



Data.FI Annual Performance Report (APR) 2021

October 2020–September 2021



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Data for Implementation

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Data.FI Annual Performance Report (APR) 2021

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Cover photo: Dr. Shally Mwashemele of UNICEF/Tanzania at a national stakeholders workshop organized by Data.FI. The workshop was led by PORALG and implemented in collaboration with UNICEF. Photo by Data.FI, Palladium.

Data for Implementation (Data.FI) is a five-year cooperative agreement funded by the U.S. President’s Emergency Plan for AIDS Relief through the U.S. Agency for International Development under Agreement No. 7200AA19CA0004, beginning April 15, 2019. It is implemented by Palladium, in partnership with JSI Research & Training Institute (JSI), Johns Hopkins University (JHU) Department of Epidemiology, Right to Care (RTC), Cooper/Smith, IMC Worldwide, Jembi Health Systems, and Macro-Eyes, and supported by expert local resource partners.

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Abbreviations

AEFI	adverse events following immunization
AGYW	adolescent girls and young women
AI	artificial intelligence
ANC	antenatal care
APPR	Automated Partner Performance Reporting system
ART	antiretroviral treatment
BI	business intelligence
CDC	Centers for Disease Control
CDS	clinical decision support
CHISA	Consolidated Health Informatics South Africa
CHMT	Council Health Management Team (Tanzania)
COP	Country Operational Plan
CRS	Catholic Relief Services
Data.FI	Data for Implementation Project
DATIM	Data for Accountability, Transparency, and Impact
DHIS2	District Health Information Software, Version 2
DREAMS	Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe
DQA	data quality assessment
DSNIS	Directorate of the National Health Information System (Direction du Système National d’Information Sanitaire, Burundi)
EA	expenditure analysis
eCMS	electronic case management system
ECHO	Efficiencies for Clinical HIV Outcomes
ECR	epidemic control room
EGPAF	Elizabeth Glaser Pediatric AIDS Foundation
EMR	electronic medical records
EOC	emergency operations center
ESM	expanded site management
GBV	gender-based violence
GIS	geographic information system
HAT	HIV/AIDS and Tuberculosis
HFR	high-frequency reporting
HI-COP	Health Informatics System Community of Practice
HIS	health information system(s)
HMIS	health management information systems
HOP	Headquarters Operational Plan
HRD	Human Resources Directorate (South Africa)
HRH	human resources for health
IBBS	integrated behavioral and biological surveillance
IIT	interruption in treatment
iMES	Integrated Monitoring and Evaluation System
IPs	implementing partners

IPC	infection prevention and control
KP	key population
KPIC	key populations unique identification code
LIMS	laboratory information management system
M&E	monitoring and evaluation
MEL	monitoring, evaluation, and learning
MER	monitoring, evaluation, and reporting
MIS	management information system
ML	machine learning
MOH	Ministry of Health
M-RITE	MOMENTUM Routine Immunization Transformation and Equity project
NDOH	National Department of Health (South Africa)
NDR	National Data Repository
NiMS	National Integrated Specimen Referral Network Management System
NOMIS	National OVC Management Information System
OHA	Office of HIV/AIDS
OU	operating unit
OVC	orphans and vulnerable children
PAI	Promotion of Access to Information
PDSA	Plan-Do-Study-Act
PEPFAR	United States President’s Emergency Plan for AIDS Relief
PIH	Partners in Hope (Malawi)
PII	personally identifiable information
PLHIV	people living with HIV
PMTCT	prevention of mother-to-child transmission
PNC ITS-HIV/SIDA	Programa Nacional de Controlo de ITS, HIV/SIDA (National AIDS and STI Control Program, Mozambique)
PNLS	Programme National de Lutte contre le SIDA (National AIDS 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)
PORALG	President’s Office – Regional Administration and Local Government (Tanzania)
PSICA	PEPFAR Strategic Information Capacity Assessment
QI	quality improvement
RCCE	risk communication and community engagement
SI	strategic information
SIEI	Strategic Information, Evaluation, and Informatics
SIMS	Site Improvement Monitoring System
SMOH	State Ministry of Health
SOP	standard operating procedure
TB	tuberculosis
THIS	TB/HIV Information System
TOT	training of trainers
TWG	technical working group
UID	unique identification
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development

Executive Summary

Data.FI is a global project that helps countries strengthen and sustain access to key, high-quality data to 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 meaningful impact.

Data.FI is a five-year (2019–2024) global, field-supported mechanism with a \$180 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, the Johns Hopkins University Department of Epidemiology, Right to Care, Cooper/Smith, IMC Worldwide, Jembi Health Systems, and Macro-Eyes.

During this reporting period (October 1, 2020–September 30, 2021), Data.FI implemented work in 16 countries and provided support to the USAID at the central level. This report summarizes our work during the second year of implementation.



Catalyzing Innovation to Find Breakthrough Solutions

Data.FI is accelerating global health gains by catalyzing breakthrough solutions. We envision and create the opportunity for innovators to adapt and apply their solutions to the global health context, finding new ways to reach HIV epidemic control and mitigate the impact of COVID-19 through improved use of data.

Data.FI is supporting PEPFAR to define a “whole of market approach” to HIV service delivery. In September 2021 Data.FI launched a \$100,000 competition to develop a flexible and robust approach to market segmentation based on ability to pay that will inform PEPFAR policy around private sector engagement.

Data.FI is accelerating data quality improvement through innovation. We developed and validated a country-agnostic R-script to identify anomalous data points across indicators and facilities, as well as over time. USAID Missions with little to no programming experience can install and run the code on their Monitoring, Evaluation, and Reporting (MER) dataset and get an immediate snapshot of any problematic data points to investigate further.

Data.FI is integrating client-centered monitoring to strengthen continuity of care. Data.FI developed a set of six human-centered metrics that will enable PEPFAR partners to measure clients’ care experience and quality of life and address missing components that drive clinical outcomes and continuity in care.

Data.FI is providing technical expertise on how to **operationalize sustainable unique identification (UID) approaches for HIV client health records in Uganda, Burundi, and Nigeria**, based on the context and the populations being served. This work will enable countries to optimize client care and track achievements toward the 95-95-95 goals.



Accelerating Data Use

Data.FI ensures that the end-user and decision maker are at the forefront of all that we do, and that information systems, data analyses, decision-support tools, and data review interventions are laser-focused to maximize uptake and impact.

First established in Nigeria, Data.FI’s epidemic control room (ECR)—or “situation room”—approach allows decision makers to access data across disparate sources in one place to enable near real-time program quality improvement. We adapted and applied our ECR intervention from Nigeria to the broader West African context, working with implementing partners (IPs) in Burkina Faso, Ghana, Liberia, Mali, Senegal, and Togo. We continued to expand the use of our standardized data review process with the launch of a novel data use approach, **the national quality improvement initiative in Tanzania**.

Data.FI established a technical working group and **built the capacity of Mozambique HIV program counterparts to map data sources, identify dashboard design features, and understand how to visualize this data** through targeted technical assistance. Working with the government and a newly acquired business intelligence software, Data.FI has co-created dashboards to ensure alignment on programmatic indicators across the HIV care continuum and finalized and deployed a suite of HIV care and treatment dashboards.

Data.FI and USAID developed a Human Resources for Health (HRH) Solution—a data-driven approach for USAID to assess staffing needs for HIV service delivery and **to optimize staffing allocation at country level—leading to maximized PEPFAR investments for epidemic control**. Following its development this year the tool was applied across 15 operating units to inform Country Operational Plan 2021 (COP21) planning.

In Uganda and Namibia, Data.FI is providing **analyses to inform programming** for some of the most vulnerable populations. We produced **population size estimates for adolescent girls and young women** to monitor progress toward saturation among different age bands within DREAMS districts and to inform **DREAMS programming expansion** to new districts in Uganda. In Namibia, we **estimated key population sizes** for men who have sex with men, female sex workers, and transgender females to support PEPFAR COP planning and national and subnational HIV programming.

Data.FI is co-leading USAID’s COVID-19 Vaccine Technical Assistance Implementing Partner Forum, with USAID and the USAID-funded MOMENTUM Routine Immunization Transformation and Equity (M-RITE) project, **providing valuable insights** to USAID, based on pulse surveys administered to forum participants **on how the vaccine response is rolling out globally**.



Sister Mary Shadrack, from Tanzania's PORALG Department of Social Welfare and Nutrition, participates in discussions of priority areas and indicators for the situation room being established in Dodoma. Photo by Data.FI/Tanzania, Palladium.



Optimizing and Scaling Health Information Systems

Data.FI optimizes HIS to track HIV service clients across the 95-95-95 continuum, improve continuity of care, and generate data for epidemic and program performance monitoring, following best practices in the software development lifecycle.

In Nigeria, Data.FI is supporting strong HIS governance processes and collaborative principles with the Health Informatics System Community of Practice (HI-COP), co-led by USAID/Nigeria and Data.FI. The system enhancements arising from this collaboration have been leveraged for more than two years to promote a unified system architecture that promotes seamless data exchange, is scalable to ever-changing demands, and is a global good aligned to international information exchange standards.

Data.FI/Burundi is supporting PEPFAR and the government of Burundi's goal to enhance the primary HIV electronic medical record (EMR) system in the country—SIDAInfo. Over the past year, we have worked collaboratively with the government and partners to develop and roll out a web-based version of the original Access-based system. This enhanced web-based EMR will enable individual clients to have a unified record across all HIV service provision sites, improving quality of data and services delivered. This is further supported by this year's development, testing, and implementation of a biometric unique identification (UID) for PLHIV.

Data.FI is enhancing case management systems in support of OVC and DREAMS programming. In Zimbabwe, Data.FI is leading the development of a first-of-its-kind OVC Management Information System, which harmonizes data collection across six IPs. In Côte d'Ivoire, Data.FI assisted the National Orphans and Vulnerable Children (OVC) Program

to enhance the DREAMS database. This database was developed on OpenMRS, the same platform used for the OVC database. In Nigeria, we completed development of the beta version of the enhanced National OVC MIS 3.0 (NOMIS v3.0), based on assessment recommendations and feedback from stakeholders.

Over the past year in Nigeria, Data.FI and the HI-COP successfully completed and rolled out a LAMISPlus interoperability layer as part of the version 1.0 release to enable data exchange between the EMR and other national platforms—the National Data Repository, the Laboratory Information Management System, and the National Integrated Specimen Referral Network Management Information System (NiMS).

The “Consolidated Health Informatics South Africa” (CHISA) system, previously known informally as the ‘InfoHub,’ is an analytical platform integrating powerful features for data analyses and visualizations. It has been designed to provide a wide range of users with insights into client well-being across the HIV cascade. The analytics platform is built upon a national data warehouse through which disparate health information systems in South Africa can be linked, allowing for data triangulation across different systems. Data.FI's work in advancing CHISA with the National Department of Health (NDOH) highlights how analytic platforms that pull in data from multiple sources will catalyze a new era in program performance monitoring and improvement, and planning.



Improving Data Sources

Data.FI collaborates with USAID partners to establish gold standard data quality and data management practices and supports IPs to responsibly store and use data to avoid breaches of sensitive information.

Extending our measurement work to COVID-19, this year Data.FI co-created the first-ever suite of COVID-19 indicators for IPs with the USAID Bureau for Global Health to support quantification of results and accountability in this critical global response. Data.FI was then asked by USAID to lead an assessment of the quality of data being reported from these indicators through a fully virtual data quality assessment (DQA).

Data.FI/Burundi worked closely with the National AIDS Control Program (PNLS), UNICEF, the World Health Organization, the Global Fund to Fight AIDS, Tuberculosis and Malaria, Enabel (the Belgian Development Agency), and other PEPFAR IPs to develop and implement a DQA to better understand the quality of data across HIV treatment sites.

This year, Data.FI Côte d'Ivoire conducted a DQA of HIV care and treatment indicators at the community and facility levels to better understand challenges associated with data accuracy for selected indicators.

In Nigeria, we supported the successful implementation of PEPFAR/USAID Nigeria's IPs' self-assessed DQAs through the configuration of both data collection and data visualizations on the Automated Partner Performance Reporting (APPR) platform. Data.FI then provided support to the USAID Nigeria HIV/AIDS and Tuberculosis (HAT) Strategic Information team to conduct inter-agency DQAs in Akwa Ibom and Cross River States.



Strengthening Local Partners

In line with USAID's local partner transition goals, Data.FI strengthens host country government capacity to develop and maintain sustainable information systems and ensure that local partners are able to contribute to a functioning and country-led HIS and data ecosystem.

The **Knowledge Hub** is an **e-learning platform** that offers online courses and webinars for public and private-sector health providers in **South Africa** on everything from management of drug-resistant tuberculosis and case management of malaria to clinical care for clients with HIV and viral hepatitis. Upon request from USAID, **Data.FI worked to provide technical support to the overall Knowledge Hub system, increase demand for and use of hub resources, and eventually transition sole ownership of the system to the NDOH.** Our primary focus, working with NDOH's Human Resources Directorate (HRD), has been to ensure the hub can be **institutionalized within the NDOH** with adequate human and financial resources to maintain the system.

In **Malawi** over the past two years **Data.FI has supported a mentorship process to build the capacity of two PEPFAR-funded USAID partners**, Partners in Hope (PIH) and Baylor, **to use the country's two EMR systems** more effectively. Our **process has supported these partners across all stages of the data life cycle**—including data entry, assessing the data in the system, training on system use, and ultimately, building capacity to use quality data.

In **Uganda**, Data.FI has been working to support the **use of a safe unique identifier for key populations (KPs)**. For this, we worked closely with the in-country monitoring and evaluation partner SITES to **conduct a virtual training of trainers (TOT) on KP data protection**. Participants learned about data breaches, the risks and benefits of decision making related to data collection, and appropriate storage, digitizing, and safekeeping of paper records.

Data.FI developed an online training course for local partners on PEPFAR strategic information and DQAs. The innovative, blended digital course offers 22 asynchronous lessons that allow participants to learn at their own pace, along with two live, synchronous sessions aimed at reinforcing key concepts and skills from participants' asynchronous learning. As of September 2021, **145 participants from 55 local partner organizations in 22 countries**, as well as **five participants from USAID/Washington and Missions**, have completed the course (in French or English), with an overall completion rate of 86 percent.

Introduction

Data.FI is a global project that helps countries strengthen and sustain access to key, high-quality data to accelerate and maintain HIV and COVID-19 epidemic control. We work across all population groups and intervention areas to identify clients at risk and link them to testing, prevention, and treatment services. To do this, we leverage 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, look at unsolved problems in new ways, and pivot programming to reach epidemic control faster.

How do we support countries whose health information systems (HIS) are at different levels of

maturity? Through our experienced partnership, we provide end-to-end solutions in the data ecosystem that serve public health goals and protect clients' rights—from transforming routine data into visualizations that highlight a health system's performance, to building sustainable and scalable data systems that support robust analysis and continuity of client care. Data.FI works across all technology platforms, 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 create solutions that can be scaled.

We provide rapid insight for decision making, using advanced analytics supported by fit-to-purpose technologies. We help USAID and partners diagnose



Mike Nkwinda, M&E officer with Partners in Hope, Malawi, and Chisomo Kasenda, e-health and strategic information officer with Data.FI, Right to Care, cross-check to see if the last ART number listed in the register at the Karonga Clinic is the same as that in the EMR. Photo by Data.FI/Malawi, Right to Care.

performance and public health challenges to best focus resources. We combine traditional President's Emergency Plan for AIDS Relief (PEPFAR) data with non-traditional data sources, such as satellite imagery and commercial data, to fill data gaps and inform interventions. We apply advanced modeling techniques to illuminate unseen patterns, enabling users with timely and actionable information.

We develop and employ evidence-based approaches to ensuring 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.

We strengthen government capacity for HIS governance and build local partner capabilities in line with USAID's local partner transition goals. Data.FI leverages our existing network of in-country relationships to build government trust, coordinate stakeholders, and expand the pool of local partners able to respond to the HIV and COVID-19 pandemics.

PROJECT SCALE

Data.FI is a five-year global project (2019–2024) funded by PEPFAR and USAID. Data.FI is a consortium of organizations with expertise in digital health and analytics. It is led by Palladium, in partnership with the JSI Research & Training Institute, the Johns Hopkins University Department of Epidemiology, Right to Care, Cooper/Smith, IMC Worldwide, Jembi Health Systems, and Macro-Eyes. The project is a USAID field-supported mechanism, with a \$180 million ceiling.

During this reporting period (October 1, 2020–September 30, 2021), Data.FI implemented work

in Burundi, Côte d'Ivoire, Malawi, Mozambique, Namibia, Nigeria, South Africa, Tanzania, Uganda, the West Africa Region (Burkina Faso, Ghana, Liberia, Mali, Senegal, Togo), and Zimbabwe. The project made important progress enhancing digital HIS, supporting data analytics that pinpoint inefficiencies in HIV 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 to date.

REPORT STRUCTURE

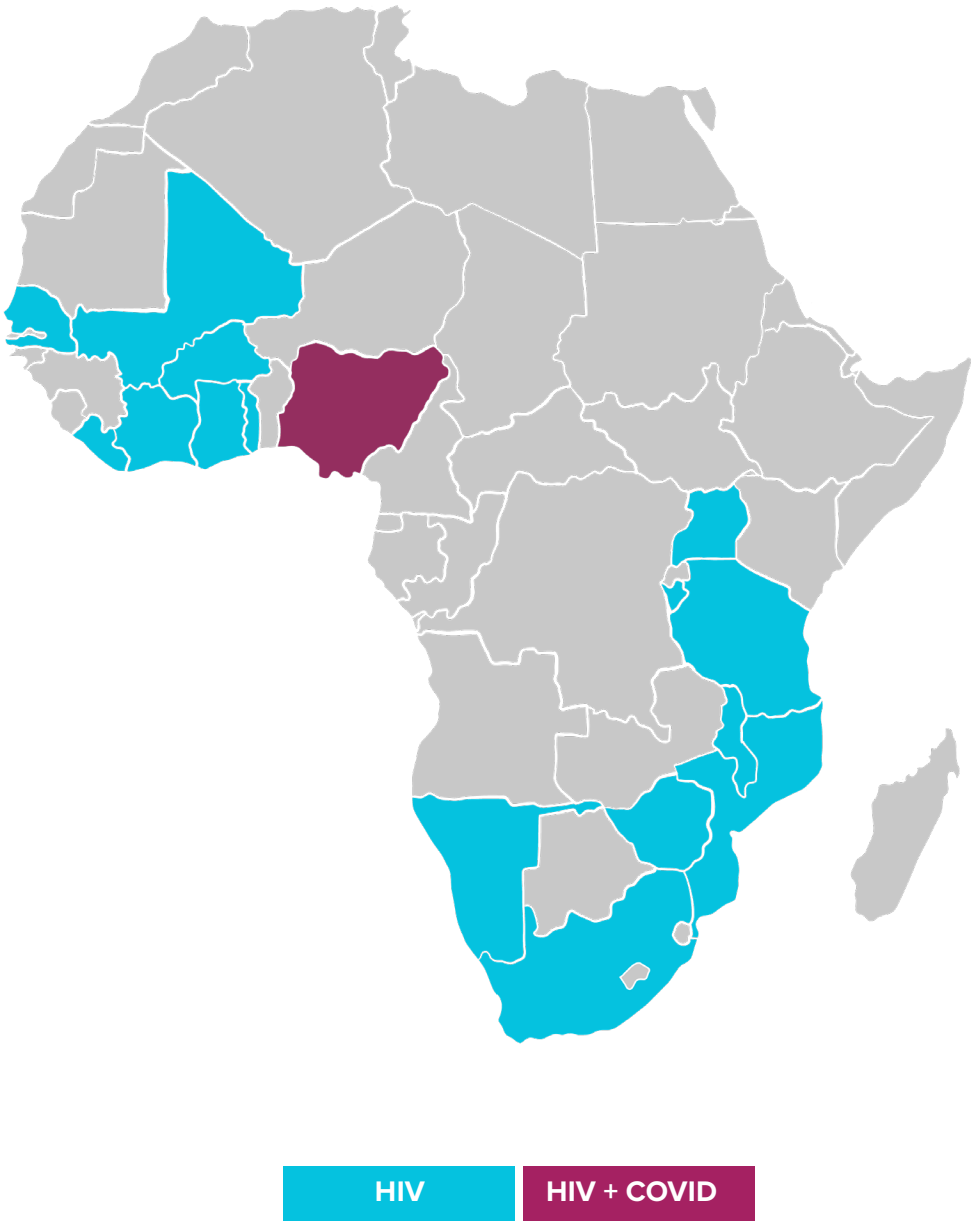
We present our achievements over the past year by highlighting our work across the following impact areas:

- Catalyzing Innovation to Find Breakthrough Solutions
- Accelerating Data Use at All Levels
- Optimizing and Scaling Health Information Systems
- Improving Data Sources
- Strengthening Local Partners

An update on the implementation of the project's gender strategy is also provided. A Financial Summary, Workplan Status Update, Project Indicator Results, and a list of Data.FI Products are provided in appendices.

Data.FI at Scale

Data.FI is scaling digital, analytical, and data use solutions. We worked in 16 countries in this reporting period to improve HIV and COVID-19 outcomes.



Catalyzing Innovation through Breakthrough Solutions



Despite significant progress, the HIV community has made uneven progress in meeting the 95-95-95 targets and the COVID-19 pandemic has brought new challenges, requiring new ways of working toward meeting global health goals. To address COVID-19, the global health community seeks responses that can be accelerated to scale and achieve real impact, while operating in a primarily virtual context. 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 stubborn challenges that impede countries from meeting

their health goals. Some highlights from this past year are provided below.

Data.FI is fostering private sector engagement. PEPFAR is invested in a whole-of-market approach to put HIV treatment services on a more sustainable financial footing. To that end, in September 2021 Data.FI launched a \$100,000 competition to develop a flexible and robust approach to market segmentation that will facilitate private sector engagement. Such new approaches may include leveraging commercial and open data, scalable surveys that take advantage of digital platforms, and machine learning to identify characteristics that differentiate groups of clients for HIV services. We anticipate this challenge will yield methods to identify population segments that can afford and be served by the private sector, supporting PEPFAR's



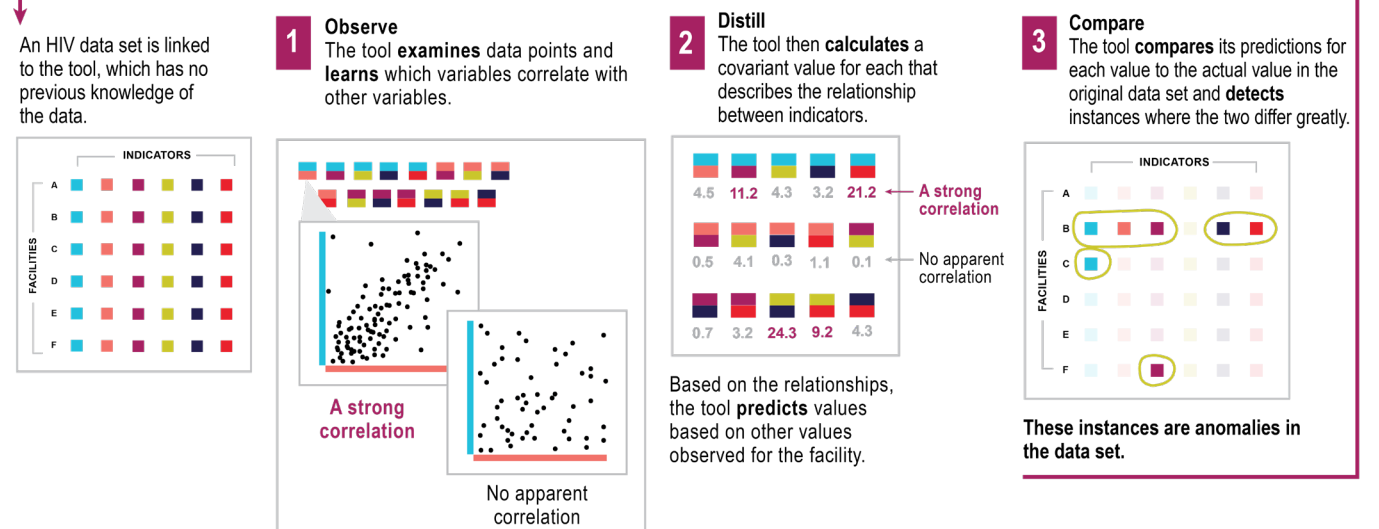
From left: Michelle Li, Yoni Friedman, and Richard Ngethe are among the experts bringing new perspectives and leading innovation on the Data.FI project. Photo by Data.FI, Palladium.

Anomaly Detection Allows Rapid Detection of Data Quality Issues

Part of achieving epidemic control is ensuring that clients who start treatment continue treatment. If there is a site or a specific population group with unusually high rates of clients interrupting treatment, early identification allows program managers to implement initiatives to ensure that those clients return to care. The **anomaly detection tool** analyzes large data sets, using machine learning to find outliers.



In this example, the anomaly detection tool found that **Facility B** is reporting data outside of the normal patterns. The team will follow up and evaluate data from this particular facility.



shift towards to a whole-of-market approach. We look forward to sharing more in late 2021!

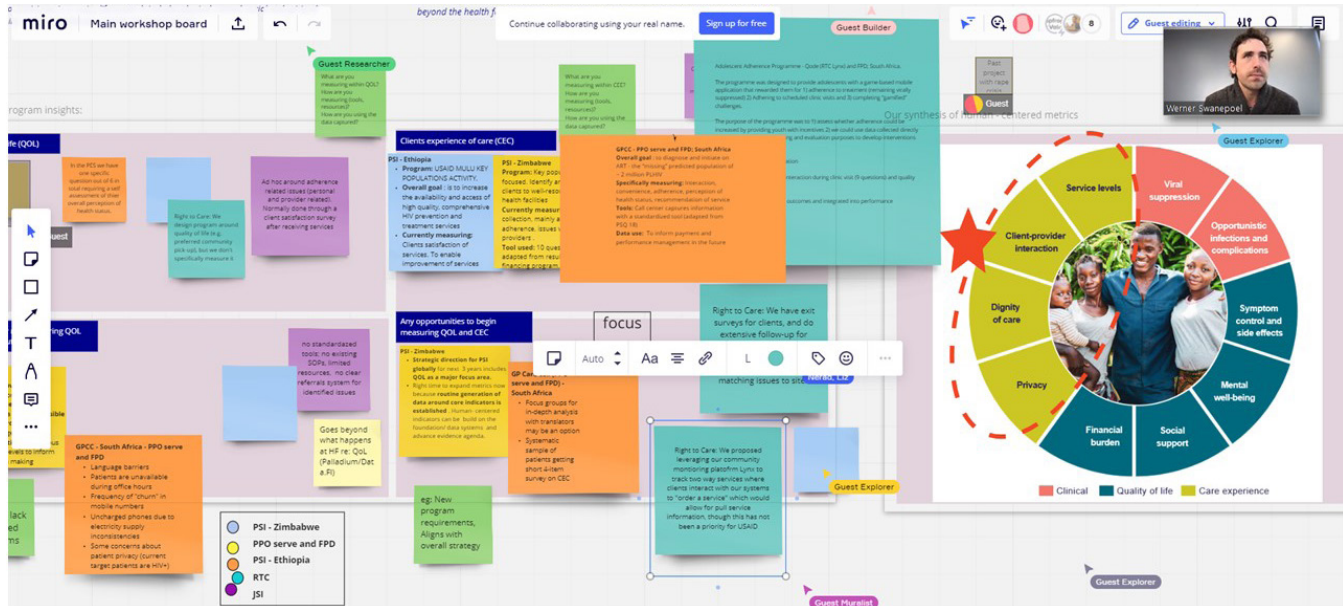
Data.FI is accelerating data quality improvement through innovation. High-quality data are critical to ensuring that implementers can rapidly determine when and how to pivot to address emerging population needs. Yet, many of the tried-and-true tools and methods to improve data quality require lengthy primary data collection. It can take months to learn the accuracy of the data on which countries base critical health decisions now. Data.FI saw this gap and in close partnership with the USAID Office of HIV/AIDS (OHA) Strategic Information, Evaluation, and Informatics (SIEI) Division, we challenged ourselves to create a machine-based, rapid data quality diagnostic tool that could be applied across all PEPFAR countries and among all IPs reporting Monitoring, Evaluation, and Reporting (MER) data.

We developed and validated a country-agnostic R-script code to identify anomalous data points across indicators and facilities, as well as over time. Following validation in three countries, we developed standard operating procedures (SOPs)

and built a tool that empowers users—particularly USAID Missions—with little to no programming experience to install and run the code on their MER dataset and get an immediate snapshot of any problematic data points to investigate further. This instantaneous data quality assessment (DQA) method will avoid compounding of data quality issues over time, since potential concerns can be addressed much more quickly.

“Existing DQA tools to identify anomalies or outliers use simple rules that typically consider distributions of variables separately, but do not look for relationships across variables. Data.FI’s anomaly finder tool identifies anomalies using multidimensional models and it does so quickly and remotely. This tool should enable PEPFAR to much more rapidly identify and correct data quality issues and detect performance issues.”

—Yoni Friedman, Senior Technical Advisor for Data Science, Data.FI



Data.FI is exploring new metrics related to quality of life and care experience for clients, applying a value-based care lens to the HIV field. Metrics of value-based care were the focus of an online workshop with experts in the field such as Werner Swanepoel of Deloitte Data Analytics (displayed top right). Participants shared their thoughts through a virtual whiteboard.

“Data.FI has played a critical role in thinking through how to integrate value-based care outcome metrics that matter to patients, including quality of care and life, into broader PEPFAR service delivery and data collection efforts. Data.FI has brought deep and much needed expertise on HIV and PEPFAR programming, which is crucial for the validation and scale-up of this activity.”

—Monisha Ashok, Senior Advisor,
USAID Center for Innovation and Impact



A health care provider in Zimbabwe. Photo by Merlin Photostream.

Data.FI is finding new ways to strengthen continuity of care. Despite improvements in access to HIV services, quality of care varies widely. One reason this matters is a better care experience can promote positive care-seeking behavior and strengthen continuity of care, which in turn can lead to better clinical outcomes.

But how can we measure, track, and improve quality of care across PEPFAR-funded services? Data.FI partnered with Leapfrog to Value, and worked closely with USAID/OHA, USAID’s Center for Innovation and Impact, and service delivery partners and client advocacy groups in the HIV space to develop a set of six human-centered metrics. These will enable PEPFAR partners to measure clients’ care experience and quality of life and address some of the missing components that drive clinical outcomes. In related indicator guidance, we also shared practical thoughts on how operationalize metrics, promote organizational buy-in, integrate data collection into existing monitoring, evaluation, and learning (MEL) systems, and analyze and act on findings. We are looking forward to applying these metrics in the coming year.

Data.FI is disrupting traditional approaches to retention in care. In Mozambique and Nigeria, Data.FI applied a machine learning model to predict interruptions in treatment (IIT) using de-identified EMR data, combined with artificial intelligence (AI)-enhanced satellite imagery and other publicly available data. **In Mozambique, the model showed high predictive power by identifying which clients were at greatest risk of IIT** compared with historical client outcomes. Data.FI is now finalizing the development and deployment of a software plug-in to an EMR system at four sites of the USAID service delivery partner Abt Associates’ Efficiencies for Clinical HIV Outcomes (ECHO) project. This plug-in will generate client risk scores of IIT in real time, which will be used by health workers to prioritize their long list of clients in need of community outreach to support treatment retention, thus maximizing the use and impact of their community outreach resources.

As part of this intervention, Data.FI is working closely with USAID/OHA and USAID/Mozambique to carry out primary data collection to learn from the deployment of this live machine learning model software. We will share results and insights with the broader global health community to further develop best practices in this novel space.



Fishermen untangle nets in Mozambique. Photo by Blue Forests, courtesy of Flickr Creative Commons.



HUMAN-CENTERED METRICS

Human-centered metrics have the potential to shape the trajectory of HIV care.

- **Learn.** Human-centered metrics can help HIV providers to better understand what matters to clients. They can also drive a research agenda on how meeting these needs can better improve adherence and viral suppression.
- **Improve.** Human-centered metrics can be used to drive the improvement of existing programs’ performance when these metrics are integrated into efforts to collect, interpret, and take action on data insights.
- **Align incentives.** Measurement of human-centered outcomes will provide insights to create value-based purchasing models and non-financial incentives. These can lead to better outcomes at sustainable costs.
- **Innovate:** Once value-based metrics are routinely captured, we will have new opportunities to innovate delivery models. For example, if we identify through the metrics that privacy is a common concern, how can we innovate the way in which we provide services to improve privacy and confidentiality? Based on the “value measurement,” we can identify new interventions for more human-centered services, build a case for such innovations, and prioritize investments.

Red Cross volunteers in Burundi help vulnerable people. Photo by the International Federation of the Red Cross and Red Crescent Societies.

CLOSER LOOK

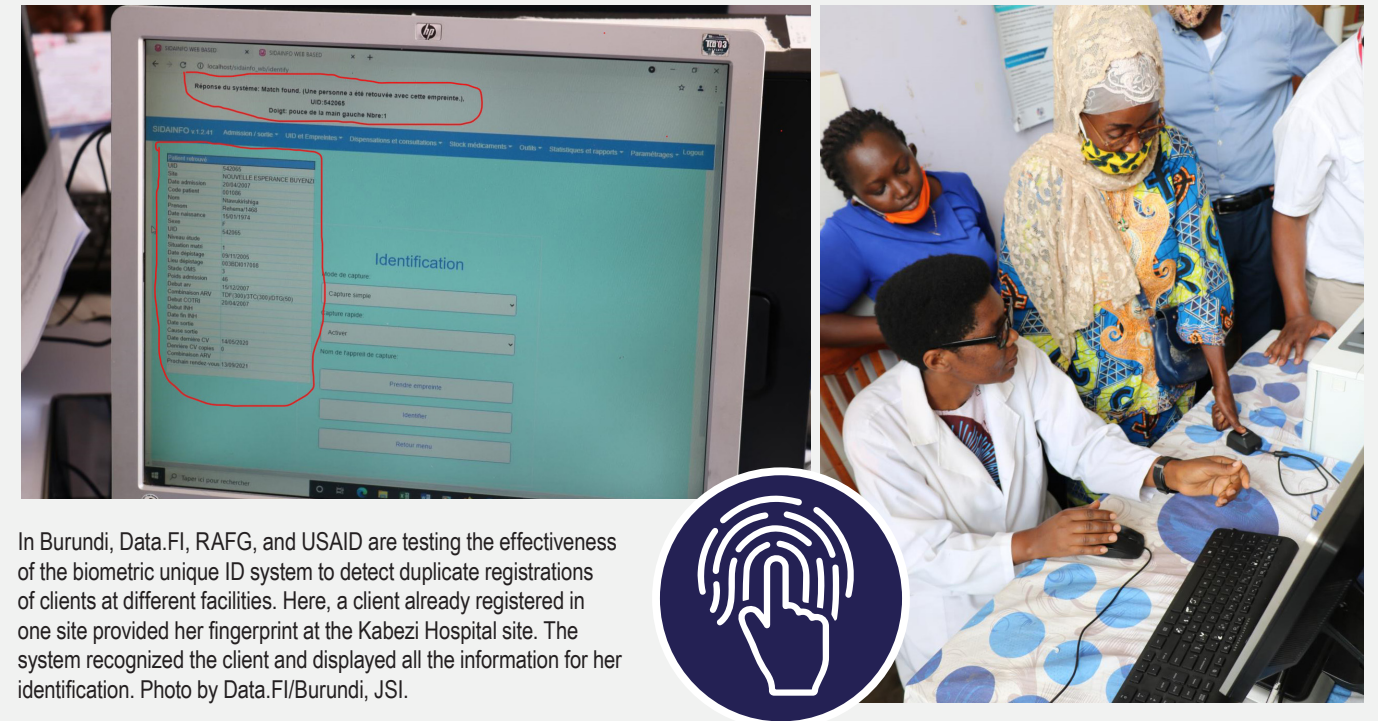
Unique Client Identification

Healthcare providers in the HIV field struggle to find appropriate ways to track clients across the continuum of HIV services—including testing, treatment, laboratory, dispensing, prevention, and community-based services. Such tracking is critical to reaching global 95-95-95 targets by 2030. Data.FI is providing technical expertise on how to operationalize sustainable unique identification (UID) approaches for HIV client health records in Uganda, Burundi, and Nigeria, based on the context and the populations being served. The aim of this work is to enable countries to optimize client care and track achievements toward the 95-95-95 goals.

In Uganda, Data.FI is using a “privacy by design” unique identification approach to develop a mobile and web-based application to identify key populations (KPs) to safely access HIV services. The KP unique identification code (KPIC) does not contain any personally identifiable

Data.FI is providing technical expertise on how to operationalize sustainable unique identification approaches for HIV client health records to enable countries to optimize client care and track achievements toward the 95-95-95 goals.

information and can be widely and securely used without the need for device management and expensive security infrastructure, and without identifying KPs who could face legal problems and jail time if their identities were revealed. It also supports KP groups who are transient or may access HIV services in different locations. As of the end of this fiscal year, 109 of 168 USAID-supported health facilities have adopted the KPIC, and 39,876 clients (65% of KP clients currently receiving services at USAID-supported facilities) have received a KPIC.



In Burundi, Data.FI, RAFG, and USAID are testing the effectiveness of the biometric unique ID system to detect duplicate registrations of clients at different facilities. Here, a client already registered in one site provided her fingerprint at the Kabezi Hospital site. The system recognized the client and displayed all the information for her identification. Photo by Data.FI/Burundi, JSI.

In Burundi, we serve as the primary digital partner of an ambitious biometric unique identification initiative for HIV clients accessing treatment and care services—the first of its kind in the country. This work is spearheaded through a government-led technical working group (TWG), which is also shepherding the transition of the HIV EMR (SIDAInfo) to an upgraded, web-based version. These two integrated solutions now mean that clients can be easily identified if they need to transfer to 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. Data.FI has successfully deployed SIDAInfo to 84 sites in 12 provinces this year and plans to scale to an additional 80 next year.

The national biometric implementation policy in Nigeria requires that a minimum of six fingerprint templates be captured for every client enrolled into HIV care and treatment. Consequently, every operational EMR in the country is expected to have a biometric module that enables fingerprint

data capture and upload of these templates to the National Data Repository (NDR) for deduplication and identification. Through the Health Informatics System Community of Practice (HI-COP), Data.FI developed a biometric fingerprint data capture module in LAMIS 3.0, LAMISPlus, and LAMISLite (a mobile version of LAMIS) which is in use across all USAID-supported sites. During this reporting period, Data.FI successfully tracked biometric uptake by IPs reporting on key HIV indicators on the NDR. The NDR data showed that the number of adults and children currently receiving ART (TX_CURR) with biometric data improved from 8 percent at the beginning of January 2021 to 73.1 percent by the end of September 2021.



Data.FI developed a mobile and web-based application with a unique identification approach for key populations, to facilitate their safe access to HIV services. Photo of a Kampala cityscape by Frederick Wamala, Data.FI/Uganda, IMC Worldwide.

Accelerating Data Analysis and Use



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. Governments and health program managers need data to measure progress against targets, allocate limited resources to reach the right populations, rapidly course-correct if programs are underperforming, and determine whether they are addressing the most urgent needs of people affected by HIV or at risk of COVID-19.

We improve systems, analytic platforms, data sources, and stakeholder analysis and use of data to allow USAID, PEPFAR, and governments to glean insights from data on a range of HIV and COVID-19 services. Data.FI synthesizes data across multiple sources and develops user-centered decision-support tools and dashboard-enabled data visualizations to inform action. We support the institutionalization of processes and systems for continuous data review, and train staff so that they can proactively address challenges and make programmatic changes to achieve meaningful impact.



Data.FI uses advanced analytics and impactful visualizations in interactive meeting settings to enable key stakeholders to pinpoint performance issues and strategize effective actions to address them. Photo by Data.FI/Tanzania, Palladium.



Evans Ondura, senior regional data use advisor, Data.FI/Nigeria, speaking at a Data.FI GIS and data analytics training workshop for SMOH staff in Akwa Ibom. Photo by Data.FI/Nigeria, Palladium.

ROUTINE DATA REVIEW STRUCTURES

First established in Nigeria, Data.FI's epidemic control room (ECR)—or “situation room”— approach allows decision makers to access data across disparate sources in one place to enable near real-time program quality improvement. Weekly analysis of performance against priority targets has improved transparency and enabled continuous feedback and learning for ongoing program adaptation, facilitating accountability for course corrections. Under Headquarters Operational Plan 2020 (HOP20) bridge funds, we adapted and applied our ECR intervention from Nigeria to the broader West African context. Working with IPs in Burkina Faso, Ghana, Liberia, Mali, Senegal, and Togo, we enhanced existing data review meetings through training in data analysis and mentorship in **action-oriented data review meetings**.



Woman headed to the market to sell charcoal in Chiana, Ghana. Photo by Alex Fassio, CIFOR.

179
data review
meetings

“The council health management teams seem excited to set ambitious goals to see changes in early antenatal care (ANC) coverage at their councils. As a result of a cause-and-effect analysis during a data review meeting, each council agreed to set goals to increase ANC coverage and suggested recommended next steps to achieve these goals. It was encouraging to observe the enthusiasm among our partners to improve data use by using quality improvement tools.”

—Stella Mujaya, Tanzania Country Director, Palladium



Stella Mujaya, Data.FI/Tanzania country director, presents to the PORALG team and partner organizations on the data use and quality improvement initiative. Photo by Data.FI/Tanzania.

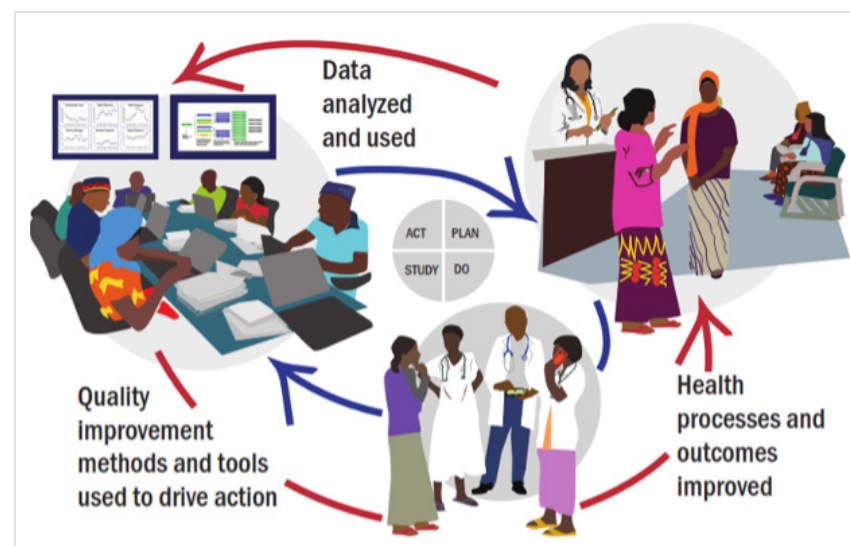
This year, Data.FI continued to expand the use of our standardized data review process with the launch of a novel data use approach, the **national quality improvement (QI) initiative in Tanzania**. This approach weaves traditional data use methods together with the Plan-Do-Study-Act (PDSA) cycle and the Model for Improvement’s three fundamental questions:

- **What are we trying to accomplish?**
- **How will we know if a change is an improvement?**
- **What changes can we make that will result in improvement?**

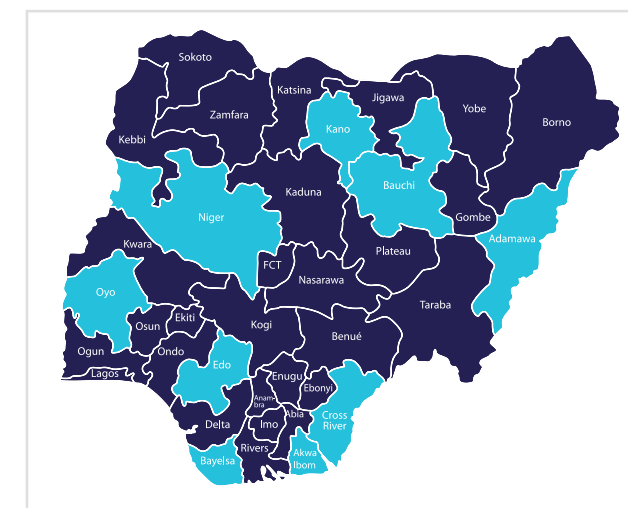
The process takes place within situation rooms—where computers display merged data from existing national Government of Tanzania health information systems and performance data from health facilities, along with status updates on QI action plans.

We identified four council health management teams (CHMTs) that will hold situation room meetings, and located a room within their offices. We also established a situation room in the government’s

President’s Office – Regional Administration and Local Government (PORALG) office in Dodoma. Data.FI conducted a landscape analysis, revealing a mature health information ecosystem—which informed decision making for the analytics platform to use for data analysis. Data.FI will leverage the PORALG District Health Information Software, Version 2 (DHIS2)-based Integrated Monitoring and Evaluation System (iMES) for the display of data. Next year we look forward to working closely with the CHMTs and seeing how they use these situation rooms to enhance their use of data for quality improvement.



Working in collaboration with the Jhpiego’s RISE project and FHI 360, Data.FI supported the Nigerian government’s COVID-19 response across nine USAID-supported states. Last year, Data.FI supported state governments to set up functional emergency operations centers (EOCs) in Adamawa, Akwa Ibom, Bauchi, Bayelsa, Cross River, Edo, Kano, Niger, and Oyo States, coordinating data reviews for strategic planning around the COVID-19 response. Data.FI provided specifications for needed equipment, which RISE procured, and Data.FI built stakeholder capacity to run the EOCs. This year, strategic information consultants employed in 2020 and embedded in each state continued to support data review meetings at the EOCs with state COVID-19 response teams, state ministries of health, partners supporting the response, and other stakeholders. EOC stakeholder capacities were built through trainings in data analysis, support in developing daily and weekly briefs, and using geographic information system (GIS) data.



COVID-19 emergency operating centers in the nine USAID-supported states in Nigeria can display visualizations of data analytics from the Nigeria Centre for Disease Control’s (NCDC) Surveillance, Outbreak Response Management and Analysis System (SORMAS) dashboards, daily data briefs, and entry point surveillance.



In Nigeria, the Kano State COVID-19 response team participate in a training at the Emergency Operations Center annex. Data.FI helped set up EOCs to support data visualization, analytics, and coordination of data review for strategic planning. Photo by Data.FI/Nigeria, Palladium.



In sub-Saharan Africa, adolescent girls are among the populations most vulnerable to HIV. In this photo, by Carine Durand for the Global Partnership for Education, girls in Ouagahio District, Côte d'Ivoire, walk to school.

In Côte d'Ivoire, Data.FI held data review meetings at national and subnational levels on orphans and vulnerable children (OVC) and Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) data. During the national-level review meeting on DREAMS data, participants discussed and addressed the limited data entry into the DREAMS database and identified the gaps between the national and district levels in beneficiary listing data. In the national OVC data review meeting, participants observed that more male beneficiaries were being served than female beneficiaries across two quarters. As a result of this meeting, the National OVC Program (PNOEV) plans to review the reasons for the disparity and will address the disparity in the coming months.

DECISION SUPPORT TOOLS

Decision support tools, such as dashboards and optimization models, help to transform data into digestible information for program planning, targeting, and resource allocation. Data.FI works with

stakeholders to first understand priority questions, and then to define system architecture, map data sources, transform data, and create tools to meet identified needs, creating efficiencies using technology.

Until this year, Mozambique's National HIV/AIDS Program (PNC ITS-HIV/SIDA) conducted routine program performance analysis using aggregate data reported through the national health management information system (HMIS)—SISMA—and through analyses conducted in Microsoft Excel. While SISMA (a DHIS2-based platform) adequately serves the Ministry of Health's data warehousing needs, it was not the ideal technology for data exploration and visualization. Likewise, Microsoft Excel is limited in its capacity to process large and complex datasets. Recognizing the limitations of their current analytic approach, in 2020 PNC ITS-HIV/SIDA acquired business intelligence (BI) software to use as its future analytics platform and requested

13 demonstrated instances of data use

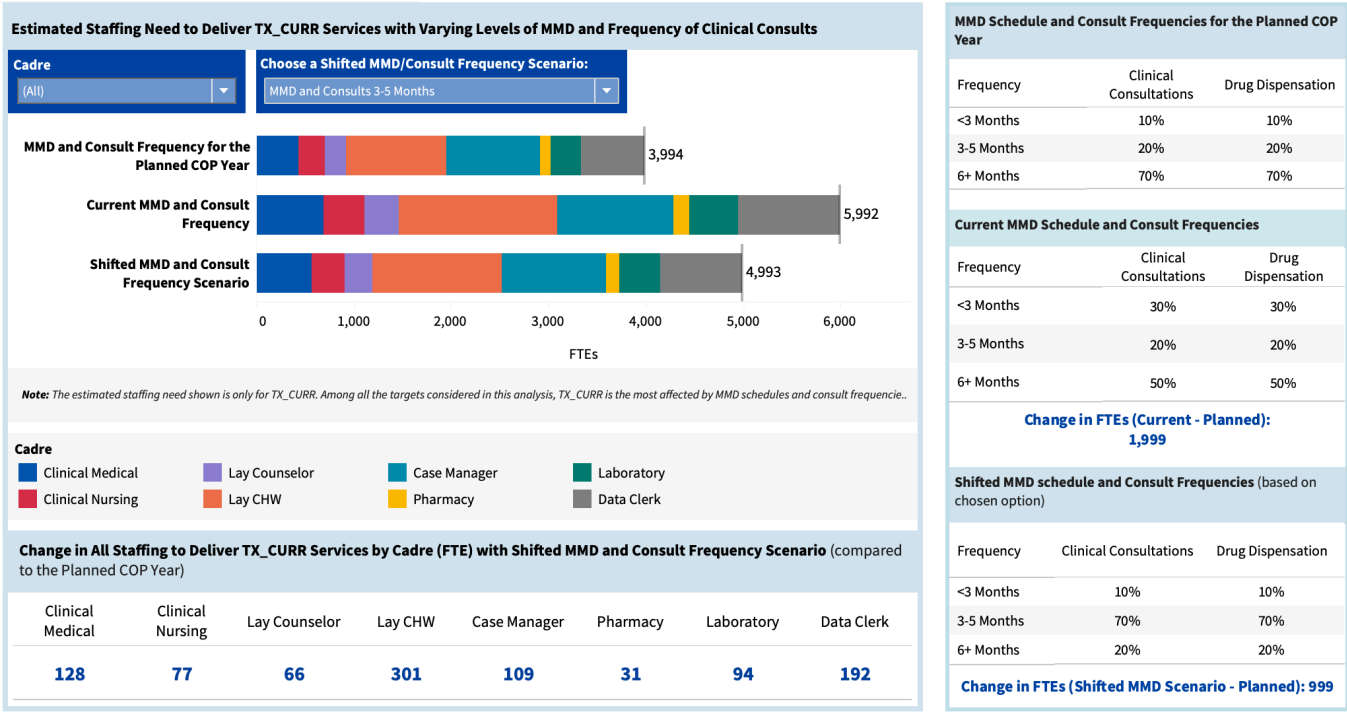
Data.FI provide targeted technical assistance to maximize the benefit of the planned transition.

Data.FI's work began with the establishment of a Data Systems Strengthening TWG with membership from PNC ITS-HIV/SIDA, the Ministry of Health (MOH), and USAID/Mozambique to steer project implementation. The TWG meets regularly to provide government-led oversight in the development of the BI platform, playing a critical role in ensuring that the gains of the project are sustainable. During the year we **strengthened the capacity of government counterparts to map data sources, identify dashboard design features, and understand how to visualize this data** in useful formats that can better aid decision making. We have co-created dashboards to ensure alignment on programmatic indicators across the HIV care continuum, and finalized and deployed a suite of HIV care and treatment dashboards.

Under 2020 HOP Bridge Funds, Data.FI and USAID developed a **Human Resources for Health (HRH) Solution—a data-driven approach for USAID to assess staffing needs for HIV service delivery and to optimize staffing allocation at country level**—leading to maximized PEPFAR investments

for epidemic control. Following its development this year, the tool was applied across 15 operating units (OUs) to inform Country Operational Plan 2021 (COP21) planning. Based on user feedback, the USAID/OHA Health Workforce Branch identified several enhancements for incorporation, including updates to the clinical pathways that capture refined decentralized community-based and telehealth tasks; allowance for further user customization and functionalities for various budget scenarios; and documentation and instructions for the R-Script to facilitate user modifications for system maintenance.

In response to these enhancement requests, Data.FI has modified the HRH Solution to align code and file documentation to USAID requirements and added features to further **enhance use cases for PEPFAR HRH analysis and planning**—such as allowing for the analysis of current outcomes of interest, including the impact on staffing of changes in drug dispensing schedules and frequency of clinical consults. We look forward to tracking how these modifications to the tool will further support USAID Mission planning.



The data analytics performed by the HRH Solution are presented visually in a Tableau workbook, which consists of 14 preconfigured dashboards that include more than 30 visualizations. In this screenshot, the dashboard shows how staffing need would change based on varying drug dispensing and clinical visit frequencies.

HIGH-IMPACT ANALYSES

Data.FI conducts high-impact data analyses to support USAID decision making. These include targeted analyses that drive our understanding of specific performance gaps, help inform target-setting, and illuminate how different components of PEPFAR programming align to achieve impact. It is important for countries to have up-to-date estimates of the status of the HIV epidemic for country planning, impact measurement, and advocacy.

Data.FI is co-leading USAID’s COVID-19 Vaccine Technical Assistance Implementing Partner Forum, with USAID and the USAID-funded MOMENTUM Routine Immunization Transformation and Equity (M-RITE) project, providing valuable insights to USAID based on pulse surveys administered to forum participants on how the vaccine response is rolling out globally. The learning platform allows USAID projects to share experiences and disseminate guidance, learn from experts, and access to best information on vaccine delivery. Data.FI analyzes data for the forum, develops surveys to assess priorities and ‘pain points’ to guide decision making, and develops country-level issues briefs.

In South Africa, we routinely generate deduplication reports using the Consolidated Health Informatics South Africa (CHISA) client matching algorithm, which allows for the deduplication and linkage of client data generated from the CHISA system. The client matching algorithm is run every time new data are ingested into the system. The deduplication report pulls out potential duplicate client records, which provinces can review and follow up through the appropriate district and facility structures. This information is used by clinicians in facilities to correct and update their paper records with the correct client outcomes, which are entered into the TIER.Net system. At the end of each quarter, these data are collated and ingested into the CHISA system.

In Uganda and Namibia, Data.FI is providing analyses to inform programming for some of the most vulnerable populations. We produced population size estimates for adolescent girls and young women (AGYW) to monitor progress toward saturation among different age bands within DREAMS districts and to inform DREAMS programming expansion to new districts in Uganda.

111
analytical
solutions



In-school adolescent girls and young women in Uganda have lower rates of HIV infection than their out-of-school counterparts, according to a study published in PLOS One. Photo of young people at Trinity College Otuboi in Uganda by jamiemw.



A health care worker prepares to administer a COVID-19 vaccine to a client in Côte d'Ivoire. Photo by Erick Kaglan, World Bank.

In Namibia, we estimated key population sizes for men who have sex with men, female sex workers, and transgender females to support PEPFAR COP planning and national and subnational HIV programming. We assembled KP size estimates using available data sources, including published studies and data collected through integrated behavioral and biological surveillance (IBBS) surveys and other critical inputs such as census and programmatic data, and conducted extrapolation exercises using validated small area estimation methods. These size estimates will be used to help direct resources to geographic locations where they are most needed.

TARGETED COP PLANNING SUPPORT

This year Data.FI analyzed project expenditures and results under different partnership models (prime vs. sub-partner) using two data sources—PEPFAR expenditure analysis (EA) data and PEPFAR MER data. The analysis, conducted in Tanzania and Nigeria, demonstrated that standardized EA and MER datasets can be used to help understand the contribution of different types of project partners to results. We also worked with USAID/OHA to develop a method for measuring the contribution of community-based programs to clinical program outcomes using available community program custom indicator data and required MER clinical program indicator data—demonstrating the utility of this method in Botswana for future use in COP planning processes.

Optimizing and Scaling Health Information Systems and Digital Solutions



Data.FI optimizes information systems to improve client care at the site level, inform resource allocation at the planning level, and promote accountability. This requires a reorientation of source systems, including EMRs, to meet client care management objectives, and harmonization of reporting systems designed to capture only those data that are needed and used to plan and improve programs and track investments.

COVID-19 has once again brought to the fore the need for sustainable systems—systems aligned with the local context, governed by a coordinated stakeholder team in country, and built on open-source code. Going forward, in the wake of COVID-19, there is also a need to design systems more flexibly, with clear change management processes, to allow for agility in measurement.



Photo of a health facility in Nigeria by RNW.org.



A client being tested for HIV. Photo by Kristian Buus, Star Foundation.

DEVELOPING AND ENHANCING SYSTEMS

Data.FI is at the forefront of supporting partners and governments to develop, enhance, and sustain HIV and COVID-19 information systems to improve data capture and performance improvement.

In Nigeria, Data.FI is supporting strong HIS governance processes and collaborative principles with the HI-COP, co-led by USAID/Nigeria and Data.FI. The system enhancements arising from this collaboration have been leveraged for more than two years to promote a unified system architecture that promotes seamless data exchange, is scalable to ever-changing demands, and is a global good aligned to international information exchange standards to enhance service delivery and monitoring of the HIV epidemic.

This year through the HI-COP, Data.FI successfully:

- Finalized the architecture for the Central LAMIS system and optimized the integrated EMR system, LAMISPlus—ensuring alignment across testing, treatment, laboratory, pharmacy, and commodity information systems, the COVID-19 case management module, and interoperability with the NDR.

“With the rollout of LAMISPlus with improved clinical decision support (CDS) functionality, we expect that the quality of services provided to HIV clients will greatly improve. In addition, the exchange of laboratory order information and results between LAMISPlus and the Laboratory Information Management System (LIMS) will improve the turn-around time for viral load information and results reporting, which consequently will improve the HIV client quality of care.”

—Dr. Dauda Sulaiman Dauda, Data.FI/Nigeria Country Director

- Redesigned LAMISPlus as a general purpose EMR rather than solely an HIV treatment service software. Clinicians and other health workers are now documenting client encounters at service delivery points in real time. The application was deployed in Quarter 3 at 101 facilities supported by USAID IPs.

Data.FI also:

- Completed the dashboards and standardization of the Site Improvement Monitoring System (SIMS) on the Automated Partner Performance Reporting (APPR) system.
- Developed multiple dashboards on the APPR, including those on performance, expanded site management (ESM), OVC, gender-based violence (GBV), tuberculosis (TB), surge, prevention of mother-to-child transmission of HIV (PMTCT) and self-administered DQA.
- Developed the first version of the USAID Nigeria Comprehensive Access Review Dashboard (CARD) and completed the administration modules. CARD will provide the country an **integrated analytics platform**, triangulating data from different data sources to provide analytics for evidence-based decision making.

Data.FI/Burundi is supporting PEPFAR and the government of Burundi's goals of enhancing the primary HIV EMR in the country—SIDAInfo.

Over the past year, we have worked collaboratively with the National AIDS and STI Control Program (Programme National de Lutte contre le Sida et infections sexuellement transmissibles, or PNLIS) and the Directorate of the National Health Information System (Direction du Système National d'Information Sanitaire, or DSNIS)—and two USAID-funded IPs to develop and roll out a web-based version of the original Access-based system. By the end of the reporting period, we were able to scale the new system to 99 sites and train users at 106 out of 357 sites (30% of high-volume sites receiving PEPFAR's direct support) in 12 provinces, covering 43,225

out of 64,006 people living with HIV (PLHIV) on ART (68% of all PLHIV on ART). We will fully scale the system in COP21.

Scaled
systems across
483
sites



In Uganda, about 12 percent of children are orphans, according to UNICEF estimates. This photo of a girl at Midland Orphanage in Kampala, Uganda is by IHH Humanitarian Relief.

This enhanced web-based EMR will enable individual clients to have a unified record across all HIV service provision sites, improving quality of data and services delivered. This is further supported by this year's development, testing, and implementation of a biometric UID for PLHIV.

Data.FI is enhancing case management systems in support of OVC and DREAMS programming.

- **In Zimbabwe, Data.FI is leading the development of a first-of-its-kind OVC Management Information System (MIS),** which harmonizes data collection across six IPs. Training of IPs and local system administrators was completed in September 2021. Final validation of interactive dashboards for OVC_SERV and OVC_HIVSTAT is pending, and we are looking forward to supporting the USAID Mission in the new year in strengthening performance management.

“There is a ‘sea change’ occurring in Zimbabwe. IPs are delighted that they have access to one harmonized system for reporting, which means that they will no longer be responsible for database administration on their own. This has the added value of ensuring indicator calculations are harmonized across IPs and the assurance that data is available in real time for USAID.”

—Jenny Mwanza, Senior Technical Advisor for Data Informatics, Data.FI

- **In Côte d'Ivoire, Data.FI assisted the national OVC program to enhance the DREAMS database.** This database was developed on OpenMRS, the same platform used for the OVC database. The OpenMRS architecture allows easy customization of modules, is timely and efficient for data retrieval, and removes need for an interoperability layer for data exchange between the DREAMS system and the OVC system.
- **In Nigeria, we completed development of the beta version of the enhanced National OVC MIS 3.0 (NOMIS v3.0),** based on assessment recommendations and feedback from stakeholders. The production version is set to be finalized in October with pilot-testing scheduled for October–November 2021 for selected states. We also finalized the architecture and system design for NOMIS mobile, and the user requirements documentation.



IMPLEMENTATION GUIDANCE

Supporting Electronic Case Management Best Practices for OVC

Data.FI supported USAID/OHA to develop implementation guidance for OVC electronic case management, a sister document to the [Key Considerations for Electronic Case Management Guide](#) that USAID released earlier in 2020. This guidance provides operating units, IPs, and other stakeholders with essential and translatable approaches for planning, designing, and improving electronic case management systems (eCMS). This includes requirements gathering, software adoption, configuration and development, testing, user acceptance, deployment, analytics, data use, and capacity building and training for sustainability.

The guidance document took into account eCMS experiences across multiple countries and is applicable across many contexts.

Boys in Malawi. Photo by khym54, courtesy of Flickr Creative Commons.



The SIDAInfo manager at Kabezi Hospital in Burundi demonstrates standard report generation using the new web-based EMR to Apollinaire Kavungerwa of USAID/Burundi, and Valentin Nitereka and Serge Bisore of Data.FI. Photo by Data.FI/Burundi, JSI.

DATA ALIGNMENT AND EXCHANGE

Data.FI works closely with local stakeholders to build and maintain systems that interface well with the existing ecosystem. We do this by gathering requirements and collaborating closely with partners to support data sharing and interoperability across existing and emerging platforms.

In Burundi, we supported enhancements to SIDAInfo to ensure it will be interoperable with DHIS2, the national HIS platform, and also with the M2SYS server that supports the new fingerprint unique ID system. Data.FI also continues to support data alignment activities in Burundi between DHIS2 and Data for Accountability, Transparency, and Impact (DATIM) to enable direct data exchange between the two systems. This allows the data housed in systems managed by the MOH to be shared directly with the PEPFAR information

system to reduce duplicative data entry and parallel reporting structures.

Over the past year in Nigeria, **Data.FI and the HI-COP successfully completed and rolled out a LAMISPlus interoperability layer** as part of the version 1.0 release to enable data exchange between the EMR and other national platforms—the NDR, the LIMS, and the National Integrated Specimen Referral Network Management Information System (NiMS).

Furthermore, the NOMIS 3.0 system architecture is leveraging the **modular architecture and data exchange standards** adopted in the country’s LAMISPlus application and the interoperability layer is based on the NDR requirements for data exchange.



INTEGRATING INFORMATION SYSTEMS FOR ADVANCED ANALYTICS

The “**Consolidated Health Informatics South Africa**” system, previously known informally as the ‘InfoHub,’ is an analytical platform integrating powerful features for data analyses and visualizations. It has been designed to provide a wide range of users with insights into client well-being across the HIV cascade. The analytics platform is built upon a **national data warehouse through which disparate HIS in South Africa can be linked**, allowing for data triangulation across different systems. Data.FI’s work advancing CHISA in South Africa with the National Department of Health (NDOH) highlights how **analytic platforms that pull in data from multiple sources will catalyze a new era in program performance monitoring and improvement, and planning.**

In this reporting period, Data.FI completed and received signoff on Version 1 of CHISA from the NDOH and USAID. The release of V1 and its dissemination through a roadshow in various provinces resulted in provincial staff having access to the system and the analytics contained within the platform. This is a huge step forward as it indicates NDOH buy-in to the technical product, and the robustness of the analytical products the team has built.

The CHISA is unique in that it provides a platform that stages client-level data for more than 20 million PLHIV, going back over a decade in duration—a



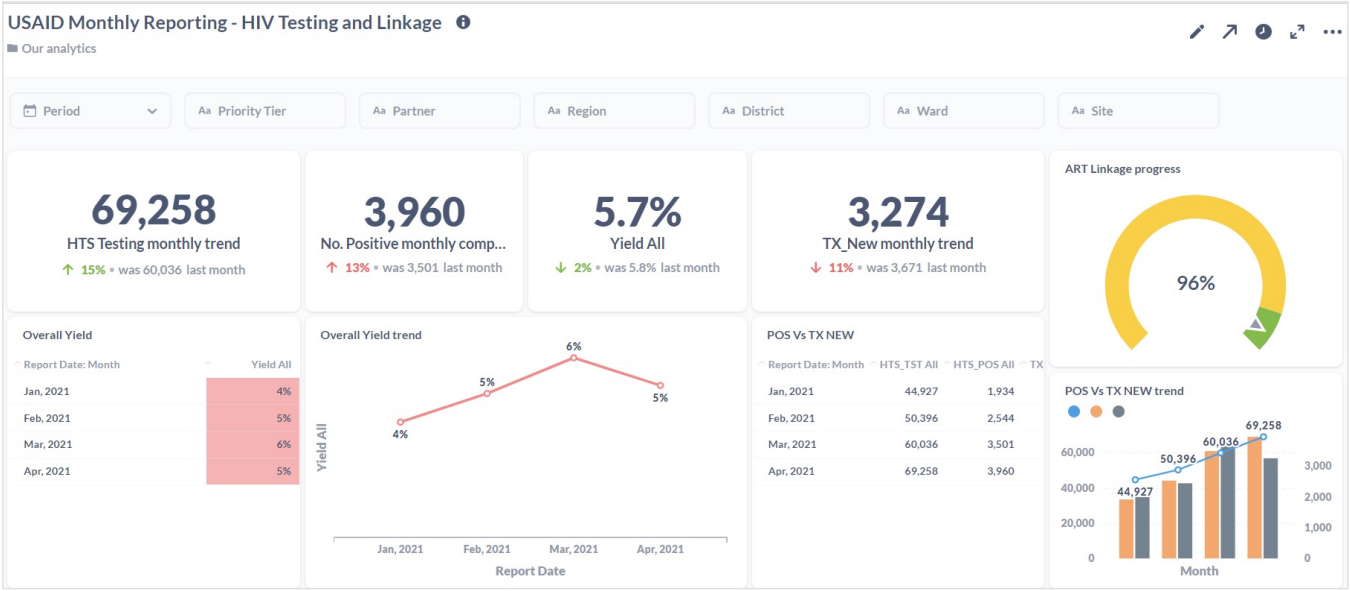
South Africa has the largest HIV epidemic in the world, with 7.7 million PLHIV. Photo by Trevor Samson/World Bank.



DATA PRIVACY

Privacy of personal identifiable information within the CHISA platform remains a key focus of the Data.FI project. South Africa’s Protection of Personal Information (POPI) Act formally came into effect on July 1, 2021. To ensure that the CHISA platform complies with the conditions of the Act, Data.FI facilitated the drafting of a CHISA Data Access Policy and Framework. The policy and framework cover data privacy in the context of the POPI Act, as well as in the context of the National Health Act and the Promotion of Access to Information (PAI) Act.

The implementation and institutionalization of the policy and framework will continue during COP21 and will be aligned with planned activities related to cyber security that aim to prevent unauthorized access to the CHISA platform and more specifically to the personally identifiable information (PII) in the system. All PII data currently held within the CHISA platform are encrypted at the database level to prevent unauthorized access.



The USAID Tanzania Data Portal is a data analytics web application built to improve USAID/Tanzania's reporting and analysis processes, addressing the challenge of managing and analyzing huge datasets submitted by IPs.

large, rich, and complex dataset. Data.FI supported the development of cohort analyses, survival analyses (utilizing the Kaplan Meier estimator), and multivariate analyses (Cox regression), towards the development of **novel HIV outcomes analyses**. Data.FI is enhancing the CHISA platform to display and disseminate these analyses (through RShiny) to CHISA users to ensure wider accessibility and use of the results to inform evidence-based decision making and improvements to service delivery.

These dashboards, and the analyses depicted, align to a CHISA Analytics Framework developed by Data.FI and agreed with all stakeholders. The extensive work that went into determining user requirements and documenting a framework for analyses—to ensure that stakeholders receive what they need, and not superfluous or excess information—has been critical to success so far. CHISA will evolve as new data needs are identified and data sources are ingested.

DIGITAL SOLUTIONS

The **USAID Tanzania Data Portal** is a data analytics web application built to improve USAID/Tanzania's reporting and analysis processes. Data.FI/Tanzania developed the USAID Tanzania Data Portal to help USAID manage and analyze the huge datasets submitted by IPs that use Excel reporting templates. It digitizes and streamlines these processes, enabling real-time visualization of information for decision making through standard dashboards.

The Data Portal platform has two modules: (1) a system for USAID to house data reported by USAID-supported IPs in Tanzania on various health areas, including HIV, maternal and child health, family planning, and malaria, and (2) a searchable system to manage and store in one central place all routine performance reports, abstracts, and manuscripts generated by USAID IPs. USAID can now track documents of various types uploaded by authors and reviewed and approved via several steps set in place through a workflow, which allows comments to be logged centrally and avoids version control issues. Dashboards are created in the Data Portal platform for each of the seven IPs submitting data to USAID/Tanzania. Such dashboards facilitate data analysis for the Mission across the HIV portfolio.

Engaging Audiences with Communications Outreach

Data.FI is ramping up engagement with audiences through multiple communication platforms. Readers include development agencies, donors, in-country entities, USAID collaborating agencies and projects, universities and research institutes, and news media.

LISTSERVS AND E-NEWSLETTERS

PEPFAR

USAID

OHA Note to Implementing Partners

PEPFAR

USAID

Success Story Highlight: Training Complete for Users in Burundi

PEPFAR

USAID

This past September, Data.FI, with the National AIDS Control Program (PNLS/IST) held a three-day training in Burundi, for users of the national electronic medical records system, SIDAInfo, which is being deployed across the country.

Listserved and e-newsletter announcements reached 47,000+

SUCCESS STORIES AND BLOGS

ICTworks

5 Steps for Measuring the Benefits and Risks of Stakeholder Data

By Guest Writer on January 21, 2021

PEPFAR

USAID

We all live in a world where we need to have good quality data decision making. And to share that with partners to build collat a reusable public good. Of course, we should also protect the p (like with personal health information or on sensitive topics). Th heard at least one of these sentences before.

PEPFAR

USAID

Success stories on blog channels reached 113,000+ (cumulatively)

EMAIL CAMPAIGNS

Reached 36,465 individuals in 22 targeted email campaigns

PEPFAR

USAID

Supporting young girls and women to control HIV

One of PEPFAR's major goals is to improve program reach and strengthen service delivery for the most vulnerable, including adolescent girls and young women (AGYW). In Uganda, Data.FI works to strengthen the DREAMS (Determined, Resilient,

SOCIAL MEDIA ENGAGEMENT

Data.FI LinkedIn page viewed 55,563 times

PEPFAR

USAID

RT @DataFIproject: Data.FI's \$100,000 Challenge now extended! Given the volume of interest the deadline for submissions to...

PEPFAR

USAID

Data.FI is supporting PEPFAR to define a "whole of market approach" to HIV service delivery.

All figures describing dissemination reach are cumulative (October 1, 2021–September 30, 2021). These figures are conservative and do not include reach estimates for USAID channels that have published summaries of Data.FI work.

Improving Data Sources



In the dynamic HIV and COVID-19 response efforts, USAID, IPs, and governments need trusted data at their fingertips so that they can quickly pivot to meet their clients' needs. Quality data is crucial to support programmatic assumptions and meet performance targets.

Data.FI builds smart systems that give decision makers confidence in their data. Improving data sources for digital health systems involves multilevel interventions appropriate to the country context. The steps include clearly defining indicators,

deduplicating data, developing innovative ways to assess data quality, and ensuring that EMRs are capturing current treatment guidelines and data definitions. Data.FI works with stakeholders to rapidly assess and address data quality gaps and put in place **practical, easy-to-use solutions** to demystify the data quality improvement process, as well as to establish **gold standard data quality and management practices** to support IPs to responsibly manage data.



Mothers with their newborn infants speak with a care provider at a clinic in Tanzania. In Tanzania, Data.FI is supporting a quality improvement approach to strengthen ANC and other clinical services. Photo by John Rae, Global Finance Facility.



Women at an outdoor vegetable market in Kenya wear masks and social distance during the COVID-19 pandemic. Photo by Sambrian Mbaabu, World Bank.

21
indicator
reference
sheets

DATA QUALITY IMPROVEMENT

There are many approaches to improving data quality, including routine data quality support and larger non-routine DQAs that support a broader understanding of the quality of key performance indicators through site-level verification.

Extending our measurement work to COVID-19, this year **Data.FI co-created the first-ever suite of COVID-19 indicators for IPs** with the USAID Bureau for Global Health **to support quantification of results and accountability in this critical global response**. Data.FI was then asked by USAID to lead an **assessment of the quality of data being reported from these indicators through a fully virtual DQA**. In collaboration with USAID and IPs, we selected three result areas—risk communication and community engagement (RCCE), laboratory systems, and infection prevention and control (IPC)—and indicators to review and verify during a recent and complete reporting period.

We developed a remote DQA methodology to review partner-reported data by assessing the **validity, reliability, timeliness, and integrity** of IP-reported data. The project adapted existing DQA tools for the assessment (e.g., the MEASURE Evaluation Routine Data Quality Assessment Tool) and conducted interviews with IPs at the headquarters and country levels and across reporting units to review source data, which we recompiled with reported values for each indicator. All assessment interviews and data validation checks were conducted remotely, using available communication platforms (e.g., Zoom, Skype, WhatsApp, and telephone). Our final report includes recommendations to USAID, including the development of generic **guidance on monitoring and evaluation (M&E) in emergency settings**. We hope these will be more broadly used to better guide efforts for data collection and reporting in the event of another global pandemic.



A woman in Burundi smiles as she carries her baby. Photo by Enhanced Integrated Framework.

Data.FI/Burundi worked closely with PNLS, UNICEF, the World Health Organization, the Global Fund to Fight AIDS, Tuberculosis and Malaria, Enabel (the Belgian Development Agency), and other PEPFAR IPs to develop and implement a DQA to better understand the quality of data across HIV treatment sites. Data.FI initiated a DQA TWG, which worked in close collaboration with partners and donors to conduct the DQA in a sample of 217 of 224 sites—representing 78 percent of PLHIV on ART in Burundi. The DQA found that the reported number of PLHIV currently on ART was close to the number found by our investigators and that, in general, data quality for the indicators was acceptable across the various sources. That said, data quality was poor for viral load suppression among PLHIV on ART (TX_PVLS) and an analysis of the data disaggregated by sex, age, or province revealed many discrepancies, especially with small numbers. This indicates data entry errors are occurring when the data are transcribed.

26
digital
data quality
checks



Data.FI/Côte d'Ivoire conducted a data quality audit of key HIV indicators reported for all USAID-supported community and clinical partners in Côte d'Ivoire. Photo by Data.FI/Côte d'Ivoire, JSI.



Data.FI/Nigeria participated in the National Strategic Knowledge Management Technical Working Group (SKMTWG) workshop held in Akwa Ibom, organized by the Nigeria AIDS Control Agency (NACA). The SKMTWG advises the national, multisectoral HIV/AIDS response, and Data.FI is a member of the SKMTWG's Management Information Systems Sub-committee. Photo by Data.FI/Nigeria, Palladium.

This year, **Data.FI/Côte d'Ivoire conducted a DQA of HIV care and treatment indicators** at the community and facility levels to better understand challenges associated with data accuracy for selected indicators. Through this activity we assessed the completeness and quality of the monitoring and reporting system for HIV-positive case identification and linkage to treatment at the community level. In addition, we assessed the accuracy of the numbers of people who tested positive and those initiated on ART reported by USAID community partners and their sub-partners.

In Côte d'Ivoire, Data.FI assessed the completeness and quality of the monitoring and reporting system data for HIV-positive case identification and linkage to treatment at the community level.

The DQA found that the elements needed to ensure **a robust monitoring and reporting system** were in place: trained staff, the availability of data collection tools, the existence of SOPs, archiving of tools, reporting, comments (feedback), and site visits by partners to verify data quality. The source documents available for people who tested positive and who started ART were generally complete and consistent. The concordance between the actual number of people testing positive and put on ART was 92 percent for the DQA and 100 percent for data sent by the USAID Mission.

In Nigeria, we supported the successful implementation of self-assessed DQAs for PEPFAR-supported USAID IPs through the configuration of both data collection and data visualizations on the APPR platform. Data.FI then provided support to the USAID Nigeria HIV/AIDS and Tuberculosis (HAT) Strategic Information team in conducting inter-agency DQAs in Akwa Ibom and Cross River States.

Strengthening Partners and Governance for Sustainability



Today, digital solutions for data collection, analysis, and visualization are indispensable to HIV and COVID-19 program decision making. Data.FI aims to strengthen host country capacity to lead and sustain the national HIV and COVID-19 response through the development and use of robust and resilient HIV information systems and digital solutions.

We work with MOHs and their partners to develop and build open-source technology solutions such as South Africa's CHISA system, 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 skills in data review, interpretation, and action planning. We are also **working with local digital health and technology partners** for systems and software development and deployment, curriculum development and training, and analytics. These partnerships often involve assessing and strengthening local partners' organizational as well as technical capacity, with the aim of expanding the availability of local resources to promote sustainable, country-led solutions for achieving and maintaining epidemic control.



Côte d'Ivoire DQA team reviewing registers during data quality audit. Photo by Data.FI/ Côte d'Ivoire, JSI.



U.S. Ambassador to Nigeria Mary Beth Leonard toured health facilities in Akwa Ibom State receiving support from PEPFAR and the President's Malaria Initiative (PMI). Ambassador Leonard also visited the epidemic control room in the offices of the State Ministry of Health, which Data.FI supports to conduct technology-enabled data review meetings for accelerated HIV epidemic control.

STRENGTHENING GOVERNMENT LEADERSHIP

Data.FI works in close partnership with government to support and strengthen their capacity to own and lead their health response and the information systems that support it.

In Tanzania, Data.FI is supporting the President's Office Regional Administration and Local Government and working closely with UNICEF to support quality improvement of indicators on ANC. In September 2021, a team composed of PORALG, UNICEF, Data.FI, and CHMTs chose ten facilities to participate in a QI initiative focused on promoting data use. In August, CHMTs were trained by Data.FI and UNICEF to use an action-oriented data review process, applying

a QI model to examine key ANC indicators. In the coming year, Data.FI and partners will begin facility visits to strengthen and expand the application of the QI model, which uses a change management approach to improve productivity and the quality of services at health facilities.

11
curricula developed



Men talk at the door of a shop in Badagry near Lagos, Nigeria. Data.FI has been advancing the HIV health information systems in Nigeria for more than two years. Photo by Devesh Uba.



Participants from the State Ministry of Health in Akwa Ibom, Nigeria, learned to create data visualizations during a training on geographic information system data in the situation room. Photo by Data.FI/Nigeria.

This year in Nigeria, Data.FI conducted an intensive, four-day GIS training for 15 State Ministry of Health (SMOH) staff. Participants were taught to create maps and visualizations on the HIV testing cascade and PMTCT of HIV, which the SMOH will use to develop a quarterly bulletin on HIV management for key stakeholders. Since the GIS training, SMOH staff have led the data reviews during several situation room meetings, and for the first time presented their own analyses to participants, a sign of their growing competence and leadership. Data.FI is also providing practical sessions to SMOH staff on information product design, use of Microsoft Excel for data analysis, and PowerPoint—empowering staff to communicate findings and lessons learned and improving institutional strength in data analytics and use for decision making.

CLOSER LOOK

Transitioning Systems to Country Ownership

The **Knowledge Hub** is an **e-learning platform** that offers online courses and webinars for public and private-sector health providers in **South Africa** on everything from management of drug-resistant TB and case management of malaria, to clinical care for clients with HIV and viral hepatitis. Given the pandemic, there is a huge demand for the hub's e-learning materials on COVID-19—including on clinical case management and infection control, COVID-19 laboratory tests, and adult primary care.

With donor funding for system management ending in 2021, there was an urgent need to transfer full hub ownership to the NDOH. Upon request from USAID, Data.FI worked to provide technical support to the overall Knowledge Hub system, increase demand for and use of hub resources, and eventually transition sole ownership of the system to the NDOH. Our primary focus, working with NDOH's Human Resources Directorate (HRD), has been to ensure the hub can be **institutionalized within the NDOH** with adequate human and financial resources to maintain the system. The Data.FI team hosted a transition workshop attended by the HRD, government staff, provincial NDOH staff, IT Department staff, USAID, and the service provider that has been supporting the Knowledge Hub system over the past four years. Participants discussed the three-year vision and staffing and financial resources needed to support the long-term sustainability of the Knowledge Hub.

Data.FI also developed a prioritization framework to support transition of the Knowledge Hub that outlined the steps by which people can have courses approved and uploaded onto the system. The framework streamlines how users—including content

creators—understand, engage, and leverage the platform for course hosting, webinars, and sharing integral public health resources. To ensure that everything can be transitioned smoothly, Data.FI also put in place the needed documentation as a reference—on everything from server maintenance to course development. The team is working to ensure that the skills needed to maintain and sustain the system are built within staff at the NDOH. Data.FI is also working to ensure that content development is continually supported in the future.

“We have seen increased use of the Knowledge Hub and buy-in for online trainings since the onset of the COVID-19 pandemic. The Minister of Health uses the system to host webinars which serve to relay messages and update health workers. And importantly, the NDOH has supported the transition of the system hosting to the internal NDOH server environment.”

—Christy Mulinder, South Africa Country Director, Data.FI, Palladium



A nurse in South Africa dons personal protective equipment to prevent infection with COVID-19. Photo by James Oatway, IMF.

STRENGTHENING PARTNER CAPACITY

Often, capacity building comes from peer-to-peer learning, participation in group endeavors where technical skills are informally shared, and the urgency that fuels collective action to solve jointly felt problems. We see this in country after country: Collaboration facilitates knowledge exchange and strengthens capacities in important ways.

In Malawi over the past two years, Data.FI has supported a mentorship process to build the capacity of two PEPFAR-funded USAID partners, Partners in Hope (PIH) and Baylor, to use the country’s two EMR systems, which are managed by the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF), more effectively. Our process has

supported these partners across all stages of the data life cycle—on

data entry, assessing the data in the system, training on system use, and ultimately, building capacity to use quality data.

This year, Data.FI conducted a series of trainings, including for

145 data clerk mentors across the country, trainings of trainers (TOTs) on EMR data access, cleaning, and extraction for district and central-level M&E officers from Baylor, and for district-level HIS officers supported by EGPAF/Malawi. The trained data clerk mentors and M&E and HIS officers, including MOH team members at the facility level, have been key in cascading training to facility-based data handlers.

Facility-based IP staff are now leading processes for data cleaning and reporting, which previously was mostly done by EGPAF. Now all USAID-supported EMR sites are reporting using the two EMRs to address quarterly reporting requirements for the MOH. This result is due in large part to the mentorship and the introduction of clerks in the facilities, which was a key recommendation from Data.FI in Year 1.

In Uganda, Data.FI has been working to support the use of a safe unique identification for KPs. For this, we worked closely with the in-country M&E partner SITES to conduct a virtual TOT on KP data protection. Participants learned about data breaches, the risks and benefits of decision making related to data collection, and appropriate storage, digitizing, and safekeeping of paper records. The

training also included a segment on how to conduct a remote training, allowing SITES to better cascade trainings and tools on data protection and security concepts to other IPs and facilities.

In Zimbabwe, Data.FI developed and presented extensive training materials on use of the OVC MIS, and provided more than nine hours of remote training to 20 leaders and M&E managers at IPs. An additional nine hours of training was provided to eight system administrators from Catholic Relief Services (CRS) and FACT Zimbabwe. The training slides, including practical exercises and user manuals, and recordings of the modular training sessions, have been shared with USAID and participants to serve as a permanent resource for IP leadership to provide in-service training and to orient new incoming staff on the use of the OVC MIS.



Côte d'Ivoire DQA team reviewing HIV data and tabulating results during a Data.FI-supported data quality audit. Photo by Data.FI/Côte d'Ivoire, JSI.

reinforcing key concepts and skills from participants’ asynchronous learning. Group sessions and virtual office hours are also available to allow trainees to connect with subject matter experts and contextualize their learning with one-on-one technical assistance.

As of September 2021, 145 participants from 55 local partner organizations in 22 countries, as well as five participants from USAID/Washington and Missions have completed the course (in French or English), with an overall completion rate of 86 percent. More than half of the participants were strategic information directors or managers in their organizations. In the post-test evaluation, 95 percent of participants said the course content was pertinent to their work, and all participants in the post-test evaluation agreed that the experience would help them in their current roles. Course materials were adapted and used by other USAID IPs to conduct training in Burundi, Jamaica, Nepal, and Tanzania.

STRATEGIC INFORMATION CAPACITY

For many local organizations, receiving direct PEPFAR funding is an opportunity for partners to increase qualified staff, expand much-needed services, and strengthen enduring organizational systems. This funding, however, comes with extensive requirements, not only in terms of financial management and contractual compliance, but also on the use of strategic information and results reporting. Particularly for newly established primes, these requirements can present a steep learning curve, while simultaneously implementing complex programs with ambitious targets to improve HIV outcomes.

Data.FI developed an online training course for local partners on PEPFAR strategic information and DQAs. The innovative, blended digital course offers 22 asynchronous lessons that allow participants to learn at their own pace, along with two live, synchronous sessions aimed at



A groundnut farmer in Khulungira, Malawi. Data.FI has supported USAID partners to build capacity and strengthen their use of the country’s two EMRs. Photo by ILRI/Mann.

Gender Strategy Update



The quality of gender data has improved considerably over the past decade, but there are still opportunities to improve the routine collection and use of sex and age disaggregated data. Few program managers truly “dig into” their data to explore gender-related issues.

This is a missed opportunity for programmatic improvement. Gender-disaggregated data can point out differences and disparities in access to and use of HIV and COVID-19 services that must be addressed in order to **achieve health and social outcomes equitably**, as well as program targets. Review and interpretation of the data can facilitate dialogue on the

causes of observed differentials, as well as service delivery solutions. For example, recognition of men’s relatively low uptake of HIV testing services at some service delivery points has prompted managers to explore why (e.g., limited geographic access, hours of operation, stigma, gender-discriminatory treatment, etc.) and then **look for solutions or reallocate resources to where they are most needed**.

Our overall gender equality goal is to accelerate and sustain access to high-quality, gender data to expedite HIV and COVID-19 epidemic control and maintenance among all gender and age groups. Aligned with Data.FI’s outcome areas, our priority gender objectives are to promote the **availability,**



Schoolgirls in South Africa. Photo by UN Women.



Data.FI’s Michelle Li was one of the experts who discussed gender data in a short video on YouTube (see <https://www.youtube.com/watch?v=H4rSKZk1LA>). She spoke about Data.FI’s work analyzing existing population-based household survey data from the Demographic and Health Surveys and the Population-based HIV Impact Assessments to characterize the profiles of girls at risk of HIV. Photo by Palladium.

quality, and use of gender data to improve and tailor services for all populations; ensure that **health information subsystems include sex- and age-disaggregated data** and are **linked to support gender-focused programming**; strengthen **data governance policies and practices** to acknowledge the importance of gender data, and prioritize actions to ensure data privacy and protection among vulnerable groups; and **strengthen the leadership capacity of women and girls and gender and sexual minorities** within the HIV data ecosystem.

In South Africa, Data.FI is developing a set of epidemiological analyses to be deployed using the CHISA system. Each analysis will include data disaggregation by gender and age group. During an initial outcome analysis, data showed higher viral load test uptake among females compared to males—with adolescent males the least likely to be virally suppressed. In addition, those in the 15–29 age group showed a significant gap in testing.

Once the analyses are live on the system, analytics such as these will be used for program and clinical management, and changes in outcomes can be run and tracked annually.

Within Nigeria’s APPR system, Data.FI developed a **dashboard to track GBV custom indicators** and supported the **generation and analysis of quarterly GBV reports for USAID’s COP planning and the Mission’s routine enhanced site management processes.** The GBV dashboards track indicators such as the percentage of individuals identified as having experienced GBV and the percentage of individuals referred for GBV services. These custom indicators are further disaggregated by age and sex.

Looking Forward

This last year has been characterized by incredible uncertainty at the global level due to the COVID-19 pandemic. HIV programs have rapidly pivoted to provide continuity of care to clients safely, focusing on meeting immediate needs. As we transition to a world order that includes COVID-19 as a long-term threat to individuals, communities, and the stability of the health system, HIV service provision will need to adapt. Models of service delivery that minimize client risk, maximize client choice, and optimize financial and human resources will be critical on the road ahead.

The COVID-19 response effort, including vaccination programs, will need to leverage

the PEPFAR platform and the investments made in country HIS to support efficient service delivery, rapid planning, and course correction. Data.FI's role will be to help USAID and partners maintain the gains made toward HIV epidemic control, accelerate COVID-19 epidemic control, and ensure full accountability of investments and U.S. government commodity donations.

We will help USAID meet their objectives stated in the new [PEPFAR Strategy](#), and the goals of the [U.S. COVID-19 Global Response and Recovery Framework](#), with specific reference to [USAID's Implementation Plan](#). We will build upon the work shared in this report and identify new opportunities

to accelerate impact, promote sustainable systems, and address historic health inequities.

- To **prevent new HIV infections and achieve 95-95-95 treatment targets** (PEPFAR Strategy Outcomes 1 and 2) in the COVID-19 pandemic context, new approaches are needed that maximize service delivery efficiency and public safety, **protect human rights, recognize diversity, and address disparities**. Data.FI is already developing, deploying, and scaling tools and approaches that support reaching these goals, such as our HIV market segmentation challenge and our deployment of a machine learning solution to predict likelihood of client interruption in treatment. We look forward to seeing these investments mature in the coming months and how they may influence global policy.
- To accelerate outcomes equitably, and to ensure inclusivity, PEPFAR is calling for **granular, targeted, and gender-sensitive data use and systems and community-led approaches to monitor and address new infections** (Strategy Outcome 3). Data.FI will continue to strengthen and institutionalize data use mechanisms, build decision support tools, and operationalize community-led and client-centered approaches to monitoring. Furthermore, we plan to broaden our gender portfolio to address diversity, equity, and inclusion by promoting data capture, information systems, and analytics that will enable program managers to track and address disparities and conduct gender-sensitive programming.
- To build enduring capabilities, the PEPFAR Strategy commits to **strengthening local leadership and local partners** (Strategy Outcome 5). Our programming model prioritizes strategies that strengthen local capacity to lead. We support governments and local partners to establish national data standards, **build clear and effective governance structures and accountability mechanisms**, and expand their



Men talking in Copan Ruinas, Honduras. Photo by Pingry Global.

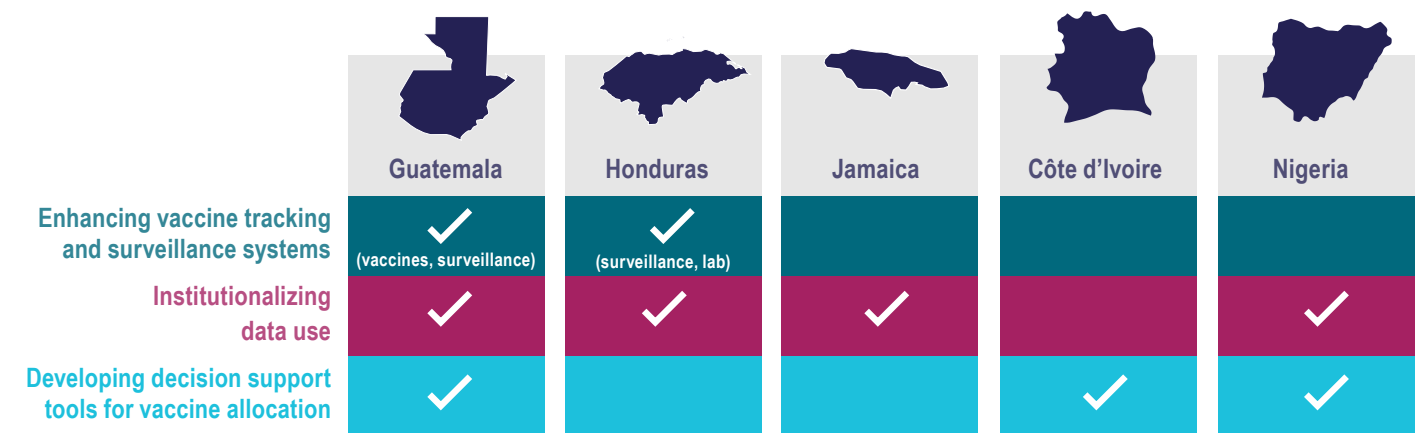


Indigenous women of Guatemala's Polochic Valley participate in a joint UN program that is empowering local women. Photo by UN Women.

capacity through skills-building activities. Next year in South Africa we will support the NDOH to roll out and expand CHISA, while in West Africa we will be working with local partners to assess and improve data quality.

- The COVID-19 Framework seeks to **accelerate widespread and equitable access** to and delivery of safe and effective COVID-19 vaccinations (Objective 1) and to **reduce morbidity and mortality from COVID-19**, mitigating transmission and strengthening health systems, including to **prevent, detect, and respond to pandemic threats** (Objective 2). In the coming year, Data.FI will work to ensure that vaccine doses are tracked and deployed equitably and safely, to curtail the impact of COVID-19 and provide accountability. Data.FI will also support governments, USAID, and partners with COVID-19 clinical quality improvement and strengthen surveillance systems.

Figure 1. Our work to strengthen countries' COVID-19 vaccine responses in FY22 (ARPA-funded work)



- Data.FI is currently launching COVID-19 vaccine programming in five countries: Côte d'Ivoire, Guatemala, Honduras, Jamaica, and Nigeria (see Figure 1 above).
- We are also working to capture learning from and in support of COVID-19 vaccination deployment. We are conducting an assessment to document the current practices for recording, reporting, sharing, and using data on adverse events following immunization (AEFI). We will also be conducting post-introduction evaluations (of COVID-19 vaccines) in Nepal and other countries, to help countries learn from early vaccine deployment initiatives and strategize ways to improve efficiencies and equity.

This report provides just a few examples of how Data.FI will be supporting USAID to **save lives**. Sitting outside of service delivery, we are a neutral broker, able to leverage vast public and private sector expertise to **identify and scale local and global digital and analytical solutions** that can unlock epidemic control, sustain the impact of investments to date, and **mitigate against future pandemics**.

Data.FI is positioned to advance local data ecosystems, bolstering information systems that serve governments and local stakeholders, in line with their context and global best practice. We look forward to working in partnership in the coming year as part of the global effort to combat the HIV and COVID-19 pandemics.



—Jenifer Chapman, Data.FI Project Director

Annexes



A young woman in sub-Saharan Africa. Photo by Enhanced Integrated Framework.

Annex 3. Project Indicator Results

Indicator	Target - LOP	Achieved - LOP Apr 2019 - Sept 2021	Achieved APR 2021 Oct 2020 - Sept 2021	Burundi	Côte d'Ivoire	Malawi	Namibia	Nigeria	South Africa	Uganda	Tanzania	Zimbabwe	COVID-19 Nigeria	COVID-19 Wkst 1	HBF Communications	HBF Data Analytics	HBF DREAMS	HBF HRH	HBF Local Partner Transition	HBF Predictive Analytics	HBF West Africa Region	COVID-19 Virtual DQA	Mozambique	Value Based Care	Anomaly Detection	Mozambique IIT	HRH Solution Enhancements	ECMS Guidance	Market Segmentation	Core Local Partner Transition	COVID-19 Vaccine MEL Support
Outcome 1: Accelerated data use																															
1.1 SI_USE Number of data use cases that document use of data for performance improvement	25	38	13					8													5										
Outcome 2: Advanced Analytics																															
2.1 DATA_ANALYSIS Number of analytical solutions	15	147	111	4		2	1	47	15	2	1	9	8			2	3	7	1		1	1	2			2					
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	5	17	8	3				2	1			1										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	10	44	34	4	3			10	4	2	2	2						5				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	75%	85%	81%	113%			100%	12%				100%																			
		571	483	99			271	101				12																			
3.4 HIS_ALIGN Percentage of systems or modules developed or improved upon by Data.FI that include an assessment of the HIS ecosystem in requirements documentation (added Feb 2021, first reported in SAPR 2021) <i>Note: we have not calculated a percentage due to challenges correctly calculating the denominator—we recommend a revision to this indicator going forward.</i>	100%	9	9	1				4	2		1											1									

Project Indicator Results continued

Indicator	Target - LOP	Achieved - LOP Apr 2019 - Sept 2021	Achieved APR 2021 Oct 2020 - Sept 2021	Burundi	Côte d'Ivoire	Malawi	Namibia	Nigeria	South Africa	Uganda	Tanzania	Zimbabwe	COVID-19 Nigeria	COVID-19 Wkst 1	HBF Communications	HBF Data Analytics	HBF DREAMS	HBF HRH	HBF Local Partner Transition	HBF Predictive Analytics	HBF West Africa Region	COVID-19 Virtual DOA	Mozambique	Value Based Care	Anomaly Detection	Mozambique IIT	HRH Solution Enhancements	ECMS Guidance	Market Segmentation	Core Local Partner Transition	COVID-19 Vaccine MEL Support
Outcome 4. Strengthened HIV data sources																															
4.1 DATA_CHECKS Number of digital data quality checks for key PEPFAR indicators developed and introduced	10	31	26	3	2	1		11			8														1						
4.2 SI_QUAL Number of partners/subnational units supported with Data.FI data quality interventions that demonstrate improved data quality	20	40	27	23				4																							
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)	TBD	100%	0%																												
	N/A	6	0																												
5.2 CAP_MER Percentage of supported local organizations meeting 80 percent of assigned PEPFAR MER target contributions in the reporting period	TBD	0%	0%																												
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	TBD	0%	0%																												
Outcome 6. Innovative partners and methods promoted																															
6.1 INNOV_ANALYSIS Number of analytical solutions that apply artificial intelligence/machine learning techniques	6	5	5					1	1																	2	1				
6.2 INNOV_PARTNER Number of private sector and other non-traditional partners engaged by the project	5	1	1						1																						

Process Indicator Results

	0.1	0.2	0.3	0.4	0.5
	Proportion of benchmarks that were completed within one month of deadline <small>(Note: this indicator was revised in Year 2, therefore we cannot calculate LOP accurately)</small>	Percentage of annual expiring obligation expended in each financial year* <small>(USD amount expended/ expiring obligation)</small>	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
Target - LOP	85%	80%	20	10	5
Achieved - LOP Apr 2019 - Sept 2021	N/A	94%	8	4	6
Achieved APR 2021 Oct 2020 - Sept 2021	93%	100%	8	4	0
Burundi	96%			2	
Côte d'Ivoire	100%				
Malawi	55%				
Namibia	100%				
Nigeria	83%		1	1	
South Africa	72%				
Uganda	100%		1		
Tanzania	88%				
Zimbabwe	100%		1		
COVID-19 Nigeria	100%				
COVID-19 Wkst 1	100%				
HBF Communications	100%				
HBF Data Analytics	100%		1		
HBF DREAMS	100%				
HBF HRH	100%				
HBF Local Partner Transition	100%		1		
HBF Predictive Analytics	100%				
HBF West Africa Region	100%				
COVID-19 Virtual DQA	100%		1		
Mozambique	100%			1	
Value-Based Care	100%				
Anomaly Detection	86%		1		
Mozambique IIT	45%		1		
HRH Solution Enhancements	100%				
ECMS Guidance	100%				
Market Segmentation	67%				
Core Local Partner Transition	100%				
COVID-19 Vaccine MEL Support	100%				

Process Indicator Results continued

	0.6	0.7	0.8	0.9	0.10
	Number of data review meetings where performance data is reviewed supported by Data.FI activities	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	Number of applications of Data.FI project-branded tools, analytical approaches
Target - LOP	250	7	4	500	15
Achieved - LOP Apr 2019 - Sept 2021	626	93	19	1548	15
Achieved APR 2021 Oct 2020 - Sept 2021	179	21	11	1199	15
Burundi	3			36	
Côte d'Ivoire	24		2	99	2
Malawi			2	51	
Namibia				324	
Nigeria	135			36	
South Africa					
Uganda			1	99	
Tanzania	17		2	132	
Zimbabwe			2	28	
COVID-19 Nigeria			2	262	8
COVID-19 Wkst 1					
HBF Communications					
HBF Data Analytics					
HBF DREAMS					
HBF HRH					
HBF Local Partner Transition				80	
HBF Predictive Analytics					
HBF West Africa Region					5
COVID-19 Virtual DQA					
Mozambique					
Value-Based Care					
Anomaly Detection					
Mozambique IIT					
HRH Solution Enhancements					
ECMS Guidance					
Market Segmentation					
Core Local Partner Transition				52	
COVID-19 Vaccine MEL Support		21			

Annex 4. Data.FI Products

Final Product	Publication Date by Quarter
Core-Funded	
Anomaly Detection	
R script code	Q4
Anomaly Detection for Remote Monitoring of Facility MER Reporting: Standard Operating Procedure (TL-21-18) Final SOP	Q4
Final PPT	Q4
Application of recommender systems and time series models to monitor quality at HIV/AIDS health facilities (for submission to <i>Data and Policy</i> journal)	Q4
HRH Solution Enhancements	
Updated HRH Solution Package	Q4
Finalized HRH Solution User Guide (TL-21-07)	Q4
Local Partner Transition TA	
Full package of synchronous and asynchronous materials - English	Q4
Full package of synchronous and asynchronous materials - French	Q4
Mozambique Interruption in Treatment	
Socialization PPT	Q3
OVC Electronic Case Management System	
OVC Electronic Case Management System (eCMS): Implementation Guidance (TL-21-08)	Q4
Value-Based Care	
Final PPT with expert-validated opportunities	Q3
Willingness to Pay	
Competition documents	Q4
PPT for launch webinar	Q4
Field-Funded	
Burundi	
DATIM-DHIS2 Data Exchange in Burundi: Report on 2020 Activities (TR-21-02)	Q1
Data Quality Audit for HIV Program Indicators in Burundi (TR-21-17 and TR-21-17 FR) (English and French)	Q4
Interoperability of HIV Information Systems in Burundi: SIDAInfo and DHIS2 (TR-21-25)	Q4
Development and Integration of HIV Client Unique Identification System in Burundi's HIV Electronic Medical Records System (TR-21-26)	Q4
Data Quality Audit for HIV Program Indicators in Burundi: Final Report (TR-21-27 and TR-21-27 FR) (English and French)	Q4

Final Product	Publication Date by Quarter
Implementation of a Web-based Electronic Medical Record and Unique Biometric Identifier in Burundi: Deployment Report, Phase 1 (TR-21-28)	Q4
Implementing a Fingerprint-Based Unique Identifier in Burundi: Standard Operating Procedures (TR-21-29 and TR-21-29 FR) (English and French)	Q4
Côte d'Ivoire	
Final data quality review tools and guidelines:	Q2
■ Data Quality Score Composite Tool (TL-20-1a, TL-20-1b, TL-20-1c, TL-20-1d)	Q2
■ Guide pour la conduite de la revue de la qualité des données (TL-20-1a FR)	Q2
■ Revue de la qualité des données produites par la base de données : Rapport	Q2
■ Summary data quality desk review using DQS tool	Q2
Guide d'administration de la base de données OEV révisée (TL-21-17 FR)	Q3
Revised DREAMS Database: Administration Guide (TL-21-10 and TL-21-10 FR) (English and French)	Q4
OVC Database User Manual: Côte d'Ivoire (TL-21-11 and TL-21-11 FR) (English and French)	Q4
Côte d'Ivoire: Manual d'utilisateur de la base de données DREAMS mise à jour (TL-21-12 FR)	Q4
Guide pour la revue de la qualité des données OEV en Côte d'Ivoire (TR-21-10)	Q4
Data Quality Audit of HIV Care and Treatment Indicators at the Facility and Community Level (USAID-supported Community and Clinical Partners): Draft Protocol (TR-21-18 and TR-21-18 FR) (English and French)	Q4
DREAMS/OVC data systems training curriculum PPT	Q4
Final data analysis and use curriculum	Q4
Malawi	
EMR Data Use PPT	Q3
Article highlighting IP's accomplishments/success story	Q3
Observed data quality issues PPT	Q4
Input of IPs on Software PPT	Q4
Mozambique	
Requirements for Mozambique's National HIV/AIDS Data Analytics Platform	Q4
Mozambique Architecture Design Document	Q4
Analytic Dashboards	Q4
System user guides SOP	Q4
MOU Data.FI-MOH	Q4
Terms of Reference for TWG	Q4
Project Charter	Q4
Namibia	
Quantum Electronic Patient Monitoring System Rollout in Namibia: Report on the National Rollout (TR-21-05)	Q2
Final Extrapolated Population Size Estimates (Excel)	Q4
Slide deck and webinar recording	Q4

Final Product	Publication Date by Quarter
Nigeria	
Improving Viral Load Testing Coverage Across USAID-Supported States in Nigeria	Q1
Improving Viral Load Coverage in Akwa Ibom State	Q1
Harmonizing Data Reporting to Improve HIV Care and Treatment for OVC in Nigeria's Akwa Ibom State	Q1
Addressing High Rates of HIV among Adolescent Girls and Young Women in Akwa Ibom, Nigeria	Q2
Improving Gender-Based Violence Screening through Collaborative Data Review with an HIV Service Delivery Partner	Q2
Descriptive Analysis of the Impact of HIV Surge Activities on Loss to Follow-Up in Akwa Ibom and Lagos States	Q2
Enhanced SIMS dashboards on the APPR platform	Q2
COP21 IP/facility targets (excel)	Q2
USAID Nigeria COP21 Analysis slide deck	Q2
Descriptive Analysis of the Effect of HIV Surge Activities on Interruption of Treatment in Akwa Ibom and Lagos States	Q2
Improving Viral Suppression in Pediatric Clients Living with HIV in Akwa Ibom State	Q3
Improving Index Case Testing Among PLHIV in Nigeria	Q3
Descriptive Analysis of Interruption in HIV Treatment Using LAMIS Data for USAID-Supported Health Facilities in Akwa Ibom State	Q3
Descriptive Analysis of Interruption in HIV Treatment Using LAMIS Data for USAID-Supported Health Facilities in Kano State, Nigeria	Q3
Descriptive Analysis of Interruption in HIV Treatment Using LAMIS Data for USAID-Supported Health Facilities in Cross River State, Nigeria	Q3
Descriptive Analysis of Interruption in HIV Treatment Using LAMIS Data for USAID-Supported Health Facilities in Lagos State, Nigeria	Q3
Geographical Clustering of Program Performance across the HIV Treatment Cascade in USAID-supported States in Nigeria	Q4
Improving Coverage of Viral Load Testing at USAID-Supported Facilities in Nigeria	Q4
Enhanced APPR Dashboards with GIS/GBV	Q4
LAMISPlus 1.0	Q4
Factors affecting viral load suppression in two people living with HIV in Nigeria: cross-sectional analysis from 2001 to 2021	Q4
Factors associated with an interruption in treatment of people living with HIV in USAID-supported states in Nigeria: A retrospective study from 2000–2020	Q4
Nigeria HTS risk model slide deck	Q4
USAID Nigeria Data Portal: User Manual for HIV & TB Comprehensive Access and Review Dashboard (HATCARD) (TL-21-24)	Q4
South Africa	
Updated technical and architectural documentation	Q4
InfoHub technical documentation	Q4
Health Sector POPI cheat sheet	Q4
Health Sector Code of Conduct for POPI	Q4
Knowledge Hub admin and technical documentation	Q4

Final Product	Publication Date by Quarter
Knowledge Hub Drupal and Moodle maintenance documentation	Q4
Knowledge Hub 1-pager on demand creation activities	Q4
Consultancy Reports	Q4
Tanzania	
Software package consisting of system installers and the source code	Q2
USAID Tanzania Data Portal: User Manual (TL-21-01)	Q2
Beta version of platforms	Q2
TAG Joint Implementation Plan	Q4
Situation Room Training Materials Validated by National Facilitators	Q4
Functional V1 Analytics Platform	Q4
Data Portal deployed on production services	Q4
Uganda	
Size Estimation for At-Risk AGYW in Uganda	Q2
PPT with methodology and size estimations for COP21	Q2
Documented package of source code	Q3
KPIC Standard Operating Procedures	Q3
Training materials for TOT data protection training	Q4
Monitoring Dashboard	Q4
Dashboard user guidelines	Q4
Zimbabwe	
Stakeholder Validation	Q4
Data exchange protocols implemented	Q4
Full production handover of OVC MIS System	Q4
Hop Bridge Funds	
Communications	
It's a puzzle, it's an algorithm, it's deduplication (blog)	Q1
If it's Wednesday, we are talking data (Nigeria blog)	Q1
5 Steps for measuring the benefits and risks of stakeholder data (blog)	Q1
Using data to improve HIV cascade outcomes (blog)	Q1
A Walk in My Shoes (Malawi blog)	Q1
Training advances benefits of HIV data (Burundi blog, English)	Q1
Résoudre les problèmes de qualité des données pour améliorer leur utilisation au Burundi (Burundi blog, French)	Q1
Replatforming Nigeria's Multi-Disease HIS (success story/blog)	Q2
Solutions Brief: Epidemic control rooms	Q2
Solutions Brief: Clinic and community linkages	Q2

Final Product	Publication Date by Quarter
Solutions Brief: Optimizing electronic medical records	Q2
Solutions Brief: Guidance for deduplicating client-level data	Q2
Solutions Brief: Integrated data warehouses	Q2
Solutions Brief: Predictive analytics	Q2
Solutions Brief: Assessing and strengthening strategic information capacity of local partners	Q2
DREAMS	
Documented package of source code (in Stata/R) and corresponding workflows	Q1
Data.FI DREAMS Eswatini Size Estimation: Final Report (TR-20-43)	Q2
Data.FI Haiti Size Estimation: Final Report (TR-20-33)	Q2
Data.FI Mozambique Size Estimation: Final Report	Q2
USAID Quarterly DREAMS_GEND_NORM Reporting Tool	Q2
USAID Quarterly DREAMS_FP Reporting Tool	Q2
USAID PEPFAR Central Custom Indicators Reference Guide	Q2
Local Partner Transition	
PEPFAR Strategic Information Capacity Assessment (PSICA) Tool Package	Q1
USAID/PEPFAR's HIV/AIDS Treatment Cascade Quality Assurance Suite of Tools: Virtual Training Package	Q1
PEPFAR Strategic Information Capacity Strengthening: Activity Report	Q2
West Africa Regional Support	
Harnessing the Power of Data to Accelerate HIV Epidemic Control in West Africa: Data.FI Technical Assistance to FHI 360, PEPFAR Implementing Partner in Togo and Burkina Faso	Q1
Harnessing the Power of Data to Accelerate HIV Epidemic Control in West Africa: Data.FI Technical Assistance to IntraHealth, PEPFAR Implementing Partner in Senegal	Q1
Harnessing the Power of Data to Accelerate HIV Epidemic Control in West Africa: Data.FI Technical Assistance to FHI 360, PEPFAR Implementing Partner in Mali	Q1
Harnessing the Power of Data to Accelerate HIV Epidemic Control in West Africa: Data.FI Technical Assistance to the Strengthening Care Continuum Project, PEPFAR Implementing Partner in Ghana	Q1
Harnessing the Power of Data to Accelerate HIV Epidemic Control in West Africa: Data.FI Technical Assistance to LINKAGES, PEPFAR Implementing Partner in Liberia	Q1
Burkina Faso Data Use Brief: Challenge: Implementing index testing	Q1
Burkina Faso Data Use Brief: Challenge: Optimizing HIV testing performance in selected PEPFAR sites	Q1
Liberia Data Use Brief: Data analysis spurs intensified efforts to implement index testing	Q1
Togo Data Use Brief: Meeting the challenge of low index case testing implementation at #EAWA project public health facilities in Togo	Q1
Togo Data Use Brief: Participatory data review to overcome challenges in achieving key project indicators in Togo	Q1
Data Analytics and Solutions	
An analysis of project expenditures and results under different PEPFAR partnership models	Q2
Community Program Contribution Analysis Guide	Q2
Contributions of Botswana Community-Based Program to Clinical HIV Outcomes	Q2

Final Product	Publication Date by Quarter
Guidance on methods for analyzing PEPFAR prime and sub-partner expenditures and results	Q2
Predictive Analytics	
Predicting Loss-to-Follow-Up among HIV/AIDS Clients in Mozambique: Report on the Retrospective Application of Machine Learning	Q1
Predictive Analytics for Loss to Follow-Up: Decision Support Tool: Mozambique	Q1
Predicting Loss-to-Follow-Up among HIV/AIDS Clients in Nigeria: Report on the Retrospective Application of Machine Learning	Q2
Predictive Analytics for Loss to Follow-Up: Decision Support Tool: Nigeria	Q2
Predicting Lost-to-Follow-Up among ART Clients: Proposal for the Application of Machine Learning	Q2
Human Resources for Health	
Overview of HRH Solution Purpose and Methods	Q1
Demo: HRH Needs and Optimization Solution	Q1
Human Resources for Health Needs and Optimization Planning Solutions Brief	Q2
Human Resources for Health Needs and Optimization Planning Solution: Estimating Staffing Needs and Optimizing Staff Allocation for PEPFAR COP Planning	Q2
HRH Solution Package: Final	Q2
COVID-19 Funds	
COVID-19 Global	
Final COVID-19 modeling PPT	Q1
Final data inventory outlining data availability, frequency of update, granularity, and alignment with analytic framework	Q1
Final analytical framework	Q1
Final compilation of illustrative use cases in PPT	Q1
COVID-19 Pillar 2 Indicator Compendium (TR-21-04b)	Q1
COVID-19 Vaccine PIRS	
COVID-19 Vaccine Indicator Compendium V1 (TR-21-04)	Q3
COVID-19 PIRS Overview Presentation Slide Deck	Q3
COVID-19 DQA	
Final protocol for USAID COVID-19 DQA (TR-21-06)	Q3
Final USAID COVID-19 DQA Report (TR-21-07)	Q3
Final PPT results for DQA	Q3
Final quantitative and qualitative data sets, code syntax, and codebooks	Q4

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FOR MORE INFORMATION

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