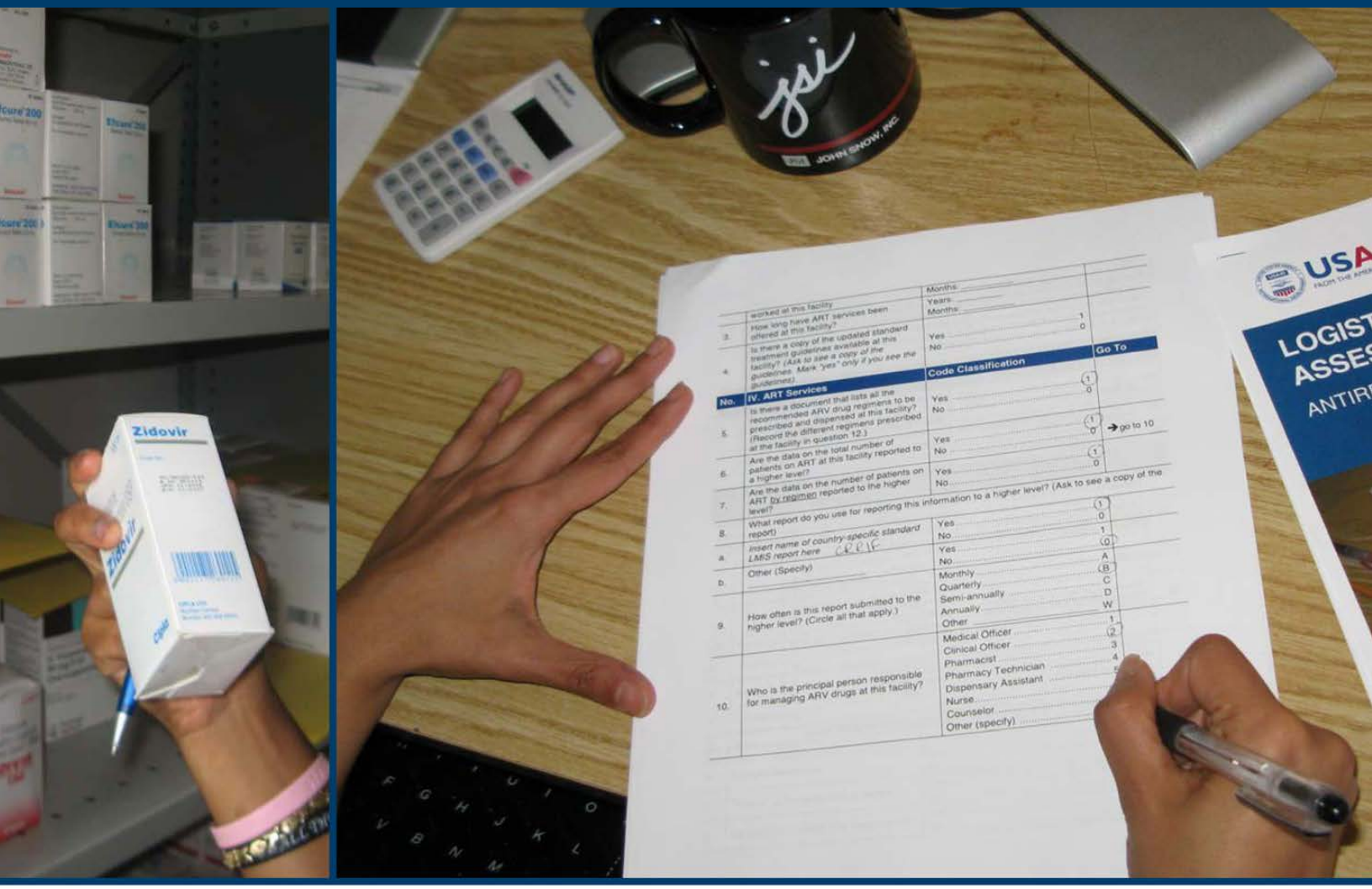
USAID | DELIVER PROJECT

LOGISTICS INDICATORS ASSESSMENT TOOL (LIAT)

ANTIRETROVIRAL DRUGS



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USAID | DELIVER PROJECT, Task Order 1
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Abstract
The Logistics Indicators Assessment Tool (LIAT), a quantitative data collection instrument developed by the DELIVER project, is used to conduct a facility-based survey to assess health commodity logistics system performance and commodity availability at health facilities. This tool has been adapted from the original version specifically to assess antiretroviral drugs logistics system performance and availability at health facilities. The LIAT can be used to monitor the performance of certain processes involved in the logistics management of health commodities over time, to evaluate certain outcomes of logistics interventions, to provide ongoing supervision and performance monitoring, and to monitor commodity availability.

Cover photo: On the right, a worker fills out a logistics evaluation. On the left, a worker takes stock of ARV drugs.

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CONTENTS

ACRONYMS

3TC	lamivudine
AIDS	acquired immunodeficiency syndrome
ART	antiretroviral therapy
ARV	antiretroviral (drug)
d4T	stavudine
FDC	fixed-dose combination
FEFO	first-to-expire, first-out
HIV	human immunodeficiency virus
INN	international nonproprietary name
LIAT	Logistics Indicators Assessment Tool
LMIS	logistics management information system
MOH	Ministry of Health
N/A	not applicable
NGO	nongovernmental organization
NVP	nevirapine
PMTCT	prevention of mother-to-child transmission (of HIV)
SDP	service delivery point
STGs	standard treatment guidelines

USER'S GUIDE

PURPOSE

The Logistics Indicators Assessment Tool (LIAT), a quantitative data collection instrument developed by the USAID | DELIVER PROJECT, is used to conduct a facility-based survey to assess health commodity logistics system performance and commodity availability at health facilities. This tool has been adapted from the original version specifically to assess antiretroviral (ARV) drugs logistics system performance and availability at health facilities. The LIAT can be used to monitor the performance of certain processes involved in the logistics management of health commodities over time, to evaluate certain outcomes of logistics interventions, to provide ongoing supervision and performance monitoring, and to monitor commodity availability.

The data collected using the LIAT can be used to calculate the following core logistics indicators:

- accuracy of logistics data for inventory management
- percentage of facilities that receive the quantity of products ordered
- percentage of facilities that maintain acceptable storage conditions
- percentage of facilities whose stock levels ensure near-term product availability (stock status)
- percentage of facilities that experienced a stockout at any point during a given period or at the time of the visit

In addition to these indicators, the data collected can also be used to calculate additional related indicators, such as duration of stockouts, reasons for stockouts, and more. For a description of the indicators, refer to the *List of Indicators* in this manual, following the tool.

Supplemental questions provide additional information about the characteristics of the supply chain being assessed, such as the use of LMIS information, ordering procedures, transport systems, supervision frequency, and cold chain management.

METHODOLOGY

The LIAT is used to conduct a facility-based survey to collect quantitative data that will be used to calculate indicators for monitoring and evaluating logistics system performance. It is important to have stakeholder buy-in for this type of study from the beginning to the end. The following steps outline the recommended methodology for completing this assessment.

1. Preparatory Work
    a. Identify the objectives of the assessment and develop a scope of work.
    b. Secure financing for all the study teams' costs, including travel and accommodations.
    c. Review and adapt the LIAT to meet the objectives identified for the assessment, as well as to meet ongoing monitoring needs.

d. Determine the appropriate sample size and develop a list of the facilities to be visited. The main purpose of the sampling design is to avoid a convenience sample. Randomly select the facilities as much as possible.

   To calculate the sample size and select sites,

   – Identify or get hold of the most recent list of health facilities that provide antiretroviral therapy (ART) services, stratified by type of facilities and location, which will be used as the "sampling frame" to select the facilities to be surveyed.

   – Ensure that all parties involved agree to the criteria for the selection of sites. Examples of site selection criteria include urban, semi-urban, or rural location; different geographical distribution; high patient volume versus low patient volume sites; and well performing versus poorly performing sites.

   – For a statistically significant sample, use a standard sampling formula, which often yields a large sample size. In case of resource constraints, visit a minimum of 100 facilities or 15 percent of facilities, whichever is smaller.

   – Randomly select the survey sites from the sampling frame, proportionally within each stratum, without breaking the supply chain between levels. In other words, select higher-level warehouses first, then randomly select districts within selected regions, and then randomly select service delivery points (SDPs) within selected districts, and so on.

e. Recruit study team members. The following qualifications for study members should be considered:

   – experience in field surveys

   – willingness to commit to a three- to four-week full-time assignment

   – physical ability to travel in both urban and potentially difficult rural settings

   – familiarity with the areas to be visited and the local health care system

   – detail oriented

   – good communication skills

   – fluency in local language(s) (desirable)

   – ability to work as a member of a team

   – advanced degree, preferably in public health

   – quantitative research skills

   – knowledge of ARV drugs and logistics systems (desirable)

f. Obtain written authorization (where needed) for study team members to visit facilities.

g. Prepare itineraries and logistical arrangements for study team travel and accommodations.

h. Prepare study team training curriculum. Ideally, the curriculum should include at least two days of classroom activities (review and discussion of the assessment tool), one day to field test the tool, and one day of classroom discussion to finalize the tool. Examples of curricula from past training can be obtained from the USAID | DELIVER Project. This training

should stress the importance of proper completion of surveys. Experience has shown that incomplete surveys cannot be used and are therefore a waste of time, energy, and money.

i. Schedule a meeting to be held at the end of the assessment to present preliminary findings to stakeholders in the country

2. Prior to the Assessment

2.1. Survey Specific

a. Confirm arrangements (transportation, accommodations, translation, etc.).

b. Obtain any legal travel documents needed for study team members.

c. Obtain and review any logistics forms being used in the country.

d. Agree upon the indicators and the ARV drugs that will be included in the survey with all the parties involved.

e. Train team members on how the assessment will be carried out and how to use the tool, closely following the guiding text provided within the LIAT.

f. As a team, discuss whether the survey will collect consumption or issues data as a proxy for consumption for the stock data table (see table 2), and revise the instructions accordingly.

g. Field test the tool at one or more accessible health care facilities with all team members.

h. Review the results of the field test and discuss final revisions with the team members.

i. Finalize the assessment tool. It is best to list the ARV drugs to be assessed in the tables of the tool before printing the tool.

2.2. Program Specific

a. Review National Guidelines for Provision of Antiretroviral Therapy and/or the National ART Strategy to

– Identify the target populations and authorized levels of the health system at which ART services are being/will be provided. As an example, as ART programs expand, some countries have set up a system whereby new patients are seen at tertiary-level facilities. After they are initiated on ART and have been stable for three months, they no longer go to the tertiary facility to collect drugs but instead go to a lower-level facility (such as a district hospital or large health center) to get refills on a routine basis. As part of the site selection process, it will be important in such a program to visit both the tertiary-level facility and one or more of its affiliated lower-level facilities.

– Review the standard treatment guidelines (STGs). Many programs will have identified first-line and second-line treatment guidelines for both adults and pediatrics. Ideally, the STGs will also dictate regimens for patients co-infected and cotreated for tuberculosis, for pregnant women and newborns; single drug substitutions for toxicity or side effects; and complete regimen changes due to drug resistance. During the assessment it may not make sense to collect data on all drugs for all regimens, but in deciding which drugs to include, it is important to include all

three drugs required for a single regimen rather than one "indicator" drug each from three different regimens.

- Identify the most commonly used ARV drugs (e.g., those usually included in the standard first-line regimens for adults and pediatric ART). In most countries the vast majority of patients are still on these regimens, so stock imbalances in any of those drugs are a major indicator of problems in the supply chain.
- Understand if there are policies determining the use of particular formulations, such as fixed-dose combination drugs (FDCs) versus single-drug formulations. FDCs should be managed as separate products from the single-drug formulations, so it is important to have thought about this ahead of site visits: If a facility is stocked out of the triple FDC stavudine/lamivudine/nevirapine (d4T/3TC/NVP) but has a double FDC stavudine/lamivudine (d4T/3TC) and single formulation of NVP or all three drugs as single-drug formulations, it is technically not stocked out of that regimen (and is still able to provide the service), even though it may be stocked out of that particular product. Again, this will be an important point to clarify in order to ensure that interpretation and presentation of results are accurate.
- Determine all the uses of ARV drugs for which data will be collected. ARV drugs are used for chronic, lifelong treatment of adults and children on ART, short-course ARV prophylaxis for prevention of mother-to-child transmission (of HIV) (PMTCT), and post-exposure prophylaxis. Pediatric ART may be provided at only a limited number of facilities, which may affect site selection.

b. Review supply-chain-specific documents or prior assessments to understand the design of the logistics system and identify key parameters, including number of levels in the supply chain, review period, order/report processes, and resupply and transportation procedures. The vast majority of ART programs that have formally designed logistics systems have decided to link reporting/ordering and resupply. In other words, facilities that do not submit a report/order are not resupplied. This policy has led to higher reporting rates and fewer stockouts. It is important to know whether this policy has been implemented in a country so that it can be addressed when probing for reasons of stockouts.

c. Visit the central medical stores where national supplies of ARV drugs are stored to identify the different brands and formulations that are in stock and to identify particular batches that are due to expire soon. This will enable the team to select its list of indicator ARV drugs for which to collect data, and expiry dates in particular can then be monitored at lower levels. Also, central-level stock cards should identify central-level stockout periods, which will be helpful as lower-level site visits are conducted.

3. During the Assessment

a. Observe as many study teams as possible as they conduct data collection at each level of the system being assessed.

b. Review completed questionnaires to clarify any data inconsistencies. This is a very important step to ensure that the study teams are collecting complete and accurate data.

c. Enter the data collected into the chosen database or spreadsheet.

4. Following the Assessment
    a. Conduct data analysis.
    b. Present the preliminary results, conclusions, and recommendations from the assessment to all stakeholders.
    c. Write up a report of the results, conclusions, and recommendations.
    d. Disseminate the final report to key stakeholders.

RECOMMENDED READING

Resources for Managing the HIV & AIDS and Laboratory Supply Chains CD, published by the USAID | DELIVER PROJECT, specifically the "Building Blocks for System Design for HIV Tests and ARV Drugs: Inventory Control Systems, LMISs, and Storage and Distribution" and *Logistics Fact Sheets: ARV Drugs*. Visit the USAID | DELIVER PROJECT website to download the documents. deliver.jsi.com

CHARACTERISTICS OF ARV DRUGS

ARV drugs have characteristics that influence how they are managed. Understanding the impact of these characteristics on the supply chain will facilitate effective use of this instrument and interpretation of results from the assessment. Key characteristics for ARVs include the following:

- Short shelf lives that can range from 12 to 36 months
- Cool storage required for some drugs
- STGs that sometimes require three to four different drugs from multiple sources to be available simultaneously to provide and dispense a complete regimen. For this reason, particular attention should be paid when analyzing the stock status data, given that one drug can be used in multiple regimens and that multiple strengths, formulations, and pack sizes of the same drug may exist.
- Proliferation of brands and formulations. Thus, when stock counts are recorded, the International Nonproprietary Name (INN) should be used and all brands of that drug recorded as being in stock. Also, as described above, when stock availability is assessed, thought should go into determining how the assessment team interprets stockouts, especially when one formulation may be out of stock but other formulations that make up the same regimen are available.
- Higher levels of accountability, including special reporting or other documentation requirements from either donors or manufacturers

QUESTIONNAIRE GUIDELINES

I. Information about Interview	Record the date of the interview and list the names of the interviewers.
II. Facility Identification	Ask to speak to the person in charge of the facility. Write down the name of the facility and the location. Record the location, facility type, facility code, and characteristics using the codes provided for each question. Write the code number of the responses in the boxes on the right.
III. Introduction	Use the text here to guide your introduction and explain the purpose of the assessment to facility staff. Request permission to conduct the interviews and record the information regarding the interviewee's titles and functions. For sections IV through IX of the questionnaire, record responses by clearly circling the number or letter that corresponds to the interviewee's response. Questions with letters may have multiple responses, while questions with numbers have only a single response; other questions require the interviewer to write the interviewee's responses.
IV. ART Program Information	Interview the facility-in-charge or staff member in charge of the ART program about the ART services provided at the facility.
V. Data Collection	Record all data in the same unit of measure as dispensed to the clients. Products should be tracked by their INN rather than brand name. Stock counts should be based on the lowest dispensing unit. Be sure to verify that all bottles of the same product contain the same number of pills, because different manufacturers can provide the same drug in different bottle sizes. This is particularly true for pediatric formulations, which will vary in size even from the same manufacturer.
VI. Reporting and Ordering	Record interviewee's responses to the questions in this section.
VII. Receiving/Distribution/Transportation	Record interviewee's responses to the questions in this section.
VIII. Supervision	Record interviewee's responses to the questions in this section.
IX. Storage Conditions/Stock-keeping Practices/Physical Inventory	Record interviewee's responses to the questions in this section.
Table 1. Storage Conditions	Record observations on the main storage area (even if it is a cabinet) by responding to questions 1–14 on the storage conditions for each facility visited. For large storage areas that require stacking of multiple boxes, complete questions 15–18.
Table 2. Stock Data for ARV Drugs	Review the stock cards. Record the answers in each column in table 2. To complete the table, follow the instructions for each column. If the information is not available from stock cards, LMIS reports, or other facility records and the interviewee does not know, mark Don't Know as the response.
Table 3. Quantity Ordered vs. Quantity Received	Complete the table from a review of facility records (orders, stock cards, transaction records) for all or a selection of the products being assessed.

Table 4. LMIS Data Quality	Complete the table for all or a selection of the products being assessed.
X. End Interview	Ask the interviewee if he or she wants to ask any questions or offer any comments. Thank the interviewee for his or her time and the information.
XI. After the Interview	Record any additional comments/observations and provide a brief analysis of findings from the facility visit.

I. Information about Interview

Date: DAY ☐☐ MONTH ☐☐ YEAR ☐☐☐☐

Interviewer(s):

II. Facility Identification

Name of the facility: _____

Facility location: _____

City/town: _____

Region: _____

District: _____

Facility Code: (as identified by the operating authority)

Facility Type: (1 = Warehouse; 2 = SDP)

If SDP, mark type of facility:
(1 = District hospital; 2 = Rural hospital; 3 = Health center; 4 = Dispensary; 7 = Other _____)

If Warehouse, mark level:
(1 = Central; 2 = Regional/provincial; 3 = District)

Operating Authority: MOH = 1; NGO = 2

Facility Characteristics:

Tarmac to the facility (0 = No; 1= Yes)

Operational electricity on day of visit? (0 = No; 1 = Yes)

Operational water in the building on the day of visit? (0 = No; 1 = Yes)

Operational telephone (including mobile phones) or

Region: ..... ☐☐

District: ..... ☐☐

Facility Code: ..... ☐☐

Warehouse/SDP: ..... ☐

SDP Facility Type: ..... ☐

Warehouse Facility Type: ..... ☐

Operating Authority: ..... ☐

Tarmac: ..... ☐

Electricity: ..... ☐

Water: ..... ☐

External Communication: ..... ☐

radio on day of visit? (0 = No; 1 = Yes)	

III. Introduction

Ask for the person in charge of the facility and show the letter of introduction/authorization from the Ministry of Health (MOH). Introduce all team members and ask facility representatives to introduce themselves.

Explain the objectives of the assessment and the purpose of the visit to the facility today:

"Good day, and thank you for agreeing to receive us today. My name is _____. My colleagues are _____ and _____. My colleague(s) and I are representing the Ministry of Health. We are assisting the National ART Program to conduct an assessment of the logistics system for managing ARV drugs for the national program. We are visiting selected health facilities throughout the country, and this facility was randomly selected to be included in the assessment. The purpose of the visit today is to assess the availability of ARV drugs at this facility and to collect information about how you order, receive, store, and record the use of these products in order to better understand how the logistics system for managing ARV drugs is functioning. This is not a supervisory visit, and the performance of individual staff members is not being evaluated.

"The results of the assessment will provide information for developing recommendations and planning improvements in the logistics system for these products. This assessment may be conducted again in the future to measure changes in the logistics system performance over time.

"We would first like to ask you some general questions about the ART services provided at this facility. Then, with your permission, we would like to speak with staff members about how the ARV drugs are managed at this facility. In addition, we would like to visit the storage areas to actually count the products you have in stock today and observe the general storage conditions."

Ask the ART coordinator to identify staff members who can answer questions about management of the ARV drugs at the facility. Ask the ART coordinator and other staff members involved in provision of ART services if they have any questions before proceeding with the interview questions.

	May we continue?	Yes ..... 1 No 0	➔STOP

At this point, the assessment team members should separate into two groups. One will interview facility staff responsible for providing ART services and managing ARV drugs at the facility, and the other will visit the storage area for ARV drugs to observe storage conditions and assess stock-keeping practices, review stock cards, and conduct the physical inventory. If the group interviewing facility staff finishes first, they should join the other group to help count and document the results of the physical inventory.

No.	IV. ART Services	Code Classification	Go To/ Comments
1.	Name, title, and mobile phone number of person interviewed for this section	Name: _____ Title: _____ Mobile Number: _____	
2.	Number of years and months you have worked at this facility	Years: _____ Months: _____	
3.	How long have ART services been offered at this facility?	Years: _____ Months: _____	
4.	Is a copy of the updated standard treatment guidelines available at this facility? *(Ask to see a copy of the guidelines. Mark Yes only if you see the guidelines.)*	Yes ..... 1 No 0	
5.	Is there a document that lists all the recommended ARV drug regimens to be prescribed and dispensed at this facility? *(Record the different regimens prescribed at the facility in question 18.)*	Yes ..... 1 No 0	
6.	Are the data on the total number of patients on ART at this facility reported to a higher level?	Yes ..... 1 No 0	➔go to 10
7.	Are the data on the number of patients on ART by regimen reported to the higher level?	Yes..... 1 No 0	
8.	What report do you use for reporting this information to a higher level? *(Ask to see a copy of the report.)*		
a.	*Insert name of country-specific standard LMIS report here.*	Yes..... 1 No 0	
b.	Other *(specify)* _____	Yes..... 1 No 0	
9.	How often is this report submitted to the higher level? *(Circle all that apply.)*	Monthly.....A Quarterly .....B Semi-annually ..... C Annually ..... D Other _____W	
10.	Who is the principal person responsible for managing ARV drugs at this facility?	Medical Officer..... 1 Clinical Officer ..... 2 Pharmacist..... 3 Pharmacy Technician ..... 4 Dispensary Assistant ..... 5 Nurse ..... 6 Counselor ..... 7 Other *(specify)* 9	

First ask to speak to staff member(s) responsible for dispensing the ARV drugs at the facility. After asking the questions in sections V through VIII, visit the warehouse, storeroom, or other storage area where the ARV drugs are stored. If you are referred to another staff member for the stocktaking exercise, explain the assessment objectives and purpose of the visit as you did during the introduction.

No.	V. Data Collection	Code Classification	Go To/ Comments
11.	Name, title, and mobile phone number of person interviewed for this section	Name: _____ Title: _____ Mobile Number: _____	
12.	Number of years and months you have worked at this facility	Years: _____ Months: _____	
13.	Name and title of person interviewed for this section	Name: _____ Title:	
14.	How much of a supply is dispensed to patients when they come for resupply?	Months: _____ Days: _____	
15.	Where do you record information on the quantities of ARV drugs dispensed (consumption)?	Daily ART Register.....A Patient Record .....B Pharmacy Register.....C Stores Ledger .....D Stock Card .....E Not Recorded.....F Other _____ W	
16.	Where do you record information on the quantities of ARV drugs in stock (stock on hand)?	Daily ART Register .....A Pharmacy Register .....B Stores Ledger .....C Stock Card .....D Not Recorded.....F Other _____ W	
17.	Where do you record patient by regimen information?	Daily ART Register .....A Pharmacy Register .....B Not Recorded.....F Other _____ W	

No.	V. Data Collection	Code Classification	Go To/ Comments
18.	List the different ARV drug regimens currently being dispensed at this facility.		

1	Adult ARV Regimens	Yes = 1 No = 0
1a		
1b		
1c		
1d		
1e		
1f		
1g		
	PMTCT Regimens	
3a	Mother	
3b	Infant	
	Post-Exposure Prophylaxis	
4a	High Risk	
4b	Low Risk	

2	Pediatric ARV Regimens	Yes = 1 No = 0
2a		
2b		
2c		
2d		
2e		
2f		
2g		
2h		
2i		
2j		

No.	VI. Reporting and Ordering	Code Classification	Go To/ Comments
NOTE: *If the person dispensing ARV drugs is not responsible for compiling and submitting facility reports on consumption and stock levels of ARV drugs, ask to speak to the appropriate person to answer the questions in this section.*			
19.	What report (LMIS forms) do you use for reporting to a higher level? *(Ask to see a copy of the report.)*		
a.	*Insert name of country-specific standard LMIS report here*	Yes .....1 No 0	➔go to 21
b.	Other *(specify)* _____	Yes .....1 No 0	
20.	Verify the type of data collected in the LMIS report. *(Look at the LMIS report to verify.)*		
a.	Received	Yes .....1 No 0	
b.	Issues	Yes .....1 No 0	
c.	Consumption	Yes .....1 No 0	
d.	Stock on hand	Yes .....1 No 0	
e.	Losses/adjustments	Yes .....1 No 0	
f.	Total no. patients on ART at facility	Yes .....1 No 0	

g.	No. patients on each ARV drug regimen	Yes .....1 No 0	
No.	**VI. Reporting and Ordering**	**Code Classification**	**Go To/ Comments**
21.	Who prepares the orders/reports for ARV drugs for this facility?	Medical Officer .....1 Clinical Officer .....2 Nurse .....3 Pharmacist .....4 Pharmacy Assistant .....5 Storekeeper .....6 Other *(specify)* _____9	
22.	When was the last time you submitted the report on consumption and stock on hand of ARV drugs at this facility?	Never .....1 Within the last month .....2 2 months ago .....3 3 months ago .....4 More than 3 months ago 5	
23.	How often are you supposed to submit reports to the higher level?	Monthly .....1 Quarterly .....2 Semi-annually .....3 Annually .....4 Other _____9	
24.	Are you able to submit your reports on time?	Always .....1 Most of the time.....2 Sometimes .....3 Never 4	➔go to 26
25.	What factors influence not being able to submit your report on time?	Takes too long .....1 Not enough time between reports....2 Don't have the forms .....3 Approval process is too long .....4 Difficulties in transmitting reports (mail, email, telephone, collection)...5 Other 9	
26.	How long does it take you to complete your report/order?	Days: _____ Hours: _____	
27.	How did you learn to complete the forms for collecting and reporting data on the quantities of ARV drugs dispensed (consumption) and quantities in stock (stock on hand)? *(Circle all that apply.)*	During a training workshop ..... A On-the-job training ..... B Never been trained ..... C Other *(specify)* _____ W	
28.	Who determines the quantities of ARV drugs to order? *(Circle all that apply.)*	The facility itself ..... A Higher-level facility ..... B Other _____ W	➔go to 31

No.	VI. Reporting and Ordering	Code Classification	Go To/ Comments
29.	How are the order resupply quantities determined? *(Ask interviewee to explain the formula used to arrive at the order quantity and note here.)*	Formula ..... 1 Don't Know ..... 2 Other means *(specify)* 9	
30.	How did you learn to calculate the order quantity for ARV drugs? *(Circle all that apply.)*	During a training workshop ..... A On-the-job training ..... B Never been trained ..... C Other *(specify)* ..... W	
31.	How many emergency orders for ARV drugs were placed in the past 6 months?	None ..... 0 1 ..... 1 2 ..... 2 3 ..... 3 More than 3 ..... 4 Don't Know 5	
32.	How do you transmit your report/order to the higher level?	By fax ..... A By email ..... B Send with courier or mail ..... C Send by facility vehicle ..... D Picked up by higher level ..... E Other _____ W	
33.	Are the data on the LMIS report included in other reports?	Yes ..... 0 No ..... 1 Don't Know 9	➔ go to 36
34.	If yes, which data are reported?	Stock on hand ..... 1 Consumption ..... 2 Losses/adjustments ..... 3 Patient by regimen data 4	
Ask Questions 35–37 at higher-level facilities that receive LMIS reports from the lower-level facilities.			
35.	Do you receive reports on the quantities of ARVs dispensed (consumption) and the quantities of ARVs in stock (stock on hand) from lower-level facilities?	Yes ..... 0 No 1	➔ go to 38
36.	How many facilities are supposed to submit reports on ARV drugs to this facility?	|___|___|	
37.	How many of these facilities submitted their reports for the last reporting period?	|___|___|	

No.	VII. Receiving/Distribution/ Transportation	Code Classification	Go To/ Comments
38.	How often do you receive supplies?	Weekly ..... 1 Biweekly ..... 2 Monthly ..... 3 Bimonthly ..... 4 Quarterly ..... 5 Biannually ..... 6 Annually 7	
39.	Do you keep a copy of your proof of delivery?	Yes ..... 1 No ..... 2 Don't Know 9	
40.	Do you receive the quantities of ARV drugs that you order?	Always ..... 1 Sometimes ..... 2 Never 3	
41.	Who is responsible for transporting ARV drugs to your facility? *(Circle all that apply.)*	Local supplier delivers ..... A Higher level delivers ..... B This facility collects ..... C Other *(specify)* _____ W	
42.	What type of transportation is most often used for ARV drugs?	Facility vehicle ..... 1 Public transportation ..... 2 Private vehicle ..... 3 Boat ..... 4 Motorcycle ..... 5 Bicycle ..... 6 On foot ..... 7 Other *(specify)* _____ 9	
43.	On average, approximately how long does it take from the time the facility places an order until the ARV drugs are received?	Less than 2 weeks ..... 1 2 weeks to 1 month ..... 2 Between 1 and 2 months ..... 3 More than 2 months 4	
No.	**VIII. Supervision**	**Code Classification**	**Go To/ Comments**
44.	When did you receive your most recent supervision visit from your direct supervisor? (Check visitors' book, if necessary.)	Never received ..... 1 Within the last month ..... 2 Within the last 3 months ..... 3 Within the last 6 months ..... 4 More than 6 months ago ..... 5 Other (specify) _____ 9	
45.	Did your last supervision visit include management of the ARV drug supply at this facility (e.g., review of stock cards, reports, physical stock count, removal/disposal of expired stock, storage conditions)?	Yes ..... 1 No 0	

"Thank you for your time and information. You have been very helpful. Our remaining questions will require looking at products in the storeroom and speaking with the person who oversees the store."

If a different person is interviewed in the storeroom, introduce the team members and explain the purpose of the visit as before. If with the same person, go to table 1: Storage Conditions.

"Good day, and thank you for agreeing to receive us today. My name is _____. My colleague(s) and I are representing the Ministry of Health. We are assisting the National ART Program to conduct an assessment of the logistics system for managing ARV drugs for the national program. We are visiting selected health facilities throughout the country, and this facility was selected to be included in the assessment. The purpose of the visit today is to assess the availability of ARV drugs at this facility and to collect information about how you order, receive, store, and record the use of these products in order to better understand how the logistics system for managing ARV drugs is functioning. This is not a supervisory visit, and the performance of individual staff members is not being evaluated.

"The results of the assessment will provide information for developing recommendations and planning improvements in the logistics system for these products. This assessment may be conducted again in the future to measure changes in the logistics system over time.

"We would first like to ask you about the ART management provided at this facility. Then, with your permission, we would like to speak with staff members about how the ARV drugs are managed at this facility. In addition, we would like to visit the storage areas to actually count the products you have in stock today and observe the general storage conditions.

"With your permission, we would also like to review stock-keeping records for the ARV drugs being used at the facility."

Ask if they have any questions before proceeding with the interview questions.

No.	IX. Storage Conditions/ Stock-keeping Practices/ Physical Inventory	Code Classification	Go To/ Comments
46.	Name, title, and mobile phone number of person interviewed for this section	Name: _____ Title: _____ Mobile Number: _____	
47.	Number of years and months you have worked at this facility	Years: _____ Months: _____	
48.	Who is the person responsible for managing ARV drugs in this storeroom?	Medical Officer ..... 1 Nurse ..... 2 Pharmacy Technician ..... 3 Pharmacy Assistant ..... 4 Pharmacy Technician/Dispenser 5 Counselor ..... 6 Storekeeper ..... 7 Other *(specify)*_____ 9	
49.	Are stock cards completed using the smallest unit of count? *(Count HIV tests, not kits.)*	Yes (always) ..... 1 No (not always) 0	

Ask the interviewee if he/she has any questions before proceeding to review the storage conditions.

Table 1. Storage Conditions

Ask where the main storage area for ARV drugs is located: _____.
Ask for permission to visit the storage area. Assess storage conditions of main storage area *only*. Place a check (tick) mark in the appropriate column based on visual inspection of the storage area; note any relevant observations in the comments column**. To qualify for a Yes response, all products must meet the criteria for each item.**

No.	Description	Yes	No	Comments
1.	Products are arranged on shelves with arrows pointing up, and with identification labels, expiry dates, and manufacturing dates clearly visible.			
2.	ARV drugs are stored and organized to FEFO procedures and are accessible for counting and general stock management.			
3.	Outer cartons are in good condition (not crushed, perforated, stained, or otherwise visibly damaged).			
4.	Damaged and expired products are separated from usable products in the storeroom, and procedures exist for removing them from inventory.			
5.	ARV drugs are stored in a dry, well-lit, well-ventilated storeroom. *(Visually inspect roof, walls, and floor of storeroom.)*			
6.	Cartons and products are protected from direct sunlight.			
7.	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.)*			
8.	Storage area is secured with a lock and key but is accessible during normal working hours; access is limited to authorized personnel.			
9.	Products are stored at the appropriate temperature according to product temperature specifications (8°–30°C) and including cold chain storage (2°–8°C), as required for certain products.			
10.	Roof is maintained in good condition to avoid sunlight and water penetration.			
11.	Storeroom is clean, with all trash removed, no evidence of food and drinks, products stored on sturdy shelves/bins, and boxes organized neatly.			
12.	Current storage space is sufficient for existing products and planned program expansion.			
13.	ARV drugs are stored separately from insecticides, flammable products, and chemicals.			
14.	Food and drinks are not stored together in refrigerator used for storing ARV drugs that require cold storage.			

The additional standards below can be applied to any storeroom large enough to require stacking of multiple boxes.

No.	Description	Yes	No	N/A	Comments
15.	Fire safety equipment is available and accessible. *(Any item identified as being used to promote fire safety should be considered.)*				
16.	Products are stacked at least 30 cm away from the walls and other rows or stacks of products (to prevent contact with outer walls and allow access to products).				
17.	Products are stacked no more than 2.5 m high.				
18.	Products are stacked at least 10 cm off the floor (on pallets or other materials that elevate the products off the floor).				

Additional guidelines for specific questions:

Item 3: Visually inspect outer cartons for damage (stained, crushed, perforated, or otherwise damaged). Also, examine the condition of the products inside opened or damaged cartons.

Item 4: These practices may vary by facility. Specify if procedures for separating and removing damaged or expired products from inventory exist at the facility and note what they are (e.g., are damaged and expired products returned to a higher level of the system or are they destroyed at the facility?).

Item 8: This may refer to a warehouse or storeroom secured with a locked door/gate or to a locked cabinet/drawer in a clinic.

Item 15: Fire safety equipment does not have to meet international standards. Consider any item identified as being used to promote fire safety (e.g., water bucket, sand). Do not consider empty and/or expired fire extinguishers as valid fire safety equipment.

Table 2. Stock Data for ARV Drugs (for the past 6 months and day of the visit)

INSTRUCTIONS

Please note: The instructions below reflect issues data and should be revised accordingly if collecting consumption data.

Column:

1. Name of each ARV drug that will be counted.
2. Unit of count for the product—bottles of tablets or capsules; bottles of oral solution, suspension, or syrup; or sachets of powder for reconstitution. Note: Columns 1 and 2 should be filled out before questionnaires are printed.
3. Whether or not the product is available, is this facility supposed to manage this product? Answer Y for yes or N for no. If the facility has been stocked out of a particular product for a long time, it may report as "not managing." Make sure to ask if the facility is actually supposed to manage the product.
4. Record if the facility is experiencing a stockout of the product on the day of the visit, according to the physical inventory; answer Y for yes or N for no.
5. Record the quantity of each ARV drug in stock in the storeroom. Count the number of ARV drugs remaining in any opened boxes or bottles. For liquid formulations, estimate the amount remaining in the bottle (e.g., ¼, ½).
6. Record the total quantity of each product to expire within six months of the day of the visit.
7. Count all expired products on the day of the visit. Record the total quantity expired of each product.
8. Check if the stock card is available for each product; answer Y for yes or N for no. If another type of record is used (e.g., stores ledger), please note in column 4, and continue to gather stock information using another type of record.
9. Check if the stock card has been updated within the last 30 days; answer Y for yes or N for no. Note: If the balance was 0 the last time the stock card was updated and the facility has not received any resupply of ARV drugs, consider the stock card up-to-date.
10. Record the balance on the stock card.
11. Record whether the facility has had any stockouts of the product during the last six complete months before the day of the visit: answer Y for yes or N for no.
12. Record how many times the product stocked out during the six complete months before the day of the visit according to the stock cards.
13. Record the total number of days the product was stocked out during the last six complete months before the day of the visit.
14. Record the total quantity of ARV drugs issued from the storeroom (from stock card) during the last six complete months before the survey.
15. Record the number of days for which any data are recorded on the stock cards, including 0.
16. Reason(s) for stockouts. For any product that experienced a stockout in the last six complete months before the survey, record the specific reason(s) for the stockout.
17. If a Maximum/Minimum Inventory Control System has been established, fill in the maximum and minimum months of stock and order interval in the spaces provided at the bottom of the table.

Table 2. Stock Data for ARV Drugs (for the last 6 months and day of the visit)

Product	Unit of count	Managed at this facility? (Y/N)	Stockout today? (Y/N)	Physical inventory (in storeroom)	Total quantity to expire within 6 months	Total quantity expired	Stock card available? (Y/N)	Stock card updated? (Y/N)	Balance on stock card	Stockout most recent 6 months? (Y/N)	Number of stockouts (most recent 6 months)	Total number of days of stockout(s)	Total issued or consumption from storeroom (most recent 6 months)	Number of days of data available on stock card	Reason for stockout. (list below)*
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1st Line Adults															
2nd Line Adults															
1st Line Pediatric															
2nd Line Pediatric															

17. Other Maximum Months of Stock _____ Minimum Months of Stock _____ Order Interval _____

Comments:

*16. Reason(s) for stockout: (1) did not receive order; (2) did not order on time; (3) do not know how to order; (4) did not receive the quantity ordered; (5) stockout at the central level; (6) transportation not available for delivery.

Table 3. Difference between Quantity Ordered, Quantity Sent/Dispatched, and Quantity Received

INSTRUCTIONS

Column:

1. List the same products as in table 2, or use a sample of those products. (Note: Do this before finalizing the questionnaire and making photocopies.)
2. Enter the date the last order was placed for the regular order period (do not enter date/ quantities for emergency orders or other orders outside of the established order period).
3. Enter the quantity ordered of each product for the last order period for which products were received (do not include quantities on order that have not yet been received).
4. Enter the quantity sent/dispatched from the higher level for the last order period. Ask to review the transaction records at the health facility. If the records are not available at the health facility, you may also be able to review the transaction records at the central level.
5. Enter the date the last delivery was received.
6. Enter the quantity received.

Product	Date Last Order Placed	Quantity Ordered for Last Order Period	Quantity Sent/ Dispatched	Date Last Delivery Received	Quantity Received In Last Order Period
1	2	3	4	5	6

Table 4. LMIS Data Quality: Usable Stock on Hand at Time of Most Recent LMIS Report

On the basis of the standard operating procedures (SOPs), determine whether health facilities report stock on hand (SOH) that is kept in the storeroom only or in the storeroom *and* all other places where tests are being performed. If the SOH in the LMIS report includes tests kept in the storeroom and all other places where the tests are being performed, there will always be a discrepancy between the balance according to the LMIS form (column 2) and the balance from the stock card or the store ledger (column 3).

INSTRUCTIONS

Column:

1. List the same products as in table 2, or use a sample of the products. Include only the products managed by the facility. (Note: Do this before finalizing the questionnaire and making photocopies.)
2. Obtain the most recent LMIS report for the selected products, and record the stock on hand from the LMIS report.
3. Write the quantity of usable stock on hand from the stock records at the time of the selected LMIS report.
4. Note the reasons for any discrepancy.

Product	Usable Stock on Hand at Time of Most Recent LMIS Report		
	Ending balance according to most recent LMIS report	From stock ledger or stock cards from time of LMIS report	Reasons for discrepancy
1	2	3	4

Ask the interviewee if he or she has any questions or would like to make any comments.

Interviewee Comments:

Thank the person/people who talked with you. Reiterate how they have helped the program achieve its objectives, and assure them that the results will be used to develop improvements in logistics system performance.

Additional Interviewer Comments:

Brief Analysis of Findings from the Facility Visit:

LIST OF LIAT INDICATORS

The following indicators can be measured using data collected from the Logistics Indicators Assessment Tool (LIAT). For a full description of each indicator refer to the *Monitoring and Evaluation Indicators for Assessing Logistics Systems Performance* publication available through the USAID | DELIVER PROJECT. deliver.jsi.com

MAIN AND RELATED LIAT INDICATORS

1. INDICATOR: Accuracy of logistics data for inventory management
    a. RELATED INDICATOR: Percentage of facilities that keep accurate logistics data for inventory management
    b. RELATED INDICATOR: Percentage of facilities that completed and submitted an LMIS report for the most recent reporting period
2. INDICATOR: Percentage of facilities that receive the quantity of products ordered
    a. RELATED INDICATOR: Average duration of time between the dates and order was placed and when it was received
    b. RELATED INDICATOR: Percentage of facilities that received their last four orders according to schedule
3. INDICATOR: Percentage difference between the quantity of products ordered and the quantity of products received
4. INDICATOR: Percentage of facilities that maintain acceptable storage conditions
    a. RELATED INDICATOR: Percentage of facilities meeting all (or a desired percentage) of the storage conditions
5. INDICATOR: Percentage of facilities that experienced a stockout at any point during a given time period
    a. RELATED INDICATOR: Percentage of facilities stocked out of any product on day of visit
    b. RELATED INDICATOR: Percentage of facilities fully stocked (all products) on the day of visit
    c. RELATED INDICATOR: Mean duration of stockouts
    d. RELATED INDICATOR: Mean number of products stocked out/in stock on day of visit
    e. RELATED INDICATOR: Percentage of products stocked out/not stocked out at any time during the past 6 (or 12) months
    f. RELATED INDICATOR: Mean number of times each method was stocked out in the past 6 (or 12) months

6. INDICATOR: Percentage of facilities whose stock levels ensure near-term product availability
    a. RELATED INDICATOR: Percentage of time during a given period that each product of interest is adequately stocked (this indicator requires an automated LMIS or extensive review of historical stock ledgers)
    b. RELATED INDICATOR: Percentage of facilities with all full supply products adequately stocked for near-term availability
    c. RELATED INDICATOR: Percentage of facilities that are understocked, adequately stocked, and overstocked

INDICATORS GUIDE FOR MEASURING FORECASTING PERFORMANCE:

7. INDICATOR: Mean absolute percentage error (MAPE) between forecasted consumption and actual consumption of a product
    a. RELATED INDICATOR: Average MAPE of multiple products
8. INDICATOR: Percentage difference between consumption forecasts and actual consumption
    a. RELATED INDICATOR: Average percentage difference between consumption forecasts and actual consumption
    b. RELATED INDICATOR: Mean level of forecast or discrepancy for a range of facilities, products, or both
    c. RELATED INDICATOR: Percentage of facilities with forecasts within 5 percent of actual consumption, by product

INDICATORS FOR MEASURING WAREHOUSING AND INVENTORY MANAGEMENT PERFORMANCE:

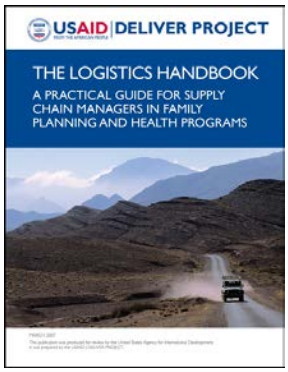
9. INDICATOR: Order fill rate (or percentage of orders placed that are filled correctly)
10. INDICATOR: Inventory accuracy rate (or accuracy of stock balance for inventory management)
    a. RELATED INDICATOR: Percentage discrepancy between stock record balance and physical inventory (by product)
11. INDICATOR: Percentage of stock wasted due to expiration or damage
    a. RELATED INDICATOR: Percentage of unusable stock due to expiration
    b. RELATED INDICATOR: Percentage of unusable stock due to damage
    c. RELATED INDICATOR: Value of unusable stock as a percentage of total item purchases
12. INDICATOR: Order turnaround time
13. INDICATOR: Inventory turnover rate

INDICATORS FOR MEASURING DISTRIBUTION PERFORMANCE:

14. INDICATOR: Average delivery time

GLOSSARY

For descriptions of logistics terms, consult the USAID | DELIVER PROJECT's *The Logistics Handbook: A Practical Guide for Supply Chain Managers in Family Planning and Health Programs.*



active pharmaceutical ingredient—The substance or combination of substances in a drug that is intended to produce pharmacological activity or other direct effect on the person who uses or ingests it.

antiretroviral therapy (ART)—A combination of three or more antiretrovirals that combat HIV infection by slowing down the rate at which the virus replicates in the body.

brand name—The name of an ARV drug as marketed by the originator of the drug or a generic manufacturer. For example, nevirapine is known as Viramune by the originator company, Boehringer Ingelheim, and as Nevimune by Cipla, a generic manufacturer. It is preferable to refer to ARVs by their INN because many suppliers are now making drugs with the same amount of active pharmaceutical ingredient.

fixed-dose combination (FDC)—A formulation containing two or more active ingredients combined into a single dosage form (e.g., tablet) available in fixed doses. FDC drug products are becoming popular with ART programs because they may improve patient adherence to their regimens by reducing the pill burden.

formulation—The specific format within which the active pharmaceutical ingredients are delivered (e.g., tablet, suspension, capsule) for use or ingestion.

international nonproprietary name (INN)—The widely accepted, unique name used to identify a specific pharmaceutical substance or active pharmaceutical ingredient.

lowest dispensing unit—The smallest unit of drug in a pack or bottle (e.g., tablet, capsule, ml).

post-exposure prophylaxis—A course of ARV drugs recommended to reduce the risk of seroconversion after events with high risk of exposure to HIV (e.g., needle-stick injuries or sexual assault).

prevention of mother-to-child transmission of HIV—Efforts aimed at reducing the risk of transmission of HIV from the mother to her infant during labor, delivery, and breastfeeding. Mothers who are known to be HIV positive can reduce the risk of transmission to their child by taking specific doses of ARVs before, during, and after labor.

regimen—A specific course, combination, and dosage of medication(s) that a patient is recommended to take regularly.

single-drug formulation—A formulation containing just one active ingredient in its formulation, such as efavirenz tablet or nevirapine suspension.

standard treatment guidelines (STGs)—Statements and procedures that guide health care workers in making decisions about appropriate health care and rational drug use for specific clinical conditions.

For more information, please visit deliver.jsi.com.

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