MINISTRY OF HEALTH- REPUBLIC OF ZAMBIA

Zambia: ARV Drug Logistics System Assessment Results & Recommendations

JULY 2010

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Zambia: ARV Drug Logistics System Assessment Results & Recommendations

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Abstract
In October 2009, the Ministry of Health (MOH), with technical assistance from the USAID | DELIVER PROJECT, Task Order 1, and support from other partners, conducted an assessment of the performance of the ARV drug logistics system in Zambia.

The survey's overall purpose was to assess the performance of the system since its roll-out, to identify successes and challenges in the system, and to provide necessary recommendations to improve the system. This report presents the findings of the assessment as well as recommendations for improving the ARV drug logistics system in Zambia.

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Contents

Acronyms

AIDS	acquired immunodeficiency syndrome
ART	antiretroviral therapy
ARV	antiretroviral (drug)
AZT	Zidovudine
CHAZ	Churches Health Association of Zambia
CIDRZ	Center for Infectious Disease Research in Zambia
DHMT	district health management team
DHO	district health office
HIV	human immunodeficiency virus
JSI	John Snow, Inc.
LMIS	Logistics Management Information System
LMU	Logistics Management Unit
LS	logistics system
MOH	Ministry of Health
MSL	Medical Stores Limited
NVP	Nevirapine
OJT	on-the-job training
PDRIV	PMTCT drug reporting & issue voucher
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PHO	provincial health office
PMTCT	prevention of mother-to-child transmission
R&R	Report & Requisition
SCC	stock control card
SDP	service delivery point
SOPs	standard operating procedures
TA	technical assistance
UNFPA	United Nations Fund for Population Activities
TDF/FTC	Tenofovir/Emtricitabine
UNICEF	United Nations International Children's Educational Fund
USAID	U.S. Agency for International Development
ZPCT	Zambia Prevention, Care, & Treatment Project

Acknowledgments

The Ministry of Health would like to thank the following partners for assisting with this assessment and for supporting the ARV Logistics System across the nation: Churches Health Association of Zambia (CHAZ), AIDS-RELIEF, Zambia Prevention, Care and Treatment Project (ZPCT), USAID | DELIVER PROJECT, Center for Infectious Disease Research in Zambia (CIDRZ), and UNICEF. The authors would also like to acknowledge the hospitals and health center staff who participated in this assessment.

The authors would like to express their gratitude to the representatives from the Ministry of Health, USAID |DELIVER PROJECT, and other implementing partners who took time from their busy schedules to participate in ARV LS assessment dissemination meetings. The success of the Zambia national ARV LS program depends on the ongoing collaboration, goodwill, and hard work of all partners if the many challenges of ensuring a continuous supply of quality ARV drugs to the people who need them, and to relieve suffering, are to continue.

Executive Summary

In October 2009, the Ministry of Health with support from the USAID | DELIVER PROJECT conducted a national assessment of the ARV LS. The purpose of the assessment was to evaluate the system's performance since national rollout, identify successes and challenges in the system's implementation, and to provide necessary recommendations for system improvements. The assessment tool used was adapted from the current USAID | DELIVER PROJECT monitoring and evaluation data collection tool.

The major findings indicate that ART satellite sites are the biggest challenge to the system because they are not part of the approved ARV Logistics System. Their operation and existence in the system is not in a standardized format. Each ART satellite site has its way of managing ARV drugs. The non-standardization of these facilities has resulted in none of them capturing essential data items, thus leading to stock imbalances at the facilities from which they have been accessing ARVs.

ART satellite sites need to be included in the system to avert the current stock problems they cause. This inclusion could be accomplished by adding another level to the system. The MOH is willing to authorize the inclusion of satellite sites into the Logistics Management Unit (LMU) database (Supply Chain Manager); however, the sites must provide ART services according to stipulated guidelines while awaiting accreditation by the Health Profession Council of Zambia (HPCZ) and must have staff trained in the logistics system to alleviate stock management problems.

Overview of the ARV Drug Logistics System

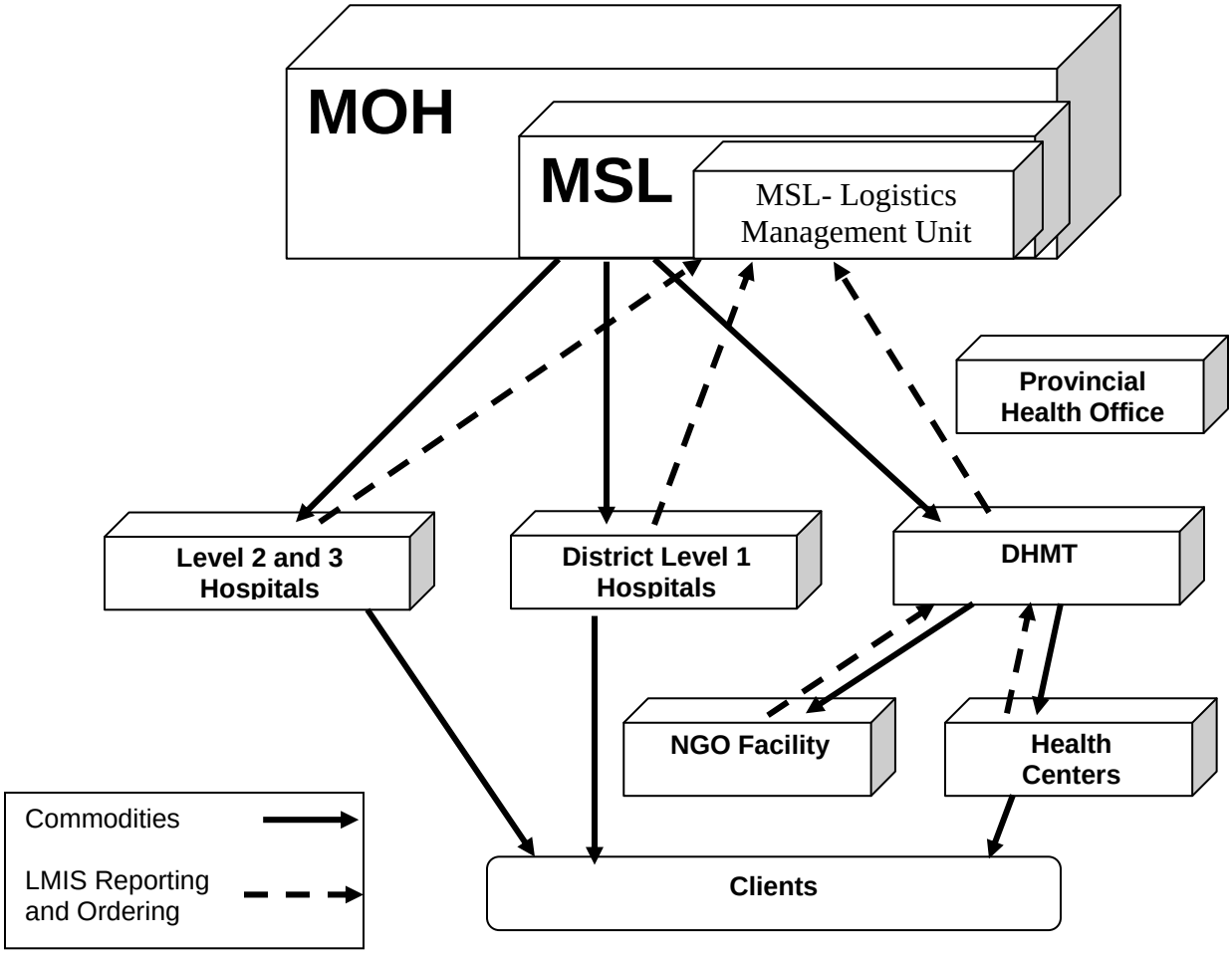
The Zambian Government receives funding from the U.S. Government through the President's Emergency Plan for AIDS Relief (PEPFAR), which has allocated for technical assistance in strengthening the supply chain management of ARVs and HIV test kits for national testing and treatment programs. USAID/Zambia selected the USAID | DELIVER PROJECT to provide technical assistance in this area, as well as in the actual procurement of ARVs and HIV test kits through Supply Chain Management System (SCMS). The ARV supply chain in Zambia includes multiple donors, partners, and distribution mechanisms, and efforts to collect specific logistics data on ARV drugs were previously hampered by a poorly functioning logistics management information system (LMIS) and a lack of coordination in managing ARV drugs between cooperating partners.

In May 2006, the Ministry of Health (MOH) designed, with technical support provided by the USAID | DELIVER PROJECT and in collaboration with local stakeholders, a logistics system to improve the flow of logistics information and commodity distribution of ARVs in Zambia. During the national roll-out of this system, it was discovered that certain health facilities that provided prevention of mother-to-child transmission (PMTCT) services but-not full ART, fell outside of the design of this new system. To respond to this exception and incorporate these sites into the newly designed ARV system, the MOH with support from partners developed standard operating procedures (SOPs) and training curricula to implement specialized instructions for addressing the drug logistics needs for these PMTCT-only sites. This system was finalized and approved by the Permanent Secretary as the National PMTCT-Only Drug Logistics System.

System Design and Implementation Plan

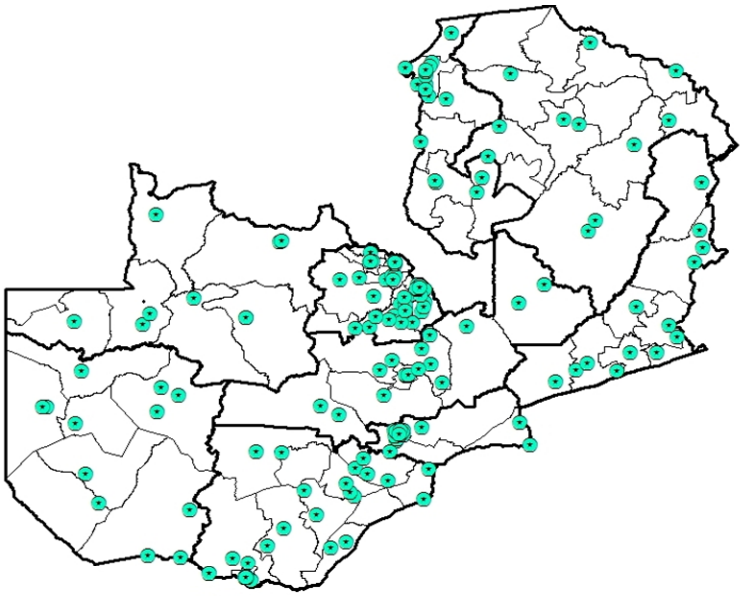
In 2005, the Ministry of Health with support from the USAID | DELIVER PROJECT conducted a rapid assessment of the ARV supply chain system. Following the completion of the rapid assessment, and in order to strengthen and to ensure a continuous supply of commodities, the MOH with support from the USAID | DELIVER PROJECT held a workshop in May 2006 with key implementers and stakeholders to re-design the ARV supply chain system. Workshop participants were drawn from all levels in the MOH as well as from cooperating partners. Figure 1 below shows the flow of ARV drugs and information in the national logistics system.

Figure 1. Movement of ARV Drugs and Information



A training of trainers (TOT) workshop was held in September 2006. Following, a series of workshops was conducted in the national ARV Logistics System to train participants from all ART sites nationwide. During the initial implementation, 142 facilities throughout Zambia were trained in seven weeks. The Ministry of Health, with support from the USAID | DELIVER PROJECT, has been conducting a series of "mop up" trainings beginning in February 2008, up to the time of the system evaluation. To date, the ARV Logistics System has been rolled-out to almost 200 full ART sites nationally. Figure 2 shows the full ART sites as of October 2009.

Figure 2. 181 Full ART Sites as of October 2009



Purpose of the ARV Drugs Logistics System Assessment

The overall purpose of ARV Drugs Logistics System assessment was to conduct a representative system evaluation. Three key goals were identified for this assessment:

- To assess the ARV Logistics System's performance since its national rollout,
- To identify the successes and challenges in the system's implementation, and
- To provide necessary recommendations for system improvements.

The deliverables from this assessment will be used to create a detailed action plan for the continuous improvement of the existing ARV Logistics System.

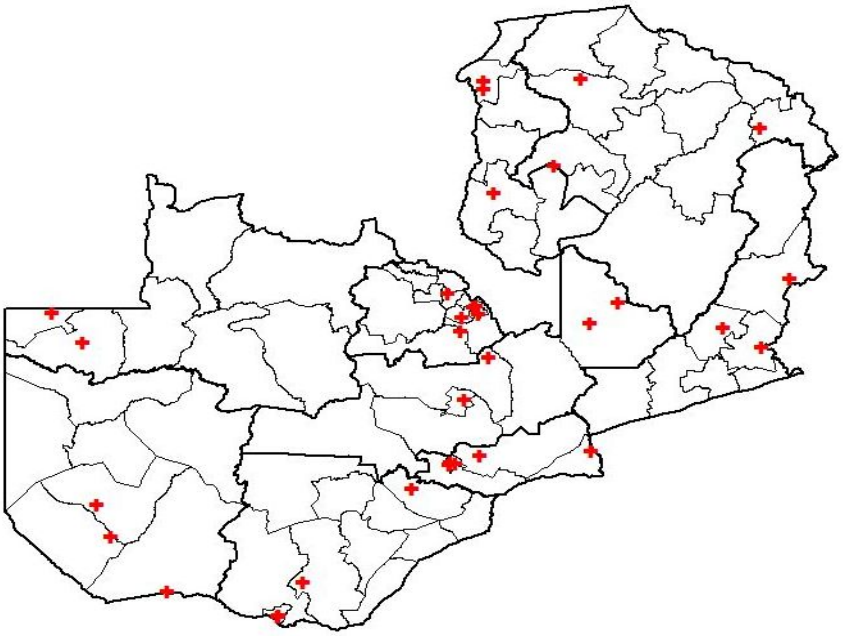
Methodology

The assessment activities included preparation, site visits, and presentation of the findings.

During the preparation stage, an assessment tool was developed. The assessment tool was adapted from the current USAID | DELIVER PROJECT's monitoring and evaluation data collection tool. A copy of the final assessment tool is on page 27.

Sites were randomly selected using a web-based software. Twenty percent (20%) of the full ART facilities in each of the nine provinces were assessed. This included eleven (11) hospitals, seventeen (17) health centers, and nine (9) faith-based health facilities – bringing the total number of facilities assessed to thirty seven (37). The sites evaluated are shown in Figure 3.

Figure 3. ART Sites Evaluated



The assessment focused on the following five key areas:

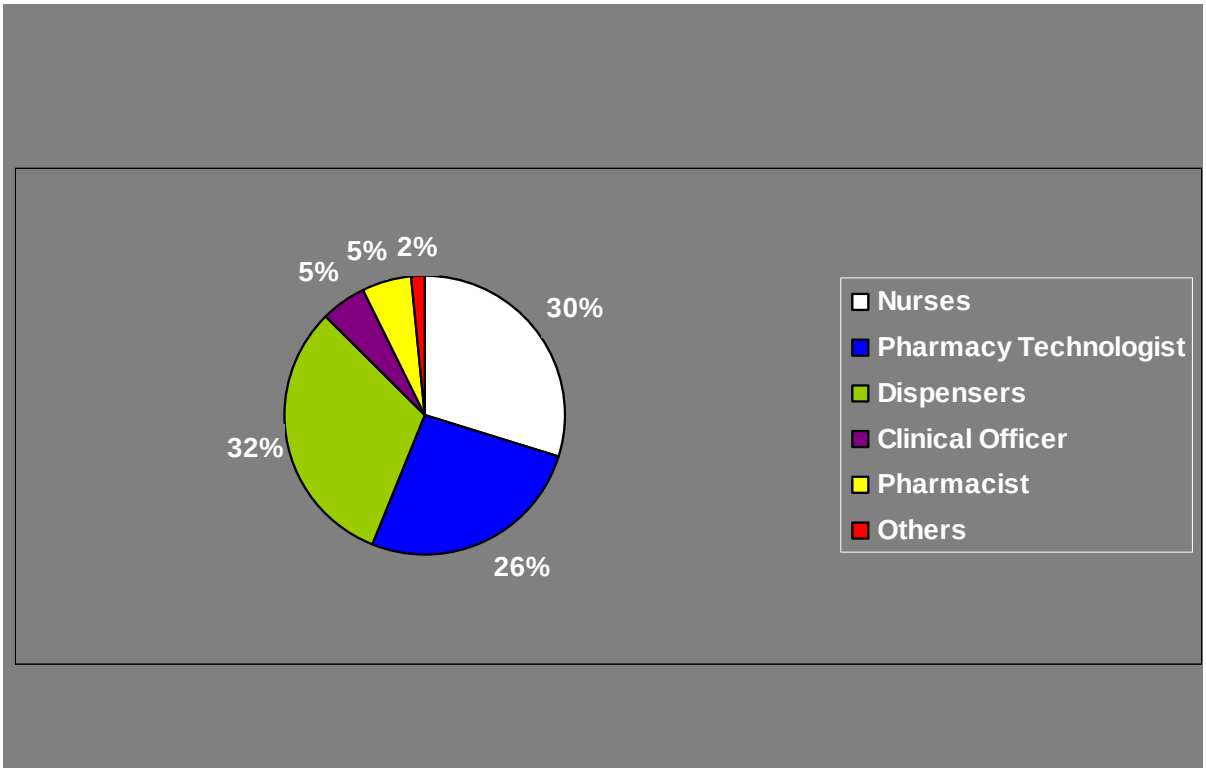
- Human resources
- LMIS records and reports
- Stock status (stock availability)
- Transport
- Storage conditions.

Findings

Human Resources

Figure 4 illustrates the different professional backgrounds of the personnel managing the ARV Logistics System at the various health care levels where ART services are being provided. Nurses account for 30% of the personnel; while pharmacists represent only 5%. A total of 58% represents pharmacy technologists and dispensers. Non-health personal represent 2%; however these have undergone the formal (or OJT) ARV Logistics System training. The assessment revealed that the ARV Logistics System is mainly managed by dispensers, nurses, and pharmacy technologists.

Figure 4. Personnel Managing ARV Logistics System



Every full ART site visited had at least one person formally trained or trained through on-the-job training (OJT). Of the facilities assessed, 54.1% reported to still have the trained personnel on site, while 45.9% were no longer on site. The key reasons provided as to why the personnel trained in logistics were no longer on site were transfers, continuation of studies, etc.

The full ART reporting sites with staff trained in the ARV Logistics System were managing the system well according to the procedures in the standard operation procedures (SOP) manual. The full ART sites without formally trained staff in the system had challenges such as capturing data on LMIS forms.

LMIS Records and Reports

The LMIS records and report findings are categorized by record or report.

Use of Stock Control Cards (SCC)

Of the full ART sites assessed, 97.3% had the SCC for key indicator products. It was observed that facilities without SCC had difficulty explaining how they were generating monthly physical counts from the storeroom to be added to the dispensary physical count during the compilation of the monthly report and requisition (R&R).

Use of Daily Activity Register (DAR)

Only 81.1% of the full ART sites assessed were using the DAR for capturing consumption data as described in the SOP manual. However, the 18.9% who did not use the DAR were using the dispensing tool (software tool) to capture consumption data. Therefore, all full ART sites assessed were using some format of the DAR to capture consumption data.

Report and Requisition (R&R) for ARV Drugs

Of the full ART sites assessed, 81.2% had submitted their September 2009 R&R. The personnel managing the ARV Logistics System have come to appreciate the MOH policy of "***No Report, No Product, No Program***," which has resulted in the continuation of excellent reporting rates with a national average of 98%.

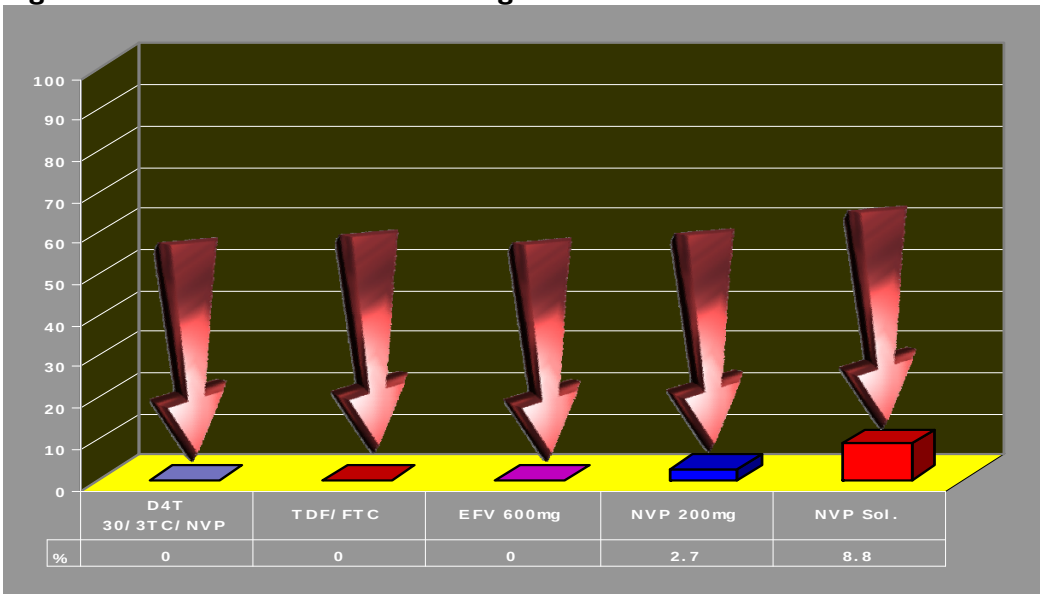
Stock Availability

As shown in Figure 5, there was high stock availability at the full ART sites. SDP staffers understand and appreciate the importance of submitting their R&Rs consistently because MSL replenishes their stocks based on their R&Rs. The facilities that were stocked out of Nevirapine (NVP) 200mg and NVP syrup respectively had the stocks at the DHO pharmacy stores. The stockouts were as a result of:

- No readily available transport to go and pick up drugs from the DHO pharmacy stores.
- Lack of adequate storage space to hold three months of stock (MOS).

However, on the day of the visit, staffers were in the process of arranging for transport to pick up the medical supplies from their respective DHO pharmacy stores.

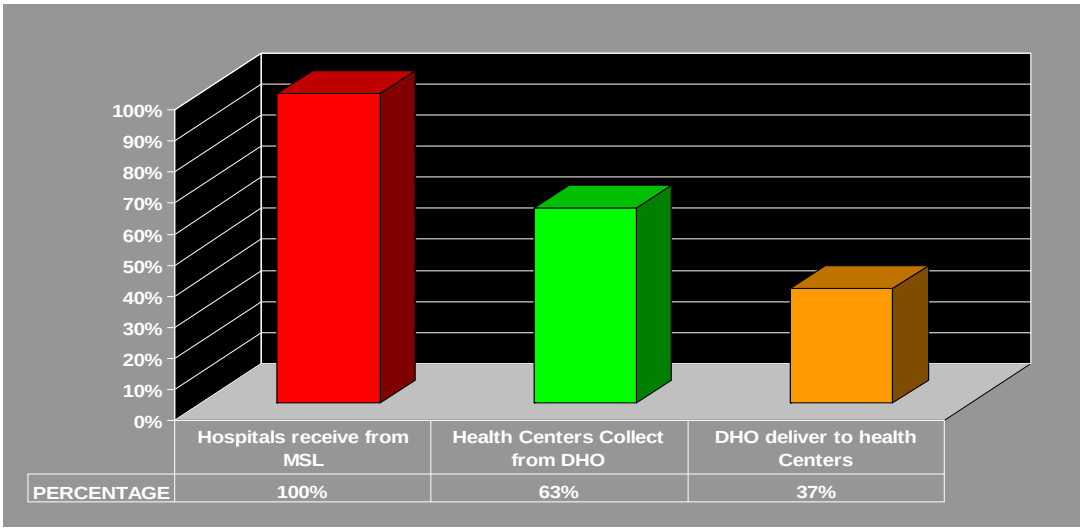
Figure 5. Stockouts of Indicator Drugs in Full ART Sites



Transport

Facilities collecting ARV drugs from DHO pharmacy stores used various modes of transport as shown in Figure 6. When the health centers collect supplies from the DHO, one of the key means of transport used is public transportation. ARV drugs transported through public transport are at risk in various ways, such as theft, damage, etc.

Figure 6. Distribution and Collection of ARV Drugs



Storage

Of the health centers visited, 48% did not have adequate storage space and could therefore not hold three months of stock. This resulted in some of facilities experiencing stockouts at the facility despite having stock at the DHO pharmacy stores.

ART Satellite Sites: Biggest Challenge to ARV Logistics System

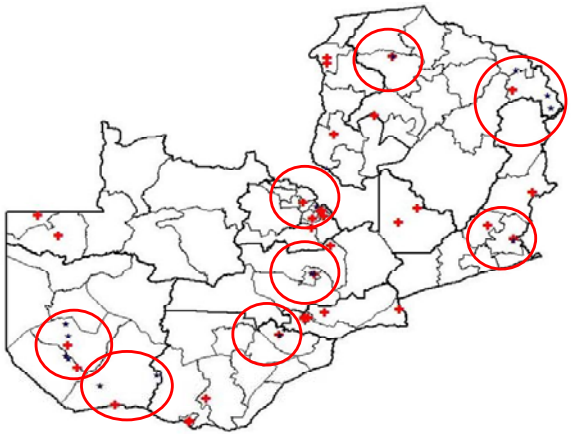
Of the full ART sites assessed, 40% had two or more ART satellite sites. ART satellite sites are facilities that:

- are not accredited as ART sites but provide full ART services;
- are not accessing ARVs directly from the DHO or MSL;
- are not using the standard reporting and ordering system;
- are not in the LMU database; and
- are accessing ARVs through a nearby full ART reporting site.

ART satellite sites are the biggest challenge to the system because they are not part of the approved ARV logistics system. Their operation and existence in the system is not in a standardized format. Each facility of this type has its way of managing ARV drugs, resulting in the non-capturing of essential data items that then lead to stock imbalances at the facilities from which they have been accessing ARVs.

At the time of the assessment, there were more than 200 ART satellite sites in existence. It is against this background that 20 ART satellite sites were assessed using the same tool as the full ART sites. Figure 7 (below) shows the location of the ART satellite sites assessed.

Figure 7. ART Satellite Sites Assessed



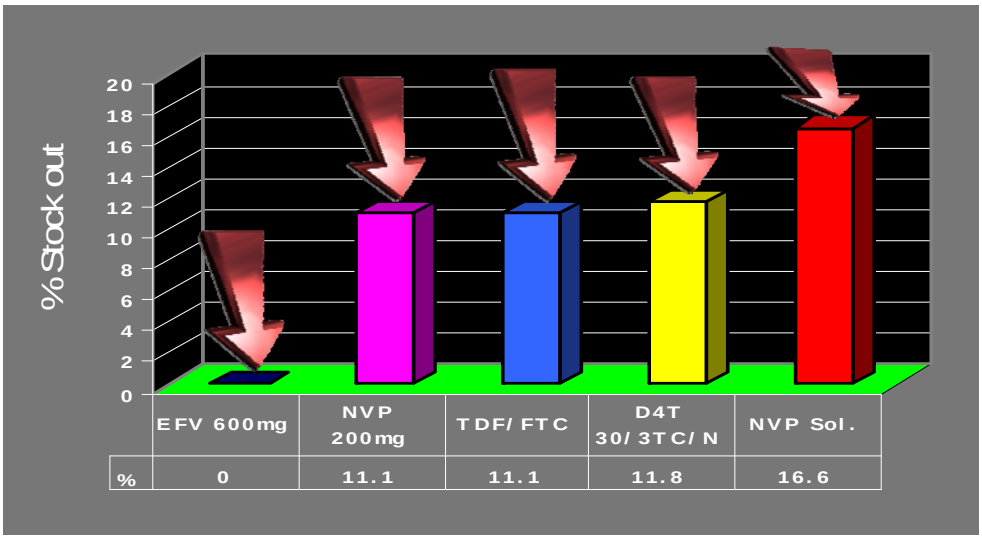
Findings from ART Satellite Sites

ART satellite sites shared no uniformity in:

- reporting to their mother facilities;
- capturing essential data items;
- stock availability; and
- use of LMIS forms.

Of the findings above, stock availability was paramount because these facilities are providing ART services that include the dispensation of ARV drugs – hence the need to assess stock availability.

Figure 8. Stockouts of Indicator Drugs at ART Satellite Sites



The assessed satellite sites had experienced stockouts as illustrated in the graph above. The reasons for stockouts were attributed to the following factors:

- Rationing by the parent facility (full ART reporting site).
- Non-inclusion of consumption data from satellite sites in the parent facility's monthly R&R (implying that the re-supply from MSL is only based on data from parent facilities).

Discussion

During the dissemination meeting held in April 2010 at the JSI offices in Lusaka, there were several pertinent issues discussed. Amongst them were the ART satellite sites, as these facilities have had a negative impact on the overall functioning of the system as they do not have standard reporting and ordering procedures.

Impact of ART Satellite Sites on the System

The ARV Drugs Logistics System operations are negatively impacted by the presence of ART satellite sites as they have no standard reporting system. Consumption data from these facilities is not being captured correctly nor consistently on a monthly basis. ARV drugs from mother facilities to satellite facilities are therefore not supplied according to real need and this has lead to either stockouts or overstocks.

Outcome of the dissemination meeting concerning the ART Satellite Sites

1. Hold a design workshop to decide on how to include satellite sites in the system to avoid the current stock problems. The USAID|DELIVER PROJECT offered to sponsor this design workshop.
2. Specific LMIS forms designed in the medium term to ensure that consumption data, which is also used for national ARV quantification purposes, is recorded correctly. As a way forward, the USAID|DELIVER PROJECT, through their Country Director Walter Proper, offered to sponsor this design workshop.

Dr. Albert Mwango, National ARV Program Coordinator (second from the left), said during the dissemination meeting that, "Since the satellite sites are not part of the approved ARV Logistics System, there is need to include them in the system."

Gail Bryan, Senior Advisor Pharmaceutical Management, ZPCT, echoed that there is need to include the ART satellite sites in the system because of the continued stock imbalances imposed on the full ART reporting sites supplying ARV drugs.

USAID | DELIVER PROJECT Country Director Walter Proper (at the back on the left), categorically stated that his organization was ready to support the MOH by sponsoring the workshop where the inclusion of satellite sites into the ARV Logistics System will be discussed.

Challenges

Human Resources

The MOH's human resources department must take into consideration the special skills of personnel before transferring them so as not to cripple the system. Those that have been trained should ensure that they impart their skills and knowledge to others so that even when they are not at the site or moved to another department, the system will continue to be managed well.

Another challenge has been getting the right cadres to attend the LS trainings. Some districts have working time tables and have therefore been sending people for training who may not be involved in logistics management or may not have the time to administer these systems. This has resulted in training the "wrong" person to manage the system.

Distribution of ARV Drugs

Another challenge is the distribution of drugs to hard to reach areas. CHAZ highlighted that they are and will continue to assist the Ministry in this regard in order to ensure that commodities are delivered to even hard to reach facilities, and they called on others to follow suit in this endeavor.

Mr. Makasa of CHAZ, also committed to be present for all meetings regarding logistics and share information in an effort to unify the system.

Military ART Sites

The military (Major Zulu-ZAF) requested that military facilities also be assessed in order for them to know how they are fairing (for the purposes of feedback). Facilities such as Maina Soko, as well as a few others, could be accessed with prior permission. JHPIEGO, through JSI/LS, has been working with defense forces to design logistics systems for ARVs and HIV tests kits. These systems have been running for a short period of time and an assessment has been planned.

Conclusion and Recommendations

Satellite Sites

Considering the negative effects of satellite sites on logistics management at full ART reporting sites, these sites should be included in the system design, and their accreditation process should be expedited. In order for the MoH to authorize inclusion of a satellite site into the LMU database, the site must provide ART services according to stipulated guidelines while awaiting accreditation by MCZ, and have staff trained in the logistics system to alleviate stock management problems.

During the dissemination meeting, it was agreed that a design workshop would be held to develop a strategy for incorporating ART satellite sites into the system to avert the current stock problems caused by their existence. The time frame as to when the workshop will be held was not agreed upon, though it was agreed that it should be soon. In support of the MOH, the USAID | DELIVER PROJECT's Country Director, Walter Proper, offered to sponsor this design workshop.

Supervision

Supervision should be strengthened with particular focus on logistics functions; i.e., ensuring that facilities are stocked according plan in order to reduce stock imbalances. The MOH will take the

lead in this activity, with the PHOs, DHOs, and SDP levels working in collaboration with implementing partners such as CHAZ, CIDRZ, and ZPCT.

Training

There is a need for formally training more staff from facilities where all trained staff have since left. The MOH in collaboration with the USAID | DELIVER PROJECT will continue conducting mop up trainings to cater to untrained staff.

Transport

Considering that there are some facilities that have been using public transport to move ARV drugs from the DHOs to their respective health facilities, there is a need for DHOs to have a fixed schedule for drug distribution to health centers and dedicated transport for drug distribution to enhance ARV drug availability.

Storage

There is a need for facilities to utilize available space, such as larger rooms being used for other supplies. The facilities with inadequate storage space must look into the possibility of expanding so that they are able store 3 months of stock. Subsequently, there will be reduction in stockouts that occur as a result of facilities having part of their stock kept at DHO pharmacy stores.

In collaboration with cooperating partners, the MOH should develop guidelines on storage space management which can be used by SDP levels with limited and alternative storage space. The USAID | DELIVER PROJECT is supporting the MOH by conducting storage assessments for facilities that include cost estimates.

References

Addo, Nii Akwei, Rowland Adukpo, Veronica Bekoe, Samuel Boateng, Ronald Brown, Egbert Bruce, Aoua Diarra, Parfait Edah, Wendy Nicodemus, Festus Sroda. 2006. *Assessment of the Ghana Laboratory Logistics System and Services.* Arlington, Va.: DELIVER, for the U.S. Agency for International Development (USAID).

Hasselberg, Erin and Peter Lisulo. 2008. *Zambia: PMTCT-Only Drug Logistics System Assessment Results And Recommendations.* Arlington, VA: USAID | DELIVER PROJECT, Task Order 1.

Appendix A

LMIS Forms

ARV Drug Stock Control Card

CODE: _____

ITEM DESCRIPTION: _____ **STRENGTH:** _____

UNIT: _____

MAXIMUM LEVEL: _____ **MINIMUM LEVEL:** _____ **(Reorder Level)**

DATE	REF. No.	ISSUED TO OR RECEIVED FROM	RECEIVED (+)	ISSUED (-)	LOSSES and ADJUST-MENTS	BALANCE	UNIT PRICE	NAME/ SIGNATURE	REMARKS

MINISTRY OF HEALTH

ART DAILY ACTIVITY REGISTER

Facility: _______________

District: _______________

		Quantities Dispensed																																										
		Fixed Dose Combinations								Single Drug Formulations																				Liquid/Powder Formulations														
Date	Patient Name/Number	Stavudine/Lamivudine/Nevirapine 30/150/200mg Tabs Bottle of 60 Tabs	Stavudine/Lamivudine/Nevirapine 40/150/200mg Tabs Bottle of 60 Tabs	Stavudine/Lamivudine 30/150mg Tabs Bottle of 60 Tabs	Stavudine/Lamivudine 40/150mg Tabs Bottle of 60 Tabs	Tenofovir/Emitrictabine 300/200mg tablets Bottle of 30 tablets	Zidovudine/Lamivudine 300/150mg Tabs Bottle of 60Tabs			Abacavir 300mg Tabs Bottle of 60 Tabs	Efavirenz 200mg Caps Bottle of 90 Caps	Efavirenz 50mg Caps Bottle of 30 Caps	Efavirenz 600mg Tabs Bottle of 30 Tabs	Didanosine 100mg Tabs Bottle of 30 Tabs	Didanosine 25mg Tabs Bottle of 60 Tabs	Didanosine 50mg Tabs Bottle of 60 Tabs	Lamivudine 150mg Tabs Bottle of 60 Tabs	Lopinavir/ritonavir 133.3/33.3mg Bottle of 180 Caps	Nevirapine 200mg Tabs Bottle of 60 Tabs	Stavudine 15mg Caps Bottle of 60 Caps	Stavudine 20mg Caps Bottle of 56 Caps (or 60)	Stavudine 30mg Caps Bottle of 56 Caps (or 60)	Stavudine 40mg Caps Bottle of 56 Caps (or 60)	Tenofovir 300mg Tabs Bottle of 30 Tabs	Zidovudine 100mg Caps Bottle of 60 Caps	Zidovudine 300mg Tabs Bottle of 60 Tabs				Abacavir oral solution 20mg/ml 240ml Bottle	Lamivudine oral solution 10mg/ml 100ml Bottle	Lamivudine oral solution 10mg/ml 240ml Bottle	Lopinavir/ritonavir 20mg/80mg/ml 60ml bottle	Nevirapine oral suspension 10mg/ml 100ml Bottle	Nevirapine oral suspension 10mg/ml 240ml Bottle	Nevirapine oral suspension 10mg/ml (PMTCT) 25ml Bottle	Nelfinavir powder for suspension 50mg/g 144g Bottle	Stavudine powder for suspension 1mg/ml 200mg Bottle	Zidovudine Oral Solution 10mg/ml 240ml Bottle	Zidovudine Oral Solution 10mg/ml 100ml Bottle				Dispenser's Initials
Total Quantity Dispensed																																												
Quantity Dispensed for Month (running total):																																												

MINISTRY OF HEALTH

ART DAILY ACTIVITY REGISTER

Facility: ________________

District: ________________

Quantities Dispensed

		Fixed Dose Combinations								Single Drug Formulations																				Liquid/Powder Formulations														
Date	Patient Name/Number	Stavudine/Lamivudine/Nevirapine 30/150/200mg Tabs Bottle of 60 Tabs	Stavudine/Lamivudine/Nevirapine 40/150/200mg Tabs Bottle of 60 Tabs	Stavudine/Lamivudine 30/150mg Tabs Bottle of 60 Tabs	Stavudine/Lamivudine 40/150mg Tabs Bottle of 60 Tabs	Tenofovir/Emitrictabine 300/200mg tablets Bottle of 30 tablets	Zidovudine/Lamivudine 300/150mg Tabs Bottle of 60Tabs			Abacavir 300mg Tabs Bottle of 60 Tabs	Efavirenz 200mg Caps Bottle of 90 Caps	Efavirenz 50mg Caps Bottle of 30 Caps	Efavirenz 600mg Tabs Bottle of 30 Tabs	Didanosine 100mg Tabs Bottle of 30 Tabs	Didanosine 25mg Tabs Bottle of 60 Tabs	Didanosine 50mg Tabs Bottle of 60 Tabs	Lamivudine 150mg Tabs Bottle of 60 Tabs	Lopinavir/ritonavir 133.3/33.3mg Bottle of 180 Caps	Nevirapine 200mg Tabs Bottle of 60 Tabs	Stavudine 15mg Caps Bottle of 60 Caps	Stavudine 20mg Caps Bottle of 56 Caps (or 60)	Stavudine 30mg Caps Bottle of 56 Caps (or 60)	Stavudine 40mg Caps Bottle of 56 Caps (or 60)	Tenofovir 300mg Tabs Bottle of 30 Tabs	Zidovudine 100mg Caps Bottle of 60 Caps	Zidovudine 300mg Tabs Bottle of 60 Tabs				Abacavir oral solution 20mg/ml 240ml Bottle	Lamivudine oral solution 10mg/ml 100ml Bottle	Lamivudine oral solution 10mg/ml 240ml Bottle	Lopinavir/ritonavir 20mg/80mg/ml 60ml bottle	Nevirapine oral suspension 10mg/ml 100ml Bottle	Nevirapine oral suspension 10mg/ml 240ml Bottle	Nevirapine oral suspension 10mg/ml (PMTCT) 25ml Bottle	Nelfinavir powder for suspension 50mg/g 144g Bottle	Stavudine powder for suspension 1mg/ml 200mg Bottle	Zidovudine Oral Solution 10mg/ml 240ml Bottle	Zidovudine Oral Solution 10mg/ml 100ml Bottle				Dispenser's Initials
Total Quantity Dispensed																																												
Quantity Dispensed for Month (running total):																																												

REPORT AND REQUISITION FOR ANTIRETROVIRAL DRUGS

☐ Emergency Order

Reporting Period: From _____ to _____ Province: _____ Maximum Stock Level: **3** Months
dd/mm/yyyy dd/mm/yyyy

Facility: _____ District: _____ Emergency Order Point: **0.5** Months

Drug Product	Unit	Beginning Balance of Store room + Dispensary	Total Quantity Received during the month	Total Quantity Dispensed for the month	Losses and Adjustments	Physical Count of Store Room + Dispensary at the end of the month	AMC = (E + previous 2 months consumption) ÷ 3	Maximum Quantity	Order Quantity
A	B	C	D	E	F	G	H	I = (H X 3)	J = (I–G)
Single Drug Formulations									
Efavirenz 50mg Capsules	Bottle of 30 Capsules								
Efavirenz 200mg Capsules	Bottle of 90 Capsules								
Efavirenz 600mg Tablets	Bottle of 30 Tablets								
Lamivudine 150mg Tablets	Bottle of 60 Tablets								
Lopinavir/ritonavir 133.3/33.3mg Capsules	Bottle of 180 Capsules								
Nevirapine 200mg Tablets	Bottle of 60 Tablets								
Stavudine 15mg Capsules	Bottle of 60 Capsules								
Stavudine 20mg Capsules	Bottle of 56 Capsules (or 60)								
Stavudine 30mg Capsules	Bottle of 56 Capsules (or 60)								
Stavudine 40mg Capsules	Bottle of 56 Capsules (or 60)								
Tenofovir 300mg Tablets	Bottle of 30 Tablets								

Explanation for Losses/Adjustments:

Remarks:

REPORT AND REQUISITION FOR ANTIRETROVIRAL DRUGS

☐ **Emergency Order**

Reporting Period: From _____ to _____ Province: _____ Maximum Stock Level: **3** Months
dd/mm/yyyy dd/mm/yyyy

Facility: _____ District: _____ Emergency Order Point: **0.5** Months

Drug Product	Unit	Beginning Balance of Store room + Dispensary	Total Quantity Received during the month	Total Quantity Dispensed for the month	Losses and Adjustments	Physical Count of Store Room + Dispensary at the end of the month	AMC = (E + previous 2 months consumption) ÷ 3	Maximum Quantity	Order Quantity
A	B	C	D	E	F	G	H	I = (H X 3)	J = (I–G)
Single Drug Formulations									
Zidovudine 100mg Capsules	Bottle of 100 Capsules								
Zidovudine 300mg Tablets	Bottle of 60 Tablets								
Liquid/Powder Formulations									
Abacavir oral solution 20mg/ml	240ml Bottle								
Lamivudine oral solution 10mg/ml	100ml Bottle								
Lamivudine oral solution 10mg/ml	240ml Bottle								
Lopinavir/ritonavir 20mg/80mg/ml	60ml bottle								
Nelfinavir powder for suspension 50mg/g	144g Bottle								
Nevirapine oral suspension 10mg/ml	100ml Bottle								
Nevirapine oral suspension 10mg/ml	240ml Bottle								

Explanation for Losses/Adjustments:

Remarks:

REPORT AND REQUISITION FOR ANTIRETROVIRAL DRUGS

☐ Emergency Order

Reporting Period: From _____ to _____ Province: _____ Maximum Stock Level: **3** Months
dd/mm/yyyy dd/mm/yyyy

Facility: _____ District: _____ Emergency Order Point: **0.5** Months

Drug Product	Unit	Beginning Balance of Store room + Dispensary	Total Quantity Received during the month	Total Quantity Dispensed for the month	Losses and Adjustments	Physical Count of Store Room + Dispensary at the end of the month	AMC = (E + previous 2 months consumption) ÷ 3	Maximum Quantity	Order Quantity
A	B	C	D	E	F	G	H	I = (H X 3)	J = (I–G)
Liquid/Powder Formulations									
Nevirapine oral solution 10mg/ml (PMTCT)	25 ml Bottle								
Stavudine powder for suspension 1mg/ml	100ml Bottle								
Zidovudine oral solution 10mg/ml	240ml Bottle								
Zidovudine oral solution 10mg/ml	100ml Bottle								

Explanation for Losses/Adjustments:

Remarks:

Completed by: _____ *Authorized by:* _____ *Ordered by:* _____ *Authorized by:* _____

Signature: _____ *Signature:* _____ *Signature:* _____ *Signature:* _____

Date: _____ *Date:* _____ *Date:* _____ *Date:* _____

SUPPLY VOUCHER (Health Centre) for ARV Drugs

To (Name of District Stores): _____

From (Name of Centre/Unit/Dept): _____

Requested by: _____**Signature**: _____**Date**: _____

Authorised by: _____**Signature**: **Date**: _____

(A) Item Code	(B) Description, Strength, Form	(C) Unit	(D) Balance at Hand	(E) Quantity Requested	(F) Quantity Supplied	(G) Quantity Received	(H) Balance on Hand at District	(I) Remarks

Approved by:_____ Issued by:_____ Delivered by:_____ Received by:_____

Date: _____ Date: _____ Date: _____ Date: _____

Computer Generated Report and Requisition for Antiretroviral Drugs

Report Period: August, 2006
Facility: Mother Theresa Hospital
Code: 8476352

Maximum Stock Level: 3.0 months
Emergency Order Point: 0.5 months

Product		Unit	Beginning Balance	Total Quantity Received	Total Quantity Dispensed	Adjust-ments	Physical Count	AMC	New EOP	Order Quantity	Quantity Supplied
FDC004	Stavudine/Lamivudine 40/150mg Tablets	Bottle of 60	***0.00***	200.00	150.00	***50.00***	***100.00***	150.00	75.00	***350.00***	350.00
FDC005	Zidovudine/Lamivudine 300/150mg Tablets	Bottle of 60	0.00	300.00	20.00	-100.00	180.00	20.00	10.00	0.00	0.00
FD006	Tenofovir/Emitricitabine 300/200mg Tablets	Bottle of 60	0.00	200.00	150.00	***50.00***	***100.00***	150.00	75.00	350.00	350.00
SDF001	Efavirenz 50mg Capsules	Bottle of 30	0.00	200.00	150.00	***50.00***	***100.00***	150.00	75.00	350.00	350.00

Comments:

Computer Generated Adjustment of –200
on 08-28-2006 at 22:51:16 for 0
Computer Generated Adjustment of –200
On 08-28-2006 at 22:51:25 for 0
Computer Generated Adjustment of 50
On 08-30-2006 at 16:22:48 for Stavudine/Lamivudine 40/150mg Tablets
Computer Generated Adjustment of 50
On 08-30-2006 at 23:59:11 for Tenofovir/Emitricitabine 300/200mg Tablets
Computer Generated Adjustment of 50
On 08-31-2006 at 00:32:07 for Efavirenz 50mg Capsules

LMU Technical Officer Signature & Name _____ Date _____

Received by Signature & Name _____ Date _____

Appendix B

Data Collection Forms

ARV Logistics System

Evaluation
Data Collection Tool

FACILITY IDENTIFICATION

Facility Name: _____

Province: _____

District : _____

Type of Site (Check what applies):

- ☐ ART
- ☐ ART Satellite

Operating Authority:

- ☐ MOH
- ☐ NGO (list NGO) _____
- ☐ Mission

Facility Code: Prov. ☐☐ Dist. ☐☐ Fac. ☐☐

Facility (SDP) Type:

- ☐ Hospital Level 3
- ☐ Hospital Level 2
- ☐ Hospital Level 1
- ☐ Health Centre

Cooperating Partner Support:

- ☐ CHAZ
- ☐ ZPCT
- ☐ CIDRZ
- ☐ AIDS Relief
- ☐ Other (Specify) _____

INFORMATION ABOUT EVALUATION

Date of visit:

DAY/ ☐☐ MONTH/ ☐☐ YEAR ☐☐☐☐

Name/title of the staff member(s) interviewed:

_____

Name of Data collector:

_____

Training			
No.	**Question**	**Code Classification**	**Go To**
1	Who is the principal person responsible for managing ARVs at this facility?	☐ Nurse ☐ Clinical Officer ☐ Pharmacist ☐ Pharmacy Technologist ☐ Dispenser ☐ Other (Specify)_____	
2	Have they received the ARV Logistics System training?	Yes…….1 No ……..0	
3	Has anyone in this facility received On-the-Job training in the ARV Logistics System?	Yes…….1 No ……..0	
4	When the trained person is out of the facility, who then completes the reports?		
5	Is there a copy of the SOP Manual for the ARV Logistics System at the facility? (ask to be shown the manual)	Yes…….1 No ……..0	
LMIS Records and Reporting (circle all that apply)			
6A	Is the facility using the Daily Activity Register for ARVs?	Yes .....1 No 0	➔7
6B	If no to 6A, what does the facility use?	Dispensing tool .....1 Smart Care .....2 Other Specify……3	
7	When was the last time an ARV report/order submitted from this facility?	Never .....0 Within the last month .....1 More than 1 month ago .....2 More than 2 months ago .....3 More than 3 months ago 4	
8	How long does it take to complete the report/order?	1hour……1 2hours……...2 3hours……...3 Other…….4	
9	How do you transmit your report/order to the next higher level?	Radio……1 Phone……2 Posting……..3 Other……4	
10	On average, how long does it take between ordering and receiving ARVs?	Less than 2 weeks.....1 2 weeks to one month .....2 Between 1 and 2 months .....3 More than 2 months 4	
11	How many emergency orders for ARV's have you made in the last six months?	One……...1 Two……...2 Three…….3 Four……...4	

		None……..5	
12	Do you always receive the quantities of ARV drugs that you order?	Yes .....1 No ……0	
13	Do you receive the computerized R&R when you receive your order from the district?	Never .....0 Always .....1 Sometimes 2	

Transport			
14	Who is responsible for transporting ARVs to your facility? **CIRCLE ALL THAT APPLY**	MSL delivers ..... A District delivers ..... B This facility collects ..... C Other (Specify)……	
15	What kind of transportation is most often used?	Facility vehicle .....1 Public transportation .....2 Private vehicle .....3 Boat……..4 Motorcycle .....5 Bicycle .....6 On foot .....7 Other (Specify) _____9	
16A	Have you stocked out of any of the ARV's (indicator products) in the last six months?	Yes……1 No……..0	➔ 17
16B	If yes to 16A, how many times?	Once……...1 Twice……..2 Three times……3 Four times……..4	
17	Has the facility experienced any problems with the ARV Logistics System?	Monthly ordering cycle .....1 Completing forms .....2 Receiving ARVs .....3 Other…….……9 Please specify in detail:	
18	Do you have any specific recommendations for improving the ARV Logistics System?		

ACCURACY OF LMIS RECORDS			
A. DAILY ACTIVITY REGISTER			
19	On average, how many months of supply of ARVs do you dispense to a client?	A month……1 Two months……2 Three months……..3	

20A	Is the data in the DAR tallied at the bottom of each page?	Yes……1 No…….0	➔go to 21
20B	If no to 20A, why?	Check any that apply: ☐ Lack of training ☐ Absence from work ☐ Forgetting to do so ☐ Overwhelmed with work ☐ Other: _____	
21	Is the DAR tallied at the end of each month? If no, how is the total quantity dispensed calculated at the end of the month for inputting onto the R&R?	Yes…….1 No……...0 ……..	
22	Is the data on the DAR entered on a daily basis up to the day of the visit?	☐ Yes…….1 ☐ No……...0	➔24
23	If no to 22, why?	Check any that apply: ☐ Lack of training ☐ Absence from work ☐ Forgetting to do so ☐ Overwhelmed with work ☐ Other: _____	
24	Is data transposed accurately from the DAR to the Quantity Dispensed/Used column on the most recent R&R? If no, why?	Yes……1 No……..0	➔26
25	If answered "yes" to question #24, check the accuracy of the data transposed onto the R&R by doing the following: 1. Note the month of the last R&R _____ 2. Note the total from the last day of the DAR for the reporting month as above 3. Note the quantity reported dispensed/used on the R&R for that month (from the copy at the facility AND the Computerized R&R from SCMgr)		

Product	**DAR Total from Last Day of Month**	***Dispensed/Used* Quantity from R&R for that Month**
D4T 30/3TC/NVP		

	TDF/FTC			
	EFV 600mg			
	NVP 200mg			
	NVP Solution 240mls			
B. STOCK CONTROL CARDS				
26	Is there a SCC available for each product managed at this facility? (Confirm only for the product areas being assessed)		Yes……..1 No……...0	

27

1. Check the stock availability and accuracy of the SCC

Product A	Managed at this Facility? (Y/N) B	Stock out today? (Y/N) C	SCC Available? (Y/N) D	Calculated Balance on SCC E	Physical Count F	Quantity Expired G	Quantity Supplied (Source: Last R&R) H	Quantity Received (Source: SCC after R&R) I	General Comments
D4T 30/3TC/NVP									
TDF/FTC									
EFV 600mg									
NVP 200mg									
NVP Solution 240mls									

C. REPORT AND REQUISITION			
28	Does the quantity supplied on R&R equal the quantity received on the stock control card for key indicator products (column H=I in question 27)? If no, why was there a discrepancy?	Yes…….1 No……..0	
29	Do you have satellite sites that you are supporting?	Yes……..1 No……...…..0 If no ignore the following questions.	
30	Is the data on your R&R inclusive of Satellite Sites?	Yes……..1 No……...0	➔32
31	Do your satellite sites have LMIS materials for data collection?	Yes…….1 No……..0	➔33
32	How do you account for the drugs that you give to them?		
33	How do you collect the reports from the satellite sites?	Satellite site sends……1 Facility collects……2 Not Applicable…….0	

TABLE 3: Drug Storage Conditions (only assess main store)

Assess storage condition of main storage area only. Place a "Y" for yes or "N" for no in the appropriate column based on visual inspection of the storage facility; note any relevant observations in the comments column. ***To qualify as "yes," all products and cartons must meet the criteria for each item.***

No	Description	Y/N	COMMENTS
01.	Products are stored and organized in a manner accessible for first-to-expire, first-out (FEFO) counting and general management.		
02.	Does the facility makes it a practice to separate damaged and/or expired products from usable products and removes them from inventory?		
03.	Are medicine stored separately from insecticides and chemicals?		
04.	Is the current space and organization sufficient for existing products and reasonable expansion (i.e., receipt of expected product deliveries for foreseeable future)? Is space appropriate?		
05.	There is no evidence of rodents or insects in the storage area. (Visually inspect the storage area for evidence of rodents [droppings] or insects that can damage or contaminate the products.)		
06.	Storage area is secured with a lock and key, but is accessible during normal working hours; access is limited to authorized personnel.		
07.	Products are protected from direct sunlight on the day of the visit.		
08.	Products are stored at the appropriate temperature on the day of the visit according to product temperature specifications.		
09.	Is there appropriate fire safety equipment? If fire extinguisher, is it serviced?		
10.	Are there pallets/shelves available to ensure products are off the floor?		
11.	Are products stored 30cm off the wall, 10 cm from the floor (where appropriate)? Are products stacked not more than 2.5 cm high?		

For more information, visit deliver.jsi.com.

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