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USAID Electronic Supply Chain Management Information System (eSCMIS) Project ANNUAL REPORT

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PROJECT YEAR II

2021

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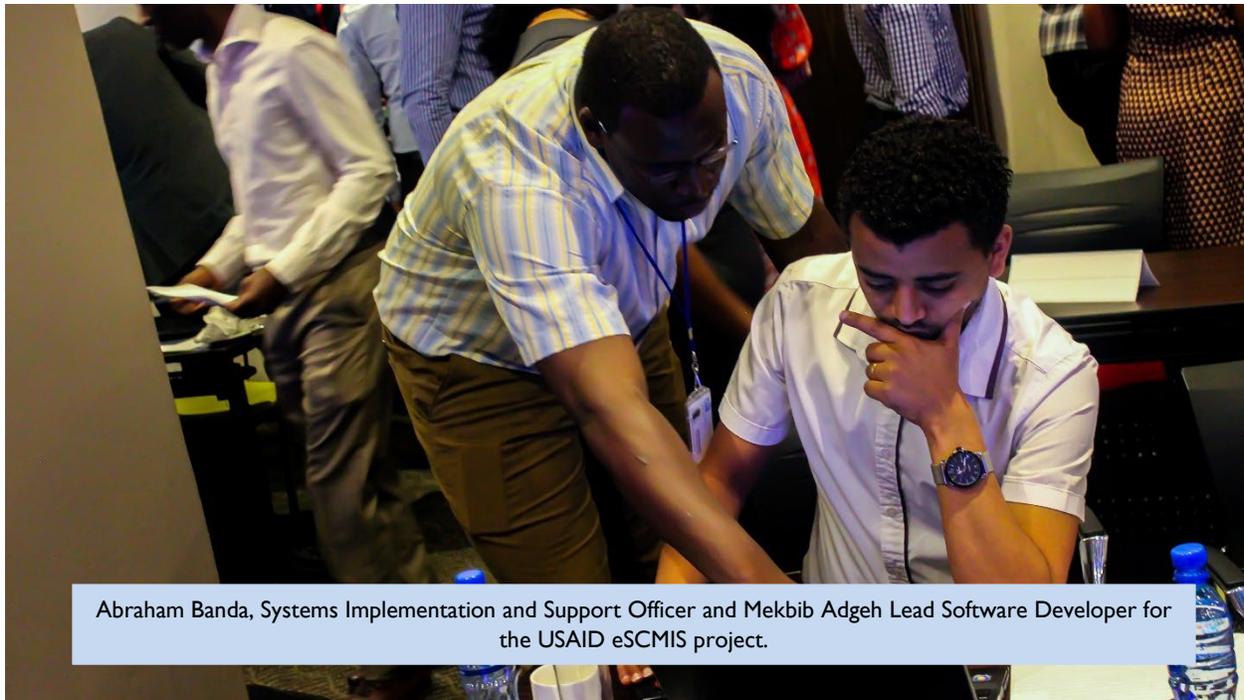
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ACRONYMS

AIDSFree	Strengthening High Impact Interventions for an AIDS-free Generation
CCB	change control board
CE	central edition
CHAZ	Churches Health Association of Zambia
eLMIS	Electronic Logistics Management Information System
eSCMIS	Electronic Supply Chain Management Information System
FE	facility edition
FY	fiscal year
G2G	government-to-government
GRN	goods received note
GRZ	Government of the Republic of Zambia
IMPACT	Information Mobilized for Performance Analysis and Continuous Transformation
ICT	information, communication, technology
IR	intermediate result
JSH	John Snow Health Zambia Limited
JSI	John Snow, Inc.
M&E	monitoring and evaluation
MEL	monitoring, evaluation, and learning
MOH	Ministry of Health
OJT	on-the-job training
PEPFAR	United States President's Emergency Plan for AIDS Relief
PPP	public-private partnership
R&R	report and requisition
SO	strategic objective
TSS	technical supportive supervision
TWG	technical working group
USAID	United States Agency for International Development
ZAMMSA	Zambia Medicines and Medical Supplies Agency
ZICTA	Zambia Information, Communication and Technology Agency

EXECUTIVE SUMMARY

Although starting fiscal year (FY) 2021 slowly due to the COVID-19 pandemic, the USAID eSCMIS project exceeded annual targets for implementation of key project activities such as electronic management information system (eLMIS) deployments, health facility staff training, transitioning project activities to MOH, and incorporating new system enhancements.



Abraham Banda, Systems Implementation and Support Officer and Mekbib Adgeh Lead Software Developer for the USAID eSCMIS project.

eLMIS Facility Edition Deployment

The FY21 target for eLMIS facility edition (FE) deployment was 400 health facilities. Despite having only started deployment activities in the second quarter of the year, the USAID Electronic Supply Chain Management Information System (eSCMIS) project deployed to 430 sites, exceeding the set annual target by 8%. Ministry of Health (MOH) in Central Province deployed an additional three facilities under the government-to-government (G2G) funding, making a total 433 sites deployed in FY21. This increased the number of active eLMIS FE sites to 1,102, representing approximately 40% of the total active public health facilities in the country and approximately 87% of the PEPFAR TX curr is reported at these 1,102 facilities.

System Enhancements

The countrywide system requirements assessment conducted in FY20 resulted in elicitation of 243 user stories/requirements for incorporation into the eLMIS. At the beginning of FY21, the project set out to incorporate a target of 61 user stories/requirements into eLMIS. By the end of

Q4, 90 (148%) user stories were completed. The overall life-of-project completion rate stands at 37%.

Sustainability and Transition of Project Activities

The key activities under sustainability and transition hinge on capacity building for the MOH staff to take over project activities by 2025. As part of this, two key activities associated with eLMIS implementation are deployment of the computer infrastructure, electricity backup systems, and software; and training health staff on the use of eLMIS to manage health commodities. The project set FY21 targets for MOH-led deployments at 35%, and training at 50%. During FY21 eLMIS deployments, MOH led the installation of computer networks at 35% of the sites deployed, and led training in 74% of the health facilities. A total of 2,450 MOH staff were trained during deployment and technical supportive supervision (TSS) visits, registering an activity progress rate of 175% against the targeted 1,400. Of these people trained, 89% were trained by MOH staff. The high rate of OJTs completed by MOH champions, super-users, and peers indicates tremendous progress toward attaining the desired sustainability in MOH capacity building.

Initiation of IMPACT Teams

Although implementation of the Information Mobilized for Performance Analysis and Continuous Transformation (IMPACT) teams were significantly delayed as a result of a lengthy approval processes at MOH, the project-initiated formation and first meeting of the teams at national, provincial and district levels. By the end of FY21, staff from 32 districts out of the 116 districts in the country had been trained and held the first inaugural meeting, with two provinces fully completed.

TV White Space Pilot Approved

The project and MOH managed meet with the Zambia Information and Communication Technology Authority (ZICTA) and secured approval to conduct a pilot in two facilities to test TV White Space. By the end of FY21, the MOH was following up on an official letter to begin the pilot. This will significantly contribute to evidence on the feasibility of implementing this public-private partnership to improve low-cost internet access at rural health facilities.

There were challenges to project work this year. The project continued to grapple with COVID-19 operational restrictions impeding deployment, technical support, supervision, and monitoring and evaluation activities. For result areas 2 and 3, some activities did not progress as planned, owing to a lengthy external approval process by MOH for the IMPACT team strategy, whereas software development training, eLearning module, and eLMIS analytics subcontracts were discontinued due to a cut in funding from USAID. This resulted in poor performance for a few of the project indicators, as highlighted in Annex B: Progress Summary. Nonetheless, with the easing of travel restrictions and adherence of strict COVID-19 field safety measures, and increased involvement of MOH staff in the project activities, it was possible to meet and exceed annual targets for a number of key activities.

PROJECT OVERVIEW

The five-year USAID eSCMIS project builds on the success of the present electronic logistics management information system (eLMIS) in Zambia, which was originally established by John Snow, Inc. (JSI) with support from USAID DELIVER and SCMS projects, in partnership with the Ministry of Health (MOH), Zambia Medicines and Medical Supplies Agency (ZAMMSA), and other key supply chain partners. John Snow Health Zambia Limited (JSH)¹ is mandated to support the transition of the eLMIS into the next-generation logistics information system through the USAID eSCMIS project. JSH is the prime contractor on the USAID eSCMIS project, with JSI and Churches Health Association of Zambia (CHAZ) as subcontractors.

The USAID eSCMIS project is supporting the Government of the Republic of Zambia (GRZ) and the MOH to improve supply chain efficiency through digitalization and ensuring sufficient quantity and quality of essential medications, laboratory commodities, and malaria, HIV, and family planning products are available at health facilities in Zambia. This objective is aimed at fostering a supply chain that is safe, secure, reliable, and sustainable.

The project envisions a health logistics system that is fully automated from central to facility level and is well-suited to Zambia's challenges. The primary objective of the USAID eSCMIS project is to ensure that the eLMIS is not only cutting-edge, but also improves supply chain visibility to support enhanced decision-making, increases accountability, and is locally owned and GRZ-controlled.

As the GRZ adopts electronic technologies, particularly eLMIS, the public health policy environment in Zambia is supportive of the eLMIS. The National Health Strategic, Plan (2017–2021), the eHealth Strategy (2017–2021), and the Health Sector Supply Chain Strategy (2018–2021) all contain this commitment. As these are updated in 2022, the project will continue to advocate for inclusion of electronic technologies.

Project Objectives

1

Implement a next-generation eLMIS

2

Enable GRZ to make data-driven supply chain decisions independently

3

Begin transfer of eLMIS leadership to ensure GRZ can take ownership of its data and reporting systems

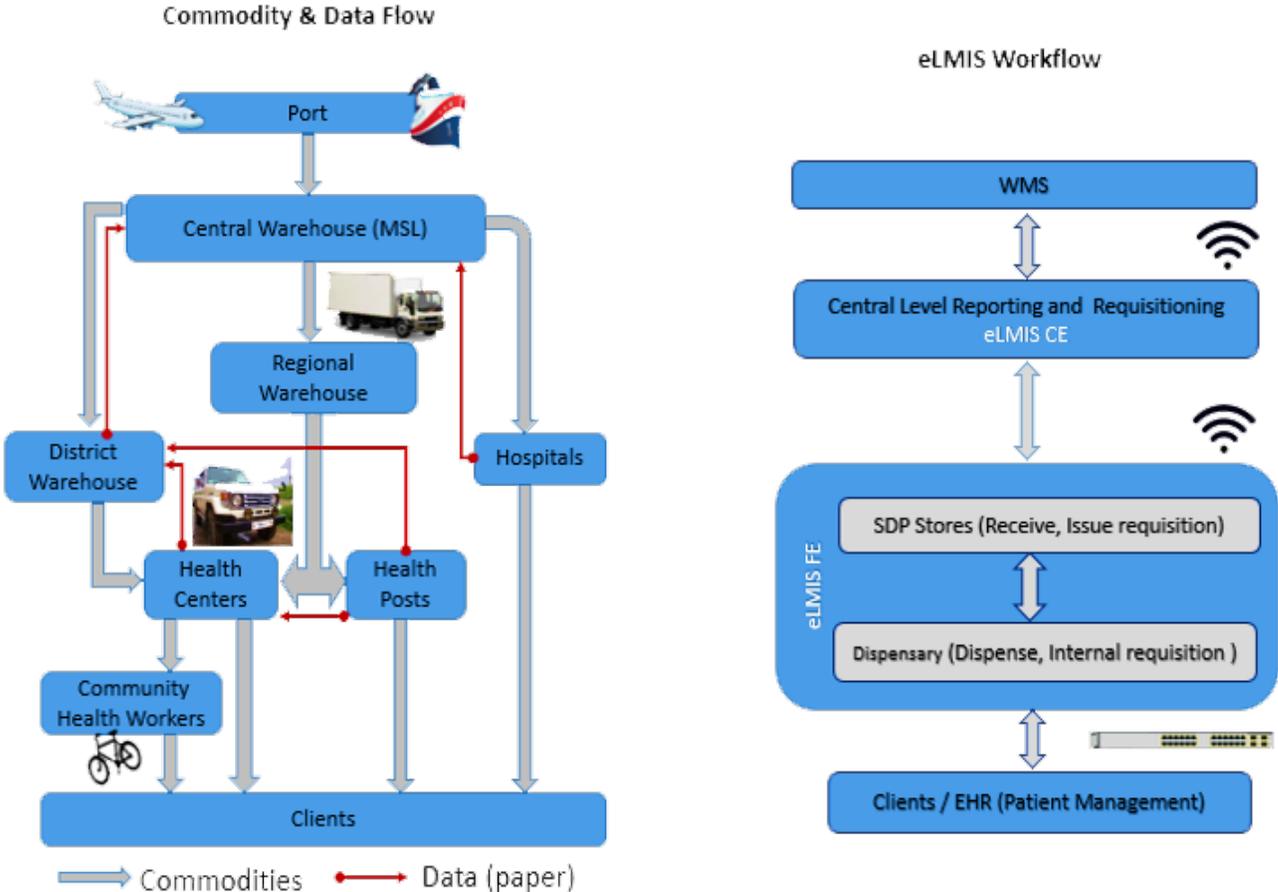
¹ The company is registered as Coalition Health Zambia Limited. Its trading name is John Snow Health Zambia Limited.

BACKGROUND

Overview of the Zambian Supply Chain

Zambia's supply chain has been digitized since 2014. Its (approximate) 2,800 health facilities are located in 116 districts and 10 provinces. Some of these facilities manage their inventory and order products through the eLMIS facility edition (FE), which is linked to the Central Edition (CE) that is used nationally for order management and resupply. At the end of the month, the data are aggregated and a report and requisition (R&R) is generated and sent to the eLMIS CE for resupply. Facilities without eLMIS FE complete a paper-based R&R that district personnel enter into the eLMIS CE. All R&Rs in CE are resupplied from the ZAMMSA, where the Commodity Security Centre reviews, approves and converts them into an order that is entered into WHXpert, the warehouse management system (WMS). CHAZ, an MOH partner, also holds and supplies goods via a separate pharmaceutical warehouse. eLMIS FE is installed in over 90% of CHAZ's faith-based-connected health facilities. Figure 1 shows the Zambia supply chain business process.

Figure 1. Zambia Supply Chain Business Process



The Electronic Logistics Management Information System

After a thorough review by MOH and supply chain partners, including a system audit by the GRZ auditor general, the eLMIS was chosen to be the national electronic logistics system. Some of the factors that may have contributed to its selection are its user-centered design, functionality, scalability, and sustainability. The GRZ, USAID, and JSI had already rolled out a nationwide eLMIS CE covering all 2,800 of the GRZ's health facilities, with over 1000 fully computerized using the eLMIS FE as part of the USAID DELIVER PROJECT and Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree) project.

Since the implementation of eLMIS, there have been considerable supply chain performance improvements, with an average of 6.8% increase in reporting rates; 17.8% increase in overall commodity availability; and a reduction in expiries, according to an evaluation conducted by AIDSFree in 2018. Moving to "real time" stock visibility, integrating with SmartCare, rapid deployment of FE to every site, boosting MOH managers' usage of eLMIS for supply chain decision making, and implementing additional data quality validations are all prospects for future upgrades. With the closure of AIDSFree, the USAID eSCMIS project continued the efforts to roll out FE to additional facilities, improve data quality validations, and integrate SmartCare. When the MOH informed all stakeholders that eLMIS had been chosen as the national electronic logistics system in January 2019, GRZ expressed commitment to maintain and use the system.

On January 14, 2020, the USAID eSCMIS project was launched. The USAID eSCMIS project's strategic goal is to ensure that a sufficient quantity and quality of health commodities are accessible at health facilities to fulfill demand, resulting in increased use of health services, reduced disease burden, and improved quality of life for Zambians. The consortium is collaborating with the MOH to develop a next-generation eLMIS that the GRZ can administer and manage autonomously.

INTRODUCTION



Martha S. Musonda, Mirriam Mwila & Mukumbi Kabeshe, Pharmacists at University Teaching Pediatrics Hospital

Despite a late start due to COVID-19 constraints, the project made great progress in the implementation of operations in FY21. In collaboration with the MOH, the project began the deployment of eLMIS FE to new health facilities in all 10 provinces, with advanced planning in equipment purchase and site selection. At the end of FY21, the eLMIS FE had been deployed to 1,102 health facilities. Of 433 deployments completed in FY21, 35% were entirely deployed by MOH, and the remainder were a collaboration between project staff, MOH champions, and MOH super-users². The project has continued to convert the software into the next-generation eLMIS through an

MOH-led change control process and regular updates, with 90 user stories (software enhancements) of the 243 planned for the project's lifespan completed. Furthermore, through mentorship during activities such as system updates, deployments, and technical support, the project has significantly strengthened the ability of provincial and district MOH professionals to support to the system.

The USAID eSCMIS project started FY21 by ensuring that essential FY20 activities that had been postponed due to COVID-19 were completed. All FE sites were upgraded from eLMIS version 3.8 to the current web version, and the IMPACT team strategy was approved by the MOH and initiated by the project in 32 districts.

Although key activities from FY21, such as the deployment of eLMIS FE to new sites across the country, were on halt at the start of the year due to the COVID-19 travel restrictions, the project made significant progress in preparing for rapid deployment, including profiling target facilities based on accessibility or proximity to the district health office; and availability of eLMIS champions, on-grid electricity supply, and mobile internet coverage. As COVID-19 restrictions eased, the project made steady progress on critical project tasks that had been hampered.

Furthermore, despite limitations such as a number of MOH champions restricted by the geographical spread of the deployments, the USAID eSCMIS project continued to build capacity and expand the pool of competent MOH personnel.



Kaluwila Chingembu & Martin Nyirenda, Bulk Store Pharmacists at Levy Mwanawasa University Teaching Hospital

² An eLMIS user is defined as a user who has been trained in eLMIS use; an eLMIS super user is defined as a user who is able to provide some key support to eLMIS users; and an eLMIS champion is defined as a user who is fully competent in all support and deployment of eLMIS and can do this work independently of the project.



INTERMEDIATE RESULT (IR) I: IMPLEMENTATION OF THE NEXT-GENERATION eLMIS

The next-generation eLMIS is expected to be an advanced suite of digital tools that will revolutionize health commodity management. By automating inventory management at health facilities, commodities can be tracked from the central warehouse to consumers at service delivery points across Zambia. The elimination of courier services from the health facility reporting process not only improves reporting frequency and timeliness, but also provides opportunities to reduce the resupply lead time. The resultant improvement in supply chain visibility reinforces equitable distribution of resources, reduces wastage, and promotes universal health coverage. However, limited availability of electricity and internet connectivity in some rural target facilities is a bottleneck to accelerated scale-up of this initiative.

By digitalizing health facility reporting, communication with the central warehouse at ZAMMSA became much easier and faster, improving service delivery across the vast country and its 1,102 eLMIS FE sites.

FY21 Planned Interventions

- Deploy eLMIS FE to 400 new health facilities.
- Upgrade existing eLMIS FE sites to version 4.
- Incorporate enhancements and upgrades to eLMIS generated from the systems assessment.
- Provide continuous technical support and supervision to health facilities with eLMIS FE and using eLMIS CE.
- Conduct monitoring and evaluation assessments or visits to all eLMIS FE health facilities.

1

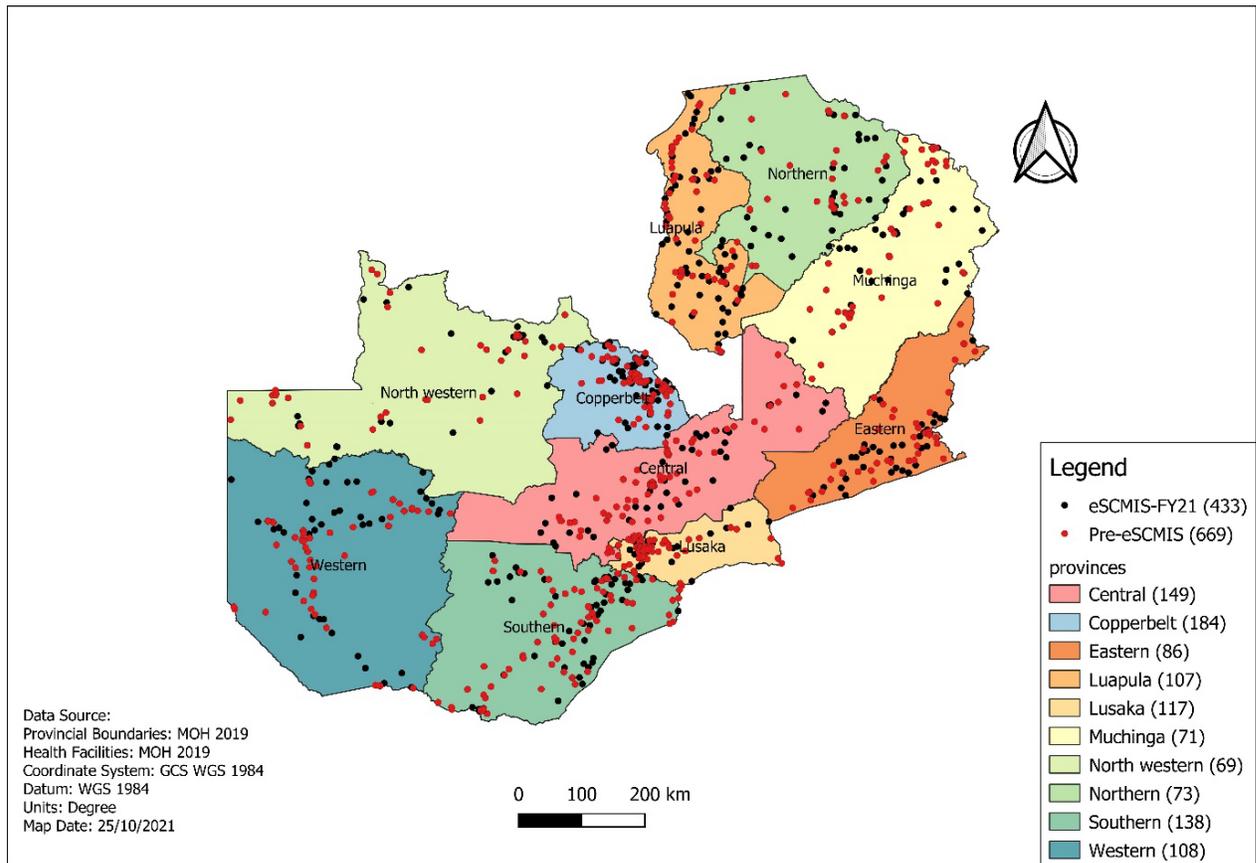
eLMIS FE DEPLOYMENT

There were numerous challenges in FY21 including two waves of COVID-19, subsequent travel bans, and presidential and parliamentary elections resulting in a period of no-travel to allow voting and ensure safety in case of violence. However, with safety measures put in place for COVID-19 travel and a peaceful transition of governments, the project achieved 108% completion of eLMIS FE deployments exceeding its target, with 430 health facilities deployed by the project to compared to the planned 400. An additional three facilities were deployed by GRZ using G2G funding and staff support in Q1, resulting in a total of 433 facilities deployed in FE in FY21. This increased the number of active eLMIS FE sites to 1,102, representing approximately 40% of the total active public health facilities in the country and approximately 87% of the PEPFAR TX curr is reported at these 1,102 facilities. Table 1 shows deployments from pre-eSCMIS to the end of Q4. Figure 2 shows this data on a map.

Table 1. eLMIS FE Health Facility Deployment Update (FY21)

Province	Pre-eSCMIS	Sites deployed in Q1 (G2G)	Sites deployed in Q2	Sites deployed in Q3	Sites deployed in Q4	Total number of sites with FE deployed
Central	94	3	3	23	26	149
Copperbelt	111		13	30	30	184
Eastern	49	-		17	20	86
Luapula	51		4	29	23	107
Lusaka	96		9	11	1	117
Muchinga	42		2	9	18	71
Northern	35	-		15	23	73
North Western	42		2	24	1	69
Southern	82		2	29	25	138
Western	67	-		20	21	108
TOTAL	669	3	35	207	188	1,102

Figure 2. eLMIS FE at 1,102 Health Facilities



SYSTEM ENHANCEMENTS

The countrywide system requirements assessment conducted in FY20 resulted in elicitation of 243 user stories/requirements for incorporation into the eLMIS. The project achieved 148% completion of the targeted number of system enhancements, exceeding its initial target for enhancements for FY21. With the planned number of enhancements set at 61 for the year, 90 were completed by the end of FY21. In addition to this, several reported system bugs were worked on and additional enhancements deployed during the year to ensure smooth functioning of the system and uninterrupted reporting for health facilities. The fiscal year's completion rate represents 37% of the life-of-project target for enhancements. The MOH-led Change Control Board (CCB), which includes participants from MOH, ZAMMSA, and other supply chain partners, reviews and approves all enhancements and changes. When the system changes were complete, the project showcased them through seven webinars for users and stakeholders. Table 2 summarizes 10 enhancements completed in Q4FY21 for eLMIS CE and FE. The full list of enhancements is in Annex C.

Table 2. System Enhancement Summary, by Level

System type	Enhancement/feature	Description
eLMIS CE	1. CE dashboard filters by level	A filter on CE allows data to be summarized by selected level of system
	2. View dashboard and review consumption at district health office (DHO)	Access to a consumption dashboard at DHO level
	3. Track commodities nationally in the pipeline	Access to product pipeline at national level for commodity planning purposes
	4. Convert R&R to PDF and Excel	Ability to convert health facility R&Rs to both PDF and Excel formats
eLMIS FE and CE	5. Electronic supply voucher and GRN	Health facilities able to receive an electronic supply voucher and a goods received note (GRN).
eLMIS FE and CE	6. Electronic delivery note	Health facilities able to receive an electronic delivery note
eLMIS FE	7. View stock out days in FE	Ability to see the number of days a product has been stocked out for a period under review
	8. Include disaggregated data per HIV test group	A report that gives HIV status disaggregated by age at FE level
	9. Generate stock status report	Ability to populate a product stock status for the health facility stock on hand
	10. Allow comments for late reporting	Include as part of the report submission a section for remarks on why a report was late

TECHNICAL SUPPORT AND SUPERVISION

The USAID eSCMIS project was no exception when it came to adapting to COVID-19-prevention and mitigation protocols. Tasked with, among other activities, providing hardware repairs to eLMIS FE facilities, the project’s information communication and technology (ICT) department devised an ingenious way to repair equipment without in-person visits. Using the organization’s courier system, faulty equipment was sent for repairs, fixed, and returned to facilities. By the time travel restrictions eased, 34 pieces of equipment had been repaired and returned to health facilities, reducing system down time.

During this period, system technical supportive supervision (TSS) was also offered remotely through a toll-free call center linked to customer relations management system and TeamViewer and AnyDesk software. This became the major support system for existing and new eLMIS FE sites. Table 3 shows the details of the TSS activities in Q4.

Table 3. Summary of Issues Reported and Resolved in Quarter 4, by Category

Category	Equipment	Software	Network	Training	Internet	Other	Overall resolution rate total
Issues reported of total	22 (6%)	142 (41%)	31 (9%)	76 (22%)	20 (6%)	57 (16%)	348
Issues resolved by category	13 (59.1%)	123 (86.6%)	18 (58%)	74 (97.4%)	14 (70%)	50 (87.7%)	292 (84%)

MONITORING, EVALUATION, AND LEARNING

By the end of Q3, 244 health facilities had eLMIS FE. Of these, 165 were visited through virtual monitoring and evaluation (M&E) assessments via phone with remote access to facilities using AnyDesk and TeamViewer software.

The focus of the virtual assessment was to determine how newly deployed sites were adapting to using eLMIS FE to complete transactional processes, document challenges, and gather key lessons to improve future deployment activities. This provided feedback on the performance of the system’s ability to update records, and inventory management practices at the health facilities.

INTERMEDIATE RESULT (IR) I

CHALLENGES AND LESSONS LEARNED

CHALLENGES

While the project adapted to the new way of implementing project activities, the MOH health facility took longer to adapt to receiving remote support. Even with proactively communicating about the project changing to remote assistance due to COVID-19, a number of calls to the project for physical visits to resolve hardware faults associated with network and equipment were made during the second and third waves of COVID-19 pandemic. Although the project responded with the remote support and the courier system for faulty equipment, the project learned during the M&E visits that health facility staff perceived the lack of project staff on the ground as a poor support system for eLMIS.

LESSONS LEARNED

Adequate preparation and strict adherence to pandemic safety regulations allowed staff exceed their annual targets without any recorded COVID-19 infection.

Adaptations for activity implementation was critical successful implementation. The ICT team developed an alternative way to receive equipment for repairs from health facilities through courier, while the MEL team conducted virtual M&E assessments to 235 health facilities via phone and remote access tools at a fraction of the cost of in-person visits. Effective change management is required to help MOH staff adapt to the new way of seeking and receiving support.



INTERMEDIATE RESULT (IR) 2: GRZ ABLE TO INDEPENDENTLY MAKE DATA-DRIVEN SUPPLY CHAIN DECISIONS

Data are only as useful as the decisions that can be made from them. eLMIS FE and CE were designed and implemented to automate the facility-level data capture, and make supply chain data visible at facility, district, provincial, and national levels for key decision making. With end-to-end logistics a reality, eLMIS gives program managers and policy makers from MOH and implementing partners access to supply chain data and analytics such as reporting rates, consumption/issues data, stock status, expiries, losses and adjustments of commodities, and a number of other statistics for decision making.

With the interaction of eLMIS FE and CE, data can be accessed at different levels for varying uses in program management. District and provincial health staff can use it to manage product redistribution to prevent stock outs, overstock, and wastage through expiries or losses. This enables an order and supply process that enhances accountability of public and donor resources used to procure health commodities and ensure availability for clients.

FY21 Planned Interventions

- Ensure the harmonization of different health information systems.
- Transform data into consumable information at all levels of the health system.
- Introduce IMPACT teams to ensure that information is consumed and analyzed at all levels of the health system; decisions are made based on these analyses; and decisions are turned into action

2

SYSTEMS HARMONIZATION

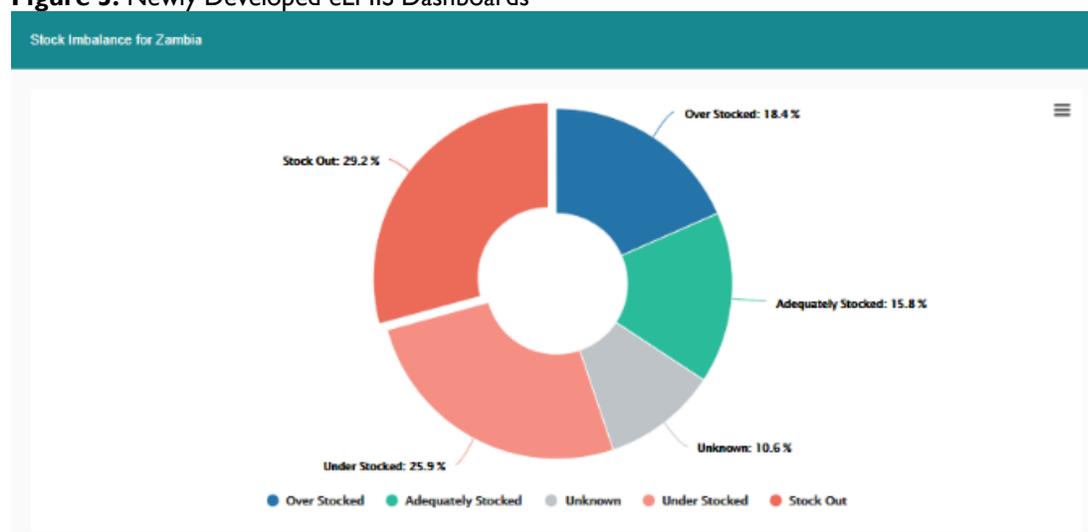
The project integrated eLMIS and SAGE following conversations with USAID, ZAMMSA, MOH, GHSC-PSM. The integration was developed, tested and ready for implementation. Just as the integration was ready to go live on June 14, the process was halted by ZAMMSA until the business processes and staff training were aligned. USAID then requested for WHXpert to be interfaced with eLMIS. Requirements were gathered and the WHXpert team provided costing. The project also developed costing as this was not in the original workplan. The consortium has agreed in principle on this new integration pending financial resources. This subject is an ongoing topic in the monthly CCB meetings.

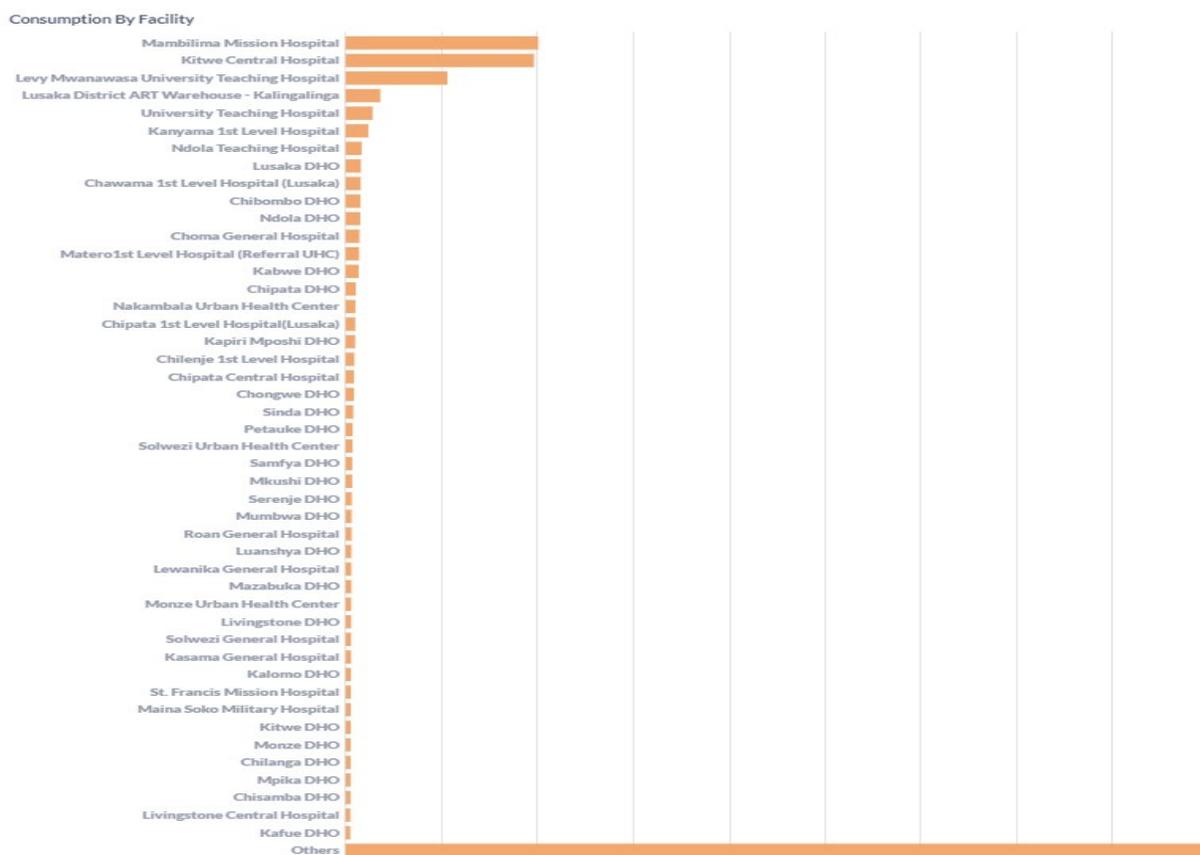
Additionally, after following up for most of FYs 2020 and 2021, BroadReach/CDC shared an update on development of a web-based SmartCare version, indicating willingness to restart integration activities with eLMIS. With the transition of the SmartCare management to a new partner, this activity will be reignited in FY22.

ENHANCED DASHBOARDS AND ANALYTICS

In FY21, the project enhanced the FE and CE software with key dashboards and analytics to increase use of the eLMIS data for decision making. The project has continued to have bi-weekly meetings with GHSC-PSM and has incorporated some key reports into CE. So far, the consumption and reporting timeliness have been completed, among other reports. Figure 2 depicts two new dashboards with national stock status and consumption patterns by facility which will be used in the newly initiated IMPACT teams and key partners such as GHSC-PSM.

Figure 3. Newly Developed eLMIS Dashboards





FORMATION OF IMPACT TEAMS

The IMPACT team strategy aims to improve data use and accountability for public resources through medicines and other health commodities supplied to service delivery points. The formation of district, provincial, and national IMPACT teams was guided by an MOH-approved strategy. In Q3, the project initiated the national IMPACT team meeting and trained all eLMIS champions and super-users on the functionality of the IMPACT teams. In Q4, the project used the eLMIS champions and super-users to initiate district level training to improve MOH staff capacity to use eLMIS data to make supply chain decisions. Of 116 districts in 10 provinces, staff from 32 districts and two complete provinces were trained and these districts held the inaugural IMPACT team meeting with the help of the project. These teams will be pivotal to continuing the district and provincial level IMPACT teams to improve data use.

INTERMEDIATE RESULT (IR) 2

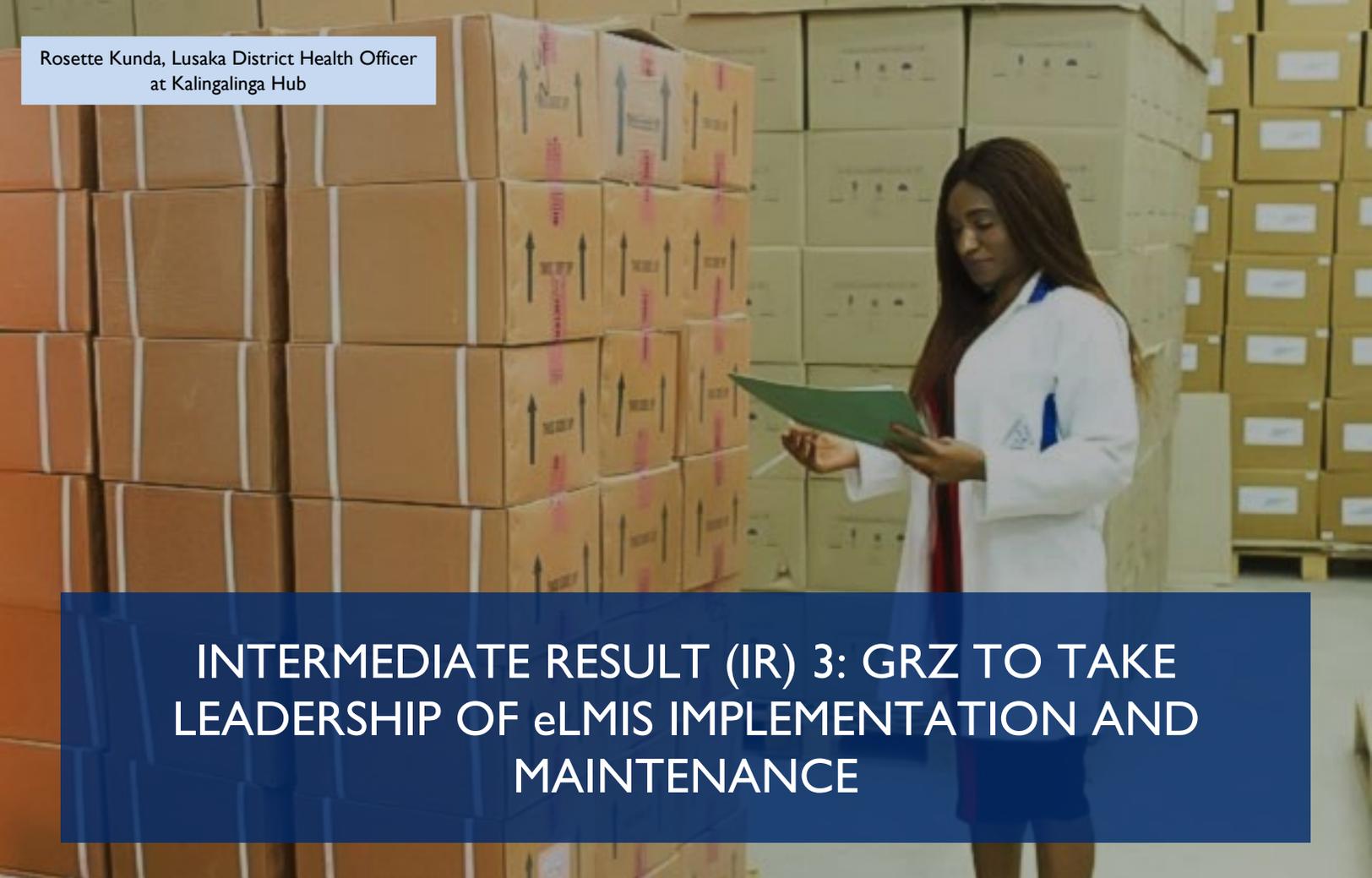
CHALLENGES AND LESSONS LEARNED

CHALLENGES

There were a number of key challenges under this result area. Integration of health information systems was stalled due to funding (in the case of the ZAMMSA WMS) and transition of an implementing partner (in the case of SmartCare). Additionally, there was delayed approval of the IMPACT team strategy by the MOH due to their prioritization of COVID-19 activities. This resulted in the project completing 32 of the targets of 58 (55%) IMPACT team meetings in FY21. This delay had a domino effect on completion of other planned activities, such as success stories documented by IMPACT teams, that were dependent on the formation of the IMPACT teams as the first stage. Additionally, the District Health Directors (DHD) have not attended the IMPACT team launch meetings and thus team constitution following the inauguration is lacking.

LESSONS LEARNED

Continuous communication with USAID and other implementing partners is critical to ensure harmonization of health information systems. The project is working with the DHDs to ensure they delegate leadership for the IMPACT teams to other team members in the district if the DHD is unable to attend the meeting.



INTERMEDIATE RESULT (IR) 3: GRZ TO TAKE LEADERSHIP OF eLMIS IMPLEMENTATION AND MAINTENANCE

The government taking over leadership of the eLMIS project activities is the main focus of the Sustainability and Transition Plan. Key to achieving this is consistent involvement of MOH staff in deployments, on-the-job training (OJT) and TSS at provincial and district levels throughout the life of the project. The USAID eSCMIS project has over the last two years worked with MOH champions and super-users and built their capacity to deploy and provide technical support to health facilities. These activities have increased MOH participation in eSCMIS activities.

The first set of IMPACT team meetings was initiated in 32 districts and two provinces. These meetings aim to improve use of information accessed through the eLMIS to make informed supply chain decisions and are a sustainable approach to creating a culture of data use. The IMPACT teams comprise MOH staff, eLMIS champions and super-users, and other key supply chain stakeholders.

FY21 Planned Interventions

- Update the Sustainability and Transition Plan to enhance the capacity of GRZ to own and operate the eLMIS.
- Implement key activities from the Sustainability and Transition Plan.
- Identify and initiate public-private partnership (PPP) opportunities for GRZ to increase financial sustainability.
- Establish external collaboration with other donors and supporters to ensure the transition of system ownership.

SUSTAINABILITY AND TRANSITION PLAN

The Sustainability and Transition Plan was approved by MOH. The Procurement and Supply Chain technical working group (TWG) meeting was held during Q3, with key recommendations in support of the implementation of the Sustainability and Transition Plan. The TWG resolved to establish subcommittees, led by MOH, to oversee key supply chain activities such as quantification and electronic systems that are instrumental in enhancing the use of data for decision-making. This is expected to improve central-level coordination for Sustainability and Transition Plan implementation. Subsequently, the Sustainability and Transition Plan was approved by the MOH and USAID in Q4. The project began setting the stage for implementation of some of the key activities centered on transfer of technical skills from project to GRZ.

- **MOH DEPLOYMENTS**

USAID eSCMIS project effort to build capacity and transfer skills to MOH grew steadily in FY21. With the annual target set at 35%, MOH reached this target, with 151 of the 433 health facilities deployed independently by MOH champions and super-users at district and provincial levels. With this achievement, the project hopes to increase the MOH footprint in project activities across the country in line with the gradual transition outlined in the Sustainability and Transition Plan. The smooth handover of maintenance and support activities for the eLMIS is key to the success of the USAID eSCMIS project.

- **MOH TRAINING**

Of the 2,450 health facility staff trained, 89% were trained by MOH staff during deployment and TSS activities. The project exceeded the FY21 target of 50%. During the year, TSS for eLMIS was a collaborative effort between the MOH staff and USAID eSCMIS project staff.

PUBLIC PRIVATE PARTNERSHIPS

In FY21 the first PPP was approved. The project and MOH managed meet with the Zambia Information and Communication Technology Authority (ZICTA) and secured approval to conduct a pilot in two facilities to test TV White Space. By the end of FY21, the MOH was following up on an official letter to begin the pilot. This will significantly contribute to evidence on the feasibility of implementing this public-private partnership to improve low-cost internet access at rural health facilities.

INTERMEDIATE RESULT (IR) 3

CHALLENGES AND LESSONS LEARNED

CHALLENGES

The number of MOH champions with an IT background to support network deployment for eLMIS has been a major obstacle to increasing MOH capacity in eLMIS networking. Since the MOH protocol demands that only provincial-level IT can work on IT infrastructure, district ICT officers cannot be trained to deploy or increase the number MOH IT champions.

LESSONS LEARNED

Networking among MOH staff, it will be imperative to appeal to MOH at national level to allow district ICT officers to support the management of ICT infrastructure for the provinces. In early FY22, the project will do engage with MOH to adapt policies to accomplish this.

LOOKING FORWARD

The USAID eSCMIS project has reviewed processes, procedures, learnings, and successes from FY21. The project achieved key deliverables amid significant challenges caused by COVID-19 and changes in Zambian government counterparts causing disruptions and delays. Using innovative technological approaches and management, the project will continue to complete deliverables and adapt to changes in the environment.

In FY22, the USAID eSCMIS project will continue working closely with USAID and adjust the work plan to reflect any changes. The project is still waiting for feedback from USAID on the dramatic change in the exchange rate, which has reduced the project's ability to complete activities with the current funding. Prior to the exchange rate change, the project had earmarked the following activities for FY2022. It is important to note that these activities could change following discussion with USAID about the budget against the new exchange rate.

Objective 1: Implement a next-generation eLMIS

- Use agile software development methodology to incorporate agreed enhancements and changes into eLMIS software suite.
- Rapidly deploy eLMIS FE and training to 350 new health facilities.
- Provide strategic TSS to sites with FE and CE users.
- Provide continuous monitoring, evaluation, and learning (MEL) activities and adapt interventions to overcome challenges and maximize opportunities.
-

Objective 2: Enable GRZ to make data-driven supply chain decisions independently

- Ensure harmonization of different health information systems.
- Transform data into consumable information at all levels of the health system.
- Through IMPACT teams, ensure data are analyzed at all levels of the supply chain, resulting in data-driven decisions and actions.
-

Objective 3: Continue transition of eLMIS activities' leadership to MOH, and ensure GRZ is able to take ownership of its data and reporting systems

- Update and implement the sustainability and transition plan to enhance the capacity of the GRZ to own and operate the eLMIS.
- Implement key activities from the sustainability and transition plan.
- Continue initiating PPPs between GRZ and private companies to increase financial responsibility.
- Establish external collaboration with other partners and donors, nationally, regionally, and internationally.

INTEGRATION OF CROSS-CUTTING ISSUES AND USAID FORWARD PRIORITIES: ANNUAL SUMMARY

Management and administrative issues

JSH, a relatively new organization, has worked closely with its management partner JSI to develop business systems, organizational structures, and leadership approaches to ensure it is a robust and sustainable local entity. With this support, JSH has had another successful year of implementing the USAID eSCMIS project, despite challenges discussed below.

The project has received significantly less funding than what was approved in the contract signed on 13 January 2020. In PYs 1 and 2, the project received \$6.9 of the \$10.6 million budget approved in the contract for these years. Although the project completed many deliverables, other activities were delayed or cancelled due to the \$3.7 million funding reduction. These include, but are not limited to: 1) completion of deployment of eLMIS FE to 1,000+ health facilities by the end of PY3; 2) cancelation of the eLMIS analytics subcontract; 3) cancelation/postponement of critical sustainability activities such as the eLearning module, software developer bootcamp, and provincial-level IMPACT teams. The USAID eSCMIS project has communicated this to USAID and is discussing a contract modification in the Performance-Based Work Statement that will show the change in the scope versus the total actual obligation.

Gender equality and female empowerment

The USAID eSCMIS project Gender Integration and Social Inclusion Plan was approved by USAID in FY20. Using the focus areas of the plan as a guide complimenting the project's internship policy, two female graduate students completed their software development internships, gaining valuable skills in eLMIS software programming and testing. The project has maintained progression toward 50% gender-balanced workforce, with women at 37% in FY21, up from 28% in FY20. During the system upgrades, the project noted an increase in female-led MOH teams; five of the II upgrade teams were led by female MOH champions. The project will continue encouraging female leadership among MOH champions and super-users.

Sustainability mechanisms

The Sustainability and Transition Plan was designed to guide gradual transition of critical skills and knowledge to support management of eLMIS project activities to MOH. This plan was updated and approved by MOH and USAID in FY21. During FY21, progress continued as both MOH-led system deployments met and exceed targets for LAN and OJT led by MOH.

Environmental compliance

Using the guidance of Environmental Monitoring and Mitigation Plan, which was approved by USAID in FY20, all 433 deployed sites were oriented to e-waste management protocols for all

equipment received for the eLMIS. In FY22, eLMIS FE will include e-waste guidelines through the “help” menu for ease of reference by health facility staff.

Youth development

The project finalized an internship plan during FY21 and engaged two interns in software development and testing. The plan maps a strategy for providing continuous IT and software development internships to students and graduates from institutions of higher learning in Zambia.

Policy and governance support

The MOH-approved Sustainability and Transition Plan serves as a guide for project activity takeover by the MOH and is updated annually. Additionally, MOH approved the IMPACT team Strategic Plan to allow the project to commence IMPACT team meetings.

Local capacity development

The USAID eSCMIS project completed eLMIS FE migrations at all FE facilities using MOH-led teams while the monitoring and supporting remotely. As a result of this activity, three additional MOH staff were trained as eLMIS champions, bringing the total to 101 staff who can conduct eLMIS FE deployment, migration, and TSS.

The USAID eSCMIS project also trained 25 MOH eLMIS champions in the use of the Customer Relationship Management software following the launch of its portal. The purpose of the training was to give MOH skills to use the portal to report health facilities issues and complete required facility activity reports as part of final documentation for a newly deployed site.

Public-private partnership and Global Development Alliance impacts

The project engaged in key discussions for potential PPPs over the last two years in areas of solar, TV White Space and energy. Before the close of FY21, approval for the pilot phase of TV White Space was given by ZICTA, a key technology partner regulating telecommunications in Zambia.

Collaborating, learning, and adapting

The project, in collaboration with ZAMMSA, worked on the MOH virtual budget to finalize product cost estimates using eLMIS consumption data collected over a period of five years (2016–2020). The cost estimates were included as an input to the MOH annual planning and budgeting exercise. The addition of a cost component to products consumed at health facilities is intended to improve efficiency and accountability and reduce wastages.

During the year, the project participated in a regional supply chain coordinating meeting organized by USAID Global Health Supply Chain- Procurement Supply Management (GHSC-PSM), CCB meetings, HIV technical summit, MOH virtual budgeting for costing health commodities through consumption data from eLMIS, and M&E community of practice meetings for USAID partners.

ANNEXES

- Annex A. eLMIS Enhancement Status
- Annex B. Success Stories

ANNEX A. eLMIS ENHANCEMENT STATUS

Refn	Enhancement	System	Status
Theme: Supply Chain (80 enhancements: 30 completed, 2 in progress, 48 not started)			
653	1. Multi-month dispensing visibility	Both	Not started
647	2. Restrict skip function	CE	Complete – Q1FY21
506	3. Inter-facility transfers request visibility	FE	Not started
483	4. Process and prepare pick list at hubs	Hub	Not started
371	5. Include voucher number on adjustments to or from other districts	FE	Not started
323	6. Aggregate district reporting rate notification	CE	Complete – Q2FY21
295	7. Keep products that have not reported in 3 months as active	CE	Complete – Q2FY21
284	8. CE dashboard filters by level	CE	Complete- Q4FY21
266	9. Laboratory and HIV test stock imbalances dashboard	CE	Complete – Q1FY21
231	10. Additional dashlets: list of all facilities, % reporting rate by district, etc.	CE	Complete- Q4FY21
84	11. Status of recalled batches	Both	Not started
80	12. Pharmacovigilance reports	Both	Not started
79	13. Consumption capture at satellite sites and updated at parent	FE	Not started
17	14. All data fields from R&R on non-full supply commodities	CE	Not started
612	15. Uncheck tracer drugs between FE and CE	CE	Not started
583	16. Allow facility to check stock status of other facilities for redistribution	Both	Not started
521	17. Separate provision for tracer drugs stock status	Both	Complete- Q4FY21
505	18. Integrate TB drug management	Both	Not started

463	19. Notify district when new products received at ZAMMSA via CE	CE	Not started
457	20. Emergency orders only for commodities needed and not all items	CE	Not started
435	21. Proof of delivery between facilities in a district when transferring	FE	Not started
408	22. Do not let R&R be generated without physical counts for all items	FE	Complete – Q2FY21
351	23. Drop-down menus when overriding calculated order with reasons	CE	Not started
334	24. Provincial notification when emergency orders are placed/approved	CE	Not started
298	25. Edit non-supply column to order for facilities	CE	Complete – Q2FY21
291	26. Link similar products for alternative supply when one is out of stock	CE	Not started
265	27. Link eLMIS and SmartCare at facility level	Both	In progress
146	28. Include page for ordering logistics forms in R&Rs	Both	Complete – Q1FY21
128	29. Search button in CE for searching for reports	CE	Not started
90	30. Limit number of units a facility can enter for some commodities	CE	Not started
35	31. View daily stock status at facility level for all facilities	Both	Complete – Q1FY21
649	32. Link hub WMS with eLMIS	CE	Not started
629	33. View storage and product handling requirements	Both	Not started
462	34. Automated remote storeroom temperature monitoring linked to cell phone	CE	Not started
350	35. Remove clinical return from adjustment options	Both	Complete – Q1FY21
157	36. Group product codes by description and not batch number	Both	Not started
85	37. Real time physical position visibility	Both	Complete- Q4FY21
258	38. Hub deliver to last mile	Hub	Not started
517	39. View all drugs recalled by ZAMRA for follow up	CE	Not started
636	40. View all electronic stock control cards for facilities at district level	FE	Not started
464	41. Visibility of parent site stock levels at satellite sites	FE	Not started
379	42. FE for district to track commodities received at DHO and issued to facilities	FE	Complete – Q1FY21
458	43. Refresher trainings in eLMIS	Both	In progress

368	44. Create user and troubleshooting manuals in pdf and Android	Both	Not started
348	45. Forum for users to share experiences and lessons	Both	Not started
628	46. Generate invoices from district to facilities	Both	Complete – Q4FY21
601	47. Notify district each time a report is submitted from FE to CE	CE	Not started
537	48. Link laboratory products in both FE and CE	Both	Not started
511	49. Add provincial level to track commodities coming from PHO	FE	Complete – Q2FY21
439	50. Itemized list of commodities and delivery date	Both	Not started
178	51. Drop-down menu for receiving person only assigned to that node	FE	Complete – Q3FY21
161	52. Reverse a product when a mistake is made after receiving in the system	FE	Complete – Q1FY21
111	53. ZAMMSA to count products delivered at facility individually	FE	Not started
109	54. At district, enter quantities received and dispensed to facilities	FE	Not started
96	55. Visibility of distribution schedule from ZAMMSA	CE	Not started
74	56. District alerts or feedback on discrepancies in receipts	FE	Not started
37	57. Visibility of ZAMMSA processing order status	Both	Not started
532	58. District notification of commodities received at CHAZ, ZAMMSA	CE	Not started
488	59. Hub computer-generated delivery notes	Hub	Complete – Q4FY21
482	60. View dispatch list before delivery	Both	Not started
479	61. Decentralize central systems to hubs	Hub	Not started
440	62. Items delivered should be in units requested	Both	Complete – Q4FY21
430	63. Electronic delivery note	Both	Complete – Q4FY21
81	64. Allow facilities to enter quantity requested different from calculated order quantity	FE	Complete- Q4FY21
18	65. Tabulate different columns of reports	Both	Complete – Q1FY21
610	66. Convert R&R to pdf and excel in CE	CE	Complete – Q4FY21

535	67. Consolidated quantification report exported to excel	CE	Complete – Q1FY21
534	68. Consolidated consumption data of products by year	CE	Not started
507	69. Track commodities procured nationally in the pipeline	CE	Complete – Q4FY21
454	70. Equip FE with tool to generate summary of laboratory tests vs. consumption	FE	Not started
428	71. Input requested quantities into FE	FE	Complete – Q4FY21
395	72. FE and CE to interact every 2 weeks instead of at reporting	Both	Not started
71	73. Search R&R by order number	CE	Not started
59	74. Review threshold for products considering pack sizes	CE	Not started
32	75. Monthly order submission alerts by SMS/email	Both	Not started
92	76. Integrate pipeline and eLMIS	CE	Not started
588	77. Automated FE updates	Both	Complete – Q1FY21
526	78. Summarized and aggregated overstock vs stocked out report	CE	Complete – Q1FY21
497	79. Lock new product additions at facility level	Both	Complete – Q1FY21
207	80. Mobile app for community HIV testers	FE	Not started
Theme: Facility Services (76 enhancements: 38 completed, 1 in progress, 37 not started)			
655	81. Restrict and monitor products with community health workers (CHWs)	FE	Not started
635	82. Include quantity ordered and supplied on dispatch note	Both	Not started
607	83. Include names on each transaction	FE	Complete – Q2FY21
605	84. Allow search function or individual product when adding new product	FE	Complete – Q4FY21
604	85. View new products which have not been used at the facility before	FE	Not started
602	86. Give notification when product reaches minimum stock level	FE	Complete – Q4FY21
600	87. Run system report button when there is an error	Both	Not started
590	88. Receive recall product notification	Both	Not started

589	89. Include Oral Quick to be managed like other HIV tests	FE	Complete – Q1FY21
584	90. Include FEFO and FIFO in FE when issuing commodities	FE	Complete – Q1FY21
581	91. Create list of favorite products for monthly reorder	FE	Not started
577	92. Allow consumption reports to aggregate quarterly, annual, etc.	CE	Not started
562	93. EM dispensing module	FE	Complete – Q1FY21
559	94. Generate stock status report in FE	FE	Complete – Q4FY21
557	95. Include disaggregated data per HIV test group in FE	FE	Complete – Q4FY21
556	96. No unticking products with no interactions required	FE	Complete – Q4FY21
550	97. Generate received product list to compare with GRN	Both	Complete – Q4FY21
549	98. Pop up message when product reached 50% of AMC and expiry date	Both	Complete – Q4FY21
541	99. Link SmartCare and eLMIS for provincial review	Both	In progress
489	100. Create emergency orders from hubs	Hub	Not started
484	101. One product appearing on page, no matter the number of batches	FE	Not started
452	102. Include column to be shipped in CE	CE	Not started
451	103. Sync quantities and batches delivered from ZAMMSA	Both	Not started
448	104. FP and malaria stand-alone reporting like ARV and EM	Both	Complete – Q1FY21
447	105. Sync commodities in FE with commodities in CE	FE	Complete – Q1FY21
442	106. Provision for reference when entering adjustment or issuing to dispensary	FE	Complete – Q4FY21
437	107. View real-time data from facility at district level	CE	Complete – Q2FY21
434	108. View stock status report from hub	Both	Complete – Q4FY21
431	109. Electronic supply voucher and GRN	Both	Complete – Q4FY21

427	I 10.	Include all commodities at the facility	FE	Not started
423	I 11.	Ability adjustment order quantities before sending R&R	FE	Complete – Q4FY21
422	I 12.	Ability to return soon to expiry products to ZAMMSA upon delivery	Both	Not started
421	I 13.	Ability to make adjustments for multiple commodities in one window	FE	Complete – Q4FY21
420	I 14.	Organize delivery note in alphabetical order	Both	Complete – Q4FY21
415	I 15.	Ability to print R&R after submission	FE	Complete – Q1FY21
409	I 16.	Remove duplicate products in CE	CE	Not started
407	I 17.	Allow pending physical count on same	FE	Not started
402	I 18.	Ensure split batches appear on stock control card	FE	Complete – Q4FY21
401	I 19.	Create new stock control cards	FE	Complete – Q1FY21
287	I 20.	Ensure FE in all facilities with paper	FE	Not started
282	I 21.	Harmonize products according to facility level	Both	Complete – Q1FY21
275	I 22.	Make system sync faster	Both	Complete – Q1FY21
272	I 23.	Autosave in CE when creating R&R	CE	Not started
235	I 24.	Allow tracking of orders after submission to ZAMMSA	CE	Not started
234	I 25.	Train CHWs workers to enhance supply of drugs	FE	Not started
227	I 26.	Enable reverse transaction on one product	FE	Complete – Q1FY21
212	I 27.	Enable all facilities receiving ARV from DHO to submit consumption in FE	Both	Not started
188	I 28.	Enable district to enter data in real time	FE	Not started
175	I 29.	Add new products to non-full supply list in CE	CE	Complete – Q1FY21
170	I 30.	Include all products from ZAMMSA product catalogue	Both	c
164	I 31.	Include receivers name on electronic supply voucher	FE	Complete- Q4FY21

160	132.	Enable node for adding products with different pack sizes	Both	Not started
155	133.	Use facility in-charge contact for communication between levels	Both	Not started
151	134.	Add months of stock column	FE	Complete-Q4FY21
142	135.	When issuing products, system should prioritize short expiry	FE	Complete – Q1FY21
133	136.	Automatic backup	FE	Complete – Q1FY21
130	137.	Use bar code scanners at all receiving points	FE	Not started
127	138.	Include requested quantity for items stocked out for 3 months	FE	Complete-Q4FY21
123	139.	Automatically remove expired products and generating R&R	FE	Complete – Q2FY21
115	140.	Remove batch numbers of stocked out commodities during physical count	FE	Not started
114	141.	Add test feature	FE	Not started
107	142.	Dispatch should have commodity name and batch not carton ID	Both	Not started
103	143.	Allow user to review and edit consumption before reporting	FE	Complete-Q4FY21
87	144.	Create stock control card for one-off commodity	FE	Complete-Q4FY21
58	145.	Include batch and expiry on stock control cards	FE	Not started
57	146.	Add PHO as receiving list	Both	Complete-Q4FY21
55	147.	Receive notifications when ZAMMSA pushing an order	Both	Not started
51	148.	Integrate SmartCare and eLMIS for ARV and EM	FE	Not started
50	149.	Ensure reliable data to do away with paper	FE	Not started
49	150.	Notification from CE and when drugs being delivered	CE	Not started
46	151.	Alternative power source at site (solar)	FE	Not started
30	152.	Lock some commodities on some programs	FE	Not started
28	153.	Allow zeroing of commodities removed	FE	Not started
23	154.	View R&R after submission	FE	Complete – Q1FY21
21	155.	See most of the EMs in blister packs instead of loose tablets	FE	Not started

13	156.	Ensure transport is available to deliver supplies and commodities	FE	Not started
Theme: Laboratory Services (35 enhancements: 18 completed, 17 not started)				
664	157.	Allow comments for late reporting	FE	Complete – Q4FY21
662	158.	Allow for emergency orders only for products needed	FE	Not started
625	159.	Include cost of commodities	Both	Complete – Q4FY21
619	160.	Notification on what order will be fulfilled	Both	Not started
586	161.	Link FE and CE for order fulfillment	Both	Not started
548	162.	View stock out days in FE	FE	Complete – Q4FY21
530	163.	View comparison between test statistics and equipment functionality	FE	Complete – Q4FY21
445	164.	Specify transfer out/ins in CE	CE	Not started
414	165.	Provide alternative sources of products for possible purchases	FE	Complete – Q4FY21
390	166.	Display prompt when leaving page with unapproved orders	CE	Not started
380	167.	Monthly equipment status report	CE	Complete – Q1FY21
377	168.	Ensure equipment functionality working in CE	CE	Complete – Q1FY21
362	169.	Weekly notifications on status and consumption reports	CE	Not started
345	170.	Include a “Chat” function	Both	Complete – Q1FY21
340	171.	Entering laboratory test numbers in FE	FE	Complete- Q4FY21
312	172.	Allow district laboratory staff to order for all facilities	Both	Not started
301	173.	Remove old batches to expedite physical counts	FE	Complete – Q1FY21
294	174.	Tool for mock auditing and self-assessment	Both	Complete- Q4FY21
290	175.	Increase number of minutes before system auto-closes	FE	Not started
286	176.	Stop CE from auto-ticking laboratory commodities on R&R	CE	Not started

270	177.	Online and offline working modes	CE	Complete – Q2FY21
261	178.	Ability to reject ZAMMSA to delivery expired products	Both	Not started
253	179.	Include specific R&R for some laboratory tests	Both	Complete- Q4FY21
233	180.	Show number of laboratory tests done by different laboratories	CE	Complete – Q1FY21
195	181.	Map satellite sites and community outreach to parent	FE	Not started
176	182.	Integrate eLMIS FE with GeneExpert	FE	Not started
166	183.	Improve FE dashboard for quicker access to information	FE	Not started
163	184.	Include suitable reagent vendors	Both	Not started
159	185.	Auto-updates without running scripts from Team Viewer	FE	Complete – Q1FY21
156	186.	Drop-down menus on the stock control card	FE	Not started
150	187.	Track facility equipment down time	Both	Complete- Q4FY21
138	188.	Conform with ISO 15189	FE	Not started
129	189.	Highlight overstocked commodities in red during physical count	FE	Not started
125	190.	Include QC on HIV test DAR	FE	c
122	191.	Include “unknown” on age of HIV testing client	FE	Complete – Q2FY21
Theme: Community Services (24 enhancements: 1 completed; 23 not started)				
657	192.	Malaria products integrated in FE	FE	Not started
652	193.	Restructure reporting tools to include community consumption	FE	Not started
478	194.	Report for community or satellite consumption	FE	Not started
473	195.	Include ART satellite facility reports electronically	FE	Not started
472	196.	Feedback mechanism from satellite sites	FE	Not started
469	197.	Community edition of eLMIS FE	FE	Not started
468	198.	Pop-up on short expiry for community eLMIS	FE	Not started
309	199.	View availability of stock at DHO for CHWs	Both	Not started
225	200.	Train CHWs in eLMIS	FE	Not started
222	201.	Electronic DAR and monthly consumption report for CHWs	FE	Not started

221	202.	Community report on short expiry products	FE	Not started
214	203.	View laboratory usage from non-FE users at district	Both	Complete-Q4FY21
211	204.	Real-time access to community transactions	Both	Not started
210	205.	Give CHWs tablets to gather date	FE	Not started
208	206.	Capture at community using bar code scanning	FE	Not started
199	207.	Community module in FE for CHWs	FE	Not started
193	208.	View items given to CHWs at DHO	Both	Not started
189	209.	Community to send consumption data to facilities	FE	Not started
68	210.	Details of client captured at community	FE	Not started
65	211.	CHWs to have an account to enter information	FE	Not started
63	212.	Add more external receiving points for CHWs	FE	Not started
62	213.	Weekly reports from CHWs to VCT managers	FE	Not started
56	214.	Linking with community pharmacists	FE	Not started
40	215.	Track quantities of commodity transactions at community	FE	Not started
Theme: Management Planning (14 enhancements: 4 completed, 10 not started)				
646	216.	Link dispatch to facility and electronically update in real time	Both	Not started
624	217.	Generate district level data for forecasting and quantification	CE	Complete – Q1FY21
587	218.	View provincial aggregated consumption for various periods	CE	Not started
540	219.	Inform provincial managers of critical stock status	CE	Not started
520	220.	Link products by batch number and expiry date	Both	Complete – Q4FY21
518	221.	Report soon to expire products in R&Rs	Both	Not started
501	222.	Track weekly emergency orders by facility	CE	Not started
486	223.	View product quantities to be distributed to DHOs or hospitals	Hub	Not started
385	224.	View dashboard and review consumption at DHO	CE	Complete-Q4FY21
365	225.	District summary of invoices of commodities from ZAMMSA for quantification and forecasting	CE	Not started
328	226.	Provincial view of integrated SmartCare and eLMIS for consumption in relation to clients	Both	Not started

313	227.	View on-time reporting at the district level	CE	Complete – Q1FY21
305	228.	Ensure space in province for all commodities	CE	Not started
183	229.	Make FE downloadable/installed on personal device	FE	Not started
Theme: Knowledge Management (7 enhancements: 2 completed, 5 not started)				
661	230.	Generate the report of the total number of clients on ART by age and gender	FE	Complete – Q3FY21
642	231.	Hub to receive notifications of emergency orders immediately	Both	Not started
614	232.	View quantities released by ZAMMSA	CE	Not started
300	233.	System ensuring reports submitted on time	CE	Not started
135	234.	Ensure adjustments have audit trail	FE	Not started
112	235.	Allow list of people training in logistics systems	CE	Not started
98	236.	Attach PDF for training to FE	FE	c
Theme: Equipment Management (4 enhancements: 3 completed, 1 not started)				
570	237.	Include equipment functionality and monthly test statistics	CE	Complete – Q1FY21
243	238.	Dashboard feature showing functional and non-functional laboratory equipment	CE	Complete – Q2FY21
152	239.	Ability to report equipment functionality, downtime, and next service date	Both	Complete – Q1FY21
131	240.	Add Sysmex XP 300 to system	Both	Not started
Theme: Human Resource (3 enhancements: 3 not started)				
245	241.	Dashboard showing names of people trained in logistics systems	CE	Not started
238	242.	Enable system to send congratulations to high performers	CE	Not started
19	243.	View all clients/patients attended at the clinic by health condition	FE	Not started

ANNEX B. SUCCESS STORIES

eLMIS CENTRAL EDITION FOR EFFICIENT SUPPLY CHAIN MONITORING



"I knew the electronic logistics management information system (eLMIS) would be useful, especially for remotely supervising the supply chain. But I didn't realize how important it would become for ensuring the facilities in my district have good commodity availability," says Faith Banda, the district pharmacist for Chadiza district in Zambia's Eastern province.

The eLMIS, like other technological improvements, was met with initial skepticism by end-users. Faith admits that the health logistics system that automated the supply chain seemed a little complex when she was first oriented to it. "I'm constantly running reports through the eLMIS Central Edition (CE), even though I wasn't sure I'd be able to interpret the information or make practical use of it in the beginning. What I enjoy best about the system is how it was made to suit what the Zambian logistics system already was; it simply made it more efficient and easier to obtain information."

The stock imbalances report is one in eLMIS CE that Faith uses frequently. "I've learned a lot from studying stock imbalances in my area and province. You know, some facilities are located in large catchment areas while others aren't, so the quantities of drugs they'd need would be different, but even that doesn't tell the whole story. There are times when we find drugs that anyone would assume would move quickly at a large facility instead move slowly. I then contact these facilities to find out why said drug is moving slowly to know how that will affect future supply. The one decision I find myself making is product redistribution; I'm able to detect who has a surplus and redistribute accordingly by running stock imbalance reports when I have a specific facility in my district that needs a particular product."

Example stock imbalance report at Chadiza District Hospital for Essential Medicines

Medical Stores Limited
Stock Imbalance By Facility Report

Program: Essential Medicine
Period: Jul 2021
Geographic Zone: Chadiza

Zambia

Page: 1

Supplying facility Eastern

Line #	Facility	Product name	Physical Count	AMC	MOS	Order Quantity	Status
	301001	Chadiza District Hospital Chadiza Eastern					
1		Acetylsalicylic Acid Tablets, 300mg Tablet 300 mg	0	1	0.0	6	Stocked
2		Amoxicillin (trihydrate), 125mg/5ml Suspension Suspension	0	2	0.0	9	Stocked
3		Amoxicillin (trihydrate) Capsules, 250mg - 1000 -	0	3	0.0	12	Stocked
4		Artemether + Lumefantrine, (18) Tablet 120/20mg 3*6 -	0	1	0.0	0	Stocked
5		Cephalexin Tab/Cap, 250mg Capsule 250 mg	0	3	0.0	9	Stocked
6		Chromic Catgut Natural absorbable suture 2/0 gauge 1/2	0	3	0.0	9	Stocked
7		Ciprofloxacin Injection, 2mg/ml, 100ml Solution 2mg/ml mg	0	111	0.0	333	Stocked
8		Co-trimoxazole 240mg/5ml suspension Suspension	0	30	0.0	135	Stocked
9		Developer For Auto Processing Conc, 2X5 Litres - -	0	0	0.0	3	Stocked
10		Diclofenac Sodium Tablets, 50mg Tablet 50mg mg	0	7	0.0	6	Stocked

The five-year USAID eSCMIS project, financed by USAID, is responsible for implementing and managing the eLMIS. Through this project, John Snow Health Zambia Limited (JSH) is transitioning the eLMIS into the next generation in collaboration with the Ministry of Health, Zambia Medicines & Medical Supplies Agency, and other key supply chain partners. JSH is the primary contractor on the USAID eSCMIS project, with subcontractors John Snow, Inc. and Churches Health Association of Zambia. The relationships formed to manage the eLMIS are major reasons it is so well suited to the Zambian health logistics system.

At the start of the system's development, one of the strategic goals was to increase supply chain efficiency. This evolved into improved data culture among supply chain managers, who can now make data-driven decisions with easy access to information on the system. The USAID eSCMIS project provides user-friendly dashboards for analytics and alerts to allow for highly effective decisions.

"Because the district health office where I work is a pre-elimination site, we always have an adequate supply of malaria medications," says Faith. "Using eLMIS CE reports, I'm always able to predict which facilities will want malaria medications before they contact us. An excellent example of a transfer I often make is to Chipata Central Hospital, a referral hospital that serves most of the Eastern province. It uses malaria medication at a quicker pace than we do, so I always transfer our excess there."

Zambia's public health policy environment is favorable to a next-generation eLMIS. The eLMIS CE supports all 2,600 health facilities, more than 1,000 of which are fully computerized and use the eLMIS Facility Edition. In addition, the USAID eSCMIS project continues to roll out eLMIS, with the ultimate goal of having it in place at 1,000 additional facilities across the country.

eLMIS EXPIRY TRACKING: AN ESSENTIAL TOOL FOR PHARMACISTS' NETWORKS



The electronic logistics management information system (eLMIS) expiry tracking tool has assisted product redistribution among pharmacists in Zambia.

"You know that field in the eLMIS Facility Edition (FE) that asks us to enter product batch numbers and expiries when the facility receives products? It has made tracking product expiries easier," says Chisenga Mabeti, a pharmacist from Chipata Central Hospital in Eastern Province. "We frequently depended on physical counts to refresh our memories on product shelf life and which products expired when. Being able to observe these data every day while issuing items allows us to plan redistribution ahead of time."

Chisenga, like many other pharmacists around the country, has been using eLMIS FE tools like expiry tracking to account for stock at her facility and arrange product redistribution in advance.

"We're constantly in contact with other pharmacists via the many provincial and national WhatsApp groups, so we keep each other informed about what product is available for redistribution. Just recently, we were able to redistribute a few goods, including atropine sulphate, to the University Teaching Hospital in Lusaka," says Chisenga.

Screenshot of atropine sulphate issued from Chipata Central Hospital

The screenshot shows the eLMIS Facility Edition interface for Chipata Central Hospital. The user is logged in as 'chisenga mabeti' in the 'EM Pharmacy Storeroom'. The main content area displays a 'STOCK CONTROL CARD' for Atropine Sulphate (Product Code EM0052). The card includes a table of stock transactions with columns for Date, Ref. No, Issued to received from, Quantity received(+), Quantity issued(-), Losses and Adjustment (+/-), Balance, Remark, and Transacted By. The table shows a physical count on 08/31/21 where the balance was 8720 units.

Date	Ref. No	Issued to received from	Quantity received(+)	Quantity issued (-)	Losses and Adjustment (+/-)	Balance	Remark	Transacted By
09/06/21		Theatre		100		7820		Michael
09/03/21		University Teaching Hospital			800	7920		Chichi
08/31/21		Physical Count				8720		Neverson
08/31/21		FOUND			3600	8720		Neverson

Q AND A: SUPPLY CHAIN eLMIS DATA USE

The USAID eSCMIS project is improving information availability for supply chain managers at all levels. The electronic logistics management system (eLMIS) Central Edition's (CE) analytics and Facility Edition's (FE) transaction data have helped end users make decisions that have improved supply chain efficiency.

The USAID eSCMIS project sat down with supply chain managers at various levels to learn how the system has helped them make data-driven decisions.

CENTRAL LEVEL



Please state your full names, occupation, and location.

Hello, my name is Nalishebo Siyandi, and I work for the Zambia Medicines and Medical Supplies Agency (ZAMMSA) in Lusaka as the call center manager.

How long have you been using the eLMIS?

I've been using the eLMIS since it was introduced in 2014, I've basically been there since the beginning.

How exactly do you use the eLMIS?

Orders are processed on a daily basis. We process orders that facilities send in through reports so that we can resupply. We also examine how the facilities have been reporting and ensure that we check for errors. For example, there are times when we receive reports that show what the facility requires but do not include actual quantities, so we contact these facilities to have them enter and submit this information. We continually monitor facility data quality so we can ensure that the reports are of a high standard because this information promotes effective restocking.

Additionally, we keep an eye on reporting rates; we constantly monitor reporting to establish distribution schedules, so we keep an eye on non-reporting sites to ensure they report and are resupplied on time. The eLMIS is effective.

We also examine the system's consumption data on a daily basis, in addition to processing orders and performing quality checks on reports. This information aids us in developing an allocation desk for the entire country. We can allocate products across the country by looking at the information submitted by province. For example, if we haven't had a certain product in the country

for six months and then it comes in, we can easily go back to the consumption data from when it stocked out and come up with allocations for redistribution across the country.

What stands out the most for you about how the eLMIS has evolved?

Since its inception, the eLMIS has progressed to the point that it is continuously making it easier to monitor facilities and do data analytics. As a customer service representative, it is critical to anticipate end-user needs, and the eLMIS helps us do that.

Being able to check the proportion of products that have been reported when orders are received has been extremely beneficial to my department. Because when the reports come in, we can look at the percentages of products ordered for specific locations and create trends based on the consumption statistics.

Also, being able to use the reports to determine which facilities in a given region have surplus stock has made it much easier for us to execute emergency requests because we can simply redistribute from one facility to another. Furthermore, looking at the information of facilities that are continuously placing emergency orders helps us determine why a given product is always stocked out and whether it has anything to do with how facilities are ordering.

PROVINCIAL LEVEL



Please state your full names, occupation and location.

Hello, my name is Payne Mungala, and I am a pharmacist at the provincial health office in Livingstone in the Southern Province.

How long have you been using the eLMIS?

I've been using the eLMIS since 2015.

How exactly do you use the eLMIS?

My daily routine has changed since I began using the eLMIS. When I worked at a facility, I used the FE, but now I use the CE to monitor facilities in my province. The most common decisions I make are reporting, which involves ensuring that facilities report on time and accurately. The reporting status data in CE also allows me to follow up with facilities that are having difficulty reporting so that I may offer support and determine how we can best assist them. I don't have to travel from facility to facility in my province to observe what's going on; I can keep an eye on things from my office.

On occasion, we discover that a facility has product stock about to expire or more stock than it can use in a given period of time. We quickly search the system for other facilities that require these products so that we can share them and ensure that they are used on time.

I also find myself looking at consumption data to see how the province is doing in terms of consumption. We also use consumption data for data quality checks; for example, if I compare a report to a facility's stock status, I can assess if it is reporting appropriately based on accurate consumption averages.

What stands out the most for you about how the eLMIS has evolved?

The product batch and expiry tracking functionality in the eLMIS FE is one that jumps out. With this functionality, we can simply tell what batch of items traveled where, and we can track products not just at a provincial level, but also nationwide. Furthermore, regardless of when you entered the products, the system employs the first expiry, first out mechanism, which immediately identifies which products will expire first and should be transacted out first. This is one of the tools that has helped us reduce wastage due to expirations.

FACILITY LEVEL



Please state your full names, occupation and location.

My name is Terrence Shibwela, and I work as a laboratory technician at Mongu District Hospital in Western Province.

How long have you been using the eLMIS?

I have been using the eLMIS since I was employed in 2017.

How exactly do you use the eLMIS?

We are definitely on the system daily because we use eLMIS FE for all of our storeroom transactions. In the lab, I'm always looking at our stock status cards to see what items are in short supply. I can easily track product usage by checking stock levels in the storeroom and other locations such as our VCT center or lab bench.

I'm constantly looking at consumption data; it not only helps us calculate the average monthly consumption, but it also allows us to study trends and forecast how much of a particular product will be needed, as well as which lab commodities are consumed more frequently in different parts of the facility.

What stands out the most for you about how the eLMIS has evolved?

Before, when we submitted reports using eLMIS FE, someone had to go back and update them in CE because we couldn't put in the requested quantities from FE when the system initially started. Because the entire report data is aggregated in FE, this has been a fantastic improvement. Another thing I've noticed is that in the past, the system was quite slow when sending reports since we had to synchronize. However, with the eLMIS FE web edition, it is much faster.

One last point that I can make is that before we updated to eLMIS FE web edition, we couldn't see the status of our reports; we had to log into CE. Now we can see the report status, which includes whether or not it was submitted successfully and if it was approved.

LUSAKA PROVINCE SPEARHEADING MOH eLMIS TECHNICAL SUPPORT AND SUPERVISION

Zambia's health logistics have been managed using the electronic logistics management information system (eLMIS) since 2014, when the Central Edition (CE) was introduced, followed by the Facility Edition (FE) in 2016. The goal is for the Zambian government to take over management of these systems. Over the years, the projects responsible for the software's implementation have worked to train and empower Ministry of Health staff (MOH) to not only deploy but also manage the system. These efforts are evident in Lusaka Province, where MOH staff are at the forefront of technical support and supervision.

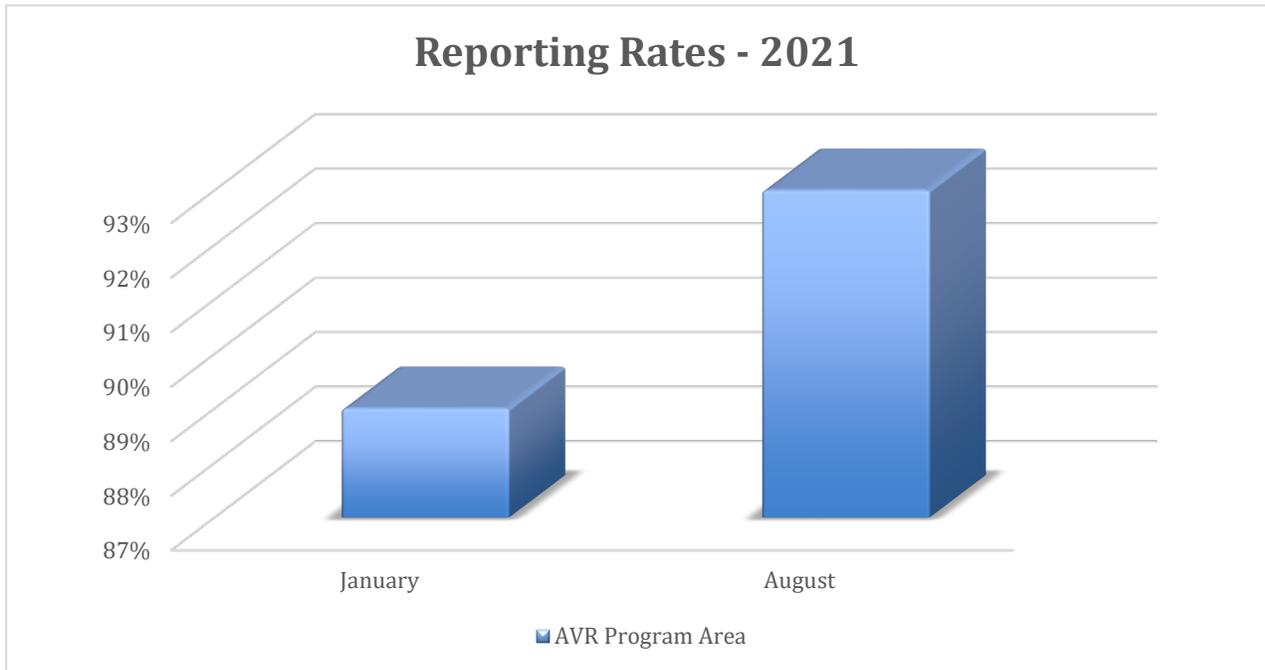
"It all started with incredibly low reporting rates," says Joseph Miselo, a pharmacist from the Lusaka District Health Office's ART Hub. "The district pharmacist called and encouraged us to check into the poor reporting rates for the ARV program area." "Me and Kendo Simaimbula, the Lusaka district pharmacy coordinator, decided to create a WhatsApp group called the Lusaka eLMIS champions group, which consists of the majority of pharmacists in the province. It is from here that we began to follow up with facilities on their reporting rates and offer support whenever we can."

The eLMIS is implemented by John Snow Health Zambia, Limited through the USAID eSCMIS project. The project has developed a Transition and Sustainability plan for how eLMIS ownership and management will be transferred to MOH. This includes providing Joseph and his coworkers with ongoing training and assistance. "We can manage a wide range of system concerns, and facilities can rely on us for assistance. If we run across a problem that is too complicated at this point, we always escalate it to the project's systems implementation and support team."

"We've been slowly recruiting MOH staff to join these teams," says Linda Nyondo Kaposhi, Lusaka district Pharmacist. "The first team is at the DHO, and others come from different facilities, especially larger hospitals that have the eLMIS in different parts like the bulk stores and labs. We want to build capacity of these MOH members to supervise and support their facilities."

The Lusaka DHO technical assistance has been effective, as evidenced by the improvement in facility reporting rates and timeliness. As a result, facilities get commodities on schedule, enhancing commodity availability.

Lusaka District Reporting Rates - 2021



"We want to expand our numbers and strengthen our system management skills. Having MOH officials come along when they undertake deployment and migration has definitely helped us improve what we know about eLMIS," Joseph says. "I am optimistic that many MOH employees will be able to assist their respective districts and provinces in the future."