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Country Health Information Systems and Data Use

Semiannual Report

October 1, 2022 to March 31, 2023

The Country Health Information Systems and Data Use (CHISU) program is USAID's flagship data and information system project to strengthen host country capacity and leadership to manage and use high quality health information systems to improve evidence-based decision-making.

Cover photos from left to right: CHISU Indonesia, Mali, Serbia

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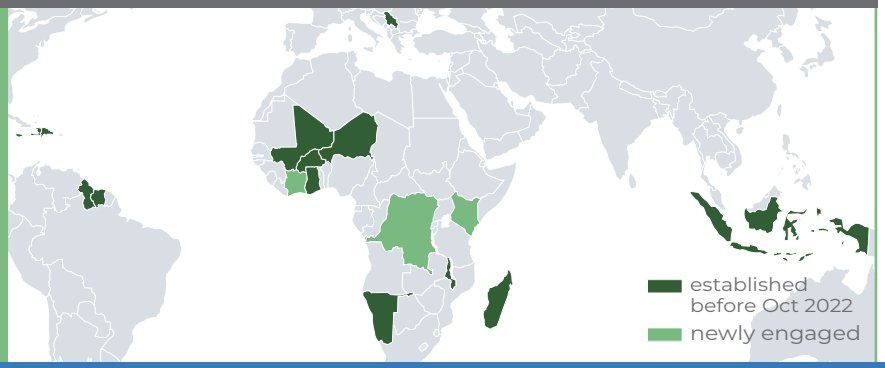
Abbreviations

AI/ML	Artificial Intelligence/Machine Learning
CHISU	Country Health Information Systems and Data Use
CHIM	Centre for Health Information Management of the Ghana Health Service
DEI	Diversity, Equity, and Inclusion
DH&I	Digital Health and Interoperability
DHIS2	District Health Information Software, Version 2
DHIMS2	Ghana's Health Management Information System
DPGA	Digital Public Goods Alliance
DQA	Data Quality Assessment
DQR	Data Quality Review
DTO	Digital Transformation Office
ENDOS-BF	Burkina Faso's National Health Information Management System
ESC	Eastern and Southern Caribbean
FY	Fiscal Year
GHS	Global Health Security Agenda
HDC	Health Data Collaborative
HIS	Health Information Systems
HIS TSF	Health Information Systems Technical Support Facility
ICT	Information Communication Technology
ISS	Integrated Supportive Supervision
KSW	Keneya Sinsi Wale
M&E	Monitoring and Evaluation
M-RITE	MOMENTUM Routine Immunization Transformation and Equity
MESI	Monitoring, Evaluation, and Surveillance Interface
MIS	Management Information System
MNH	Maternal and Newborn Health
MOH	Ministry of Health
MPR	Malaria Program Review
MSPP/UEP	Ministry of Public Health and Population/Unit of Evaluation and Programming
NMCP	National Malaria Control Program
ONN	Office National de Nutrition (National Nutrition Office of Madagascar)
OVC	Orphans and Vulnerable Children
PMI	U.S. President's Malaria Initiative
PPMED	Policy, Planning, Monitoring and Evaluation Division of the Ghana Health Service
Pusdatin	Pusat Data dan Teknologi Informasi (Indonesia's Center for Data and Information Technology)
RHIS	Routine Health Information System
RMNCAH	Reproductive, Maternal, Newborn, Child and Adolescent Health
SISNU	Haiti's National DHIS2 Instance
SITB	Tuberculosis Information System
SNOMED CT	Systematized Nomenclature of Medicine Clinical Terms
SO	Strategic Objective
SOP	Standard Operating Procedure
SORMAS	Surveillance Outbreak Response Management & Analysis System
TB	Tuberculosis
TWG	Technical Working Group
USAID	United States Agency for International Development
WHO	World Health Organization
XB	Cross-Bureau

Achievements overview

CHISU HIGHLIGHTS | Oct 2022 Mar 2023

HOW CHISU HAS GROWN



The **Country Health Information Systems and Data Use (CHISU)** program focuses on strengthening health information systems (HIS) to increase the quality, availability, and use of health data to improve the health of communities around the world.

Improvements take time, as we learned from early implementers' digital transformation journeys—with stakeholders looking beyond HIS status to **system improvements and progression.**

A confluence of events, including lessons learned from the COVID-19 pandemic and a new understanding about global priorities, has been **catalytic for continued focus on HIS strengthening**—which is a critical component of improved, more resilient primary health care.

15 countries & regions

12 global technical activities

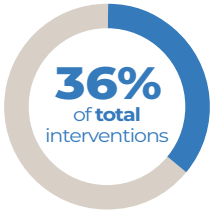
68 knowledge-sharing products & events

BURKINA FASO · CÔTE D'IVOIRE · DRC · EASTERN & SOUTHERN CARIBBEAN · GHANA · HAITI · INDONESIA · KENYA · LATIN AMERICA & THE CARIBBEAN · MADAGASCAR · MALAWI · MALI · NAMIBIA · NIGER · SERBIA

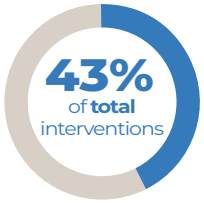
STRATEGIC OBJECTIVES

SO1
Strengthened governance and enabling environment

SO2
Increased availability and interoperability of quality health data and information systems



SO3
Increased demand and use of health data and information to address health priorities, gaps, and challenges



SO4
Strengthened organizational development of local non-governmental partners for sustained data use

GENDER INTEGRATION

Country, regional, and core activities integrate gender into the planning and implementation of work across technical areas. Thought leadership at the global level included conference presentations, a webinar, a blog post, a short video series, and co-leadership of a gender working group.

53%

of HIS products or events created or conducted with CHISU support include gender considerations

DATA SECURITY

Implementing security in a standards-based approach is an ongoing priority to ensure data security and privacy, to embed policies and procedures on national or international guidelines, and to guide the sharing and protection of patient data—especially personally identifiable information (PII).

30%

of CHISU-supported countries include data security in CHISU activities

Introduction

Photo credits: CHISU Serbia, Burkina Faso, Mali, Madagascar, Indonesia, and Ghana

The Country Health Information Systems and Data Use (CHISU) program strengthens country capacity and leadership to manage and use health information systems (HIS) and data to make evidence-based decisions. The CHISU consortium is led by JSI Research & Training Institute, Inc. (JSI), with partners RTI International, Vital Strategies, Macro-Eyes, Jembi Health Systems, and Global Evaluation and Monitoring Network for Health. With its wealth of perspectives and expertise, CHISU helps countries overcome the complex challenges to HIS evolution. The United States Agency for International Development (USAID) designed CHISU to take an integrated approach to health systems strengthening and to work across all health areas.

CHISU envisions country health systems in which stakeholders at every level, including health workers, can access high-quality data generated from multiple, interoperated data sources, and can use those data to guide policy and improve resource allocation, service delivery, and system performance. To realize this vision, we work to achieve four critical strategic objectives (SOs):

- Strengthened governance and enabling environment of host country HIS
- Increased availability and interoperability of quality health data and information systems
- Increased demand and use of health data and information to address health priorities, gaps, and challenges
- Strengthened organizational development of local nongovernmental partners for sustained health data use

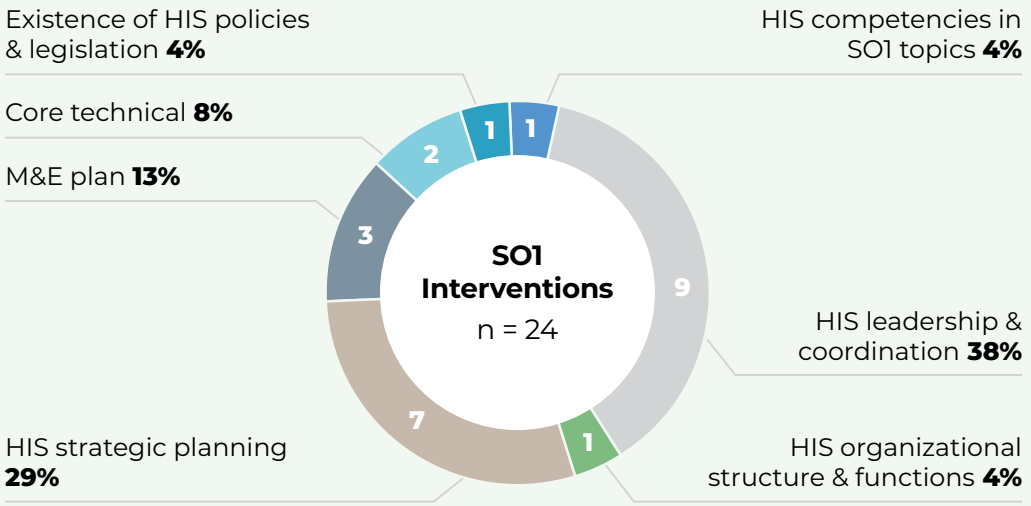
This report covers CHISU's work during the first half of the third year of implementation, October 1, 2022 through March 31, 2023. Activities implemented in this fiscal year (FY) are listed in Annex 1. They include 26 country-level activities in 13 countries; six regional-level activities in one region and one subregion; 12 global technical activities; six cross-cutting global program activities supported with cross-bureau (XB) funding; and two U.S. President's Malaria Initiative (PMI)-funded operational activities.

Results summary

Strategic Objective 1: HIS Governance

CHISU continued to strengthen governance and HIS enabling environments in Burkina Faso, Ghana, Haiti, Indonesia, Madagascar, Malawi, Mali, Niger, and Serbia. At the global level, CHISU continued to serve in **HIS leadership roles** at the Global Health Initiatives constituency of the Health Data Collaborative (HDC) working group, and the Gender/Diversity, Equity, and Inclusion (DEI) and Country Engagement working groups under the Digital Health and Interoperability (DH&I) working group. CHISU contributed to the Global Symposium on Health Systems Research in November 2022 in Colombia, the Global Digital Health Forum in December 2022 in Washington DC, and to the Community Health Worker Symposium in March 2023 in Liberia, among other conferences. CHISU has now been included under USAID Global Goods activities on the Digital Public Goods Alliance (DPGA) Roadmap. See Figure 1 for a summary of all CHISU interventions in SO1 in FY23 to date.

Figure 1. Strengthened governance and enabling environment in SO1, by SOCI subcomponent



FY23 to date

By conducting the HIS stages of continuous improvement (SOCI) assessment with national stakeholders, CHISU is building capacity to identify gaps and strengths of the national HIS and is applying these insights to national strategic planning. The SOCI results are an important baseline measure of the status of the national HIS for host countries and for project implementation.

CHISU is at the planning phase for the SOCI assessment in **Haiti**. A location is being identified for the launch workshop and the country's ministry of health (MOH) is being supported to establish the oversight committee. However, due

CHISU is working alongside Indonesia's Ministry of Health Digital Transformation Office to improve COVID-19 vaccination rates in the country through strengthened governance, systems, interoperability, and data use. Photo: CHISU Indonesia

to the security crisis, the leadership committee meetings and workshop have been deferred until the situation stabilizes. The results of the HIS SOCI assessment for **Malawi** were presented to the health sector-wide monitoring and evaluation (M&E) Technical Working Group (TWG) at the end of 2022. The results were also presented to the National Dialogue meeting on the Global Fund New Funding Model (GF NFM) III grant. The presentation informed discussions on the HIS situation analysis and facilitated identification of gaps and potential interventions for inclusion in the upcoming GF NFM grant. From February 13–18, 2023, CHISU co-funded a workshop to develop the Health Sector Monitoring, Evaluation, and Health Information Strategy for the next 10 years. During the workshop, CHISU presented findings and recommendations of the HIS SOCI assessment to highlight gaps and recommendations that would contribute to the drafting of the strategy. In **Madagascar**, CHISU finalized the SOCI report along with the SOCI process documentation, the result of collaboration with the PMI Measure Malaria project, to support the development of the country's next HIS Strategy (2023–2027). CHISU also supported a routine health information system data management standards assessment concurrently with the SOCI assessment. The report is being finalized.

In several countries, CHISU supported the work of HIS coordination bodies which serve as key convening mechanisms, facilitate more effective use of resources, and reduce fragmentation in the HIS ecosystem. In an effort to support coordinating entities in **Mali**, CHISU engaged key partners to identify and find solutions for common technical issues affecting DHIS2 functioning—and in addition, CHISU revitalized these partners' meetings to ensure alignment of their goals and objectives with the MOH (Box 1). CHISU continued to support the meeting of the Thematic Commission 5, in charge of disease surveillance for the **Burkina Faso** One Health approach. The One Health Executive Secretariat organized joint investigation missions (involving all One Health ministries and key directorates at the MOH) focused on rabies in Sabou District in November and on fish mortality in the Mouhoun River in February. As a result of the rabies investigation, the One Health Executive Secretariat organized a rabies vaccination campaign in March. In **Malawi**, CHISU staff facilitated a two-week workshop to develop the National Malaria Control Program (NMCP) Malaria Strategy (2023–2030). CHISU advocated for emphasizing data use to strengthen surveillance, monitoring, and evaluation at decentralized levels. To support COVID-19 vaccination coordination in **Indonesia**, CHISU developed the draft Terms of Reference (TOR) for the COVID-19 Sub-Working Group to the HIS Technical Working Group.

In **Haiti**, to support data standardization through guidelines, policies, and regulations, CHISU worked with USAID to hold ongoing conversations

with the Ministry of Public Health and Population/Unit of Evaluation and Programming (MSPP/UEP) to gather feedback on the data security and patient confidentiality elements of the initial draft of the country eHealth policy. CHISU continued its leadership of the Malaria Program Review (MPR) Task Force constituted by the NMCP in **Malawi** and ensured SOCI results and recommendations were incorporated into the overall monthly progress report for the country. Finally, to strengthen HIS competencies in **Ghana**, CHISU completed the Integrated Disease Surveillance and Response (IDSR) human resource capacity assessment and the information communication technology (ICT) infrastructure capacity needs assessment and disseminated the findings to stakeholders. The IDSR uses the Surveillance Outbreak Response Management & Analysis System (SORMAS). These assessments will contribute to the transition of ownership of the IDSR from the German development agency-funded ePareto company to the Ghana Health Service.

Box 1. Governance focus in Mali

In Mali, CHISU is supporting:

- The National Health Emergencies group to improve coordination, planning, and responsiveness for public health threats
- The District Health Information Software, Version 2 (DHIS2) technical team to address all technical issues related to DHIS2

The CHISU team improved the functioning of these coordinating entities by engaging key partners supporting the HIS—e.g., Keneya Sinsi Wale (KSW)—to identify common technical issues affecting the DHIS2 functioning and find appropriate solutions. These groups now meet regularly and are being supported by CHISU and KSW.

In addition, CHISU revitalized these partners' meetings, which ensure alignment of partners' goals and objectives with the MOH and provides coordinated support to the MOH while minimizing duplication.

This coordination supported the successful implementation of the following interventions:

- The interoperability maturity assessment tool which led to the development of standards and guidance for interoperability.
- The creation of an inventory for all applications being used in the country, with information about their specifications. This will provide more control and visibility to the MOH on HIS applications, support preparations for future data exchange capabilities between systems, and guide future introduction of new applications.
- The development of data quality assurance systems is setting the stage for a more formal approach that will ensure good data quality from collection to use or throughout the data generation cycle.

Strategic Objective 2: Systems and Software

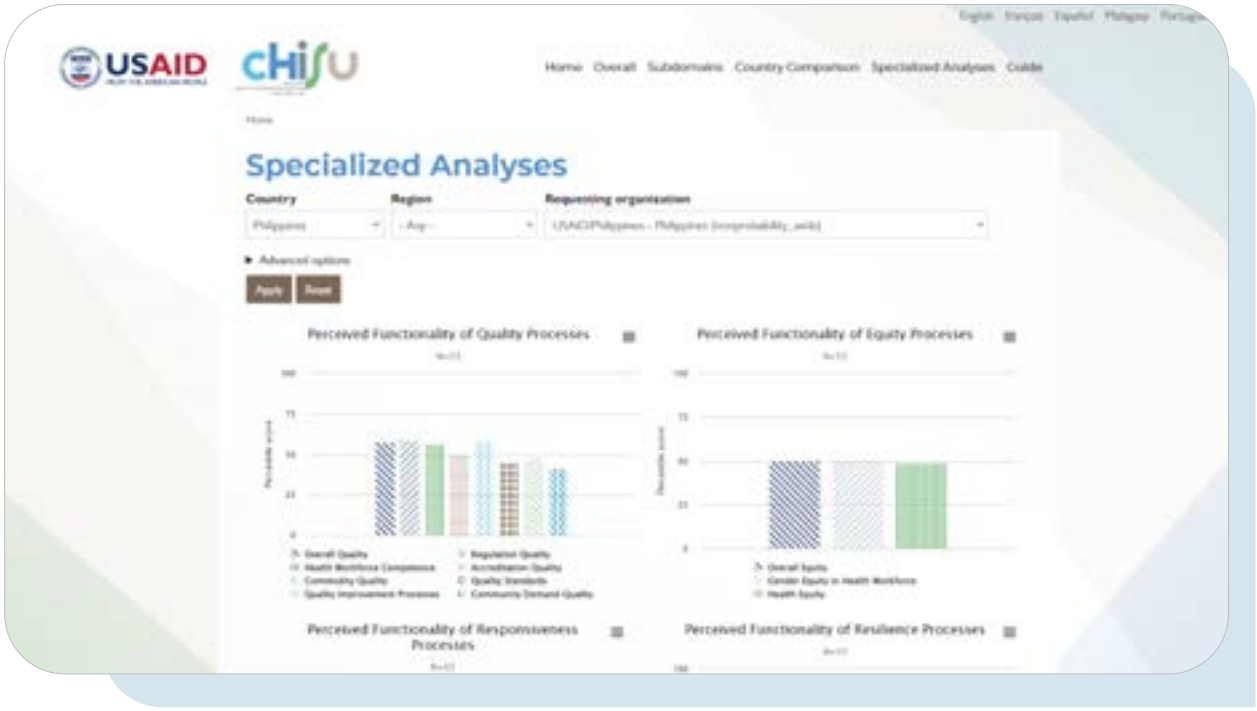
CHISU works with stakeholders in Burkina Faso, Ghana, Haiti, Indonesia, Madagascar, Malawi, Mali, Niger, and countries in the Eastern and Southern Caribbean region to make high-quality data available to decision makers by developing or enhancing HIS to function at scale and respond to user needs. At the global level, CHISU continued to update the electronic **High Performing Health Care (HPHC) tool** (Figure 2) which is now available in English, French, Malagasy, and Spanish. CHISU entered the user testing phase for the **web-based HIS SOCI tool** which is being developed with dashboard visualization and with consensus and gender scores. CHISU embarked on a multi-country activity to **learn how USAID's COVID-19 funded digital health investments**

and the use of digital global goods advanced cohesive digital health architecture and affected the COVID-19 response (see HIS Learning for more information). See Figure 3 for a summary of all CHISU interventions in SO2 in FY23 to date.

CHISU provides technical and financial support for system enhancements, optimization, and maintenance for the One Health system, as well as for the scale up of the ENDOS-BF (the national health management information systems [HMIS]) in **Burkina Faso**. A survey of the COVID-19 immunization data management process began, and CHISU configured the joint investigation form for the One Health platform used by the ministries of health, environment, and livestock during investigations of notifiable diseases and other events of public health importance. Regional, provincial, and district trainers were also oriented on how to carry out multi-sectoral surveillance and data analysis using the One Health platform. To strengthen monthly data collection, system configuration, user account issuance, and training of regional agents and district management teams for ENDOS-BF, deployment at the health facility level also began in the Center East Region. The findings from the ICT infrastructure capacity needs assessment to inform the transition of the hosting and management of SORMAS to the Ghana Health Service were disseminated. CHISU also collaborated with OpenLabs (a local private company) to complete both a cybersecurity training as well as a three-week system administration training program for Ghana Health Service staff in the ICT Unitof the Policy, Planning, Monitoring and Evaluation Division (PPMED) and the Centre for Health Information Management (CHIM). This will enhance the management and data security of the DHIMS2 (Ghana's health management information system) instance and associated DHIS2 trackers. In **Niger**, CHISU is supporting preliminary efforts for the ICT assessment to be implemented in the Dosso and Tahoua regions, evaluation of selected applications' interoperability with DHIS2, and the development of interoperability standard operating procedures (SOPs). In the **Eastern and Southern Caribbean region**, CHISU adapted a DHIS2 instance to manage human resources for the health sector and used DHIS2 to manage routine immunization and COVID-19 vaccination data (Box 2).

Internet connectivity continued to be provided at a national level in **Burkina Faso** and **Mali** and in target districts in **Haiti**. CHISU also supported server hosting for the COVID-19 vaccination track-

Figure 2. High Performing Health Care (HPHC) Tool



Box 2. Country exchanges strengthen health information systems in Eastern and Southern Caribbean countries

USAID has been supporting Eastern and Southern Caribbean (ESC) countries' COVID-19 response through strengthening existing national health information systems. CHISU is improving the knowledge and skills of selected ministries of health for using and managing electronic health information systems. In some countries this focuses on implementation of the District Health Information Software 2 (DHIS2).

DHIS2 is a free and open-source platform for rapid development and configuration of tools for data entry, analysis, visualization, and sharing that requires training to implement and operate. The global network of DHIS2 is coordinated by the Health Information Systems Program center, housed in the University of Oslo. The center coordinates the network of global developers and is in charge of the official releases of DHIS2 globally. The global DHIS2 community facilitates adaptation of solutions from the experiences of others.

Implementing DHIS2 as a tool to strengthen HIS in the region requires expertise in using this platform. As countries are looking for solutions that can be implemented relatively quickly, the time investment needed to learn DHIS2 could be a barrier. This is where leveraging the experiences of the global community and other countries in the ESC region can prove useful.

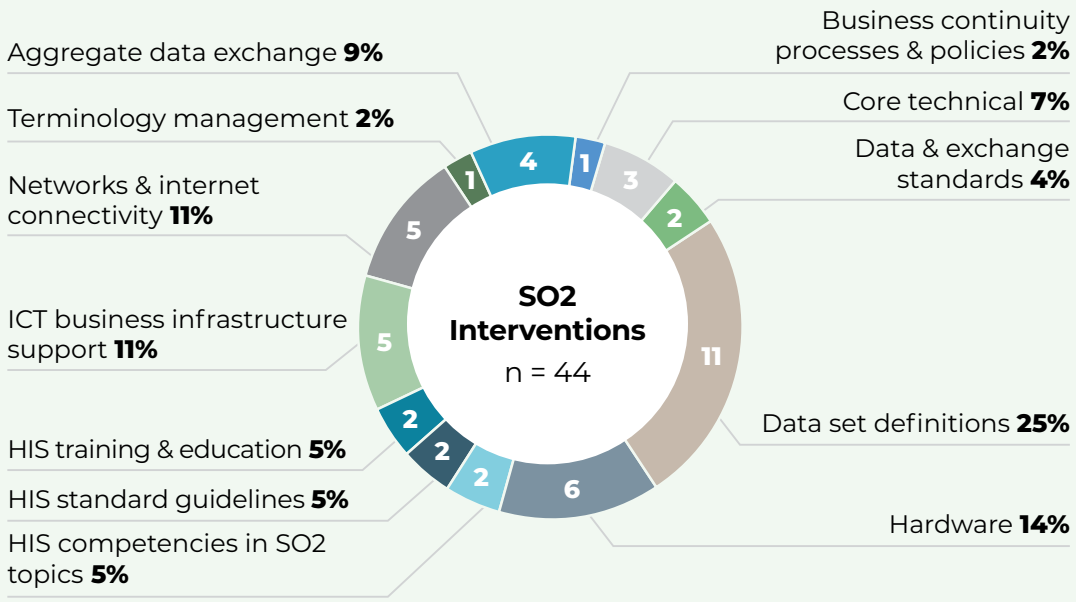
CHISU experts collaborated to implement the DHIS2 platform in Saint Lucia building on expertise in Suriname. As a result of this collaboration, Saint Lucia has implemented several COVID-19 related configurations and DHIS2 modules such as Tracker Capture (for port of entry screening), Data Visualizer (for tailored graphs and charts), Immunization Analysis (a World Health Organization [WHO] package for analysis of immunization data), and the DHIS2 Go. Data interoperability module (for communication between DHIS2 and Go.Data).

The reports being generated support national policy and operational decision making within the MOH and also ensure data quality issues are detected early due to the configured program rules that have been built into the current systems. The cross-country learning in the ESC region reinforces use of standards and uniformity in reporting without reinventing the wheel.

er and SISNU, Haiti's national DHIS2 instance, and provided important updates to the Carte Sanitaire (Haiti's online national health data dashboard). CHISU also supported the expansion of the tracker in collaboration with the MOMENTUM Routine Immunization Transformation and Equity (M-RITE) project, the launch of the COVID-19 Electronic Vaccination Certificate by UEP, the development of the piloting plan for the orphans and vulnerable children (OVC) management information system (MIS), and the start of the transition to the MOH of the maintenance of the SISNU-MESI (Monitoring, Evaluation, and Surveillance Interface) interoperability middleware to make the platform functional.

In **Indonesia**, CHISU reviewed the COVID-19 vaccination information systems with the Digital Transformation Office (DTO) to identify potential system features or requests that were within DTO's management authority. CHISU also supported the development of the COVID-19 vaccination interoperability playbook on SatuSehat, Indonesia's health exchange platform. Further, CHISU, in collaboration with Pusdatin (Indonesia's Center for Data and Information Technology), held a workshop to train the MOH and health professional bodies on use of Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT). The training was conducted by the expert trainers from SNOMED International. As a result of this training, the MOH has the skills to translate SNOMED CT into the Indonesian language. Configuration of the Generic Interoperability Mediator was successfully complet-

Figure 3. Increased availability and interoperability of quality health data and information systems in SO2, by SOCI subcomponent



FY23 to date

ed to facilitate compliant data formats with SatuSehat. CHISU configured a vendor-specific platform to exchange data between the Tuberculosis (TB) Information System (SITB) and ePuskesmas (the community health center information system) starting with 23 priority TB variables through SatuSehat. To ensure SatuSehat covers more regions, CHISU is supporting continued rollout in East Java and South Sulawesi. For instance, in South Sulawesi, CHISU trained 23 people to support the continued rollout of SatuSehat, leading to 12 hospitals and 14 Puskesmas (Community Health Centers) that are now ready for interoperability with SatuSehat.

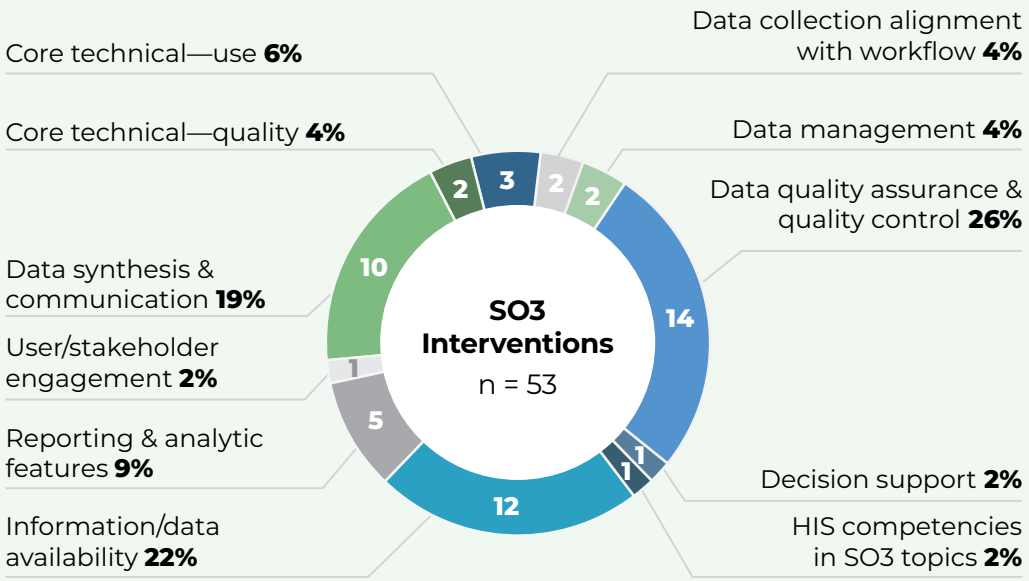
CHISU has also been working on a digitization needs assessment for the office of nutrition in **Madagascar**. A scope and assessment report was completed, together with a short-term operational plan for 2023 and a high-level roadmap (2023–2026). CHISU also facilitated negotiations between the Office of National Nutrition (ONN) and the Information System Studies and Planning Department of the MOH to enable a move to a centralized architecture which includes integration of the ONN systems under DHIS2 of the MOH.

In **Mali**, CHISU is championing system enhancements of the national DHIS2 system by facilitating skills building through orientation sessions in two districts: Gao and Timbuktu. Participants were trained to use the aggregate and tracker apps in DHIS2 forms and reports. To improve legacy data entry, CHISU supported entry of legacy COVID-19 data primarily covering the mining sites, Bougouni and Yanfolila. In promoting standard management and practice of documenting software, CHISU supported Mali in creating a software inventory report on applications available and used within the health ecosystem. This report includes vital information on the current state of functionality of each listed application.

Strategic Objective 3: Data Quality and Use

CHISU engaged with countries to enhance data quality and use through research, advanced analytics, support for the development and revisions of reporting tools, data quality improvement, and preparation of statistical reports. Lessons learned from COVID-19 data and vaccine

Figure 4. Increased demand and use of health data and information to address health priorities, gaps, and challenges in SO3, by SOCI subcomponent



FY23 to date

management were used to improve data quality, especially in routine immunization. CHISU continued its work to increase demand and use of health data and information to address health priorities, gaps, and challenges in Burkina Faso, Ghana, Haiti, Indonesia, Kenya, Madagascar, Malawi, Mali, Niger, Serbia, and countries in the Eastern and Southern Caribbean region. See Figure 4 for a summary of all CHISU interventions in SO3 in FY23 to date.

Through the core-funded portfolio, CHISU conducted a landscape assessment of Malawi's supportive supervision systems using the **digital integrated supportive supervision** (ISS) framework and identified gaps that could be addressed through digital tools. Feedback during the validation sessions also informed the final iteration of the framework. CHISU also revised the Data Quality Annex of the updated WHO **Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH) Use of Facility Data Guidelines** which is currently being reviewed by the WHO Maternal Child and Adolescent health technical working group. CHISU continues to expand the use of the **HPHC tool** to increase the availability of primary health care data by supporting the tool's use and results dissemination workshop in Ethiopia. In addition, a joint USAID and CHISU webinar on the Commonalities and Differences in Ethiopia, Madagas-

During COVID-19 vaccination campaigns in Burkina Faso, CHISU supervises and supports data entry to increase data availability. Photo: CHISU Burkina Faso

Box 3. Leveraging software to improve data visualization in Serbia

In the Republic of Serbia, the only legally-defined institution for collecting medical data is the Institute of Public Health (IPH) Batut, whose network consists of 24 institutes of public health that collect data from health facilities and send it to IPH Batut.

As custodians of health data, analysis and interpretation are an important part of the job performed by employees of IPH Batut. However, because of understaffing, they do not always have the ability to monitor and use new technologies for doing this work. This is why IPH Batut turned to CHISU to support training for employees on the use of Microsoft Power BI software, which is a powerful tool for creating data visualizations.

IPH Batut and CHISU decided that employees would receive basic tool training, and after that an advanced course would be organized for those who wanted to learn more about the tool to improve their skills.

Thanks to CHISU's support to the IPH Batut, employees have acquired new skills and are now trained to independently make new analyses and visualizations of their large volume of data. "This has been a very important support for us and we would like it if you could provide us with the continuation of this type of education in the next year," said Ivan Ivanovic, Deputy Head of State, Director of IPH Batut. IPH Batut is planning to expand the number of trained people and also include the staff from the network of 24 institutes located in districts.

Serbia's Institute of Public Health (IPH) Batut turned to CHISU to support training for employees on the use of Microsoft Power BI software, which is a powerful tool for creating data visualizations. Photo: CHISU Serbia

car, and Philippines HPHC Tool Health System Assessments was held in March 2023. In Niger, engagements continued to understand whether global **community health information systems guidelines** were applied and what impact that had on the quality of community-level data. Similarly, engagements in Burkina Faso, Ghana, Madagascar, Kenya, and Burundi continued on understanding factors and conditions towards improving the availability of **global health security data in routine health information systems**, with draft reports documenting the adequacy and use of health security data (e.g., surveillance) being produced for validation.

CHISU supported the development of a national Data Quality Assurance plan for **Mali** as well as for **Niger** through multi-stakeholder engagements.. To guide the data quality assessment process, CHISU also began work on the assessment of SORMAS data quality in **Ghana** with a workshop with the Ghana Health Service to develop indicators for the notifiable diseases under surveillance. CHISU also continued to support the MSPP in **Haiti** to address data quality issues in the COVID-19 Vaccination Tracker using the WHO Data Quality Review (DQR) framework during the process of analyzing data for developing the Annual Statistical Report. In **Malawi**, CHISU worked on finalizing the Annual Malaria Bulletin and then validated the dashboards in the automated version of the bulletin that is being tested in DHIS2. To improve data analysis for decision makers in **Indonesia**, CHISU reviewed

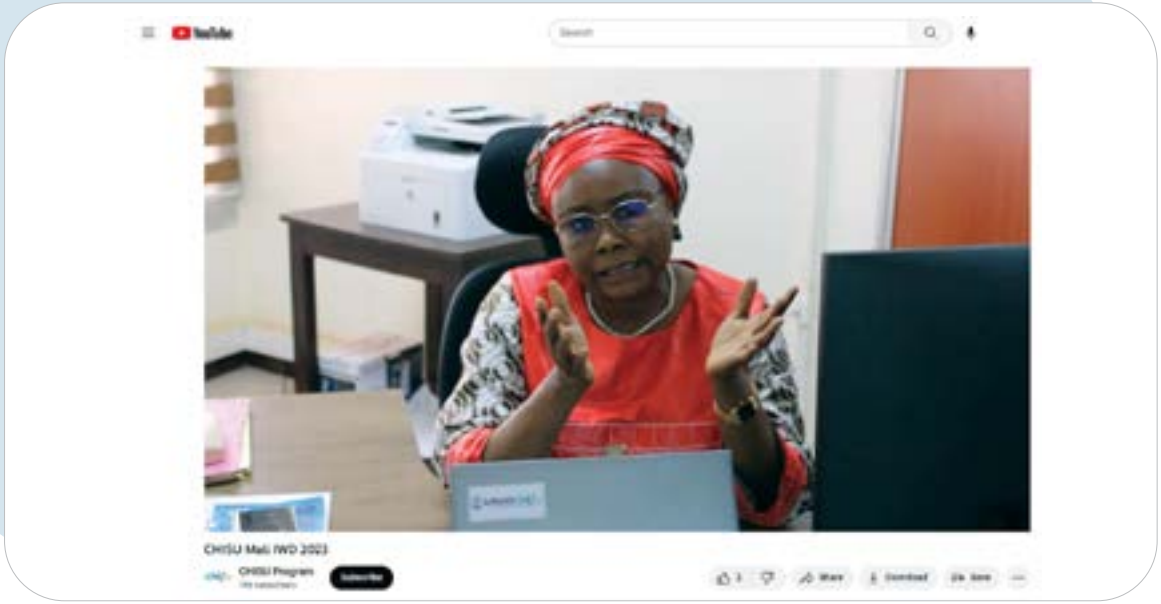
dashboards across different platforms to plan, develop, and make updates to disease-specific dashboards in SatuSehat. The dashboard reviews included COVID-19, TB, and immunization, among others; this contributed to the overall dashboard development process. In the **Eastern and Southern Caribbean region**, a journal article and policy brief—developed with the MOH in St. Kitts and Nevis—on the country's successful COVID-19 vaccination program, was submitted to USAID for approval. Also, decision support was strengthened through embedded consultants in Suriname, St. Lucia, and Antigua and Barbuda. CHISU strengthened COVID-19 data collection, review, and analysis with data disaggregation in Google Data Studio.

CHISU has also supported a variety of interventions to increase data availability. In **Burkina Faso**, technical and financial support were provided to the Directorate of Prevention through Immunization (DPV) to enable them to have data-informed vaccination campaigns. In **Haiti**, a collaboration with the M-RITE project has seen district-level train-the-trainer sessions being conducted on the use of the COVID-19 Vaccination Tracker module in DHIS2. Training on data analysis using the One Health platform was also conducted in **Burkina Faso**. At **Serbia's** Institute of Public Health (IPH) Batut, CHISU supported training for employees on how to use Microsoft Power BI software, which is a powerful data visualization tool—allowing employees to independently make new analyses and visualizations of their data (Box 3). In **Malawi**, registers are being printed to fill gaps where districts do not have these data collection tools. In Ghana, the procurement of tablets is paving the way for better data in the eTracker.

Strategic Objective 4: Local Organization Capacity Enhancement

CHISU worked toward the development of a Health Information Systems Technical Support Facility (HIS TSF) to serve the **Caribbean region**. The HIS TSF is envisioned by USAID, CHISU, and the Pan American Health Organization (PAHO) as a platform-agnostic center of expertise positioned to support countries in the region to strengthen systems for improved data capture and use, to identify and locate relevant data and identify parties responsible for its collection and use, and to enhance platforms for its capture and analysis. The entity will have in-house technical expertise, will be connected with regional and international networks and organizations such as WHO that develop global standards and best practices, and will have the ability to provide needed surge support to countries. CHISU initiated discussions to establish a

Figure 5. International Women's Day testimonies



To mark International Women's Day, CHISU staff recorded video testimonies, highlighting the many areas in which gender considerations can make a difference.

subagreement with the University of the West Indies Centre for Health Economics St. Augustine campus in Trinidad and Tobago to host the HIS TSF.

CHISU identified three potential grantees in **Indonesia** that are good candidates to receive a grant from CHISU in 2023. CHISU developed and released a request for applications valued at $150,000, held a pre-award conference with the three potential organizations to provide an overview of the request for applications and answer any questions. CHISU reviewed the submitted applications and selected an apparent winner, and is working with the apparent winner to revise and refine the proposal based on review committee feedback. This review and discussion resulted in the decision to conduct co-creation with the apparent winner in early April to finalize the local organization's proposal.

Cross-Cutting Area: Gender

CHISU continued to provide gender advising and support to country, regional, and core activities. CHISU spurred thought leadership and dissemination of gender learnings to a global audience throughout the period. CHISU presented a poster on *Integrating gender in health information system strengthening: experiences and lessons from Serbia, Niger and Indonesia* at the Health Systems Research conference in Bogota, Colombia in November 2022. For International Women's Day in March 2023, CHISU published a blog post on how gender integration contributes to more equitable HIS. Short videos from CHISU team members highlighted the importance of integrating gender into activities, strategic planning, and HIS learnings (Figure 5). CHISU also hosted a gender webinar on integrating gender into HIS strengthening where CHISU Resident Advisors and government counterparts from Burkina Faso, Ghana, and Indonesia shared their experiences. While all of the speakers touched upon the importance of gender-disaggregated data for policy making, they also stressed the need to go beyond disaggregated data and address equity in planning, policymaking, and capacity building, and to consider and address the different needs of women when designing service delivery.

Webinar titled "Integrating Gender in Health Information System Strengthening: Experiences from Burkina Faso, Ghana, and Indonesia," held on March 15, 2023. Photo: CHISU Indonesia

All new team members receive gender orientation, setting the stage for gender awareness and gender integration. For all training sessions, events, and products, CHISU teams provide quarterly updates on progress, successes, and challenges for selected gender considerations based on country work plans (Figure 6).

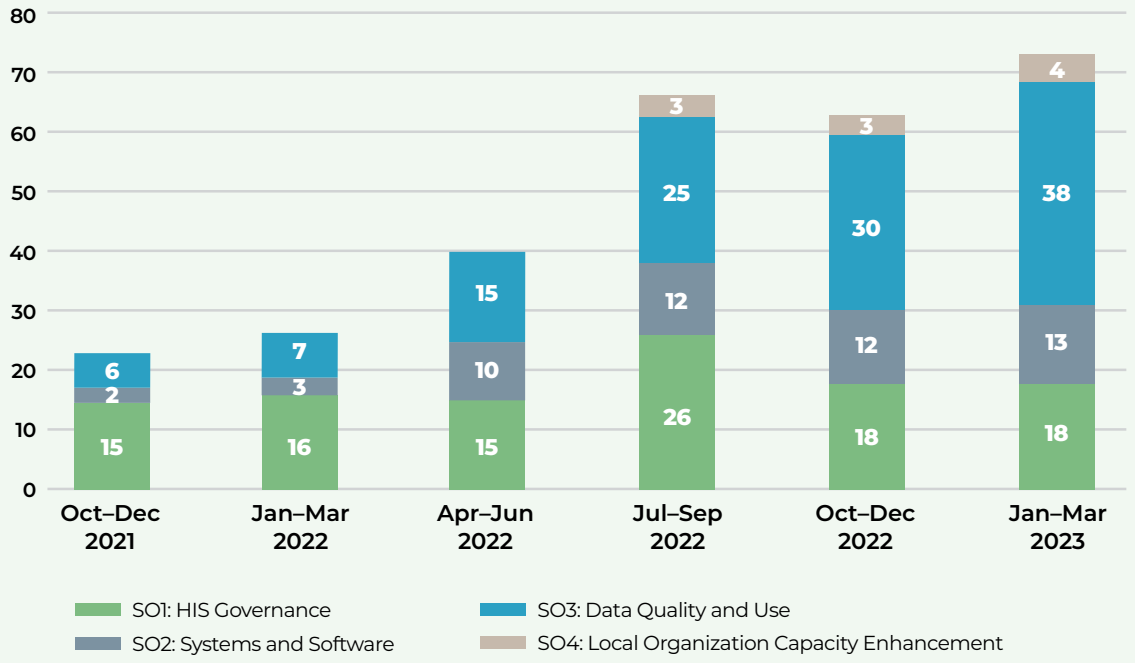
CHISU continues to report on an increasing number of gender considerations across its portfolio, from 66 in FY22 Q4 to 73 in FY23 Q2. This reporting period, over half (52 percent) of gender considerations were focused on SO3, data quality and use.

This shows CHISU's emphasis on gender integration into HIS work as an important mechanism for improved data use for better decision making.

In the first half of FY23 in **Burkina Faso**, CHISU has continued to prioritize gender considerations in workshops by advocating for the participation of women, offering breastfeeding breaks, and highlighting examples of gender analysis. Sex-disaggregated data and data on the number of pregnant women vaccinated are being included as indicators on COVID-19 vaccination dashboards that CHISU is supporting.

In the **Eastern and Southern Caribbean region**, CHISU ensures that gender data is a key component in COVID-19 reporting, including the presentation of sex-disaggregated data and relevant gender-specific findings in written and visual formats. CHISU supported the implementation of new DHIS2 modules for COVID-19 vaccination in Saint Lucia and Suriname, and ensured that these modules have functionality and capability to disaggregate data by sex.

Figure 6. Gender considerations reported, by strategic objective



In **Ghana**, CHISU is ensuring that capacity building initiatives in Data Quality Improvement and Use are gender inclusive. In selecting both participants and facilitators, gender is taken into account to promote meaningful participation and training. In addition, CHISU promoted gender considerations when analyzing malaria transactional data during training for six malaria pre-elimination districts. To encourage continued consideration of gender discrepancies and ways to address those gaps, the training sessions covered data analysis, interpretation, visualization, and use.

In **Haiti**, CHISU has been working to enhance the capacity of UEP and MSPP to analyze and use sex-disaggregated health data to support decision-making processes, and to ensure health indicators take gender into consideration. In the first half of FY23, the list of essential indicators was presented to MSPP, and the MSPP is assessing the feasibility of collecting sex-disaggregated data across the 145 proposed indicators. CHISU also continues to advocate for sex-disaggregated data availability in the OVC MIS, Annual Statistics Report, TB Tracker data collection forms, Carte Sanitaire (Haiti's online national health data dash-

board), and COVID-19 tracker design.

In **Indonesia**, CHISU conducted a gender sensitization workshop in January 2023 to discuss the importance of gender in HIS development with participants from the MOH, including Pusdatin, DTO, maternal and newborn health (MNH) unit, TB unit, and health financing unit. The discussion included areas where there are data gaps and needs related to gender. To address these gaps, CHISU is supporting automated analysis to identify gender gaps and flag them for consideration in planning. An artificial intelligence (AI) use case was selected for MNH and TB, and the CHISU team is working to ensure that gender considerations are included. CHISU is also integrating gender into supportive supervision SOPs and protocols. Planning is in progress for supportive supervision within the mentoring visits at the district level, which will allow the team to identify the type of support most needed to ensure gender is not a barrier for health workers using digital technologies in their work.

In **Madagascar**, CHISU documented participation of women during the SOCI assessment, and participation of women who are leading completion of the SOCI toolkit and determining next steps in the SOCI Evaluation group. Additionally, CHISU examined and documented the availability of integrated gender and age disaggregations in national tools during SOCI data collection.

In **Mali**, CHISU has continued documenting the sex ratio among participants and advocating for increased female participation in technical working groups and in meetings focused on improving data quality and use. These include data quality assurance plan training, COVID-19 data quality reviews, and regional statistical yearbook development and validation workshops.

In **Malawi**, CHISU is encouraging the examination and presentation of sex-disaggregated data in DQAs and data review meetings. In the first half of FY23, CHISU participated in and provided technical input during an HMIS review workshop. This initiated a review of data collection tools in order to incorporate more sex disaggregation in malaria data. A comprehensive review of DHIS2 reporting tools is under discussion. CHISU has included indicators that highlight coverage of services that benefit women and children in data quality reviews. CHISU has continued to participate in and provide technical inputs promoting gender disaggregation in discussions about the HMIS tool that is being championed by WHO.

In **Serbia**, CHISU is emphasizing the importance of sex-disaggregated data during data collection, analysis, and use. CHISU's new hire at the Institute of Public Health of Serbia (IPH) Batut is including sex disaggregation in their data analysis work to promote improved data availability for decision making.

CHISU is also incorporating gender into its **core-funded activities**. Through the COVID-007 activity, CHISU integrated questions about col-

Participants in a malaria strategy development workshop supported by CHISU and the National Malaria Control Program (NMCP) in Malawi in early 2023. Photo: CHISU Malawi

lection and analysis of sex-disaggregated data in national systems into its interviews with key stakeholders in Suriname. Through the OHS-002 activity, CHISU led a session on digital supportive supervision specifications and requirements during a Malawi workshop. The session emphasized the need for a national system digital ISS platform that has sex-disaggregated indicators that can be visualized at health facility and national levels. CHISU included gender questions in the Global Health Security Agenda (GHS) data collection tool as part of the OHS-003 work. A question on the data collection instrument assesses whether data collected through the HMIS is sex-disaggregated. Lastly, in support of the XB-008 Global HIS Management and Leadership work, CHISU continued to serve as co-lead of the DH&I Gender/DEI small working group, facilitating discussions across HDC and DH&I broadly on approaches for country engagement. CHISU presented on gender in HIS at the Health Systems Research conference in November, presented on a panel to the Global Digital Health Forum with Gender/DEI working group members in December, and presented to the HDC DH&I working group annual meeting in December.

Cross-Cutting Area: Data Security

In **Burkina Faso**, CHISU is ensuring that security (i.e., authentication and authorization) is addressed first in the health facilities in the districts of Center Region that are newly accessing ENDOS-BF during deployment at the health facility level. All users now have their own secret logins with accompanying roles that determine their level of interaction in the system. In **Madagascar**, CHISU met with the Office of National Nutrition, and issues of data security and privacy were identified. CHISU ensured that the proposed architecture and the operational plan included segments covering security, data sharing, and data privacy measures. **Ghana** recognized the needs and gaps in cybersecurity that had been identified as a risk in implementation. In response to this, CHISU, in collaboration with OpenLabs, organized an in-person security training for the Ghana Health Service staff to be better equipped to handle data security and overall systems security and privacy.

Going forward, CHISU will work with in-country teams to explore the full potential of local security modules in the digital systems, ensuring that the

Box 4. Pause and reflect action points

1. The automated malaria bulletin in DHIS2 that CHISU developed in Malawi has the potential to be leveraged as a data use tool at the national, district, and facility levels. CHISU has an opportunity to support the advancement of data analysis and use capabilities among NMCP and subnational staff.

2. To support nascent discussions around interoperability and integration in Haiti, CHISU is updating technical materials and documentation to prepare for a broader interoperability layer.

3. CHISU is focusing regular and ongoing training and support to technical staff in Serbia. Serving their data needs and making them champions will advance progress toward anticipated improvements in data quality and use.

CHISU supported Madagascar's Direction des Etudes et de la Planification et du Système d'Information with an assessment of the country's HIS using the SOCI framework. Photo: CHISU Madagascar

low-level tier of data security is well-covered before looking at the environmental and network security.

HIS Learning

CHISU uses causal link monitoring to map the expected causal pathway from interventions to HIS evolution. CHISU mapped expected causal pathways for six countries: Burkina Faso, Ghana, Haiti, Indonesia, Malawi, and Serbia. Each country's causal framework served as a basis for catalyzing reflective discussion during Pause and Reflect sessions among internal country teams. The action points resulting from the Pause and Reflect sessions are documented and fed back into implementation (Box 4).

To date, CHISU has initiated activities related to addressing six learning questions. Using the country-level causal frameworks and baseline SOCI assessment scores (where relevant), as well as multiple years of implementation experience in some countries, we are identifying project activities that are expected to contribute to varying levels of progress in advancing specific SOCI elements of maturity. For example, CHISU contributed to the development of a national eHealth Strategic and Action Plan in Serbia, an achievement that supports progress within the SOCI domain of leadership and governance. Further, we are examining the processes that have been used to carry out the SOCI assessment in six countries with CHISU support, specifically Burkina Faso, Indonesia, Madagascar, Malawi, Niger, and Serbia. Initial review identified best practices on stakeholder engagement and consensus building, such as having a multi-sectoral oversight committee, involving a wide range of stakeholders, using the SOCI tool in an ongoing process, and engaging multiple small groups to reflect on each domain for intermediate consensus before presenting to the plenary group. When examining whether documented action plans are sufficient to reach the assessment's desired goals, we found that the action plans generally addressed all of the gaps identified in the assessment, with the exception of network connectivity in Madagascar and resource mobilization in Serbia.

CHISU supported a workshop to present the results of multiple assessments carried out in Niger by the Ministry of Public Health and Social Affairs Statistics Division. Photo: CHISU Niger

As mentioned above under SO2, CHISU embarked on a multi-country activity to learn how USAID's COVID-19 funded digital health investments and the use of digital global goods advanced cohesive digital health architecture and affected the COVID-19 response. CHISU finalized the activity protocol and received an institutional review board (IRB) exemption. An interview guide was also completed, and data collection began in Suriname in March.

In preparation for the mid-project meeting, CHISU is gathering evidence to assess the program's Theory of Change by mapping CHISU's activities to the causal pathways within the Theory of Change. For example, we have found that all country programs have provided support to systems and software under SO2, but ensuring accessibility to data through prerequisites like internet connectivity and procurement of equipment is a frequently implemented activity that is missing from the SO2-specific theory of change. We are examining whether the combination of CHISU interventions—within and across SOs—are contributing to improvements that will lead to health information systems strengthening.

Conclusion

At the launch of the umbrella campaign on maternal, child, and newborn health in Burkina Faso, CHISU was proud to present its data management activities to the Minister of Health, Robert Lucien Jean Claude Kargougou, and the Minister of Communications, Jean Emmanuel Ouedraogo, as well as the USAID delegation in the country.
Photo: CHISU Burkina Faso

CHISU's third year has started with three themes: engagement, growth, and learning. CHISU continues to engage with global HIS and digital health bodies (e.g., HDC working groups in general, the DH&I working group and its small working groups). We have expanded our country-level engagement to include stakeholders involved in malaria, One Health, community health, nutrition, and COVID-19 responses. CHISU participated in significant global consultations such as the WHO Routine Health Information System (RHIS) workshop which positioned CHISU as a global HIS implementer. CHISU engaged with Africa CDC and started participating in its flagship initiatives' working group meetings.

CHISU continues to grow in the number of core-funded technical activities (from 10 at the end of FY22 to 12 at FY23 Q2) and in countries and regions (from 11 at the end of FY22 to 15 at the end of FY23 Q2). Significantly, the transition of PMI-funded surveillance, monitoring, and evaluation portfolios from PMI Measure Malaria to CHISU began during the first half of the fiscal year, adding new countries and new portfolios to existing countries. The number of gender activities also grew with 38 new interventions starting in FY23.

CHISU continues to learn from COVID-19 interventions, to learn from efforts to integrate gender into HIS interventions, and to learn how to pause and reflect on our work. Through the latter process we are learning that the SOCI framework is a useful guide for defining the change we are working toward and the incremental steps we need to take to achieve HIS progress. Also, we are recognizing the importance of country-level micro-planning to align CHISU's support to governments' priorities. In the coming months, CHISU will commemorate the mid-project mark with in-depth reflections on our strategic approaches, our assumptions, and our intended legacy. Four key points are guiding these reflections:

- **SOCI is a useful framework for guiding countries** as they focus on HIS progression and digital transformation. Although the framework has gaps, we are beginning to see results and are thinking critically about how those results are contributing to HIS progression.
- After conducting HIS baseline assessments using the SOCI framework in eight countries, we found a common thread: **there are fundamental elements (e.g., providing internet and paying for devices) that the framework assumes are present—but there are often gaps in these elements**, which are critical for HIS functioning and for its progression. Additionally, filling the gaps in these elements have accounted for a substantial part of the investment that CHISU has made.
- **Using specific program funding streams (e.g., COVID-19, maternal and child health, and PMI) as entry points to strengthening the HIS is possible** because of USAID's understanding of and vision for integrated health information systems. CHISU continues to find opportunities for optimizing these program entry points.
- CHISU's **engagements with global and regional partners are deepening technically and increasing in number**. CHISU is recognized as part of USAID's long-term investment in HIS and we continue to address the usual difficulties that come with being a project rather than an institution.

Looking forward, we recognize that country-level conversations are changing—and stakeholders are looking beyond the HIS status to system improvements and progression. These improvements will take time, as we are learning from our nearly four years of support in Burkina Faso. A confluence of events (e.g., the COVID-19 pandemic, countries' digital transformation, and a focus on understanding HIS status and progression by WHO and other stakeholders) is providing a catalytic context for continued focus on HIS strengthening—which is a critical component of improving primary health care.

CHISU Program Director Steve Ollis (far right) at the Health Systems Research Symposium, in Bogota, Colombia, sharing lessons learned from the work with local governments, institutions, and civil society to strengthen health information systems and collaboration. Photo: CHISU

Annexes

Annex 1. Activity Report

This report covers CHISU's work during the first half of the third year of implementation, October 1, 2022 through March 31, 2023. Activities implemented in this fiscal year (FY) include 26 country-level activities in 13 countries; six regional-level activities in one region and one subregion; 12 global technical activities; six cross-cutting global program activities supported with cross-bureau (XB) funding; and two President's Malaria Initiative (PMI)-funded operational activities.

CHISU activities for period ending March 31, 2023

Code	Activity Name	Start Date	End Date	Status
Country Activities				
BF-001	One Health information system support in Burkina Faso	10/01/2020	09/30/2023	Open
BF-002	Support to PMI Activities in Burkina Faso	10/01/2022	09/30/2023	Open
BF-003	Strengthening availability and use of COVID-19 data in Burkina Faso	10/01/2021	08/25/2023	Open
BF-004	Strengthening use of ENDOS in Burkina Faso	10/01/2021	09/30/2023	Open
BF-005	COVID-19 Data System Design Analysis and immunization tool revision in Burkina Faso	04/01/2022	6/30/2023	Open
COVID-002	COVID-19 Vaccine Data Availability in Burkina Faso	04/01/2022	09/08/2023	Open
CD-001	Support to PMI Activities in DRC	02/01/2023	12/31/2023	Open
CI-001	Côte d'Ivoire Scoping Exercise; Support to COVID-19 data management and use in Cote d'Ivoire	10/01/2022	01/21/2024	Open
GH-001	Ghana Scoping	10/04/2021	11/30/2021	Closed
GH-002	Strengthening malaria data quality and use in Ghana	01/01/2022	06/30/2023	Open
GH-003	COVID-19 surveillance system alignment	09/01/2022	12/08/2023	Open
GH-004	Ghana COVID e-Tracker and DHIMS2 Support - P2	01/01/2023	12/15/2023	Open
GH-005	COVID-19 Surveillance System Alignment - P2	01/01/2023	12/15/2023	Open
COVID-009	Support to eTracker in Ghana	10/01/2022	04/30/2023	Open
HT-001	Haiti Scoping	10/15/2021	01/31/2022	Closed
HT-002	HIS support to COVID-19 in Haiti	01/01/2022	09/30/2023	Open
HT-003	Support to SISNU in Haiti	01/01/2022	03/31/2023	Open
HT-004	HIS Support to TB/HIV in Haiti	01/01/2022	03/31/2023	Open
ID-001	Strengthening HIS progression and digital transformation in Indonesia	10/01/2021	12/31/2022	Open
COVID-005	COVID support in Indonesia	08/01/2022	07/31/2023	Open
KE-001	Support to malaria sub-national tailoring exercise in Kenya	01/01/2023	08/31/2023	Open

Code	Activity Name	Start Date	End Date	Status
Country Activities				
KE-002	Co-Creation and Operations Start up SOW	03/01/2023	06/30/2023	Open
MG-001	Three Health Information System Assessments in Madagascar	08/01/2022	05/31/2023	Open
ML-001	Mali Scoping	09/16/2021	11/30/2021	Closed
ML-002	Strengthening COVID-19 data quality and use in Mali	01/01/2022	02/25/2023	Open
MW-001	Malawi Scoping	11/01/2021	04/30/2022	Closed
MW-002	Strengthening malaria data systems and use in Malawi	03/01/2022	02/28/2023	Open
COVID-008	Scoping Exercise in Namibia; COVID-19 data management support in Namibia	07/25/2022	10/31/2023	Open
NR-001	Niger Scoping	04/01/2021	05/31/2021	Closed
NR-002	Strengthening the HIS in Niger	09/02/2021	08/31/2023	Open
SB-001	Serbia Scoping	11/01/2020	05/31/2021	Closed
SB-002	Strengthening HIS Governance and Data Use in Serbia	04/01/2021	03/31/2024	Open
Regional Activities				
ESC-001	COVID-19 support in Eastern and Southern Caribbean Countries	04/01/2022	08/23/2023	Open
ESC-002	COVID-19 support in Eastern and Southern Caribbean Countries	04/01/2022	03/31/2023	Open
ESC-003	COVID-19 vaccine supply chain support in Eastern and Southern Caribbean Countries	07/08/2022	06/30/2023	Open
COVID-001	COVID-19 support in Eastern and Southern Caribbean Region	04/01/2022	09/08/2023	Open
COVID-004	COVID-19 supply chain support in ESC	Pending approval	Pending approval	Not started
LAC-001	HIS Support to LAC Countries	10/11/2022	08/31/2023	Open
MENA-001	Support to GHS information systems in MENA	05/10/2021	06/30/2022	Closed
Global Technical Activities				
COVID-006	COVID-19 Vaccine Cost Effectiveness Study	Pending approval	Pending approval	Started
COVID-007	COVID-19 digital health learning activity	10/01/2022	12/18/2023	Open
COVID-010	COVID-19 Vaccine Wastage Study	Pending approval	Pending approval	Started
MCH-001	RMNCAH Facility Data Use Guidelines	02/14/2022	04/30/2023	Open
OHS-001	Digitize and deploy HPHC Tool	02/23/2021	06/30/2023	Open
OHS-002	Digital supportive supervision	10/01/2021	06/30/2023	Open
OHS-003	GHS surveillance, data analysis, and use	10/01/2021	06/30/2023	Open
OHS-004	Country HPHC Implementation	07/01/2022	06/30/2023	Open
OHS-005	Catalytic implementation of the WHO global RHIS strategy	07/01/2022	06/30/2023	Open
PMI-001	Assessing community based information system guidance in PMI priority countries	10/01/2021	04/30/2023	Open
XB-008	Global HIS management and leadership	07/01/2021	06/30/2023	Open
XB-009	Digital tool to measure and store country HIS progression	10/01/2021	06/30/2023	Open

Code	Activity Name	Start Date	End Date	Status
Operations and Global Cross-Cutting Program Activities				
PMI-002	PMI portfolio startup	09/01/2022	03/31/2023	Open
PMI-003	Country portfolio transition	09/01/2022	03/31/2023	Open
XB-001	Operations Start Up	08/01/2020	09/30/2021	Closed
XB-002	Country operations support	08/01/2020	06/30/2023	Open
XB-003	Monitoring, evaluation, and learning	08/01/2020	06/30/2023	Open
XB-004	Gender in HIS support	08/01/2020	06/30/2023	Open
XB-005	Knowledge management support	08/01/2020	06/30/2023	Open
XB-006	Communications	08/01/2020	06/30/2023	Open
XB-007	Technical Start Up and Orientation	08/01/2020	06/30/2022	Closed
XB–010	Artificial Intelligence and Machine Learning knowledge hub	10/01/2021	12/31/2022	Closed
XB-011	Mid-project technical meeting	07/01/2022	06/30/2023	Open

Annex 2. Indicator Achievement

Indicator	Data source(s)	Y3 Achievement	Comment
SO1: Strengthened governance and enabling environment			
1.1: Number of countries and regions engaged by CHISU to improve governance and enabling environment for HIS	Program records	12	CHISU is working on HIS governance in Burkina Faso, Côte d'Ivoire, DRC, Ghana, Haiti, Indonesia, Madagascar, Malawi, Mali, Namibia, Niger, and Serbia.
1.2: Number of CHISU-supported, standards-based HIS governance processes implemented	Program records	24 BF-3 GH-1 HT-2 ID-4 MG-1 ML-2 MW-3 NR-4 SB-2 Core-2	CHISU supported the SOCI area of *HIS leadership and coordination* through nine processes: technical coordination group support in Burkina Faso, hosting consultative meetings with COVID-19 stakeholders in Burkina Faso, eHealth policy review in Haiti, TWG support in Indonesia, national TWG support in Malawi, COVID-19 coordinating bodies support in Mali, community surveillance working group support in Mali, technical working group support in Niger, and support to the eHealth Steering Committee in Serbia. CHISU supported the SOCI area of *HIS strategic planning* through seven processes: SOCI assessment in Haiti, SOCI application in Madagascar and Malawi, national assessment to benchmark HIS status in Niger, HIS strategic plan development in Niger, HIS strategic plan evaluation in Niger, and strategic and action plan monitoring in Serbia. CHISU supported the SOCI area of *M&E Plan* through three processes: supporting the monitoring committee for HIS Strategy in Burkina Faso, SOCI assessment in Indonesia, and M&E of Satu Sehat in Indonesia. CHISU supported the SOCI area of *Existence of HIS policies and legislation* through one process: technical input for national malaria HIS policies in Malawi. CHISU supported the SOCI area of *HIS competencies* in SO1 topics through one process: human resources capacity assessment in Ghana. CHISU supported the SOCI area of *HIS organizational structure and functions* through one process: support to COVID-19 vaccination systems subworking group in Indonesia. CHISU supported two *core technical* processes: global leadership in HIS evolution and catalytic implementation of the WHO global RHIS strategy.
SO2: Increased availability and interoperability of quality health data and information systems			
2.1: Number of countries and regions engaged by CHISU to increase availability and interoperability of health data and information systems	Program records	12	CHISU is working on systems and software in Burkina Faso, Côte d'Ivoire, DRC, ESC, Ghana, Haiti, Indonesia, Madagascar, Malawi, Mali, Namibia, and Niger.

Indicator	Data source(s)	Y3 Achievement	Comment
SO2: Increased availability and interoperability of quality health data and information systems			
2.2: Number of CHISU-supported systems and software processes developed	Program records	44 BF-9 GH-6 HT-10 ID-5 MG-1 ML-6 MW-1 NR-1 ESC-2 Core-3	CHISU supported the SOCI area of *Data set definitions* through 11 processes: One Health system support in Burkina Faso, COVID-19 vaccination data collection revision in Burkina Faso, DHIS2 customization in ESC (Saint Lucia and Antigua and Barbuda), DHIS2 customization in ESC (Suriname), COVID-19 Vaccination Tracker configuration in Haiti, Electronic Health Certificate configuration in Haiti, OVC system configuration in Haiti, enhanced COVID-19 vaccination system functionalities in Indonesia, ONN digitization needs assessment in Madagascar, Automated Malaria Bulletin in Malawi, and improved COVID-19 electronic data management in Mali. CHISU supported the SOCI area of *Hardware* through six processes: ICT procurement in Burkina Faso, computer hardware and internet access provision in Burkina Faso, ICT assessment in Ghana, ICT procurement in Ghana, ICT assessment in Mali, and ICT assessment and procurement in Niger. CHISU supported the SOCI area of *ICT business infrastructure support* through five processes: COVID-19 vaccination tracker server and IT support, SISNU database and server support, National Health Data web portal server support, and TB tracker server support in Haiti; and software application inventory in Mali. CHISU supported the SOCI area of *Networks and internet connectivity* through five processes: support for internet connection for multiple layers of the health system in Burkina Faso, internet service provision for Expanded Programme on Immunization managers in Burkina Faso, support for internet connection for departmental directorates and units at the MOH in Haiti, support for internet connection for UEP, the TB program, and departmental directorates in Haiti, and support for internet connection for multiple layers of the health system in Mali. CHISU supported the SOCI area of *Aggregate data exchange* through four processes: data integration into ENDOS in Burkina Faso, interoperability between malaria applications and data repository in Ghana, interoperability between SORMAS and DHIMS2 in Ghana, and data integration into SISNU in Haiti. CHISU supported the SOCI area of *Data and exchange standards* through two processes: interoperability landscape analysis in Indonesia and interoperability maturity assessment in Mali. CHISU supported the SOCI area of *HIS competencies* in SO2 topics through two processes: One Health training of trainers in Burkina Faso and resource center and Community of Practice in Indonesia. CHISU supported the SOCI area of *HIS standard guidelines* through two processes: implementation of IHS in Indonesia, and the development of standards-based system interoperability guidelines in Mali. CHISU supported the SOCI area of *HIS training and education* through two processes: cybersecurity and data protection training in Ghana, and systems administration training in Ghana. CHISU supported the SOCI area of *Business continuity processes and policies* through one process: data collection and management system assessment in Burkina Faso. CHISU supported the SOCI area of *Terminology management* through one process: SNOMED CT in Indonesia. CHISU supported three *core technical* processes: building the web-based digital SOCI tool, maintaining the web-based HPHC tool, and COVID-19 digital health architecture and global goods learning.
2.3: Number of CHISU-supported electronic systems that were scaled or enhanced	Program records	5 BF-2 HT-2 ID-1	CHISU scaled three systems: ENDOS to health facility level in the Center East region in Burkina Faso, COVID-19 vaccination tracker to health facilities in Haiti, and SatuSehat to health facility level in East Java and South Sulawesi regions in Indonesia. CHISU enhanced two systems: configured the joint investigation form in the One Health information system in Burkina Faso and launched the Passe Sanitaire for Electronic Health Certificate for COVID-19 vaccine recipients in Haiti.

Indicator	Data source(s)	Y3 Achievement	Comment
SO3: Increased demand and use of health data and information to address health priorities, gaps, and challenges			
3.1: Number of countries and regions engaged by CHISU to increase demand and use of health data and information to address health priorities, gaps, and challenges	Program records	13	CHISU is working on data use in Burkina Faso, Côte d'Ivoire, DRC, ESC, Ghana, Haiti, Indonesia, Kenya, Madagascar, Malawi, Mali, Namibia, and Serbia.
3.2: Number of countries and regions engaged by CHISU to increase quality of HIS data	Program records	10	CHISU is working on data quality in Burkina Faso, Côte d'Ivoire, DRC, ESC, Ghana, Haiti, Mali, Malawi, Namibia, and Niger.
3.3: Number of CHISU-supported data use processes implemented	Program records	35 BF-6 GH-2 HT-4 ID-3 KE-1 MG-1 ML-5 MW-3 SB-3 ESC-4 Core-3	CHISU supported the SOCI area of *Information/data availability* through 12 processes: development of a public dashboard of COVID-19 data, supportive supervision for COVID-19 vaccination campaigns, deployment of ENDOS at the health facility level, and elaboration of the roadmap for a nutrition dashboard in Burkina Faso; training on COVID-19 eTracker in Ghana; deployment of the COVID-19 vaccination tracker and development of the national health data web portal in Haiti; implementation of the HPHC tool in Madagascar; support for the production of the HMIS statistical yearbook, weekly COVID-19 data analysis, and retrospective data entry for COVID-19 in Mali; and printing and distribution of registers in Malawi. CHISU supported the SOCI area of *Data synthesis and communication* through ten processes: extraction and review of COVID-19 vaccination data in Burkina Faso, strengthening the analysis of COVID-19 data in ESC, assisting with COVID-19 analysis and communication materials in ESC, supporting analysis of malaria data in Ghana, supporting data analysis and information products that cover COVID-19 data in Haiti, developing and disseminating the annual statistical yearbook and quarterly bulletin in Haiti, subnational tailoring of malaria interventions in Kenya, production of an automated malaria bulletin in DHIS2 in Malawi, supporting data review meetings in Malawi, and assisting IPH Batut with data analysis and visualization in Serbia. CHISU supported the SOCI area of *Reporting and analytics features* through five processes: development of AI prototype for TB and artificial intelligence/machine learning (AI/ML) use case for MNH and reviewed dashboards to promote COVID-19 notable practices in Indonesia; presentation of proposals for advanced analytics on COVID-19 and explored the use of AI in Mali; and presentation of AI prototype for bed occupancy in Serbia. CHISU supported the SOCI area of *Data collection alignment with workflow* through two processes: identifying data sources for COVID-19 vaccination and supporting improved data collection and aggregation in ESC, and performing a digitization assessment for immunization in Serbia. CHISU supported the SOCI area of *HIS competencies* in SO3 topics through one process: training on data analysis using the One Health platform in Burkina Faso. CHISU supported the SOCI area of *Decision support* through one process: work with the MOHs to enhance existing or create new visualizations to aid decision making in COVID-19 vaccination readiness and preparedness in ESC. CHISU supported the SOCI area of *User/stakeholder engagement* through one process: training stakeholders on data use in Indonesia. CHISU supported three *core technical* processes: digital supportive supervision, expanding the use of the HPHC tool, and development of GHS data use case studies.

Indicator	Data source(s)	Y3 Achievement	Comment
SO3: Increased demand and use of health data and information to address health priorities, gaps, and challenges			
3.4: Number of CHISU-supported data quality processes implemented	Program records	18 BF-2 GH-2 HT-2 ML-3 MW-2 NR-2 ESC-3 Core-2	CHISU supported the SOCI area of *Data quality assurance and quality control* through 14 processes: retrospective COVID-19 vaccination data entry and data quality checks in Burkina Faso; conducting data quality reviews and using routine DQA and other tools to conduct quarterly assessments of COVID-19 vaccination data quality and developing action plans in ESC; supporting data validation and verification reviews and supporting a data quality assessment and assurance plan for SORMAS in Ghana; developing and implementing a data validation and verification process for COVID-19 Vaccination Tracker and configuring validation rules with SISNU and using the DHIS2 DQA report to engage stakeholders during data quality workshops in Haiti; documentation of ISS and mentoring action plans and data quality review in DHIS2 in Malawi; data quality assurance plan and training, supporting the use of a data quality review module to assess the quality of HMIS data and develop action plans, and organizing data use competitions in Mali; installing a DQR module in DHIS2 and developing a data quality assurance plan in Niger. In the SOCI area of *Data management*, CHISU supported two processes: supervision at the central, regional, district, and health facility levels in Burkina Faso, and COVID-19 vaccination data management in ESC. CHISU supported two *core technical* processes: community-based information systems guideline application, and conducting a landscape assessment on where the 2019 WHO RMNCAH Use of Facility Data Guidelines have been applied and are in use and making necessary updates.
SO4: Strengthened organizational development of local non-governmental partners for sustained data use			
4.1: Number of local partners engaged by CHISU to improve practices and capacities that would enable them to receive direct assistance for HIS programming	Program records	2	CHISU is in discussions to finalize agreements with two local partners in ESC and Indonesia.
Cross-cutting			
5.1: Number of people trained in skills and concepts that address HIS governance and enabling environment, HIS interoperability, data quality, demand, and use	Program records	1,600	This includes 189 in Burkina Faso, 79 in Ghana, 1,141 in Indonesia, 80 in Mali, 24 in Niger, 87 in Serbia. Overall, 68 percent (1,085) were males and 32 percent (515) were females. The largest stakeholder group was other government ministries (41 percent, 649), 31 percent (499) were from MOH, 26 percent (412) were from private sector, 2 percent (24) were from non-governmental organizations and educational institutions, and less than 1 percent from other stakeholder types. Over half of those trained came from the subnational level (943), another third came from the national level (537), and 8 percent (120) came from the facility level.

Indicator	Data source(s)	Y3 Achievement	Comment
Data security and privacy			
6.1: Number and percent of CHISU-supported countries where CHISU activities include data security	Program records	3 (30 percent)	CHISU is working on data security and privacy in Burkina Faso, Ghana, and Madagascar.
Gender			
7.1: Number and percent of HIS products or events created or conducted with CHISU support, which include gender considerations	Program records	36 (53 percent)	Out of the 68 knowledge-sharing products and events (see 8.1 and 8.2 below), 36 (53 percent) considered gender. This includes eight from Burkina Faso, five from ESC, one from Haiti, seven from Indonesia, and 15 from Mali.
Knowledge management			
8.1: Number of knowledge-sharing products to which CHISU contributed	Program records	15	This includes five products from ESC, one from Ghana, two from Haiti, six from Indonesia, and one from Malawi.
8.2: Number of knowledge-sharing events in which CHISU participated	Program records	53	This includes 18 events in Burkina Faso, seven in Indonesia, one in Kenya, two from Malawi, 15 from Mali, one from Niger, four from Serbia, and five from core technical activities.

Annex 3. Communication Products

Blog posts

- Implementing tools and building capacity around data quality review in Niger
- Mali: Improved COVID-19 surveillance data quality enables better decision-making
- Can Digital Transformation of Health Keep the Pace of Technological Innovation?
- Scaling up district malaria data quality improvement interventions in Malawi
- Gender Integration: Fostering More Equitable Health Information Systems
- Data protection: CHISU supports Ghana Health Service IT staff cybersecurity and systems administration training
- Integrating Gender in HIS Strengthening

Event posts

- Webinar - Integrating Gender in Health Information System Strengthening: Experiences from Burkina Faso, Ghana, and Indonesia
- Using the HPHC Tool in LMICs

Success stories

- Multisectoral Collaboration for Rabies Prevention: The One Health Approach
- Fostering Cross-Country Learning to Strengthen Health Information Systems in Saint Lucia
- Strengthening Subdistrict Facility Malaria Data Validation and Verification Capacity Improves Routine Malaria Data Quality in Sunyani West District
- Optimizing Health System Resources in Haiti Through the Carte Sanitaire
- Building Digital Maturity for Digital Health Transformation in Indonesia
- Developing a New Malaria Strategy to Guide Implementation of Malaria Activities in Malawi From 2023 to 2030
- Data Quality Assurance to Improve Decision Making in Mali
- Health Information System Assessment Tool Implementation in Two Countries - Similarities and differences in Niger and Madagascar
- Leveraging Software to Improve Data Visualization at the Institute of Public Health of Serbia "Dr. Milan Jovanovic Batut"

Webinars and other recordings

- Webinar: Commonalities and Differences in Ethiopia, Madagascar, and Philippines HPHC Tool Health System Assessments
- Webinar: Strengthening HIS Governance for Global Health Security – Findings from a Landscape Assessment in MENA
- CHISU Program Director, Steve Ollis, Pop-Up Studio interview at the Global Digital Health Forum 2022
- International Women's Day Message: CHISU Chief of Party in Indonesia Leah McManus
- International Women's Day Message: CHISU Resident Advisor in Mali Dr. Madina Kouyate
- International Women's Day Message: CHISU Resident Advisor in Burkina Faso Dr. Rahim Kebe
- International Women's Day Message: CHISU Resident Advisor in Niger Dr. Diby Konan
- International Women's Day Message: CHISU Data Analyst in Ghana Samuel Owusu
- International Women's Day Message: CHISU MEL Officer Lauren Gilliss

Newsletter

- CHISU Bulletin: Here is to 2023

Resources

- CHISU Highlights from October 2021 - September 2022
- CHISU Y2 Annual Report

Social media

CHISU published 167 posts on its platforms with a 5.61 percent combined engagement rate:

- LinkedIn: @CHISU Program
- Twitter: @CHISUprogram
- Facebook: @CHISUProgram
- Instagram: @chisuprogram
- YouTube: @CHISUProgram

Promotional material

- Visual and icon libraries
- Conference postcards and other promotional materials
- Conference posters and presentations
- Webinar banners and other promotional materials
- Social media assets for conferences, events, webinars, and observance dates
- Photo tiles for social media and presentations
- Country and global presentations, reports, briefs, leaflets, newsletters, and other products
- Country and global banners, office signage, training, and other communication materials

Launched

- CHISU Publishing SOP
- CHISU Conference Participation Protocol
- Web interactive report
- New "Where we work" web page and georeferenced map
- New country web pages with cross-referenced auto-populated content
- Success stories indexed web tab

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