in South Africa are linked. It provides unique analytical capabilities, given its ability to ingest and link numerous data sources and use patient-line data. It has been designed to provide a wide range of users with insights into

client well-being across the TB/HIV cascade. The visual analytics presented in the CHISA platform include bespoke disaggregations that are optimized for program managers implementing targeted QI interventions.

Data.FI conducted a proof-of-concept analysis to assist PEPFAR/South Africa, through the NDOH, to analyze patterns on treatment interruption for patients on ART. Using probabilistic record-matching techniques, patient data from disparate facility databases were matched and linked to form a longitudinal patient record. From this, we conducted detailed analyses of treatment interruption events looking at the profile of patients who interrupt treatment, the timing, length, and duration of ART interruptions, as well as the biomedical impact (VL values) pre- and post-ART interruption. This analysis is a first step in developing dashboards to analyze key drivers of ART retention and viral suppression, two areas of the 95-95-95 cascade that remain a challenge in the country.

Following a change in HIS stewardship within the NDOH at the end of the Country Operational Plan 2022 (COP 22), during the COP 23 year, Data.FI worked to migrate the CHISA platform analytical products to the official NDOH data and analytics site, the NDOH Health Information Centre. Given the change in the analytical continuous integration platform, these analytics were re-designed and refined with input from in-country USAID staff. Work is continuing in South Africa to complete this migration process, which will extend from the analytical products to the source data.



Best Practices

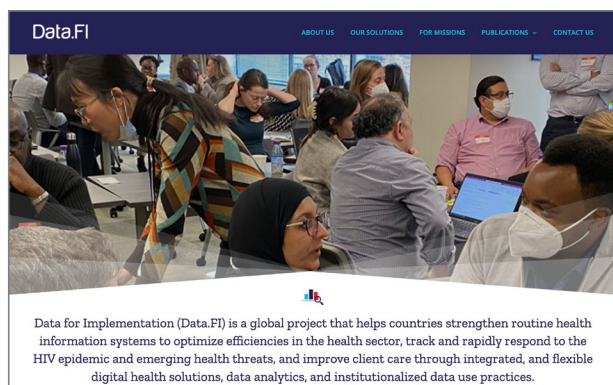
- **Collaborative teamwork:** To promote utility of digital tools, encourage cross-functional and collaborative teamwork that strengthen existing local ecosystems as demonstrated in the Tanzania data use experience where CHMT members improved program performance through collaboratively reviewing data generated from the digital tools. Additionally, this practice enhances problem-solving abilities and enhances synergy, creating a virtuous cycle of further strengthening digital health ecosystems.
- **Interoperability and integration:** When scaling or enhancing existing systems, prioritize interoperability and integration, as demonstrated by Data.FI's implementations of CMIS in Eswatini, LAMISPlus in Nigeria, and Tanzania's iMES and Burundi's SIDAInfo becoming interoperable with DHIS2. By integrating different systems, data accuracy and usability can be improved. As a result, resources are used more efficiently, and data is used better for monitoring and evaluating health outcomes.
- **User-centered design:** Always include stakeholders at multiple levels in the development of digital tools and dashboards. Users, such as healthcare workers, community workers, and health facility managers, benefit from tools that are tailored to their needs. Involving stakeholders at multiple levels makes it easier to understand how the tool will be used. This knowledge can be used to create features that meet users' needs and to identify any usability issues. Moreover, it can ensure that the tool is easy to use and tailored to the user's needs, thereby leading to sustainability in the utilization of the tools.

Engaging Stakeholders through Communications Outreach

Data.FI regularly engages with key audiences to communicate about our work, and we believe that this is best accomplished by using multiple communications channels to help tell our story. In the last FY, our technical experts presented their work at a variety of U.S. and global conferences, published dozens of thought pieces in peer-reviewed journals and blogs, and led webinars and other knowledge-sharing events. Below are a few of our engagement and communications highlights from FY23.

NEW! WEBSITE RELAUNCHED IN JULY

During this FY, Data.FI relaunched its website to offer a better user experience and a more efficient way for users to retrieve project publications.



LINKEDIN GROWTH

Data.FI Project
2,891 followers
1mo • Edited • 15

Data.FI is honored to have participated in the 23rd Regular National Council on Women Affairs (NCWA) in Cross River State, #Nigeria, which was August 21-24. Organized by the Nigeria Federal Ministry of Women Affairs.

70% growth on LinkedIn with 1,100+ new followers

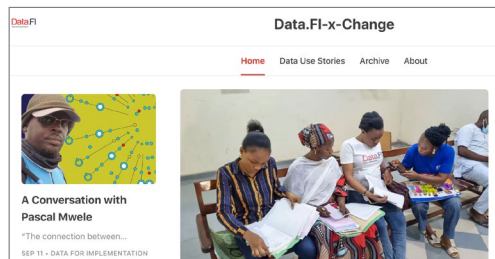
139,000 page views, a 36% increase over FY22

DIGITAL MAILINGS



11 total campaigns sent for a total of 42,729 emails

NEW! SUBSTACK (BLOG) LAUNCHED THIS SUMMER



In May 2023, we launched our Substack/blog space with the goal of distilling sometimes complicated work into more digestible thought pieces. This online platform provides compelling insights for both broad global audiences and USAID-supported programs working in global health security and public health.

All figures describing dissemination reach are cumulative (October 1, 2022–September 30, 2023)

Applying Strategic Information and Learning



Data.FI supports USAID and partner governments to rapidly collect and use non-routine data for strategic needs in their health response. We also support USAID to answer key learning questions, adapt and create methods and approaches to document activities, and catalogue learning with USAID

and the broader digital and public health community. This is particularly critical as the COVID-19 pandemic necessitated the need for rapid learning and bespoke data collection to adapt to the unprecedented pandemic and learn from it to better prepare for what comes next.



Reviewing client folders at Martha Bamaïyi General Hospital in Zuru. Photo by Data.FI/Nigeria.

COLLABORATION AND LEARNING

Data.FI conducts assessments, surveys, and studies to contribute to the global evidence base for primary care, HIV, and COVID-19 and global health security programming.

Data.FI continues to coordinate a **digital health-focused collaborative learning agenda**, bringing together USAID and three other partners—Country Health Information Systems and Data Use (CHISU), MOMENTUM-Routine Immunization Transformation and Equity (M-RITE), and Digital Square to capture and compare learnings about the extent to which **COVID-19 vaccine digital health investments strengthened the digital health enabling environment across 13 countries** (Burkina Faso, the Democratic Republic of the Congo, Ghana, Guatemala, Haiti, Honduras, Kenya, Mali, Niger, Senegal, Suriname, Tanzania, and Vietnam).

In this reporting period, Data.FI facilitated a virtual participatory workshop to synthesize key themes and recommendations across countries and served as guest editors for a journal supplement which will synthesize learnings from the COVID-19 vaccine response for the broader development community and provide recommendations for future programming for donors, MOHs, and implementers. Data.FI has contributed two manuscripts, a description of the theory of change developed for this learning agenda, and a research article describing a mixed-methods study assessing the effectiveness of a new situation room data review methodology on workforce capacity in data use and leadership and governance in two regions in Honduras. Findings from these studies will be available in a special issue of *Oxford Open Digital Health*, to be published in 2024.

In 2022, Data.FI was asked by USAID and the **Honduras** MOH to support steps already underway to **digitize vaccine records** in the country. In response, Data.FI conducted a capacity assessment in the metropolitan regions of the Central District and San Pedro Sula to better understand the factors that would facilitate or hinder the adoption of digital tools for capturing

Data.FI is conducting the following research projects:

- *Implementation of a data use strategy in situation rooms in two metropolitan areas of Honduras in the context of COVID-19*
- *Determination of the impact of COVID-19 on access to HIV care in Guatemala from 2020 to 2021*
- *Factors impacting the adoption of digital tools for COVID-19 vaccination data in Honduras*
- *Vaccine hesitancy surveys in the Democratic Republic of the Congo, Ghana, and South Africa*
- *Third Namibia Integrated Biological and Behavioral Survey (NAM-IBBS)*



COVID-19 vaccination data in real time. We collected data from 78 health facilities and conducted focus groups with COVID-19 vaccination health staff at the regional level to understand experiences and challenges of those providing services through health facilities, temporary vaccination sites (i.e., universities, malls), and door-to-door.

Recommendations from this assessment, presented to MOH authorities at the central and regional levels, included: strengthen human resource capacity to collect and analyze data; optimize the distribution of healthcare staff; and improve connectivity and electricity in health facilities. We also identified a need to improve the availability and accessibility of population demographic data within health facility catchment areas. The final report was shared and discussed with MOH authorities in October 2023. Meanwhile, Data.FI worked to expand the digitization to other areas, including HIV, and to support the analysis of the country's routine immunization program.



The Burkina Faso Minister of Health, Dr Robert Lucien Jean-Claude Kargougou, answers questions at the September 2023 symposium on COVID-19 lessons learned. Photo by Data.FI/Burkina Faso.

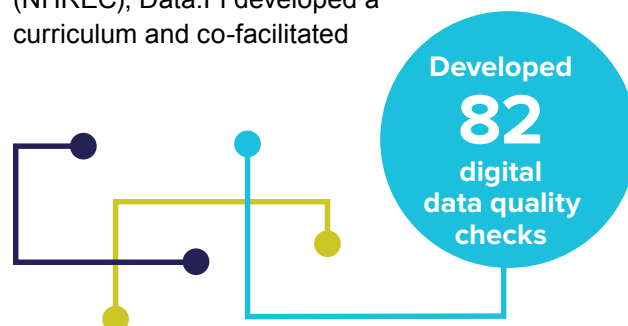
This digitization work involved constant collaboration between in-country Data.FI leadership and the head of the Health Surveillance Unit (Unidad de Vigilancia de la Salud, UVS), as well as authorities at the regional and national level. From initial discussions at the beginning of the year up to data collection and analysis, it was crucial to work step-by-step with these partners, since the information involved is sensitive—especially given that it identifies limitations in the Honduran health system. Trust was essential, and Data.FI’s approach to building and sustaining this trust through its technical assistance has been recognized by the head of the UVS.

At the request of USAID/Washington, Data.FI conducted vaccine hesitancy surveys in the **Democratic Republic of the Congo, Ghana, and South Africa** using project resource partner Premise’s network of lay data contributors. We utilized a custom questionnaire based on prior vaccine hesitancy surveys conducted by WHO, Breakthrough ACTION, the CDC, and others to capture people’s attitudes towards COVID-19 vaccination. The survey was fielded remotely on the Premise app, where contributors

used a self-administered questionnaire on their smartphone, providing localized insights in real time. Demographic data was automatically included, such as age, gender, and income status. Although this allowed for large samples, it was a convenience sample and may not be representative of the wider population. Specifically, the survey aimed to understand the perceived safety of vaccination, the ease of access, the most prevalent rumors and misinformation, and the major barriers to vaccination. Results from the survey have been presented to USAID country offices, which have indicated plans to use the results to guide future vaccine outreach programming efforts.

In **Nigeria**, Data.FI led the data management subcommittee for the **national OVC survey**. We collaborated with the Pact-led Adolescents and Children HIV Incidence Reduction, Empowerment and Virus Elimination (ACHIEVE) project and the FMWA to develop a CSPro application for survey data collection and trained 30 strategic information staff from OVC IPs and the FMWA on its use. Data.FI also developed the data analysis plan for the national survey.

Also in **Nigeria**, Data.FI embarked on a **partnership with the Health Research Ethics Committees (HRECs)** in Akwa Ibom and Taraba States in Nigeria to strengthen their capacity to support ethical research. Through an initial scoping assessment, we identified capacity gaps among HREC members and suboptimal functionality of the HREC secretariat. Data.FI provided essential materials such as laptops, printers, chairs, and tables to enable the Taraba State secretariat to fulfil the obligations of the HREC. In collaboration with the National Health Research Ethics Committee (NHREC), Data.FI developed a curriculum and co-facilitated



a training program to fortify the expertise of 38 HREC members in the domains of research ethics, research methodologies, and protocol review.

Data.FI has initiated new epidemiological and behavioral research, completing scoping and planning activities for FY24 research efforts. In **Guatemala**, we received U.S. and local institutional review board (IRB) approval for a study investigating the **impact of COVID-19 on the provision of services for PLHIV**, and data collection will commence in the coming months. In **Namibia**, Data.FI started stakeholder engagement and protocol development activities for an **integrated bio-behavioral survey** designed to understand HIV and STI burden and service uptake and needs among KPs at risk for HIV.

DATA QUALITY STRENGTHENING

Tracking vaccination data is imperative for decision makers to be able to assess and manage vaccine distribution efforts ongoing globally. Data on COVID-19 vaccination uptake and related indicators are being collected daily by healthcare workers and reported regularly to USAID. These data are used to guide the ongoing response, to ensure that vaccines are being used effectively, and to inform USAID on the success of the vaccination distribution program.

Data.FI completed hybrid virtual and in-person country-level data quality assessments (DQA) on COVID-19 vaccine data in **Bangladesh, Ecuador, Kenya, Tanzania, and Uganda**. This multi-country DQA was intended to assess the accuracy and reliability of data provided during COVID-19 vaccination programs supported by USAID. We identified some data quality issues for COVID-19 data across countries, with mostly minor discrepancies between data in source documents and what was reported to USAID. The DQA provided some lessons learned for pandemic preparedness and data quality initiatives in emergency environments. **Results showed the advantage of using electronic reporting systems to reduce data quality issues** in reporting and suggested a need for SOPs and

internal guidelines for data collection, as well as clearly defined indicators for USAID reporting. These results were detailed in a summary report, sharing lessons learned for COVID-19 reporting and for future pandemic preparedness.

In **Côte d'Ivoire**, Data.FI supported the Ministry of Health and Public Hygiene (Ministère de la Santé et de l'Hygiène Publique, MSHP), to conduct a DQA of four COVID-19 vaccine indicators, reviewing data from 88 health facilities across 44 districts and 22 regions. Data quality and accuracy challenges were documented. For example, only 20 percent of the district's vaccination data and 51 percent of health facilities' vaccination data were accurate, due to issues with under- or over-reporting. Recommendations to address data quality gaps, including implementing routine data quality assurance activities, such as conducting routine data quality assessments (RDQAs), supportive supervision visits, and monthly data monitoring meetings, were shared with the immunization program.



Children lining up for their shot during a COVID-19 vaccination drive. Photo by Data.FI/Burkina Faso.

The Data.FI/Nigeria data analytics team provided technical support to the USAID Strategic Information team to ensure seamless quarterly submission of FY23 (quarters 2/3, or January–June) performance data to DATIM. The process entails uploading patient-level records to the LAMISPlus sync by all USAID IPs, processing patient-level records to aggregate data, and reviewing and collating aggregate data (i.e., DATIM flat files) generated from the LAMISPlus sync. To ensure all generated flat files meet quality criteria, the team used the PEPFAR R-validation tool to check for anomalies, incomplete reporting, inconsistent organization units, category combinations, and attribute combinations for unique identifiers on the submitted flat files. This task was conducted across 617 health facilities supported by nine USAID IPs.

In addition, technical support was provided to all four USAID OVC IPs to ensure that a flat file across 253 LGAs in 17 states was generated from APPR for FY23 quarter 2 (January–March) and shared with the partner for review and concurrence before uploading to DATIM.

Also in **Nigeria**, Data.FI supports USAID to implement the **blended performance assessment approach (BPAA)**, which integrates **site improvement through monitoring system (SIMS)**, **continuous quality improvement (CQI)**, USAID's Enhanced Site Management, and DQAs into a single strategy to improve quality of care. During this reporting period, Data.FI/Nigeria conducted a SIMS/BPAA in 54 sites. Focusing primarily on challenges with VL management, these assessments revealed gaps in the VL cascade, including the absence



A facility healthcare worker reviewing the PMTCT cohort register at Mbori health facility in Mpwapwa district, identifying pregnant and breastfeeding women lost to follow-up during a supportive supervision and mentorship visit. Photo by Data.FI/Tanzania.

of documented VL service provision for eligible clients, inadequate documentation of enhanced adherence counselling (EAC) sessions for clients with unsuppressed VL, and poor documentation of tracking attempts for clients with missed appointments. For example, the assessment found that one site delayed documentation of clients with missed appointments in the client tracking register until their return to treatment, a practice that precludes accurate reporting of TX_ML (the number of ART clients without clinical contact for more than 28 days). The assessment also found inconsistencies between DATIM reports and facility summaries and registers for TX_ML reporting across most assessed sites. Data.FI presents results and recommendations from the SIMS/BPAA to USAID Nigeria and IPs, with targeted follow-up assessments after 3–6 months to track implementation of improvement plans based on SIMS/BPAA findings.

Data.FI also developed an **OVC DQA protocol** for assessing the routine M&E system, data validity, completeness, concurrence, and coherence across PEPFAR MER and national OVC indicators.



Data.FI Quality Improvement Specialist Laurina Nyang (left) provides hands-on capacity training to a case manager at First Referral Hospital Mutumbiyu, Taraba State. Photo by Data.FI/Nigeria.

Best Practices

- Co-designing a learning agenda and theory of change across USAID-funded projects has been an effective and efficient process to facilitate alignment and coordination, reduce duplication, share experiences, and consolidate key learnings and recommendations on digital health investments.
- Building a culture of trust through participatory approaches that include MOHs, local communities, and research users—in all phases of the research process, from study design and protocol development to data collection and analysis—is essential for the successful implementation of research activities and use of research findings.
- Data quality assurance activities are necessary in both emergency and routine settings. Unique data quality and accuracy challenges related to COVID-19 vaccination programs were identified as data management and reporting systems were quickly established to facilitate a rapid COVID-19 vaccination response. Various approaches to assess data quality can be used to inform health staff and donors to better understand program performance and implement targeted data quality strengthening activities.

Strengthening Local Partners and Digital Health Capacity



Data.FI aims to strengthen host-country capacity to support and sustain the national primary healthcare agenda, and the HIV and COVID-19 responses through the implementation of robust, integrated, and resilient information systems and digital solutions. We gather information on countries' digital health enabling environments to determine priority investment areas. We work with MOHs and other donors and

partners working in-country to coordinate and collaborate on investments, leveraging global goods to provide impartial, evidence-based advice on policies and protocols—such as systems interoperability and data security—and work side-by-side with government counterparts to transfer leadership, as well as skills for data stewardship, data analysis and interpretation, and action planning.



Dr. Mwandu Jiyenze (left), lecturer from the Centre for Educational Development in Health and Tanzania TAG member, shakes hands with Data.FI/Tanzania Country Lead Stella Mujaya, as USAID Tanzania Development Assistance Specialist Nasson Konga looks on. Photo by Data.FI/Tanzania.

Data.FI works through local stakeholders to build partnerships and to tap into local knowledge, networks, and assets. We support the establishment of **country-led governance structures that provide leadership and governance to design and execute digital health strategies** that are supported by enabling policies and legislation. We also provide capacity-building support to local partners and governments. Data.FI is set up to manage transition awards and act as a “middleware” layer between USAID and local partners, and to support data capture, analysis, and reporting, particularly in cases when previously integrated projects are split across multiple local partners. Data.FI’s activities are government-led and fully integrated with government-chaired health committees and TWGs.



Rose Nkinda, District Laboratory Technologist (seated right), conducting a QI supportive supervision at Mlowa Barabarani health centre with the facilities lab technologist, nurses, and the data clerk. Photo by Data.FI/ Tanzania.

CATALYZING PARTNERSHIP

Partnerships Increase Our Collective Impact: A Closer Look at Our Collaboration with the FCDO-funded Vaccine Co-Lab Project in Nigeria

In January 2023, Data.FI presented findings from Nigeria’s COVID-19 situational analysis (conducted by Data.FI in June 2022), during a workshop organized by the Vaccine Data Co-Lab project and the Government of Nigeria. The objective was to identify unmet needs in the COVID-19 landscape. One of the outputs of the workshop was a roadmap outlining the future of vaccine data within the context of the larger public health data ecosystems. This consisted of the following:

- A standard framework across different levels to enable data interoperability; this is expected to serve as a guide to all stakeholders in the vaccine data value chain on SOPs for data generation, collection, analysis, visualization, and interoperability.

- The introduction of COVID-19 vaccines into routine immunization programs at the grassroots level.
- An integrated data system for all stages of the data value chain characterized by data integrity and protection guidelines.
- A “genomic” data bank for all forms of health data in Nigeria.

During the workshop, a mapping exercise was conducted to identify key partners necessary to achieve various milestones. These partners were assigned various roles based on their expertise and were awarded grants under the Vaccine Data Co-Lab to complete identified activities. As a part of the larger collaboration, Data.FI provided technical assistance to these partners to ensure proper implementation of activities.



The Data.FI/South Africa team meet with coordinating stakeholders of the Knowledge Hub to plan fully transitioning stewardship of the platform to the NDOH; March 2023. Photo by Data.FI/South Africa.

ENHANCING GOVERNMENT CAPACITY TO LEAD

With clear plans to **transition CHISA to local stewards**, **Data.FI/South Africa** worked this year to migrate the TB and HIV analytics dashboard and data from the Data.FI-hosted environment to the official NDOH data and analytics site. To manage to transition, we developed a four-phase plan. Phase 1 focused on making the analytics available through the NDOH site, along with all necessary guidance documentation. This process was completed on time.

We also successfully transitioned management of the Knowledge Hub, an e-learning platform that offers online courses and webinars for more than 133,000 public and private-sector health

providers in South Africa, to the Human Resources Department (HRD) at the NDOH. This was a huge step in establishing the long-term sustainability and institutionalization of the system.

Data.FI continues to provide routine technical assistance to the NDOH to transfer skills and knowledge of TB/HIV informatics and analytics. The migration process resulted in a change of platform from Metabase to Power BI to better align to existing NDOH products, and user guidance was revised and tested to ensure all new users enjoy a seamless experience while using the enhanced analytics (this guidance was developed to allow for easy adaptation to the wider NDOH system). The launch of the TB/HIV analytics in the NDOH Health Information Center (HIC) marked a significant milestone and introduced many attendees to the

system for the first time, broadening the utilization of TB/HIV analytics for informed decision making. This process led to the creation of a digital health TWG that will steer the development, coordination, and management of digital health initiatives within the NDOH. The TWG will implement a more inclusive and systematic process for promoting the national and subnational use of the TB/HIV analytics.

Going forward, Data.FI will provide secretarial support to the TWG. In the upcoming COP year, the subsequent phases will be implemented, including the movement of the consolidated drug-sensitive TB (DS-TB) and HIV patient-level data to the HIC data lake (Phase 2), testing solutions to fast-track data updates (Phase 3) and bridging the gap to the eventual national EMR (Phase 4).

In **Burundi**, we have worked with PNLS and PEPFAR IPs to develop and reach agreement on a SIDAInfo sustainability and transition plan. This included a PNLS transition readiness assessment, which resulted in recommendations for capacity strengthening. Over the next six months, we will continue working with PNLS to finalize the transition plan.

In September 2023, Data.FI conducted a **training of trainers** from the central and provincial levels in **Burundi** to conduct **routine data review meetings** following the project's situation room methodology. The training results included detailed action plans for improving data quality and linkage of clients in three priority provinces. Through the Global Fund, Data.FI also procured equipment, like computers and fingerprint readers, to support the establishment and institutionalization of situations rooms across sites implementing SIDAInfo.

During this workshop, Data.FI also supported the MOH to launch a **“Data Use for Improvement”** strategy—building the capacity of MOH officials from the National Planning, Monitoring and Evaluation Division, the HMIS Directorate, and PNLS, as well as MOH officials from the provincial and district levels to interpret data, identify performance problems, and work collaboratively

to action short- and long-term solutions to address variable levels of linkage to HIV care for newly diagnosed individuals. With a national average of 66 percent of the 11,000 newly diagnosed PLHIV linked to care (between September 2022 and August 2023) each participating province documented an action plan for rapid corrective action.

“The orientation on Data Use for Improvement gave us the skills needed to organize bi-weekly data review meetings to interpret data and engage with the health facilities. We will pilot the methodology in USAID-supported provinces, and they will serve as an example for the rest of the country.”

— Leonce Nzisabira, Chef de Service de Gestion Information Sanitaire



Three bike riders and a truck near Gitega, Burundi. Photo by Dave Proffer.

In **Eswatini**, Data.FI provided technical assistance to the HMIS unit of the MOH to prepare the Global Fund grant that will cover equipment and infrastructure to support the rollout of the CMIS. The Global Fund has given special approval to the MOH's request to ensure CMIS project implementation.

As part of our ongoing support to the **Eswatini** MOH, Data.FI supported the development of an initial department roadmap for the newly created Chief Strategic Information office, which will be responsible for **HIS leadership and governance**. Data.FI also accompanied the Strategic Information Department on a South-to-South learning experience to Rwanda and assisted the MOH during the assessment of eLMIS and its integration with CMIS.



Girl in Nigeria; EU humanitarian aid campaign. European Union, 2018.
Photo by Samuel Ochai.

To support the sustainability of **NOMIS** and build the capacity of the staff to effectively manage and use NOMIS for tracking and monitoring OVC clients, Data.FI **Nigeria** has conducted several capacity-strengthening activities over the past year.

- Data.FI organized a three-day training of trainers program for all members of the NOMIS Informatics Task Team, focusing on the **NOMIS Child Monitor application**, a mobile application version of NOMIS designed for use within communities. The mobile application empowers community case workers to conduct their work more efficiently and effectively, enabling them to retrieve and synchronize household information.
- Data.FI conducted **NOMIS data migration and deployment training** for all OVC PEPFAR IPs (72 people) and 64 DOD OVC staff. Data.FI conducted a one-week training for 15 FMWA OVC Department staff on all OVC indicators and on NOMIS, to improve local capacity to use NOMIS for OVC program performance management and to provide governance support to the system.
- In June 2023, Data.FI organized the **NOMIS Informatics Task Team (ITT) Inauguration**, which convened representatives from FMWA, OVC stakeholders, and PEPFAR agencies nationwide. During this event, Data.FI delivered a refresher training on NOMIS and the ITT received official commissioning by the Permanent Secretary of FMWA.

Trained
6,241
individuals



Review meeting at the Kano State EOC in October 2022. Photo by Data.FI/Nigeria.

In Nigeria, Data.FI supports state-level Emergency Operations Centers to improve the COVID-19 response.

When the COVID-19 pandemic was declared in **Nigeria**, Data.FI established state-level **Emergency Operations Centers (EOCs)** across eight USAID-supported states to address challenges with information flow and data use. Surveillance systems were slow to adapt to enable the capture of COVID-19 case data, and parallel systems for vaccination data emerged. Data.FI held weekly data review meetings to improve surveillance and vaccination efforts. The project provided EOC stakeholders with training on how to use Nigeria's SORMAS, training in data analytics including using

What are EOCs?

In response to the COVID-19 pandemic, The SMOH activated Emergency Operations Centers to provide a forum for coordination and action around real time data, convening weekly meetings under the leadership of the State Epidemiologist. Depending on the focus for the meeting, either the Disease Surveillance and Notification Officer or the State Immunization Officer moderates the meeting with 15-20 stakeholders in attendance.



GIS software, and training in applying QI tools to ensure rapid corrective action and accountability. As the focus shifted away from outbreak response, the EPI used the EOC platform to develop vaccination intensification plans using the granular data available at LGA level and by age group in participating states: Adamawa, Akwa Ibom, Bauchi, Cross River, Edo, Kano, Niger, and Oyo. Following these efforts, vaccination coverage improved. For example, given support for the expansion of COVID-19 vaccination efforts in Edo State, **vaccination of the general population has increased from 774,446 persons in January 2023 to 1,440,328 persons in August 2023, a 49-percent increase.**

At the invitation of the Honourable MOH of Nigeria, Data.FI provided technical assistance to strengthen the Federal MOH's **coordinated response to all-hazards events** irrespective of aetiology. Data.FI supported an assessment of EOCs using a **Joint External Evaluation (JEE)** in December 2022 and identified gaps in terms of the policies and financing necessary to fulfill the mandate to prepare for, detect,

and respond to future public health events. Data.FI supported the development of an M&E framework, against which states can measure progress in standing up the EOCs.

Leadership and governance skills of the MOH's EPI in **Malawi** were lacking, especially with high turnover and new staff assigned for COVID-19 vaccine data. Data.FI **reinvigorated a data management governance structure**, ensuring routine collaboration and coordination between ministry departments at national and district levels. The assistance included strengthening coordination between EPI, DHD, and other donor partners working with COVID-19 vaccines and promote alignment

“The digitization of COVID-19 vaccination data has built a positive relationship between EPI and DHD, creating a great environment for future joint projects. The team contains complementing entities, including the government and development partners.”

— DHD Deputy Director Dr. Alinafe Mbewe



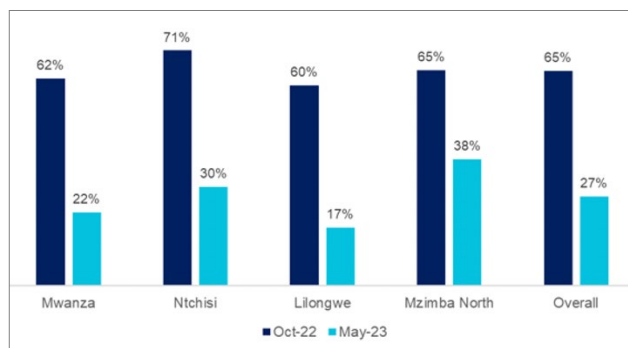
Mt. Mulanje, Malawi. Photo by Lisa de Vreede.

for future routine immunization information systems. Together with DHD, Data.FI developed a sustainability and capacity-building plan to articulate the capacities and actions required to scale and sustain these change management activities over time.

Improved coordination across stakeholders also allowed for the development of improved and standardized documentation and training materials on the **eVax module**, including new SOPs approved by the Digital Health TWG and the development of digital health capacity for frontline staff through training and supportive supervision, with documented improvements on knowledge and use of the **eVax Registry**. In four priority districts, Data.FI strengthened the capacity of district and facility users to use the eVax and Tableau dashboard.

To **strengthen capacity**, 231 staff, including health workers, health surveillance assistants, and data entry clerks, were trained on data entry, syncing, troubleshooting, and accessing data via the dashboard. Staff from hard-to-reach facilities were prioritized. Interns were deployed to 12 facilities to support uptake of eVax and clear the paper backlog. Skills gained through these activities can be **applied to broader One Health Surveillance Platform (OHSP)/DHIS2 applications**. Lastly, all devices were updated with the latest version of DHIS2 and the national COVID-19 dashboard was upgraded to include critical indicators on coverage and comparison of indicators across data sources.

Figure 5. Discrepancy rate between paper and digital COVID-19 vaccine records in four Data.FI-supported districts



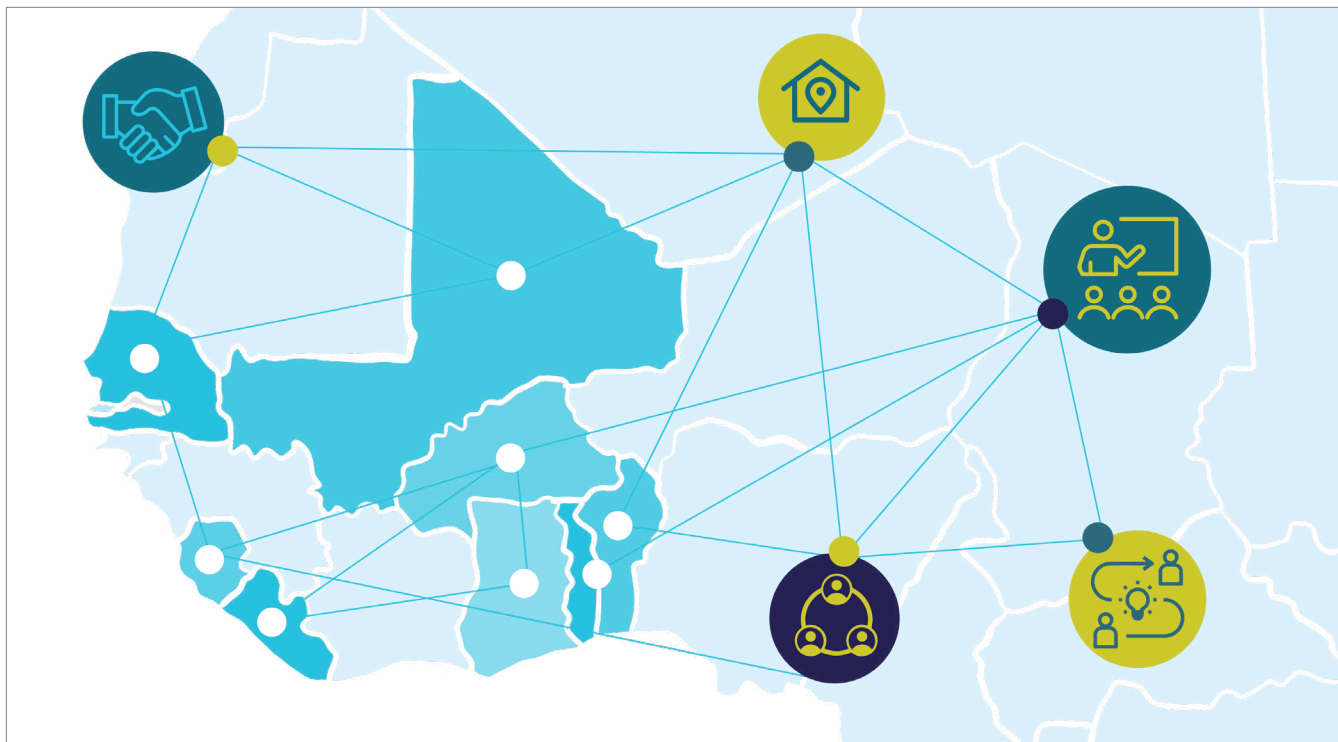
Data.FI's multi-pronged approach to strengthen workforce capacity and stakeholder coordination at all levels has contributed to decreased backlog rates in the four priority districts.



SUPPORTING A SCHOOL VACCINATION PROGRAM IN HONDURAS

In September 2022, an analysis of COVID-19 second-dose vaccination among school populations in the two largest Honduran health districts (San Pedro Sula and Metropolitan Central District) was 36 percent. To support the Government of Honduras to address this health risk, Data.FI developed analyses for various vaccination coverage scenarios to inform action plans for COVID-19 vaccination in schools. In the metropolitan regions the action plans were carried out with national resources and through the situation rooms, while in rural regions analysis was supported by the World Bank-funded vaccination campaigns in coordination with the USAID/ Educational Development Center (EDC) project (from Readers to Leaders) and local education authorities and networks. Data.FI improved data coordination between school districts and MOH officials at the regional level to develop visualized scenarios throughout the campaign. This intersectoral approach between the education and health sectors illustrated unification and coordination to achieve a common goal. The data use strategy has been adapted to respond to other priorities of the MOH, such as the management of dengue and Mpox.

School children from a 'Go with Gus' humanitarian tour. Photo by moonjazz.



STRENGTHENING LOCAL PARTNERS

In **Cameroon**, Data.FI has focused on **strengthening local implementing partners' (LIPs') capacity for data management and visualization**. Our hybrid approach included mentorship, collaboration, training, and direct technical assistance. During this reporting period, we collaboratively developed capacity-strengthening plans with four local IPs to address prioritized gaps; developed SOPs for data security for the National Episcopal Conference of Cameroon (Conférence épiscopale nationale du Cameroun, CENC); gathered a list of prioritized visualizations for LIPs for Care and Health Program (CHP) and Littoral Regional Funds for Health Promotion; developed data models for CHP and the Cameroonian Association for People Living with HIV/AIDS (ReCAP+) in preparation for their upcoming dashboards; and developed an Excel-based prototype dashboard for Littoral's key performance indicator monitoring. **Using the new tools and skills ReCAP+ is improving their HIV visualizations and data quality and applying their knowledge and practices in their malaria program.**

In the **West Africa Region (WAR)**, Data.FI developed, validated, and conducted a training of trainers **workshop on HIV indicators and visualizations** in collaboration with EpiC staff in the region in both French and English. This training will help decision makers in **Benin, Burkina Faso, Ghana, Liberia, Mali, Senegal, Sierra Leone, and Togo** to better understand HIV indicator data for decision making.

"I learned a lot from this training ... such as how to illustrate the level of performance of our programs through the appropriate visualization tools, and how to interpret them. The challenge for us—actors who technically support our states in terms of monitoring and evaluation—is to strengthen the capacities of data (and site) managers on these different modules, and help produce quality data at the grassroots level."

— Essopha Kokoloko, WAR Data Manager, EAWA

CLOSER LOOK

Sustaining OVC Information Systems: A Transition Story in Zimbabwe

Aware of growing risks associated with data and information technology, Data.FI is committed to delivering tools and solutions that protect data throughout its lifecycle. In **Zimbabwe** we trained 25 staff from **OVC IPs on information security** and data interpretation. We also improved the overall data security and management processes of the system, with IPs demonstrating increased compliance to information security procedures and guidelines.

As part of the ongoing support during the **transition period**, Data.FI is building the capacity of newly awarded OVC IPs to use and maintain the MIS, providing support to local system administrators and transitioning the system to local Zimbabwean IPs. We began training five staff from Family AIDS Caring Trust (FACT)/Zimbabwe on OVC MIS system customization and administration to enable the handover of management of the OVC MIS. We have also developed a two-year roadmap for OVC MIS that illustrates the IP's vision for the system over the next two years, and we developed a transition plan and supported FACT, a local IP. Data.FI improved the calculation of indicators using an automated process

inside DHIS2. Initially, the process took several days to run, but now it has been optimized and can be completed in a couple of hours. This improvement allows decision makers to review daily progress of key indicators to assess actions and improve services for the OVC population.

Responding to new **OVC MIS development** requirements in Zimbabwe, we designed and implemented a new early infant diagnosis (EID) module and OVC Mobile module that allows IPs to plan and budget using mobile devices. We also developed SOPs for management of the OVC MIS and a new log aggregation platform to simplify system monitoring and management for the in-country system administrators. Additionally, Data.FI has successfully handed over the Zimbabwe OVC MIS to FACT. This achievement marks a major milestone in the development of a system that began in 2020 with the goal of both empowering local organizations to gain better insight into their performance while also providing more real-time access to the data for USAID.



Executive Director of FACT Gertrude Shumba (left) with Zainabe Dada, Project Coordinator at Jembi Health Systems, during the OVC MIS handover event on September 28, 2023. Photo by Data.FI/Zimbabwe.

COLLABORATION PROMOTES SUSTAINABILITY

The most significant change experienced this FY in **Nigeria** has been the enhanced collaboration with USAID IPs to enhance program reporting through **LAMISPlus** and **NOMIS**. The reactivation of the **LAMISPlus CoP** fosters better collaboration and engagements with IPs, while working groups convene weekly to review updated modules and provide feedback on LAMISPlus implementation. The goal of the HIS CoP is to promote standardized approaches in the development of a national standard EMR, and to collaborate and contribute to the enhancement and improvement of LAMISPlus. The HIS CoP structure is designed to enhance the internal processes and support the deployment and sustainability of the LAMISPlus EMR.



Dr. Kumshida Yakubu Balami, Emergency Management Coordinator at the World Health Organization, during the development of the COVID-19 training strategy document. Photo by Data.FI/Nigeria.

During this FY, Data.FI led the process of updating and validating the HIS CoP charter and other CoP documentation. The project holds a secretariat role to coordinate, facilitate, track, and execute the CoP roadmap. The goal of the HIS CoP is to create a structure that enables the HIS community to work together in promoting best practices and build common capabilities across the health sector, which also involves strengthening internal strategic technical and operational approaches within the community towards building a robust and globally accepted EMR.

Data.FI also created three working groups (CoP Advisory, Business Analysis, Quality Assurance) to foster a collaborative approach to enhancing LAMISPlus. These various CoPs convene weekly to implement updates to meet the reporting needs of the Government of Nigeria and PEPFAR. In addition, they offer strategic and policy support, develop requirements documents, use cases, and data flows, participate in testing exercises, and collaborate with stakeholders to maintain design specifications. This year, Data.FI conducted three bootcamps and one hackathon. CoP activities included all nine USAID implementing mechanisms, including a Global Fund partner and non-PEPFAR organization interested in contributing to LAMISPlus development.

Applying a similar approach, Data.FI Nigeria has established a successful partnership with the FMWA and PEPFAR IPs to establish the **NOMIS Informatics Task Team**. This team is responsible for overseeing NOMIS governance, sustainability, and enhancement plans within the country. The NOMIS ITT is comprised of 42 members and is organized into three distinct subgroups: the DevOps Team, responsible for programming and application development and improvement; the Business/ Quality Assurance Team, responsible for application testing and providing feedback; and the Governance Team, tasked with offering advisory input on the application's governance. Since its formation in June 2023, these subgroups have convened for group meetings on four occasions.

In **Honduras**, Data.FI supported TWGs to identify and document business processes related to COVID-19 vaccination, including laboratory, vaccine logistics, vaccination registry and surveillance of COVID-19 cases. This included documenting tools and identifying opportunities to strengthen integration of data used for analysis and decision making. Data.FI produced a document summarizing recommendations to **strengthen leadership and governance**, and to improve COVID-19 systems.

As part of our work to strengthen **coordination for information sharing and decision making**, we worked various stakeholders—the Health Surveillance Unit (UVS), the Information Management Unit (Unidad de gestión de la Información, UGI), the Statistics Area (Área de Estadística, AES), the General Directorate of Integrated Health Services Networks (Dirección General de Redes Integradas de Servicios de Salud, DGRIS), General Directorate of Normalization, the headquarters in the metropolitan health regions of the Central District and San Pedro Sula, the Expanded Program of Immunizations (Programa Ampliado de Inmunizaciones, PAI) and the National Biological Warehouse—to support the UGI to **select and transfer vaccination data stored in DHIS2**. This assistance strengthens existing capabilities and facilitates future data migration processes.

“Data.FI’s support has had a positive impact on the information management unit. Thanks to the support of their experts and with their knowledge we have identified several promising opportunities for improvement in the Secretariat of Health.”

— Jhony Ferrera, Development Coordinator at SESAL, Honduras



Dr. Eduardo Retes and Dr. Sara Mejia develop a fishbone diagram with Dr. Olga Colindres and Dr. Francia Martinez (seated, left to right) during a training with the Honduran MOH. Photo by Data.FI/Honduras.

Best Practices

- Transition requirements must be taken into consideration from the initial solution design to ensure the final product’s sustainability.
- In addition to technical capacity, governance and management structures must be strengthened to ensure processes and guidelines are in line with digital solutions.
- Capacity-building efforts should prepare local partners to implement improvements as needed.

Advancing Gender Equality and Social Inclusion



Data.FI is working to accelerate and sustain access to high-quality gender data to improve the primary healthcare system and expedite HIV and COVID-19 epidemic control and maintenance among all gender and age groups, as well as among specific KPs (i.e., AGYW, transgender people, and migrating peoples). Our work is grounded in evidence that gender data are critical to attaining program targets and to reducing disparities in health outcomes and advancing gender equality.

Data.FI conducted an annual refresh on our gender equality strategy to account for new areas of work and broader shifts in thinking about gender equality and social inclusion—like USAID’s 2023 Gender Equality and Women’s Empowerment Policy. In May 2023, we updated the Data.FI Gender Equality and Social Inclusion Strategy to reflect how our work contributes to the priorities in the new USAID strategy. During this reporting period, we advanced the use of gender data in our country activities by ensuring we represent gender minorities and priority populations in the way we collect and use data to improve health programs.



Data.FI Data Quality Advisor Rehema Kassim during a situation room workshop. Photo by Data.FI/Tanzania.

Gender data refers to information about the dynamics between HIV and COVID-19 and gender equality, gender equity, gender norms, gender-based violence, and sexual diversity and inclusion.

In June 2023, Data.FI **launched a gender champions model** to support the integration of gender equality, social inclusion, and gender-sensitive approaches across the project within the framework of the Data.FI gender strategy. **Data.FI gender champions aim to facilitate collaboration and learning about gender across Data.FI buy-ins, inform gender-specific activity development, and enable access to more gender-specific data to address disparities in global and digital health data.**

At the inaugural workshop, the champions discussed current program successes and areas for improvement related to gender. The champions also brainstormed ways to further engage staff on gender-related topics. In the next FY, our goal is to expand our initial cohort to additional champions to widen program scope.

We also conducted a literature review to inform the **development of an asynchronous training, “Integrating Gender into Digital Health Programs,”** using the Articulate 360 platform. The course objectives are to provide staff with a foundational understanding of gender terminology and concepts; the role of gender in global health, M&E, and USAID policies; and the application of gender principles and sensitivities within the digital health landscape and in Data.FI’s work. This training will be integrated into the onboarding process for all new Data.FI staff in the next FY. In FY24, we plan to expand upon the initial modules with a section on responsible data collection, use, and management of gender-sensitive data in global health programs.

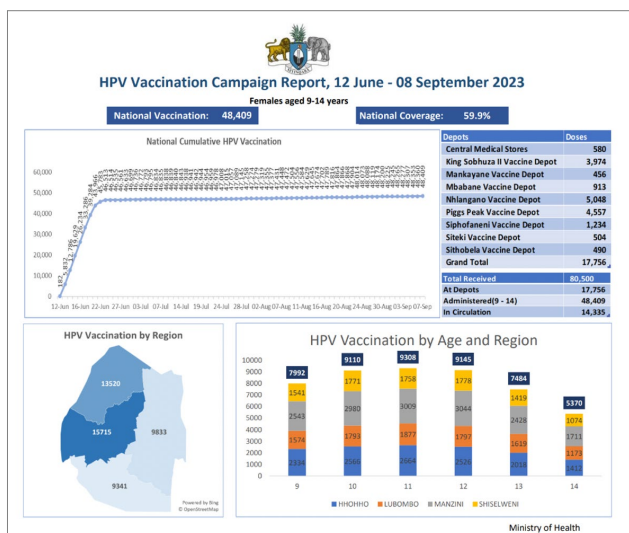
81
analytical
solutions include
gender data

BUILDING DIVERSITY IN OUR WORKFORCE

Data.FI/Nigeria is promoting gender equality through a **tailored internship program**, initiated in 2021 for women. Led by the Nigeria country director and managed by in-country team leads, this local initiative was born out of the need to bridge the gender gap in Nigeria’s data and technology field, which is predominantly male-oriented.

In 2021, the 17-strong Data.FI/Nigeria staff team included only two women. Although the team took deliberate actions to shortlist women who applied for positions, recruitment of qualified women was difficult and the number of women who applied for technology-oriented positions was low. Recognizing the need for gender diversity, Data.FI/Nigeria consulted USAID on how to sustain a resource pool in health informatics and data analytics and developed an internship program to improve the recruitment of women in technology. Data.FI advertised for paid internships and intentionally sought out female applicants to interview.

In 2023, **more than 90 percent of our interns are women** (there are six women and one man in the cohort). Some of these interns support the design, development, testing, implementation, and documentation of Data.FI-supported electronic information systems, while others work in close collaboration with the project data analytics and data use team to leverage weekly PEPFAR data to support control of HIV epidemic. With this opportunity, Data.FI hopes that women university graduates in Nigeria will be inspired to pursue professional careers in data and technology.



Eswatini's CMIS HPV dashboard was used during the National Health Semi-Annual Review Meeting, which was held Sept. 12-14, 2023, to provide updates on cancer programs in the country.



During a recent nationwide school outreach campaign, a healthcare worker documents HPV vaccine information into CMIS. Photo by Data.FI/Eswatini.

ADDING NEW FUNCTIONALITY TO ESWATINI'S CMIS

Data.FI's work to improve access to timely data for decision making is evidenced in **Eswatini's** efforts to ensure that young girls are immunized against cervical cancer and related conditions. To achieve the MOH's target of 90 percent of girls fully vaccinated for HPV by the age of 15, the CMIS underwent a rapid upgrade at special request from the MOH in May 2023 to incorporate the essential vaccine functionality for the HPV module. This new capability **enabled the MOH to effectively use the CMIS for data collection and reporting during the recent national HPV campaign** in June/July. This campaign acts as one of the strategies to meet the vaccination target for girls ages 9-14 and thereby prevent future HPV-related diseases. The campaign was run by the MOH in primary schools across Eswatini, with the CMIS modules accessed using tablets upon which staff had already been trained.

In addition to the HPV module, Data.FI made updates this reporting period to the HIV testing, KPs, and FP modules in the CMIS at the request of Eswatini's KP Program this reporting period to expand the sexual orientation, gender, and population data collected. In the HIV testing module, updates included priority population disaggregations for MSM, female sex workers (FSW), and transgender people. This change allows community health workers to fully collect disaggregated data by priority population on HIV testing forms in the CMIS, which will better inform service delivery for KPs. Having the ability to analyze differences in health outcomes among these population groups will allow for tailored approaches—an important step in the direction of gender-sensitive data collection for HIV programming.

Moving forward, reporting options can be disaggregated by these priority populations to inform data planning service delivery, and the necessary interventions can be tailored to address the needs of these groups. Changes were also implemented in the system on the KP module, adding disaggregations for population types (e.g., MSM and men who purchase sex) as well as preferred gender (noting distinctions between sex assigned at birth and gender selections of Male, Female, and Other).



Nonye Nwanya and Chisom Ohazurume (seated to the right) of Data.FI on a LAMISPlus monitoring visit to the facility matron and data entry clerk at Temitope Hospital in Kwara State. Photo by Data.FI/Nigeria.

INTEGRATING POSTNATAL CARE AND FAMILY PLANNING INDICATORS INTO TANZANIA'S IMES

Research shows that **access to maternal healthcare and reproductive health services in Tanzania** is greatly impacted by gendered social norms, including traditional gender roles and responsibilities in which males are viewed as the dominant household decision makers when it comes to reproductive choices and decisions about healthcare. Since men are viewed as family providers of funds for healthcare, gender norms affect family utilization of maternal health and postnatal care services. Greater access to data and information about reproductive, maternal, and postnatal healthcare further illuminates the necessity to eliminate gender-based barriers so that women have agency in decisions about their health.

Data.FI/Tanzania supports PO-RALG to scale up a data use for QI initiative at different levels of the health system, leveraging Tanzania's iMES as a platform

for data analytics and display. Indicator monitoring follows a phased based approach, where Data.FI provides visualizations on indicators from six main areas: RMNCAH, HIV/TB, NCD, nutrition, malaria, and governance. Upon pivoting to a new technical area, the technical advisory group and committee members assess the national priorities conduct a review of the literature to select a list of priority indicators to be monitored at the Data.FI-supported Council situation rooms.

In Tanzania, postpartum hemorrhage, exacerbated by anemia in pregnant women, is one of the leading causes of maternal mortality—still high in the country. In addition, the Government of Tanzania is committed to ensuring more women have access to FP methods at every contact point with the healthcare system, including for women during postnatal care. During the analytical subcommittee meeting in June 2023, discussions were held with the technical advisory members to **integrate MCH and FP indicators from the DHIS2 into Tanzania's iMES**. Some of these



Data.FI Data Quality Advisor Rehema Kassim during a situation room workshop. Photo by Data.FI/Tanzania.

15 data use cases include gender data

indicators include the percentage of mothers who received postnatal care within seven days of delivery and the percentage of women who received a postpartum FP method in labor and delivery and during postnatal care. By having access to timely and quality data, healthcare workers will have a better understanding of the proportion of women receiving adequate iron and folic acid supplementation, which has been low in some regions.

Like in Tanzania, Nigeria still has challenges with maternal mortality, with higher rates of women dying from pregnancy-related causes than the regional average.² **Nigeria's maternal mortality rate is impacted by inequitable gender norms** in society that impede women's access to and decision making about healthcare and finances compared to their male counterparts, specifically the inability of mothers to access and utilize maternal

health services. The lack of mothers' autonomy and decision-making ability within the family is linked to worse birth care. Alternatively, women who are empowered to make evidence-based decisions can advocate for MCH services, leading to better health outcomes for women and children³ in addition to child mortality.

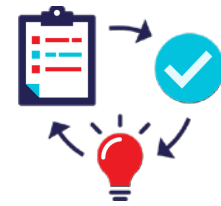
Data.FI/Nigeria worked with the **Palladium Integrated Health Program (IHP)** to support the development of a **Reproductive Maternal Newborn and Child Health (RMNCH) module in LAMISPlus**. The module aims to address Nigeria's maternal and child morbidity and mortality challenges while strengthening the health system for improved access and quality of primary healthcare services. Initial engagement included requirements gathering to initiate the development of the RMNCH module. The proposed EMR system, piloted by IHP, is expected to serve as a prototype and a functional framework for implementing EMR systems for RMNCH and maternal and neonatal components with the potential to significantly enhance health data management and service delivery.

In addition, Data.FI/Nigeria continued to engage in quarterly **National Gender-Based Violence (GBV)** TWG meetings held between January and June 2023. These meetings were coordinated by the FMWA with the purpose of reviewing data reported on the national GBV dashboard, while also addressing strategies for scaling up GBV reporting across the country. The TWG meetings fostered collaboration among stakeholders strengthening the GBV reporting ecosystem. In addition to data review, this meeting has also kick-started the review and harmonization of several paper-based gender tools currently being used by PEPFAR-supported service delivery partners at the facility level. The Government of Nigeria requires all partners to report on the national GBV dashboard, which requires harmonization of all the GBV forms in use across various partners. Data.FI will lead the harmonization process.

² The World Bank. (2023). Gender Data Portal: Nigeria Country Profile. Accessed online at: <https://genderdata.worldbank.org/countries/nigeria/#:~:text=1%2C047%20women%20die%20per%20100%2C000,higher%20than%20its%20regional%20average>

³ Olunfunmilayo Fawole & Ikeola Adeoye. (2015). Women's status within the household as a determinant of maternal health care use in Nigeria. *Afr Health Sci*, 15(1), 217-225. Accessed online at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4370136/>

Project Learning



EMPOWERING COMPREHENSIVE PERSONALIZED CARE THROUGH DATA INTEGRATION

Data integration is the process of combining and unifying data from different sources into a single, coherent, and meaningful view. Data-driven organizations, driven by the need to support evidence-based decisions, collect data from a variety of data systems, databases, and other sources. Effective data integration helps users analyze, report on, and use data for decision making by providing a unified and accurate representation of integrated data. The visualization of integrated data allows organizations to identify trends and patterns within and between countries, and make better decisions based on their data. Through data integration, organizations can also improve data accuracy, facilitate initiatives aimed at reducing data redundancy, and provide a basis for enforcing consolidated data security measures.

Most importantly, integrated clinical care systems provide the greatest value in terms of client-centered care. Integrated systems capture longitudinal chronic care data and provide the information for clinicians—across a client’s care healthcare experience—to ensure that clients receive comprehensive and personalized care.

In PEPFAR programs, data sources and their corresponding data elements typically include:

- **Electronic medical records:** patient demographics, appointments, clinical data, vital signs, clinician notes.
- **Laboratory information systems:** test requests, sample details, lab results.
- **Pharmacy commodity and dispensing systems:** medication details, dispensing records, inventory data.
- **Spatial data from facility and administrative boundary registries:** geospatial coordinates of

facilities, details on administrative boundaries, information about facility capacities and services.

- **Population and household statistics from government registries:** population demographic data, household indicators, including economic indicators.
- **Projections and estimates of key epidemiological indicators:** projections that estimate disease incidence, prevalence, mortality rates, and transmission.

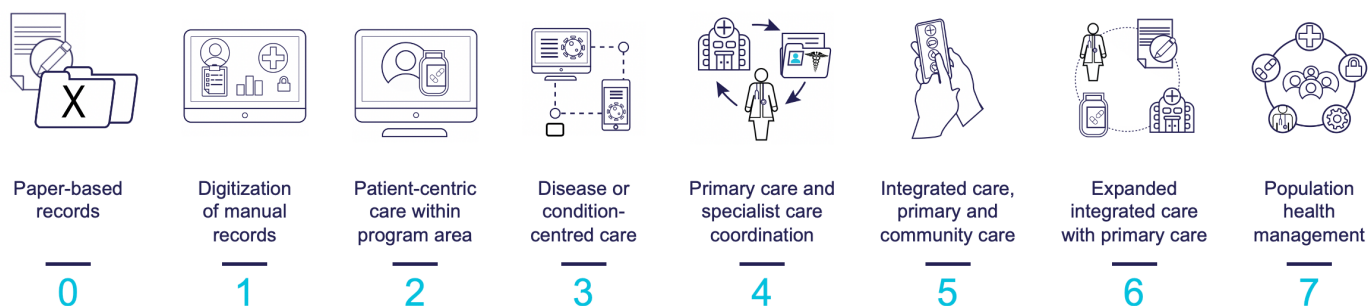
PEPFAR programs across different countries have devised analytical solutions that leverage these diverse data sources (albeit with varying results); however, a standardized framework or process for integrating these data sources is conspicuously absent. Even though the data points are strikingly similar across countries, the pipelines and schemas are very different. Further, existing data integration approaches are difficult to maintain, and do not conform to industry best practices.

Our Learning, Our Leadership

To address data silo challenges, robust digital health enterprise architectures are needed to facilitate data interoperability across different health program areas and collaborating government and non-government actors. As governments support interoperability, standards-based data integration has become an effective and time-saving method for consolidating data. Data are often hosted by different organizations and in formats that require significant ‘*data wrangling*’ before they can be integrated into analytics platforms.

Based on our learning in our work to support countries in establishing and implementing enterprise architectures, and integrate data, we are developing an opensource **CURATE toolkit**—a one-stop shop that allows governments to curate data through a systematic process:

Figure 6. EMRs evolution within the broader HIS ecosystem



*Adopted from the Continuity of Care Maturity Model (CCMM)

1. Catalog datasets in a uniform way.
2. Uphold data protection and accurate data-sharing requirements.
3. Refine and develop and customize tools for data discovery.
4. Adopt a framework for secure, standardized role-based access (e.g., RESTful APIs).
5. Tailor data visualization to cater to different personas.
6. Ensure data consistently propels advancements in health outcomes.

Using the toolkit, any clinical HIV data source can be seamlessly integrated into a universally compatible standards-based data model, usable with common data analytics platforms. In addition, Data.FI is developing an open standard platform for transforming, hosting, and visualizing most used data sets.

LEVERAGING PEPFAR DATA SYSTEMS FOR THE NATIONAL HIS

The Healthcare Information and Management Systems Society (HIMSS) developed the Continuity of Care Maturity Model (CCMM) to assist healthcare leaders worldwide in assessing, implementing, and scaling seamless patient care coordination across multiple care sites and providers. CCMM provides a framework for value-based care and client-centered care to support the evolution of different digital health systems.

The majority of PEPFAR-supported digital systems were originally designed to collect data but are being redesigned to be more people-focused. Even though most countries have advanced their digital health systems, our experience indicates that PEPFAR investments need to be enhanced to meet evolving needs and aligned to a unified country architecture to ensure local ownership.

Our Experience

Data.FI seeks to optimize data utilization within the primary healthcare environment by enhancing the existing digital health investments. Our experience includes supporting EMRs, community-based systems, laboratory systems, commodity tracking systems, and pharmacy systems, among others.

In the process of supporting HIS enhancements in various countries, Data.FI has gained critical insights. While the move from paper-based records to digital systems, such as EMRs, has been laudable, a holistic, client-centered approach is required. It is only possible to achieve this when the current siloed, HIV-specific systems and processes are reengineered and expanded to support clinical care workflows in various operational contexts.

In addition, unique personal identification and interoperability play an important role in ensuring effective healthcare delivery across expanded clinical care service points. Data.FI has applied pragmatic approaches customized to the country context, to address these seemingly intractable challenges, as there is no one-size-fits-all solution.

A low-resource implementation context requires more than digital evolution; it requires revolutionary processes and product innovations. There is need for more emphasis on creating cohesive healthcare ecosystems that support primary healthcare systems as implementers refine the existing PEPFAR-supported digital health investments.

Using Data.FI's experiences in Eswatini as an example, several existing digital health systems can successfully be expanded to accommodate local and national government priorities by applying the following principles:

Our Learnings: Key Principles for HIS Expansion

1. **Strategic alignment:** As existing systems are expanded to accommodate additional use cases, ensure alignment with local and national priorities. When HIS investments are aligned with government goals, they deliver more value, promote ownership, and attract

government investment. For instance, if a country has an eHealth strategy, donors and IPs must consider how the HIS investments align with the government enterprise architecture. HIS investments, products, features, and functions with the broadest impact are allocated complementary financial and non-financial resources through strategic alignment. The result is a higher return on investment and a better use of time and effort.

2. **Design for person-centered system evolution:** Once HIS initiatives have strategic alignment, ensure that HIS are re-engineered for a shift from a siloed, monolithic data-centric design to a service-oriented, people-centric design. HIS design needs to adapt with user needs, health sector goals, and technology landscapes change. HIS relevance, user-friendliness, and optimization can be achieved through evolutionary design. Additionally, this approach reduces the likelihood of future large-scale redesigns, which are often disruptive and costly.



HIV situation room meeting with local stakeholders and implementing partners in Guatemala City. Photo by Data.FI/Guatemala.

3. **Standards-based software integration and interoperability:** In today's digital ecosystem, software rarely operates in isolation. It is becoming increasingly important to integrate diverse HIS components, such as EMRs, with community outreach programs, laboratories, and pharmacies in a seamless manner as the health sector transitions to primary healthcare models. Communication between different software systems is key to delivering seamless user experiences and simplifying clinical care or public health response operations. Integrating and interoperating software based on standards also ensures that updated software can easily interface with other evolving systems, databases, and third-party services, reducing data silos and increasing efficiency.
4. **Management and protection of data:** As systems become more interconnected and data elements become more granular, prioritizing responsible data management and protection isn't just a procedural necessity; it's a commitment to safeguarding the privacy and trust of countless individuals. The ability to consolidate, analyze, and visualize data is as important as safeguarding it effectively and efficiently. Having this proficiency produces accurate, actionable insights that shape service delivery and health outcomes. Data management also facilitates access to reliable, usable data for decision making by ensuring that the right data is accessible to the right users. It is important to manage and protect data properly to foster trust among users, promote HIS utility, and avoid costly violations of data protection regulations.
5. **Implementing innovative solutions:** To align with different local contexts' strategic and regulatory requirements, ensuring that system designs are progressive, interoperable, and adaptable to unique user needs, innovative solutions are essential. Extended HIS use cases can be differentiated from previous siloed implementations by embracing adaptable technologies, methodologies, and design patterns.

6. **Continuous evaluation and implementation:** The dynamic nature of user needs, and technological advancements necessitate continuous feedback loops in software development. Iterative improvements to HIS software can be made by continuously evaluating software performance, user feedback, and emerging technology trends. As a result, the HIS is always optimized, bugs are addressed promptly, and the product is aligned with users' evolving needs.

DETERMINING WHEN ML IS THE RIGHT FIT

Machine learning is a ubiquitous and powerful tool used to solve problems across the healthcare space. However, despite its power and wide applicability, ML is not always the right solution to a problem. We should ask ourselves three questions when trying to determine whether ML is the right solution.

Are we trying to understand relationships in the data or predict something about the future?

Having a clear problem statement is the foundation of an effective ML solution. For example, if one's goal is to identify relationships in the data to retrospectively understand who dropped off their HIV treatment and why, descriptive and diagnostic analytics is the right solution. Traditional statistical methods such as regression analysis are great at examining associations between variables of interest. Simple descriptive statistics can also identify groups of patients who have experienced interruption in treatment more often than others.

However, if our problem statement is forward-looking, (i.e., we are interested in identifying people who are most likely to experience interruptions and remove the barriers to their HIV treatment), then predictive tools like ML may be the right choice. The future-oriented nature of this problem makes it a better fit for predictive analytics than descriptive analytics. To build an ML solution for this problem, we would need historical patient records with an outcome variable (label) capturing

whether these patients' experienced interruption in HIV treatment. A sample of patient data where we know the outcome that we are trying to predict is important in this case because we want to predict classes of patients (likely and unlikely to experience interruption). However, certain ML problems do not need any outcome variables and are used to identify patterns in large datasets—for example, clustering customers into different groups based on their buying habits (unsupervised ML).

Is the dataset we have access to large and multidimensional?

Even if we are trying to use the data to predict something about the future, ML may not be the right solution. The tool's advantage is its ability to learn complex interactions that are too complicated for a statistical test to digest and learn from. For example, if there are 30-50 PEPFAR MER indicators, the existing data quality tools—which use statistical analysis—will look at two-way ratios between indicators. They are not going to look at 30- (or 50-) way ratios.

Data.FI has developed an anomaly detection tool that can identify patterns across 50 variables at a time, something that no human can do and a task that cannot be completed in Excel. ML approaches like recommender systems can see patterns across all these variables and predict what the outcome most likely should have been for a variable that has a missing response based on those patterns.

On the other hand, if the dataset is on the smaller side, and there are only a few MER indicators, these statistical analysis tools will do a great job of identifying historical patterns in the data. The additional cost and commitment of using ML is likely not worthwhile for this type of use case.

Do we have the people and information architecture to implement the work?

Standing up and sustaining ML models requires staff with specialized skillsets and information architecture that delivers ML-generated insights to decision makers when they need it, in the form they need it. To make the models most useful, they

should be deployed to support real-time decision making. When considering patient-level models, this stipulates that the country should have a point-of-care electronic database such as EMR where an ML model can ingest real-time data to generate insights. Furthermore, ML model integration may require APIs to connect to centrally hosted models, if internet connectivity is available; some will require installing models offline on mobile devices; others may require using PMML, ONNX, POJO, or MOJO formats, ways to convert ML models so they can speak to Java-based applications. Data.FI has developed several ML models that are integrated directly in EMRs.

Overall, ML is a useful solution for learning from large amounts of labeled historical data to understand what is most likely to happen in the future. The machine can do what the human cannot. But ML may not be the right answer for every question or when prerequisite data, infrastructure, and skilled personnel are not available.



Anomaly detection illustration by Denise Todloski.

Looking Forward

Data.FI is collaborating with partners and stakeholders at national, regional, and global levels to support USAID's localization objectives and strengthen host nation's abilities to realize their digital health potential. We are fostering local leadership to play a pivotal role in ensuring the success of a country's digital health systems, including overall oversight, management, and enhancement. When countries have ownership over their digital health systems, they are more likely to be sustainable, culturally appropriate, and responsive to the needs of the populations they serve. As we enter the final phase of the project, we are becoming more strategic in pinpointing opportunities and testing methods to boost local governance and transition.

During the current performance period, Data.FI has seen extraordinary outcomes in its efforts to collaborate with governments and partners, accomplishing significant strides toward the objective of localization—a critical component for sustainability.

In **Zimbabwe, we transitioned** the national OVC MIS to a local IP (FACT). We also developed a roadmap for OVC MIS that illustrates the IP's vision for the system over the next two years.

In **Nigeria, we reactivated** the LAMISPlus CoP to foster better collaboration and engagements with local IPs. Data.FI also **established a successful partnership** with the FMWA and PEPFAR IPs to establish the NOMIS Informatics Task Team responsible for overseeing NOMIS **governance, sustainability, and enhancement plans** within the country.



From left to right: New Project Director Shreshth Mawandia, Finance and Administration Director Margaret Mensah, Senior Regional Manager Dauda Dauda, outgoing Project Director Jenifer Chapman, Senior Regional Manager David Merchant, outgoing Technical Director Richard Ngethe, and new Technical Director Pascal Mwele. Photo by Data.FI.

In **Cameroon**, Data.FI focused on **strengthening local IPs' capacity** for data management and visualization through a hybrid approach that included mentorship, collaboration, training, and direct technical assistance.

In the **West Africa Region**, we developed, validated, and conducted a training of trainers workshops on HIV indicators and visualizations that **will help decision makers** in Burkina Faso and Côte d'Ivoire to better understand HIV indicator data for decision making.

In **Eswatini**, we **developed a roadmap** for the newly created MOH Chief Strategic Information office that will be responsible for HIS leadership and governance. We also facilitated the Strategic Information Department's **South-to-South learning experience** to Rwanda.

In **Burundi**, we supported the **establishment and institutionalization of situations rooms** across sites implementing SIDAInfo and launched a "Data Use for Improvement" strategy in conjunction with the MOH. We also worked with PEPFAR IPs to develop a SIDAInfo sustainability and transition plan.

In **South Africa**, we **transitioned CHISA** to the official NDOH data and analytics site (local steward). We also successfully transitioned management of the Knowledge Hub to the Human Resources Department at the NDOH.

As we push forward, Data.FI will expand on these achievements, working closely with our consortium partners, local MOHs, and institutions to **support USAID's localization agenda**. As the countries reach their epidemic control targets, there are major opportunities to build on the impact of integrated HIV and primary healthcare services. Deeper and effective system integration can help health services become more convenient and responsive to people's needs and can accelerate progress towards the primary healthcare agenda. The advantages of integration can be exploited more fully—for example, through further integration of health information,

procurement, supply management and financing systems between clinic and community settings. Through our work with USAID's Southern Africa Regional Health Office, Data.FI will be supporting five countries in southern Africa to develop and strengthen client- and health worker-centric systems focused on supporting service delivery, integrated across health focus areas.

There are also opportunities for the multiuse of clinical and laboratory platforms, and for instituting digital platform integration between HIV, TB, sexual and reproductive health, DREAMS, cervical cancer, and other vertical programs. In addition to improving health outcomes, successful integration can boost cost-effectiveness, and bring cost savings for service providers (through increased coverage and reduced costs, if services can be delivered simultaneously and using the same platforms). In **Lesotho and Namibia**, through new buy-ins, Data.FI will enhance the existing digital systems, develop and institute interoperability platform, and strengthen system governance and coordination.

Data.FI will continue assisting governments in strengthening evidence-based decision making and improved accountability. We are committed to sharing our learning with USAID, other IPs, and the wider global development community, to expedite our shared localization objectives and achieve our goal of building sustainable digital health ecosystems for data-informed decision making.



A handwritten signature in black ink that reads "Shreshth Mawandia".

—Shreshth Mawandia,
Data.FI Project Director

Annex 2. Project Indicator Results

Indicator	Achieved – LOP Apr 2019 – Sep 2023	Targets – FY23	Achieved APR 2023 Oct 2022 – Sep 2023	Botswana	Burkina Faso	Burundi	Cameroon	Central America Region	Cote d'Ivoire	COVID DQA 2	Eswatini	Guatemala COVID	Guatemala Health	Honduras COVID	Jamaica	Malawi	Mozambique	Nigeria	Nigeria COVID	South Africa	Tanzania	Vaccine Hesitancy	West Africa Region (WAR)	Zimbabwe	AGYW Size Estimation	COVID AEFI Safety Monitoring	COVID-19 Vaccine IP Forum
Outcome 1. Accelerated data use																											
1.1 SI_USE Number of data use cases that document use of data for performance improvement	139	78	77		2	1		20				8		9				13	7		17						
1.1 SI_USE GENDER DISAGGREGATION** , Number of data use cases that use gender data	22	0	15															2			13						
Outcome 2. Advanced Analytics																											
2.1 DATA_ANALYSIS Number of analytical solutions	431	115	187	3	7	4		19		6	15	6	2	5	1	1	62	18	22	3	6	3			2	1	1
2.1 DATA_ANALYSIS GENDER DISAGGREGATION** Number of analytical solutions led by Data.FI that include gender data	127	2	81	3		3		11			17	1		2			8	11	18		3	3				1	
Outcome 3. Optimized and scaled health information sub-systems																											
3.1 HIS_INTEROP* Number of instances of health information systems supported by the project that demonstrate interoperability or compliance with interoperability standards	30	8	6			1					1							3			1						
3.2 HIS_PM* Number of information systems, applications or modules supported by the project with updated key project management documentation for software development	116	35	39	1	2	1		3	3		8	4	6	2	1			2		2	2			2			
3.3 HIS_SCALE* Number and percentage of program sites with new or upgraded project-supported information systems operational as intended within the reporting period	81%	83%	82%			7			165		423							846									
	1660	1461	1441																								
3.4 HIS_ALIGN** Number of systems or modules developed or improved upon by Data.FI that include an assessment of the HIS ecosystem in requirements documentation	27	21	9	1		1						4		2	1												
Outcome 4. Strengthened HIV data sources																											
4.1 DATA_CHECKS Number of digital data quality checks for key PEPFAR indicators developed and introduced	148	15	82			1	43	1			19		1			5		7			5						
4.1 DATA_CHECKS GENDER DISAGGREGATION** Number of digital data quality checks for key PEPFAR indicators developed that include checks for gender data	59	0	29			1	25				2										1						

* Indicator revised for APR 2021 reporting period

** New indicator for APR 2022 reporting period

Project Indicator Results continued

Indicator	Achieved – LOP Apr 2019 – Sep 2023	Targets – FY23	Achieved APR 2023 Oct 2022 – Sep 2023	Botswana	Burkina Faso	Burundi	Cameroon	Central America Region	Cote d'Ivoire	COVID DOA 2	Eswatini	Guatemala COVID	Guatemala Health	Honduras COVID	Jamaica	Malawi	Mozambique	Nigeria	Nigeria COVID	South Africa	Tanzania	Vaccine Hesitancy	West Africa Region (WAR)	Zimbabwe	AGYW Size Estimation	COVID AEFI Safety Monitoring	COVID-19 Vaccine IP Forum			
4.2 SI_QUAL Number of partners/subnational units supported with Data.FI data quality interventions that demonstrate improved data quality*	64	23	26															13			13									
Outcome 5. Strengthened Local Partners																														
5.1 CAP_DATA Percentage of supported local organizations that have been assessed using the U.S. Agency for International Development (USAID)/Office of HIV/AIDS (OHA) Data Non-U.S. Organization Pre-Award Survey (NUPAS) tool (or a similar one)	N/A	0	N/A																											
	6	N/A	0																											
5.2 CAP_MER Percentage of supported local organizations meeting 80 percent of assigned PEPFAR MER target contributions in the reporting period	N/A	0	N/A																											
5.3 CAP_NUPAS Percentage of supported local organizations that have undergone a Non-U.S. Organization Pre-Award Survey (NUPAS) or NUPAS-like assessment	N/A	0	N/A																											
Outcome 6. Innovative Partners and Methods Promoted																														
6.1 INNOV_ANALYSIS Number of analytical solutions that apply artificial intelligence/machine learning techniques	12	1	1														1													
6.1 INNOV_ANALYSIS GENDER DISAGGREGATION** Number of analytical solutions that apply artificial intelligence/machine learning techniques that include gender data	0	0	0																											
6.2 INNOV_PARTNER* Number of private sector and other non-traditional partners engaged by the project	4	3	1												1															
6.2 INNOV_PARTNER GENDER DISAGGREGATION** Number of private sector and other non-traditional partners engaged by the project that are women-led businesses	0	0	0																											
6.3 INNOV_PM** Number of analytical solutions that apply artificial intelligence/machine learning techniques with updated key technical documentation	3	1	1														1													
6.4 INNOV_DEPLOY** Number of instances of machine learning models deployed and/or tools developed for ongoing use	2	1	0																											

* Indicator revised for APR 2021 reporting period

** New indicator for APR 2022 reporting period

Process Indicator Results

	Percentage of annual expiring obligation expended in each financial year* (USD amount expended/ expiring obligation reported annually)	Number of activities with a signed data-sharing agreement	Number of digital health coordination structures supported by Data.FI	Number of data systems assessed by project	Number of data review meetings where performance data is reviewed supported by Data.FI activities
Achieved – LOP Apr 2019 – Sept 2023	N/A	20	61	20	2291
Targets – FY23	99%	15	22	21	913
Achieved APR 2023 Oct 2022 – Sept 2023	N/A	10	31	11	1024
Botswana		1	1	1	
Burkina Faso					15
Burundi			3		2
Cameroon					
Central America Region			8		109
Côte d'Ivoire					
COVID-19 DQA 2		6		6	
Eswatini			1		7
Guatemala COVID-19			5		32
Guatemala Health					13
Honduras COVID-19		2	9	2	69
Jamaica					
Malawi				1	10
Mozambique		1			3
Nigeria			3		99
Nigeria COVID-19					341
South Africa					
Tanzania					316
Vaccine Hesitancy					
West Africa Region (WAR)					
Zimbabwe			1		8
AGYW Size Estimation					
COVID AEFI Safety Monitoring				1	
COVID-19 Vaccine IP Forum					
South Africa COVID-19					
Côte d'Ivoire COVID-19					

Process Indicator Results continued

	Number of indicator reference sheets developed or improved upon	Number of curricula developed by Data.FI	Number of individuals completing a training conducted by Data.FI (By sex of participant)	Number of individuals completing a training conducted by Data.FI (Male Disaggregate)	Number of individuals completing a training conducted by Data.FI (Female Disaggregate)	Number of applications of Data.FI project-branded tools, analytical approaches
Achieved – LOP Apr 2019 – Sept 2023	117	57	9488	3443	4405	19
Targets – FY23	0	18	1772	0	0	4
Achieved APR 2023 Oct 2022 – Sept 2023	0	22	6241	2436	3746	1
Botswana						
Burkina Faso		1				
Burundi			209	131	78	
Cameroon			12	7	5	
Central America Region			301	105	195	
Côte d'Ivoire		2	10	9	1	
COVID-19 DQA 2						
Eswatini		3	2916	912	2004	
Guatemala COVID-19		2	173	81	92	
Guatemala Health			49	22	27	
Honduras COVID-19			152	54	98	
Jamaica		3	14	5	9	
Malawi		1	231	160	66	
Mozambique						
Nigeria		2	277	177	100	
Nigeria COVID-19			192	111	81	
South Africa						
Tanzania		6	1613	632	981	1
Vaccine Hesitancy						
West Africa Region (WAR)		2	22			
Zimbabwe			31			
AGYW Size Estimation						
COVID AEFI Safety Monitoring						
COVID-19 Vaccine IP Forum						
South Africa COVID-19						
Côte d'Ivoire COVID-19			39	30	9	

Annex 3. Data.FI Products

The products listed in this table are only those developed during FY23. For final products developed during previous fiscal years, please consult the respective annual/semi-annual report.

Primary Source of Funding	Publication ID Number	Title
Botswana		
COVID	TL-23-48	Botswana COVID-19 Dashboard: User Guide
COVID	TL-23-49	COVID-19 Dashboard: System Administrator Guide Ministry of Health Botswana
COVID	TL-23-50	COVID-19 Dashboard: Software Requirements Specification
COVID	TL-23-51	Road map for future data opportunities in Botswana
COVID	TL-23-58	Data.FI Botswana COVID-19 Dashboard Training and Handover: Botswana Training Report
COVID	TR-23-23	Designing a COVID-19 dashboard: Report on a workshop on dashboard design and development in Botswana
Burkina Faso		
COVID	DUC-23-107 FR	<i>Stratégies de vaccination contre la COVID-19 dans la région Centre du Burkina Faso</i> Vaccination Strategies against COVID-19 in the Central Region of Burkina Faso
COVID	DUC-23-108 FR	<i>Progrès dans la vaccination contre la COVID-19 des personnes âgées (60 ans et +) de la région Centre du Burkina Faso</i> Progress in COVID-19 Vaccination among the Elderly (ages 60+) in the Central Region of Burkina Faso
COVID	TR-23-90 FR	<i>Stratégie d'utilisation des données pour accélérer la vaccination contre la COVID-19 au Burkina Faso</i> Strategy for using data to accelerate COVID-19 vaccination in Burkina Faso
COVID	TR-23-144 FR	<i>Synthèse de la collecte des données pour l'analyse de la situation des outils COVID-19</i> Summary of data collection for the situation analysis of COVID-19 tools
COVID	TR-23-145 FR	<i>Rapport de la mission de supervision de la campagne de vaccination COVID-19 dans les DRSHP du Centre et Centre-ouest</i> Report on the COVID-19 Vaccination Campaign Supervision Mission of the Regional Directorate of Health and Public Hygiene (DRSHP) of Central and Western Central Regions (Burkina Faso)
COVID	TR-23-146 FR	<i>Rapport de mission de supervision de la campagne de vaccination COVID-19 _ mai 2023</i> COVID-19 Report on the COVID-19 Vaccination Campaign Supervision Mission: May 2023

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
Burundi		
HIV	IS-23-05	On UNAIDS 95-95-95 goals, Burundi is leading the way
HIV	TR-23-28 FR	<i>Plan de développement des capacités pour la transition vers le ministère de la santé de la mise en œuvre de SIDAInfo/UID</i> Capacity-Development Plan for the Transition of SIDA/UID Implementation to the Ministry of Health
HIV	TR-23-30 FR	<i>Audit de la qualité des données pour les programmes de lutte contre le VIH, la tuberculose et le paludisme : Rapport d'évaluation</i> Audit of Data Quality for HIV, Tuberculosis and Malaria Programs: Evaluation Report
HIV	TR-23-31	Local Server Hosting Requirements
HIV	TR-23-32 FR	<i>Cartographie des partenaires du système d'information sanitaire au Burundi : Rapport d'évaluation</i> Mapping of Health Information System Partners in Burundi: Evaluation report
HIV & COVID	TR-23-33 FR	<i>Bulletin épidémiologique</i> Epidemiological Bulletin – Quarter 1
HIV & COVID	TR-23-35 FR	<i>Bulletin épidémiologique</i> Epidemiological bulletins – Quarter 3
HIV & COVID	TR-23-36 FR	<i>Bulletin épidémiologique</i> Epidemiological bulletins – Quarter 4
Cameroon		
HIV	TL-23-10	Data Visualization and Storytelling
HIV	TR-23-38	USAID Local Implementing Partners Capacity-Strengthening Plan: Cameroon
Core DQA Phase 2		
COVID	TR-23-101	COVID-19 Data Quality Assessment: RISE, Ecuador
COVID	TR-23-102	COVID-19 Data Quality Assessment: MOMENTUM, Tanzania
COVID	TR-23-103	COVID-19 Data Quality Assessment: LVCT Health, Kenya

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
COVID	TR-23-104	COVID-19 Data Quality Assessment: EpiC, Tanzania
COVID	TR-23-105	COVID-19 Data Quality Assessment: MaMoni Maternal and Newborn Care Strengthening Project, Bangladesh
COVID	TR-23-106	COVID-19 Data Quality Assessment: IntraHealth, Uganda
COVID	TR-23-119	COVID-19 Data Quality Assessment: Summative Report
Core IP Forum		
COVID	PPT-22-99	USAID COVID-19 Vaccine IP Technical Assistance Forum: Pulse Check
Core Safety Monitoring		
COVID	TR-22-46	COVID-19 Vaccine Safety Monitoring in Nigeria and El Salvador: Study Protocol
COVID	TR-23-02	COVID-19 Vaccine Safety Monitoring in Nigeria: Final Report
COVID Learning Agenda		
COVID	N/A	Implementation of a Data Use Strategy in Situation Rooms in Two Metropolitan Areas of Honduras in the Context of COVID-19
COVID	N/A	USAID COVID-19 Vaccine Digital Collaborative Learning Agenda: Outline of the Journal Supplement
Côte d'Ivoire		
COVID	TL-23-11 FR	<i>Procédure d'intégration des données historiques de vaccination contre la COVID-19 dans le DHIS2 : Rapport final</i> Procedure for Integrating Historical COVID-19 Vaccination Data into DHIS2: Final Report
HIV	TL-23-65	<i>Base de données OEV/DREAMS : Assistance technique —Guide de procédures</i> OVC/DREAMS Database: Technical Assistance Procedures Guide
HIV	TL-23-66	<i>Plateforme d'assistance technique du PN-OEV : Rapport de mise en place</i> The Technical Assistance Platform of the National Program for the Care of OVC: Implementation Report

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
HIV	TL-23-98	<i>Guide d'administration du serveur du Programme national de prise en charge des orphelins et autres enfants rendus vulnérables du fait du VIH</i> Server Administration Guide for the National Program for the Care of Orphans and Other Children Made Vulnerable by HIV
HIV	TR-22-15 FR	<i>Évaluation de la qualité des données OEV de routine des centres sociaux abritant les plateformes de collaboration : Rapport final</i> Data Quality Assessment of Routine OVC Data from Social Centers Hosting Collaborative Platforms: Final Report
COVID	TR-23-06 FR	<i>Outils de collecte de données de la vaccination contre la COVID-19 : Guides d'utilisation</i> COVID-19 Vaccination Data Collection Tools: User Guides
HIV	TR-23-12 FR	<i>Transition de la base de données OEV/DREAMS : Plan de transition</i> Transition of the OVC/DREAMS database: Transition plan
HIV	TR-23-13	OVC and DREAMS Achievements Dissemination Meeting Report
HIV	TR-23-14	<i>Plan de reprise du serveur du Programme national de prise en charge des orphelins et autres enfants rendus vulnérables du fait du VIH en cas de sinistre</i> Disaster Recovery Plan for the National Program for the Care of Orphans and Other Children Made Vulnerable by HIV
COVID	TR-23-39 FR	<i>Audit de la qualité des données de vaccination contre la COVID-19 en Côte d'Ivoire : Rapport final</i> Audit of the Quality of COVID-19 Vaccination Data in Côte d'Ivoire: Final Report
COVID	TR-23-40 FR	<i>Intégration des données historiques de la vaccination contre la COVID-19 dans le DHIS2 : Rapport d'intégration</i> Integration of Historical COVID-19 Vaccination Data into DHIS2: Integration Report
COVID	TR-23-41-FR	<i>Rapport sur la dissémination des outils de collecte de données de vaccination COVID-19</i> Report on the Dissemination of COVID-19 Immunization Data Collection Tools
COVID	TR-23-44 FR	<i>Formation des coordinateurs du programme élargi de vaccination du niveau district à l'utilisation de l'outil eSMT : Rapport d'atelier</i> Training of District-level Expanded Programme on Immunization Coordinators in the Use of the eSMT: Workshop Report
HIV	TR-23-139 FR	<i>Plateforme d'assistance technique du Programme national de prise en charge des orphelins et autres enfants rendus vulnérables du fait du VIH : Passage en revue des outils d'assistance en ligne et choix de GLPI</i> Technical Assistance Platform for the National Program for the Care of Orphans and Other Children Made Vulnerable by HIV: Review of Online Assistance Tools and Selection of GLPI

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
Eswatini		
HIV & COVID	TL-22-44	Eswatini Client Management Information System Dashboard: End-User Guide
HIV & COVID	TL-23-13	ECMIS Facility Dashboards Training: February 2023
HIV & COVID	TR-23-51	FY23 CMIS Priority Upgrades: Software Requirements Specification
HIV & COVID	TR-23-52	CMIS Dashboards Deployment Report
HIV & COVID	TR-23-56	Eswatini HMIS Structure Review: Draft Assessment Report
HIV & COVID	TR-23-59	Supportive Supervision Quarterly Summary
Guatemala		
COVID	DUC-23-50 SP	<i>Cobertura primeras dosis de vacuna COVID-19: San Marcos</i> First Dose Coverage of COVID-19 Vaccines: San Marcos
COVID	DUC-23-51 SP	<i>Vigilancia epidemiológica y promoción de pruebas de COVID-19: Quetzaltenango</i> Epidemiological Surveillance and Promotion of COVID-19 Testing: Quetzaltenango
COVID	DUC-23-52 SP	<i>Aumento de la cobertura en la primera dosis de vacunación: Quiché</i> Increase in First Dosage Vaccination Coverage: Quiché
COVID	DUC-23-53 SP	<i>Cierre de brechas en la vacunación entre la primera y segunda dosis: Huehuetenango</i> Closing Gaps in Vaccination Between First and Second Doses: Huehuetenango
COVID	DUC-23-54 SP	<i>Aumento de cobertura de vacunación en 1ra dosis en niños y adolescentes de 12 a 17 años: Quetzaltenango</i> Increase in First Dose Vaccination Coverage for Children and Adolescents from 12 to 17 Years of Age: Quetzaltenango
COVID	DUC-23-55 SP	<i>Aumento de cobertura de vacunación en 1ra dosis en niños y adolescentes de 12 a 17 años: San Marcos</i> Increase in First Dose Vaccination Coverage for Children and Adolescents from 12 to 17 Years of Age: San Marcos

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
COVID	DUC-23-56 SP	<i>Aumento de cobertura de segunda dosis en el municipio de Chichicastenango: Área de salud Quiché</i> Increase of Second Dose Coverage in the Municipality of Chichicastenango: Quiché Health Area
COVID	DUC-23-57 SP	<i>Aumento de cobertura de segunda dosis en el Municipio de Nebaj</i> Increase of Second Dose Coverage in the Municipality of Nebaj
HIV	DUC-23-58 SP	<i>Estrategia para fortalecer la referencia de casos positivos del VIH a la unidad de atención integral de Cuilapa, Santa Rosa</i> Strategy to Strengthen the Referral of HIV-positive Cases to the Comprehensive Care Unit in Cuilapa, Santa Rosa
HIV	DUC-23-59 SP	<i>Estrategia de referencia: San Marcos</i> Benchmark Strategy: San Marcos
HIV	DUC-23-60 SP	<i>Aumento de tamizaje del VIH en población clave: Santa Rosa, Guatemala</i> Increased HIV Screening in Key Populations: Santa Rosa, Guatemala
HIV	DUC-23-61 SP	<i>Estrategia de referencia: Quetzaltenango</i> Benchmark Strategy: Quetzaltenango
HIV	DUC-23-62 SP	<i>Implementación de estrategias en distritos priorizados con un bajo porcentaje de tamizaje en hombres: Quetzaltenango</i> Implementation of Strategies in Priority Districts with a Low Percentage of Screening of Males: Quetzaltenango
HIV	DUC-23-63 SP	<i>Reducción de la interrupción de TAR en la UAI de Cuilapa: Santa Rosa, Guatemala</i> Reducing ART Interruption at the Cuilapa Comprehensive Care Unit: Santa Rosa, Guatemala
HIV	DUC-23-64 SP	<i>Aumento del tamizaje de VIH en poblaciones clave (HSH, TRANS, PPL y MTS): Guatemala Central</i> Increased HIV Screening in Key Populations (MSM, transgender people, PLW and male sex workers): Central Guatemala
HIV	DUC-23-65 SP	<i>Fortalecimiento de la referencia de personas con VIH a las UAI: Guatemala Central</i> Strengthening Referral of People with HIV to the Comprehensive Care Unit: Central Guatemala
HEALTH	PPT-23-26	<i>Tablero Estratégico Integrado SMI – Nutrición: Proceso y Producto FINAL</i> SMI Integrated Strategic Dashboard – Nutrition: Process and Final Product

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
HIV	PPT-23-27 SP	<i>Tablero VIH Guatemala v. 1.0</i> HIV Guatemala Dashboard v. 1.0
HEALTH	PPT-23-28 SP	<i>Control de calidad de la atención materno-neonatal: Herramienta de consolidación de datos</i> Quality Control of Maternal-Neonatal Care: Data Consolidation Tool
COVID	PPT-23-52 SP	<i>Tablero COVID-19 a nivel de la Dirección de Área de Salud (DAS)</i> COVID-19 dashboard at the Health Area Directorate Level
HEALTH	PPT-23-61 SP	<i>Procedimiento actualizado de carga de datos implementado para la herramienta de calidad del gasto</i> Updated Data Loading Procedure Implemented for the Quality Spending Tool
COVID	PPT-23-79 SP	<i>Análisis geoespacial para la asignación de vacunas contra COVID-19 en Guatemala</i> Geospatial Analysis for COVID-19 Vaccine Allocation in Guatemala
COVID	TL-23-31 SP	<i>Metodología para elaborar un plan de capacitación para el uso de sistemas de información en salud</i> Methodology for Developing a Training Plan for the Use of Health Information Systems
COVID	TL-23-32 SP	<i>Metodología para capacitar en el uso de los sistemas de información EPIWEB y SICOVID: Manual del docente</i> Methodology for Training on Use of the EPIWEB and SICOVID Information Systems: Trainers Manual
COVID	TL-23-33 SP	<i>Sistema de información EPIWEB: Manual del usuario</i> EPIWEB Information System: Users Manual
COVID	TL-23-34 SP	<i>Sistema de información COVID SICOVID: Manual del usuario</i> COVID SICOVID Information System: Users Manual
HEALTH	TL-23-36 SP	<i>Navegación en el tablero de salud materno-neonatal y nutrición: Manual del usuario</i> Navigating the Maternal and Infant Health and Nutrition Dashboard: User Manual
HEALTH	TL-23-37	<i>Tablero de salud materno infantil y nutrición: Manual de administración en Shiny</i> Maternal and Child Health and Nutrition Dashboard: Administration Manual in Shiny
COVID	TL-23-40 SP	<i>Tablero COVID-DAS MS-Excel: Manual del usuario</i> COVID19 Health Area Directorate Dashboard in MS-Excel: Users Manual

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
COVID	TR-23-98 SP	<i>Estrategia de capacitación para sistemas de información relacionados con el COVID-19 en Guatemala</i> Training Strategy for COVID-19 Information Systems in Guatemala
COVID	TR-23-99 SP	<i>Evaluación del impacto del COVID-19 en la prestación de servicios de salud para el VIH en Guatemala: Protocolo de investigación</i> Evaluation of the Impact of COVID-19 on the Provision of HIV Health Services in Guatemala: Research Protocol
HIV	TR-22-44 SP	<i>Estrategia de uso de datos en VIH para acelerar la respuesta en atención al VIH en Guatemala</i> HIV Data Use Strategy to Accelerate the HIV Care Response in Guatemala
HEALTH	TR-23-140 SP	<i>Estrategia de uso de datos en la salud neonatal: para acelerar la respuesta en atención a la salud neonatal en Guatemala</i> Data Use Strategy to Accelerate the Response to Neonatal Health Care in Guatemala
HEALTH	TR-23-141 SP	<i>Términos de Referencia: Salas situacionales y tablero estratégico de salud neonatal, para promover el uso de datos oportunos en la DDRISS seleccionada en Guatemala</i> Terms of Reference: Situation Rooms and Strategic Neonatal Health Dashboard to Promote the Use of Timely Data in Selected Departmental Directorate of Integrated Health Service Networks (DDRIS) in Guatemala
Honduras		
COVID	DUC-23-17 SP	<i>Conciliación de los datos de vacunación en la Región Sanitaria Metropolitana del Distrito Central (RSMDC), Honduras</i> Reconciliation of Vaccination Data in the Metropolitan Health Region of the Central District (RSMDC), Honduras
COVID	DUC-23-18 SP	<i>Implementación de un Plan de Vacunación COVID-19 en población de centros escolares de la Región Sanitaria Metropolitana del Distrito Central (RSMDC), Honduras</i> Implementation of a COVID-19 Vaccination Plan in the School Population of the Metropolitan Health Region of the Central District (RSMDC), Honduras
COVID	DUC-23-19 SP	<i>Integración de fuentes de información en el sistema de vigilancia de la salud: Región Sanitaria Metropolitana de San Pedro Sula</i> Integration of Health Surveillance System Information Sources: San Pedro Sula Metropolitan Health Region
COVID	DUC-23-20 SP	<i>Integración de la atención COVID-19 en el centro de salud Miguel Paz Barahona</i> Integration of COVID-19 Care at the Miguel Paz Barahona Health Center

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
HIV	DUC-23-21 SP	<i>Mejorando la notificación de casos de VIH en la Región Sanitaria Metropolitana del Distrito Central (RSMDC), Honduras</i> Improving HIV Case Reporting in the Metropolitan Health Region of the Central District (RSMDC), Honduras
COVID	DUC-23-22 SP	<i>Vacunación COVID-19 en población de centros escolares: San Pedro Sula, Honduras</i> COVID-19 Vaccination in the School Population: San Pedro Sula, Honduras
HIV	DUC-23-23 SP	<i>Armonizar los casos positivos de VIH entre unidades</i> Harmonizing HIV-positive Cases Between Units
COVID	DUC-23-24 SP	<i>Respuesta a brotes de COVID-19 en hogares de adultos mayores en la región sanitaria metropolitana del distrito central (RSMDC), Honduras</i> Response to Outbreaks of COVID-19 in Homes for the Elderly in the Metropolitan Health Region of the Central District (RSMDC), Honduras
HIV	DUC-23-25 SP	<i>Aumento de cobertura de 1° prueba de VIH de la embarazada en la región sanitaria metropolitana del distrito central (RSMDC), Honduras</i> Increased Coverage of First HIV Tests for Pregnant Women in the Metropolitan Health Region of the Central District (RSMDC), Honduras
HIV	DUC-23-26 SP	<i>Aumento la vinculación a SAI y TAR de pacientes con diagnóstico nuevo de VIH, Región sanitaria metropolitana del distrito central (RSMDC), Honduras</i> Increased Linkage to SAI and ART of patients with newly diagnosed HIV: Metropolitan Health Region of the Central District (RSMDC), Honduras
HIV	DUC-23-27 SP	<i>Mejora de la vinculación a servicios de atención integral de casos nuevos del VIH: Región Sanitaria Metropolitana de San Pedro Sula</i> Improving Linkage to Comprehensive Care Services for New Cases of HIV: San Pedro Sula Metropolitan Health Region
HIV	DUC-23-28 SP	<i>Fortalecer la notificación oficial de la atención de pacientes con VIH: Región Sanitaria Metropolitana de San Pedro Sula</i> Strengthening Official Reporting of HIV Patient Care: San Pedro Sula Metropolitan Sanitary Region
COVID	DUC-23-92 SP	<i>Experiencias exitosas de vacunación de población de 5 a 11 años contra COVID-19 en la sala situacional nacional</i> Successful Experiences with COVID-19 Vaccination of the Population Ages 5 to 11 Years in the National Situation Room

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
HIV	DUC-23-93 SP	<i>Aumento de cobertura de la prueba VIH en población clave establecimientos de salud con servicios VICITS: Región Sanitaria Metropolitana del Distrito Central (RSMDC), Honduras</i> Increased HIV Testing Coverage in Key Population in Health Facilities with VICITS Services: Metropolitan Health Region of the Central District (RSMDC), Honduras
HIV	DUC-23-95 SP	<i>Mejorar la documentación de la carga viral: Región Sanitaria Metropolitana de San Pedro Sula</i> Improving Viral Load Documentation: San Pedro Sula Metropolitan Health Region
COVID	DUC-23-96 SP	<i>Mejorar las coberturas de vacunación contra el COVID-19 al personal de salud: Región Sanitaria Metropolitana de San Pedro Sula</i> Improving COVID-19 Vaccination Coverage for Health Personnel: San Pedro Sula Metropolitan Health Region
COVID	DUC-23-97 SP	<i>Respuesta al brote de casos de COVID-19 en la Región Sanitaria Metropolitana del Distrito Central (RSMDC), Honduras</i> Response to the Outbreak of COVID-19 Cases in the Metropolitan Health Region of the Central District (RSMDC), Honduras
HIV	PPT-23-03 SP	<i>Tableros del VIH, Sala situacional del VIH</i> HIV Dashboards, HIV Situation Rooms
COVID	PPT-23-24 SP	<i>Certificado de vacunación COVID-19: Experiencia internacional y avances en Honduras</i> COVID-19 Vaccination Certificate: International Experience and Progress in Honduras
COVID	PPT-23-25 SP	<i>Propuesta de vacunación en Centros Escolares</i> Proposal for Vaccination in Schools
COVID	PPT-23-82 SP	<i>Data.FI – Honduras, Tablero de COVID-19</i> Data.FI/Honduras, COVID-19 Dashboard
COVID	TR-22-36 SP	<i>Estrategia de uso de datos para acelerar la respuesta y vacunación contra el COVID-19 en Honduras</i> Data Use Strategy to Accelerate COVID-19 Response and Vaccination in Honduras
COVID	TR-22-107 SP	<i>Evaluaciones rutinarias de la calidad de los datos de morbilidad y mortalidad por COVID-19: Región Sanitaria Metropolitana de San Pedro Sula, Honduras</i> Routine Data Quality Assessments of Morbidity and Mortality Data from COVID-19: San Pedro Sula Metropolitan Health Region, Honduras

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
HIV	TR-23-10	Routine Data Quality Assessments of COVID-19 Morbidity and Mortality Data: Metropolitan Health Region of Central District, Honduras
	TR-23-10 SP	<i>Diagnósticos Rutinarios de Calidad de los Datos de Morbilidad y Mortalidad por COVID-19: Región Sanitaria Metropolitana del Distrito Central, Honduras</i>
COVID	TR-23-47 SP	<i>Análisis de Procesos y Sistemas de Gestión de Información del COVID-19</i> Analysis of COVID-19 Information Management Processes and Systems
COVID	TR-23-91 SP	<i>Diagnóstico Rápido de Capacidades y Recomendaciones para la Unidad de Gestión de la Información de la Secretaría de Salud de Honduras</i> Rapid Capacity Assessment and Recommendations for the Information Management Unit of the Ministry of Health of Honduras
COVID	TR-23-107 SP	<i>Hoja de ruta ilustrativa para el funcionamiento del sistema de información acerca del COVID19: Documento de especificación del sistema de información sobre COVID-19</i> Illustrative Roadmap for the Operation of the COVID-19 Information System: COVID-19 Information System Specification Document
HIV	TR-23-126 SP	<i>Evaluación de los sistemas de información sobre el VIH con recomendaciones: Análisis de procesos y flujos de información</i> Evaluation of HIV Information Systems with Recommendations: Analysis of Processes and Information Flows
HIV	TR-23-130 SP	<i>Guía de administración del sistema, configuración y documentación de hosting: De tablero de COVID-19 de Honduras</i> System Administration, Configuration, and Hosting Documentation Guide: the COVID-19 Dashboard of Honduras
HIV	TR-23-131 SP	<i>Resultados y Evaluación del Programa de Capacitación: Data.FI en Honduras</i> Results and Evaluation of the Training Program: Data.FI in Honduras
Jamaica		
COVID	PPT-23-53	Logistics Management for COVID-19 Commodities in Jamaica
COVID	TL-22-51	OpenLMIS Admin Guide: Health Connect Jamaica
COVID	TL-23-39	OpenLMIS User Guide: Health Connect Jamaica
COVID	TL-23-41	Software Requirements and Specifications for OpenLMIS: Health Connect Jamaica

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
COVID	TL-23-73	OpenLMIS Installation Guide: Health Connect Jamaica
COVID	TL-23-84	OpenLMIS Analytics: Health Connect Jamaica
Malawi		
COVID	TL-23-24	Standard Operating Procedure for the Electronic Vaccine (e-VAX) Registry
COVID	TL-23-25	COVID-19 Vaccine Registry Version 2.0: Training Guide
COVID	TL-23-35	e-Vaccine Registry Training: Digital Health Division Directorate of Planning and Policy Division Ministry of Health
COVID	TR-23-77	Sustainability and Capacity-Building Plan
Mozambique		
HIV	TL-22-13	National HIV/AIDS Program (PNC ITS-HIV/SIDA) Extract, Transform, and Load Tool: User Guide
HIV	TL-22-48	National HIV/AIDS Control Program (PNC ITS-HIV/SIDA) Extract, Transform, Load (ETL) Data Model
HIV	TI-23-75 TI-23-75 PT	Change Management Policy: Mozambique HIV/AIDS Data Platform <i>Política de gestão de mudanças: Ferramenta ETL para o HIV/SIDA em Moçambique</i>
HIV	TL-23-76 TL-23-76 PT	Continuous Development and Deployment Approach: The ETL Tool for HIV/AIDS in Mozambique <i>Abordagem contínua do desenvolvimento e da implementação: Ferramenta ETL para o HIV/SIDA em Moçambique</i>
HIV	TL-23-77 TL-23-77 PT	Requirements for Mozambique's National HIV/AIDS Data Analytics Platform <i>Requisitos para a plataforma nacional de análise de dados de HIV/SIDA de Moçambique</i>
HIV	TL-23-78 TL-23-78 PT	Mozambique Extract, Transform, Load Data Model: Technical Documentation <i>Modelo de extracção, transformação e carregamento de dados para Moçambique: Documentação técnica</i>
HIV	TL-23-79 TL-23-79 PT	Mozambique National AIDS Program (PNC ITS-HIV/SIDA) Extract, Transform, Load ETL Tool: User Manual <i>Ferramenta de ETL do Programa nacional de HIV/SIDA de Moçambique: Manual do utilizador</i>

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
HIV	TL-23-80 TL-23-80 PT	Mozambique National AIDS Program: Extract, Transform, Load Data Portal Architecture <i>Programa Nacional de Controlo de ITS e HIV/SIDA em Moçambique: Arquitectura do portal de dados – ETL</i>
HIV	TL-23-81 TL-23-81 PT	Mozambique Portal Installation, Deployment, and Troubleshooting Guide <i>Guia de instalação, implementação e resolução de problemas do portal de Moçambique</i>
HIV	TL-23-82 TL-23-82 PT	User Accounts Policy for Electronic Systems Managed by the Mozambique Ministry of Health <i>Política de contas de utilizador: para os sistemas electrónicos geridos pelo Ministério da Saúde de Moçambique</i>
HIV	TL-23-83 TL-23-83 PT	Mozambique PIAD Release Notes: Versions 1.0, 1.1, and 1.2 <i>Notas de lançamento da ferramenta ETL para Moçambique: Versões 1.0, 1.1 e 1.2</i>
Nigeria		
COVID	Bulletin	Monthly Bulletin – October 2022
COVID	Bulletin	Monthly Bulletin – November 2022
COVID	Bulletin	Monthly Bulletin – December 2022
COVID	Bulletin	Monthly Bulletin – January 2023
COVID	Bulletin	Monthly Bulletin – February 2023
COVID	Bulletin	Monthly Bulletin – March 2023
COVID	Bulletin	Monthly Bulletin – April 2023
COVID	Bulletin	Monthly Bulletin – May 2023
COVID	Bulletin	Monthly Bulletin – June 2023
COVID	Bulletin	Monthly Bulletin – July 2023
COVID	Bulletin	Monthly Bulletin – August 2023

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Primary Source of Funding	Publication ID Number	Title
HIV	DUC-23-06	Improving Viral Load Suppression among Pediatric and Young Adolescent Clients: Taraba State
HIV	DUC-23-07	Improving Continuity of Treatment in Low-Performing Health Facilities in Taraba: Taraba State
HIV	DUC-23-08	Improving TLD Transition among Children Ages 0-14 Years: Akwa Ibom, Nigeria
N/A	DUC-23-09	Increasing TB Preventive Therapy Uptake among Eligible PLHIV: Data.FI, Nigeria
HIV	DUC-23-77	Improving Linkage of Pregnant People Living with HIV to ART through Data Cleaning
HIV	DUC-23-78	Improving HIV Case Finding among Children in Taraba
HIV	DUC-23-79	Agreement of Children Living with HIV OVC and Treatment Implementing Partners – National OVC Situation Room, Nigeria
HIV	DUC-23-80	Improving Orphans and Vulnerable Children Viral Load Testing Coverage in Nigeria: National OVC Situation Room, Nigeria
HIV	DUC-23-81	Improving Orphans and Vulnerable Children Viral Load Suppression in Nigeria: National OVC Situation Room, Nigeria
HIV	DUC-23-82	Improving Patient Continuity in Treatment in Borno
HIV	DUC-23-83	Improving ART Uptake among HIV-exposed Infants: Akwa Ibom, Nigeria
HIV	DUC-23-84	Improving HIV Case Finding among Pregnant Women in Akwa Ibom
HIV	DUC-23-85	Increase in HIV Recent Coverage among ART-naïve People Living with HIV in Nigeria
HIV	DUC-23-86	Improving Index Case Testing and Yield: Awka Ibom, Nigeria
COVID	DUC-23-111	Scaling Up COVID-19 Vaccination Coverage in 4 LGAs in Adamawa State
COVID	DUC-23-112	Improving COVID-19 Vaccination Data Concurrence between Electronic Management of Vaccination Data and Call-in Data in Akwa Ibom State
COVID	DUC-23-113	Improving COVID-19 Vaccination in Edo State
COVID	DUC-23-114	Increasing COVID-19 Case Finding in Kano State
COVID	DUC-23-115	Improving COVID-19 Vaccination Coverage in Niger State

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
COVID	DUC-23-116	Improving Concurrence of Electronic Management of Immunization Data (EMID) and Call-in Vaccination Data in Edo State
COVID	DUC-23-117	Increasing COVID-19 Vaccination in Cross River State
COVID	DUC-23-118	Improving COVID-19 Immunization Data Concurrence between EMID and Call-In Data in Bauchi State
COVID	DUC-23-119	Increasing COVID-19 Vaccination in Akwa Ibom State
HIV	IS-23-01	Agege One-Stop Shop
HIV	IS-23-02	Taraba State Specialist Hospital, Jalingo
HIV	IS-23-03	Government House Clinic Jalingo
HIV & COVID	IS-23-04	International Women's Day — March 8, 2023
HIV	TL-23-17	Nigeria: LAMISPlus Training Manual
HIV	TL-23-18	LAMISPlus 2.0 Installation Guide
HIV	TL-23-19	LAMISPlus 2.0 Trainer's Handbook
HIV	TL-23-20	LAMISPlus 2.0 Facilitator's Guide
HIV	TR-23-08	Site Improvement through Monitoring Systems Assessment: Feedback Report for the Center for Clinical Care and Clinical Research-Nigeria Accelerating Control of the HIV Epidemic 4 Project in Kwara State
HIV	TR-23-18	Site Improvement through Monitoring Systems Assessment: Feedback Report for Health System Consult Limited's Accelerating Control of the HIV Epidemic 3 Project in Kebbi State
HIV	TR-23-19	Site Improvement through Monitoring Systems Assessment: Feedback Report for Society for Family Health Key Populations Community HIV Services Action and Response 2 (KP CARE 2) Project in Kebbi State
HIV	TR-23-20	Site Improvement through Monitoring Systems Assessment: Feedback Report for Heartland Alliance Nigeria's Accelerating Control of the HIV Epidemic Award 6 Project in Edo State
HIV	TR-23-60	SIMS Assessments: What They Are and What They Contribute to the HIV Response in Nigeria

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
COVID	TR-23-61	Capacity Strengthening and Learning Report for COVID-19 EOCs In Nigeria: Training Report
COVID	TR-23-66	FY23 Comprehensive ESM Reports: September 1, 2022 – September 30, 2023
HIV	TR-23-67	Protocol for FY23 Data Quality Assessment of OVC Programs: Nigeria
HIV	TR-23-68	Data Analysis Plan for the National OVC Survey
HIV	TR-23-84	Site Improvement through Monitoring Systems Assessment: FY23 Quarter One Report
HIV	TR-23-85	Site Improvement through Monitoring Systems Assessment: Feedback Report for Georgetown Global Health Nigeria's Accelerating Control of the HIV Epidemic 2 Project in Kano State
HIV	TR-23-86	Site Improvement through Monitoring Systems Assessment: Feedback Report for the Society for Family Health's Integrated Child Health and Social Services Award 3 Project in Nigeria
HIV	TR-23-87	Site Improvement through Monitoring Systems Assessment: Feedback Report for Heartland Alliance Nigeria's Accelerating Control of the HIV Epidemic 6 Project in Lagos State, Nigeria
HIV	TR-23-88	Site Improvement through Monitoring Systems Assessment: Feedback Report for the Association for Reproductive and Family Health's Integrated Child Health and Social Services Award 2 in Lagos State, Nigeria
HIV	TR-23-89	Site Improvement through Monitoring Systems Assessment: Feedback Report for Heartland Alliance Nigeria's Key Population Community HIV Services Action and Response 1 Project in Lagos State, Nigeria
HIV	TR-23-94	Site Improvement through Monitoring Systems Assessment: Feedback Report for Jhpiego's Reaching Impact, Saturation, and Epidemic Control Project in Akwa Ibom State
HIV	TR-23-95	Site Improvement through Monitoring Systems Assessment: Feedback Report for the Heartland Alliance Nigeria's Key Populations Community HIV Services Action and Response 1 Project in Akwa Ibom State
HIV	TR-23-96	Site Improvement through Monitoring Systems Assessment: Feedback Report for the Centre for Clinical Care and Clinical Research Nigeria's Integrated Child Health and Social Services 1 Project in Akwa Ibom State
HIV	TR-23-97	Site Improvement through Monitoring Systems Assessment: Feedback Report for the Excellence Community Education Welfare Scheme's Accelerating Control of the HIV Epidemic 5 Project in Akwa Ibom State

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
HIV	TR-23-116a	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Abia State
HIV	TR-23-116b	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Adamawa State
HIV	TR-23-116c	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Akwa Ibom State
HIV	TR-23-116d	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Anambra State
HIV	TR-23-116e	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Bauchi State
HIV	TR-23-116f	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Bayelsa State
HIV	TR-23-116g	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Benue State
HIV	TR-23-116h	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Borno State
HIV	TR-23-116i	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Cross River State
HIV	TR-23-116j	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Delta State
HIV	TR-23-116k	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Ebonyi State
HIV	TR-23-116l	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Edo State
HIV	TR-23-116m	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Ekiti State
HIV	TR-23-116n	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Enugu State
HIV	TR-23-116o	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: FCT State

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
HIV	TR-23-116p	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Gombe State
HIV	TR-23-116q	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Imo State
HIV	TR-23-116r	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Jigawa State
HIV	TR-23-116s	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Kano State
HIV	TR-23-116t	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Kastina State
HIV	TR-23-116u	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Kebbi State
HIV	TR-23-116v	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Kogi State
HIV	TR-23-116w	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Kwara State
HIV	TR-23-116x	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Nasarawa State
HIV	TR-23-116y	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Niger State
HIV	TR-23-116z	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Ogun State
HIV	TR-23-116aa	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Ondo State
HIV	TR-23-116ab	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Osun State
HIV	TR-23-116ac	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Oyo State
HIV	TR-23-116ad	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Plateau State

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
HIV	TR-23-116ae	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Rivers State
HIV	TR-23-116af	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Sokoto State
HIV	TR-23-116ag	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Taraba State
HIV	TR-23-116ah	Nigeria Federal Ministry of Health Subnational Public Health Emergency Operations Centre Assessment Report: Yobe State
HIV	TR-23-124	Blended Performance Assessment Approach: Fiscal Year 2023 Quarter 3 Report
HIV	TR-23-128	Site Improvement through Monitoring Systems Assessment-Nigeria: Fiscal Year 2023 Quarter Two Report
HIV	TR-23-129	Review of Verbal Autopsy Tools and Recency Surveillance Activities in Nigeria
HIV	TR-23-149	Quarterly SIMS Analysis Reports – Quarter 4
Panama		
HIV	DUC-23-88 SP	<i>Incremento de cobertura de la carga viral en la comarca Guna Yala</i> Closing the Viral Load Screening Coverage Gap in the Guna Yala Region
HIV	DUC-23-89 SP	<i>Estrategia de monitoreo de la carga viral para aumento de la supresión: Cobertura de pruebas de carga viral y seguimiento a medio término</i> Viral Load Monitoring Strategy for Increased Suppression: Coverage of Viral Load Testing and Mid-term Follow-Up
HIV	DUC-23-90 SP	<i>Mejorar la calidad de datos de PVVIH con estatus conocido en TAR</i> Improve the Quality of Data on PLHIV with Known ART Status
HIV	DUC-23-91 SP	<i>Limpieza de datos de la cobertura de PVVIH en TAR</i> Cleaning of Coverage Data on ART among People Living with HIV

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
South Africa		
COVID	TL-23-69	Knowledge Hub Updated Reporting SOP
COVID	TL-23-70	South Africa Knowledge Hub eLearning System Data.FI Operational Plan for Transition
Tanzania		
HIV	DUC-23-29	Improving Data Quality Through Regular Flagging of Incoherences in PMTCT Services Data
HIV	DUC-23-30	Increasing Number of Health Facilities Reporting Viral Load Data for PMTCT Mothers
HIV	DUC-23-31	Improving the Proportion of HIV-positive Pregnant and Breastfeeding Women Receiving Viral Load Testing – Nine Councils
HIV	DUC-23-32	Increasing PMTCT HIV Viral Load Suppression Cascade
HIV	DUC-23-33	Improving PMTCT Cohort Registration through Data Triangulation: (PMTCT Cohort and HIV Positive Mothers)
HIV	DUC-23-34	Impact of Quality Improvement Coaching on Viral Load Suppression
HIV	DUC-23-35	Improving Percent of HIV Exposed Infants Receiving 18-months Confirmatory Test: Chamwino DC, Dodoma CC, Kinondoni MC, & Temeke MC
HIV	DUC-23-36	Improving PMTCT 12-month Retention Rates: Tanzania
HIV	DUC-23-37	Addressing Data Quality of Viral Load Suppression and Confirmatory Test for HIV-exposed Infants: Dodoma City Council, Tanzania
HIV	DUC-23-38	Sustaining Improvement in Antenatal Care (ANC Before 12 weeks) Coverage through Supportive Supervision: ANC Gains and Supportive Supervision
HIV	DUC-23-39	Addressing Data Quality of HIV-Exposed Infant Testing Data: Chamwino DC Experience
HIV	DUC-23-40	Impact of Weekly Data Review and Analysis on Improving Viral Load Suppression: Experience from Bahi DC
HIV	DUC-23-41	Improving the Proportion of Pregnant Women Attending First ANC Visit Before 12 Weeks Gestational Age in Temeke MC
HIV	DUC-23-42	Data Cleaning through Effective Use of DHIS2 Validation Rule: Mpwapwa DC Experience, Tanzania

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
HIV	DUC-23-43	Impact of Situation Room Meetings in Improving Reporting Rates of PMTCT Services: A Comparison of Data.FI-Supported vs. Data.FI Non-supported Councils in Dodoma Region
HIV	DUC-23-44	A Comparative Analysis Demonstrating Data Quality Improvements in Data.FI-supported Councils
HIV	DUC-23-45	Enhancing PMTCT Cohort Tool Adoption to Ensure Comprehensive Data Reporting for PMTCT Mothers: Dodoma Tanzania
HIV	TL-23-47	Coaching materials – Module 3: Documenting QI project – SES Form
HIV	TL-23-91	Coaching materials – Module 4: Interpreting Run Charts
HIV	TL-23-92	Coaching materials – Module 5: PDSA cycle – ACT
HIV	TL-23-94	Coaching materials – Module 1: Overview of QI – What is PDSA
HIV	TL-23-95	Coaching materials – Module 2: Process Mapping
HIV	TL-23-96	Coaching Materials – Module 6: Analyzing Data in the DHIS2-based Platform
HIV	TR-23-136	A Systematic Approach for Non-Communicable Diseases (NCDs) Indicators Prioritization and Selection in Tanzania
Zimbabwe		
HIV	TL-23-28	Information Security Standard Operating Procedures: Guidance Using the Management Information System for Orphans and Vulnerable Children
HIV	TL-23-67	Standard Operating Procedures for Orphans and Vulnerable Children Management Information Systems
HIV	TL-23-68	Data.FI/Zimbabwe System Administrators Training Report
HIV	TL-23-88	Configuration of the Orphans and Vulnerable Children Management Information System in Zimbabwe: Summary of System Updates
HIV	TL-23-89	The Zimbabwe Orphans and Vulnerable Children Management Information System Log Aggregation Management: Installation Guide
HIV	TL-23-90	The Zimbabwe Orphans and Vulnerable Children Management Information System Log Aggregation Management: User Guide

Data.FI Products continued

Primary Source of Funding	Publication ID Number	Title
HIV	TR-23-134	The Zimbabwe Orphans and Vulnerable Children Management Information System Requirements Specifications for the OVC MIS Audit Report Module
HIV	TR-23-137	The Zimbabwe Orphans and Vulnerable Children (OVC) Management Information System (MIS): OVC MIS Roadmap
HIV	TR-23-138	The Zimbabwe Orphans and Vulnerable Children (OVC) Management Information System (MIS): Requirements Specifications for the OVC MIS Mobile App

Annex 4. Environmental Compliance

Data.FI received a categorical exclusion per 22 CFR 216.2(c)(2) as documented in the IEE. This categorical exclusion references the following program description:

Translating Data for Implementation (Data.FI): Finding innovative ways to apply data rapidly for implementation; Finding innovative ways to utilize secondary and relational data analysis for implementation; Finding ways to align data with national systems; Data presentation; Data validation; Data use for showing where USAID should continue, change, and publish successes; Data use for trends and prediction of maintenance needs; Use and presentation of data and data analyses innovation in current systems, not currently utilized; Data translation and presentation for Ministry of Health and IPs; Data use for rapid scale-up; Support of DQAs; and Use of SIMS data for immediate corrective action and applied innovation.

Pursuant to section A.15 of the Cooperative Agreement, when developing the Annual Work Plan and MEL plan, as well as during implementation, Palladium reviewed all ongoing and planned core and country-level activities under this Cooperative Agreement and confirmed them to be within the scope of the approved Regulation 216 environmental documentation.

Annex 5. FY24 Planned Activities



BURUNDI

- During the upcoming fiscal year, Data.FI will continue to provide support to the MOH to strengthen the sustainability of Burundi's HIV EMR (SIDAInfo) and will finalize its transition to the MOH.
- A focus will be made to strengthen government leadership, data review, and data quality improvement. Data.FI will finalize the interoperability process to ensure aggregated data are directly reported from SIDAInfo to DHIS2 for all sites using this system.
- Data.FI will support the set-up and institutionalization of situation rooms in Bujumbura and three other provinces to improve data use for decision making.



CAMEROON

- Improve systems and practices for data management.
- Strengthen LIPs' capacity for data visualization to promote organizational data use.



EL SALVADOR

Data.FI in El Salvador will implement the following HIV-related activities:

- Provide support to the health regions in building capacities for the use of a tool for planning and monitoring actions on indicators of the continuum of HIV care.
- Provide support to the Regional Coordination Mechanism for the development of dashboards that facilitate the monitoring of grants indicators.



ESWATINI

In Eswatini, Data.FI will work to:

- Strengthen patient-centered care with digital health by unifying longitudinal patient records, upgrading the CMIS to improve patient outcomes, strengthen data security and confidentiality, and increase the adoption and utilization of the CMIS.
- Promote the use of “smart data” in country-led systems by enhancing and scaling CMIS dashboards, enhancing the data repository, increasing the usability and integration of the DREAMS/OVC databases, improving access to and use of quality data through strengthening DMT activities, and conducting supportive supervision.
- Strengthen country-led digital governance structures.



GUATEMALA

Data.FI in Guatemala will implement the following HIV-related activities:

- Develop and implement national HIV dashboard (version 3.0) in coordination with local partners that will include georeferenced data.
- Expand the strategy for using HIV data in health areas and at the national level.
- Serve as HIV data middleware for USAID IPs.

Data.FI in Guatemala will implement the following health-related activities:

- Strengthen the integrated health data system—prioritizing the Food and Nutrition Security Program (Programa de Seguridad Alimentaria y Nutricional, PROSAN), the Programa Nacional de Prevención y Control de ITS, VIH y Sida, (PNS), and the National Reproductive Health Program (Programa Nacional de Salud Reproductiva, PNSR).
- Implement a system for monitoring the standards of care of the Directorate of Human Care Programs.
- Implement a data use strategy in the area of neonatal health.
- Develop the Kawok Module - Phase 2.
- Use the spending quality tool.



HONDURAS

Data.FI in Honduras will implement the following HIV-related activities:

- Strengthen the capacity of partners to manage HIV-related data and processes, through the creation of standard operating procedures.
- Support the HIV data system by incorporating information security standards.
- Improve HIV data analysis for decision making.



JAMAICA

- Support the establishment of Jamaica's Electronic Immunization Registry Steering Committee (EIR-SC), including drafting a structure charter and terms of reference.
- Work with the EIR-SC to develop an SOP manual with prioritized indicators and map information flows for immunization programs.
- Support the Ministry of Health and Welfare with design documentation for the logistics module of the EIR architecture. This work will build on the support provided to HCJ on OpenLMIS design, configuration, and implementation.



LESOTHO

In FY24, Data.FI will work to enhance and develop the digital informatics systems in Lesotho. We will do this by:

- Strengthening information systems governance and coordination through communities of practice, the enhancement and use of the Lesotho OVC-DREAMS Integrated Information System (LODIIS; a mobile app for tracking OVC/household and DREAMS interventions) and supporting the development of the HRH Information System, eLMIS, and the Health Development of CQI Information System.
- Supporting improved data analysis by enhancing LODIIS through prioritization of indicators, improved visualizations, and support for periodic ad hoc analyses as requested by USAID/Lesotho.
- Conducting implementation science to improve care and treatment programming and providing training support for the identification, prioritization, and implementation of implementation science research questions.



MOZAMBIQUE

Deploy the IIT module in 4–6 sites, monitor ease of use and performance, and plan for scale across all sites.



NIGERIA

As part of its COVID-19 activities in the coming FY, Data.FI/Nigeria will conduct an E-CIF pilot to ensure that the optimized SORMAS system is operational and system malfunctions are fixed for data collection at the facility and LGA level. In addition, the team will deploy the DAVT to 10 identified states to improve data visualization and analysis of surveillance data across 25 priority disease areas in Nigeria as well as to monitor the outbreak of tropical disease at the LGA level.

For the upcoming FY, Data.FI/Nigeria will conduct the following HIV activities:

- Supporting USAID/Nigeria on PEPFAR COP24 planning through enhancement of the READY app for PEPFAR COP target-setting.
- Providing technical support to HIV surveillance and research activities at the national and subnational levels.
- LAMISPlus aligned to national HIV surveillance guidelines.
- USAID IPs' HTS recency, mortality, and case-based surveillance data tracked on the NDR.
- USAID IPs' data upload to the NDR optimized.
- National TWGs and other national/subnational forums attended.
- M&E support to the OVC Program and National OVC Control Center by providing technical assistance to FMWA for the OVC situation room.
- Support to conduct the national OVC survey.
- Strengthening HIS governance and coordination by expanding the HIS CoP, strengthening the FMOH HIS TWG, and institutionalizing the FMWA OVC IT.
- Enhancements and scale-up of NOMIS, NOMIS Child Monitor mobile app, NOMIS data warehouse, LAMISPlus, and Central LAMISPlus.



PANAMA

In Panama, Data.FI will launch HIV epidemic control rooms in collaboration with the MOH, USAID IPs, and other relevant stakeholders.



SOUTH AFRICA

Data.FI/South Africa plans to pivot to another technical area—non-communicable diseases (NCDs)—to expand the use of situation rooms and monitor additional indicators (reproductive, maternal, neonatal, child, and adolescent health [RMNCAH], HIV, and NCD indicators). We also plan to add more family planning and MCH indicators. Data.FI plans to transition all situation rooms to the councils and regional health management teams by the end of the fiscal year. The first four council situation rooms will be transitioned in July 2024 and the remaining five will be transitioned in September after orientation of council situation room champions. In collaboration with IPs, Data.FI and leaders from PO-RALG will host a project dissemination meeting to share project achievements, challenges, and the councils' sustainability plans.



SOUTHERN AFRICA REGION

In the next six months, we will collaborate with IPs to provide virtual trainings to MOHs in the region to build understanding of MER indicators and capacity for visualizing this data. We will also work with the MOH in each country to harmonize government priority HIV indicators, building on the capacity-strengthening training to inform future harmonization efforts.



Team smiling after a successful OVC MIC training with local partners. Zanzibar, August 2023. From the left back row: Kelvin Murumba (Jembi), Cain Murambi (FACT), Joao Machiana (Jembi), and Chris Githu (Data.FI). From the left front row: Tinashe Chidenge (FACT), Sharon Makunura (FACT), Beatus Kibiti (Data.FI), and Simbarashe Marime (FACT). Photo by Data.FI/Zimbabwe.

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