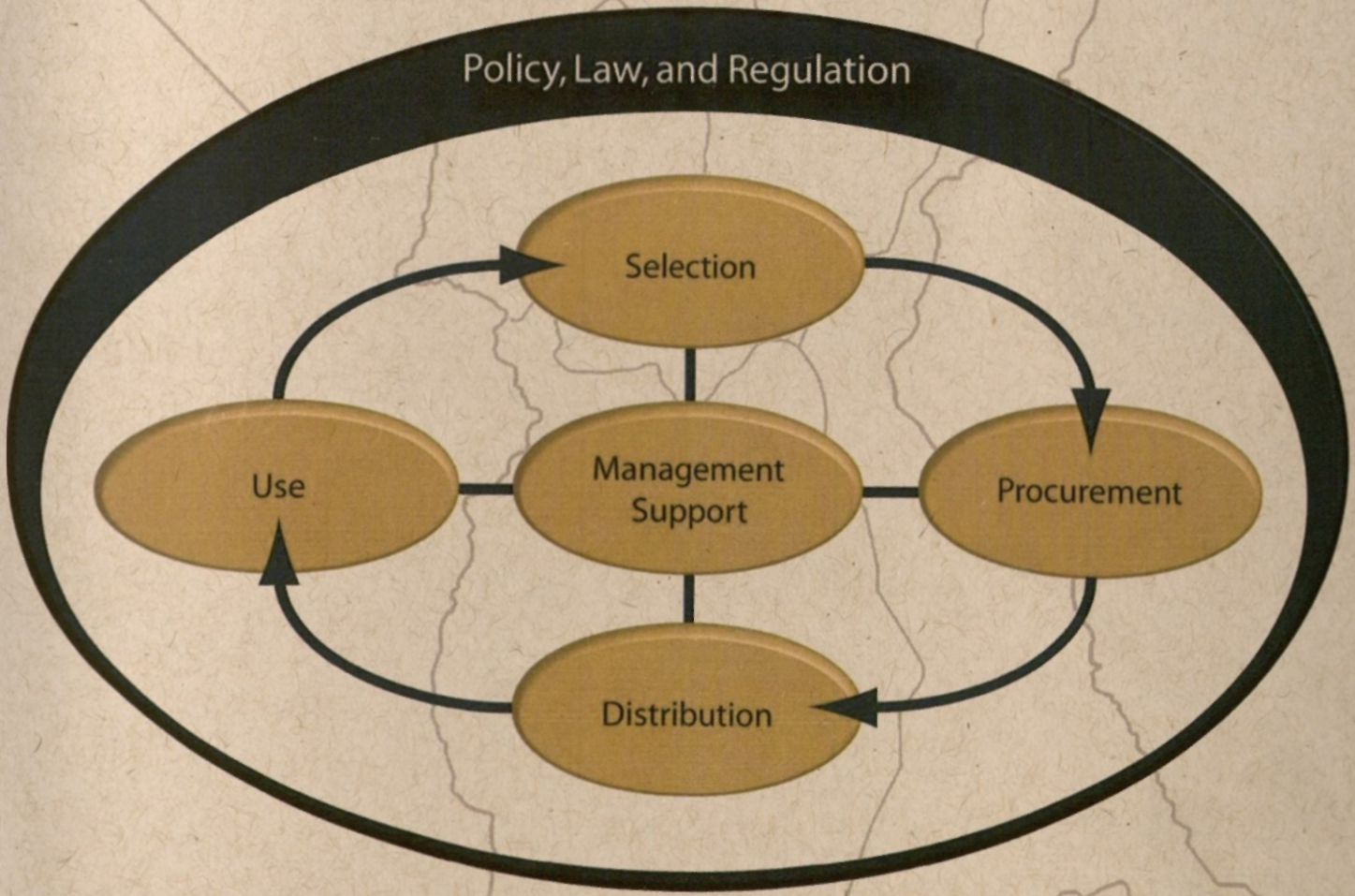
Vector Control Services
Malaria Supply Chain Management
In Facilities
Standard Operations Manual



Pan American Health Organization
Regional Office of the World Health Organization

Vector Control Services

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In Facilities

Standard Operations Manual

PREFACE

Use of malaria medicines is essential and critical in our response to the malaria situation in Guyana. It is part of the final link between patients and health services. Availability of malaria medicines and diagnostic supplies can only be realized by improving the opportunity to manage these commodities in an efficient manner.

For these reasons this manual will address all aspects of the pharmaceutical management cycle. The manual provides basic information for the successful operation of the supply chain for Malaria Medicines and Supplies. The intention is to use this manual for training and orientation of health workers in best practices of the drug management cycle, in pursuit of securing performance improvements for the malaria program

Dr. Leslie Ramsammy

ACKNOWLEDGEMENTS

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Dr. Shamdeo Persaud

Chief Medical Officer

Honorable Minister of Health

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Forms and Labels:

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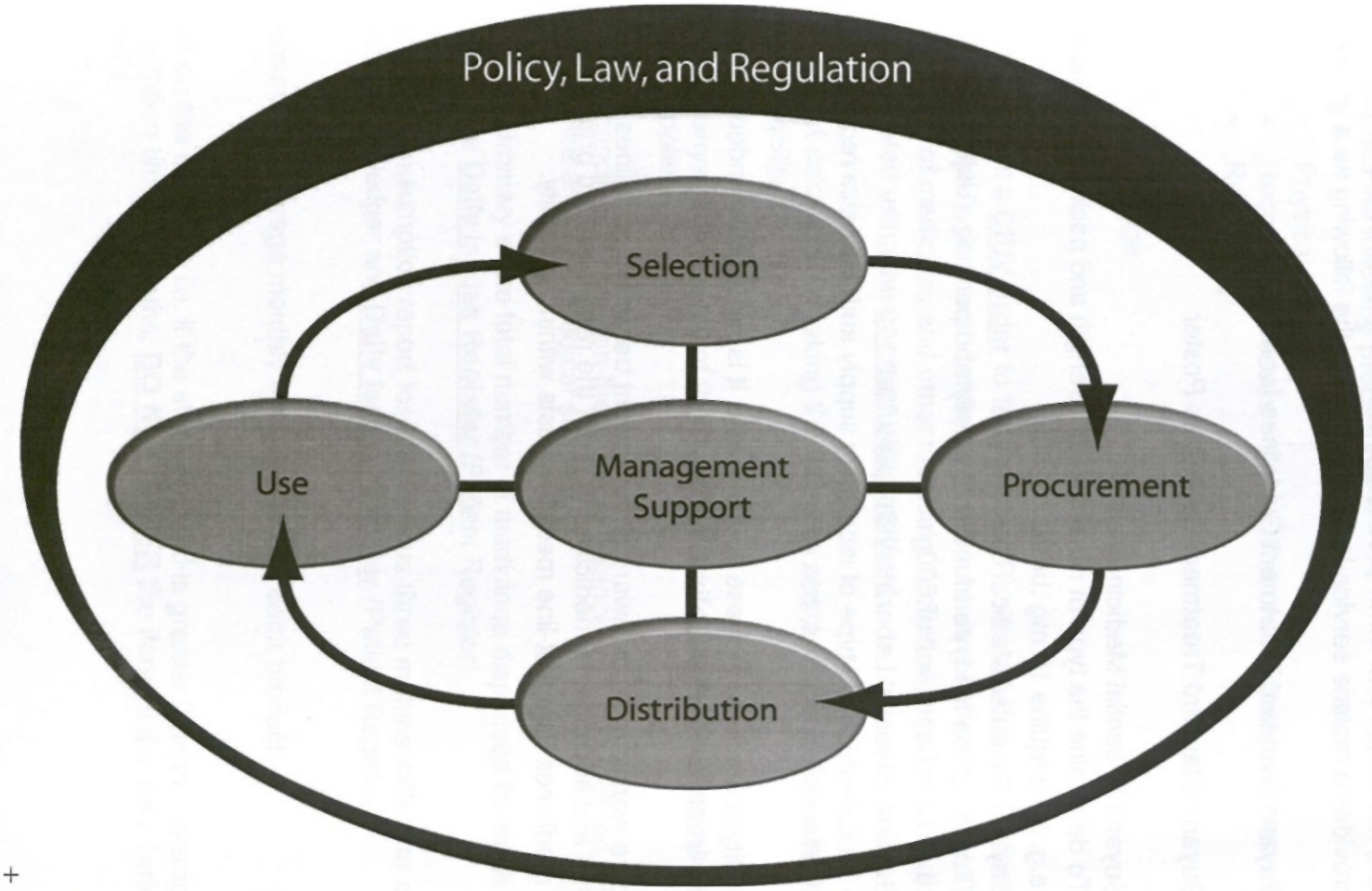
ACRONYMS

AL	Arthemeter - Lumefantrine
AMI	Amazon Malaria Initiative
AS	Artesunate
CRIV	Combined Requisition and Issue Voucher
CQ	Chloroquine
DCA	Drug Control Authority
FEFO	First expiry, first out
ISR	Internal Stores Requisition
IV	Intravenous
MMU	Materials Management Unit
MSH	Management Sciences for Health
MQ	Mefloquine
PAHO	Pan-American Health Organization
SOP	Standard Operating Procedure
VCS	Vector Control Services
WHO	World Health Organization

INTRODUCTION

This manual was initiated following an agreement reached at the Amazon Malaria Initiative (AMI) conference held in Colombia, May 2008 when, in common with all the AMI countries, a commitment was made by the Ministry of Health Guyana representatives to "institutionalize the technical procedures for malaria pharmaceutical management."

Initially, a draft standard operating procedures (SOP) addressing all aspects of malaria at both facility and national levels was produced, but subsequently it was agreed a more targeted and condensed facility-level edition was required. Thus, this document contains only the facility-level SOPs to address the management of the medicines and laboratory supplies for the Guyana public sector malaria program within the Ministry of Health. An additional document will present similar summary information for use at regional level.



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Source: Management Sciences for Health.

Figure 1. Pharmaceutical Management Cycle

Unit 1

SELECTION OF MEDICINES

The uninterrupted availability of medicines and medical supplies in health facilities is the most fundamental component of the supply system.
When selecting medicines and other products to place an order on the CRIV, a health facility that provides a malaria service is required to use the following as a guide:-

- Guyana Standard Treatment Guidelines for Malaria
- Guyana Standard Treatment Guidelines Poster
- Guyana Essential Medicines List
  - To determine the type of medicine, its strength and pack size required, e.g. Primaquine 15 mg ,bottle of 1000
- Guyana Essential Medical Supplies List
  - To determine the type of medical supply and pack size required, e.g Cotton wool, roll of 500g
- Guyana Essential Laboratory Supplies List
  - To determine the type of laboratory supply and pack size required, e.g Microscope slides, box of 100

If the commodity is not listed in these sources, then it is not recommended for use in the diagnosis and treatment of malaria in Guyana.

The health care worker must be aware of the current treatment guidelines in all instances, regarding first- and second-line medicines. It is not the recommended practice to reorder second-line medicines if no first-line medicine exists within the facility.

Unit 2

Reordering of Medicines and Medical Supplies

Resupply at the facility level is wholly dependent on having a well-maintained inventory management system. The process of reordering of Medicines and Medical Supplies at your facility will encompass the following procedures -

- Physical Inventory
- Receipts and Issues
- Reordering

} Record Keeping and Reporting

- Storage

Before a facility submit a **CRIV order** to the Regional Pharmacy Bond or Materials Management Unit (MMU), you must determine how much is required to ensure that there is an adequate supply of medicines and other medical supplies. Antimalarial medicines required are calculated using the **consumption method**

This amount is best calculated by taking the following steps shortly before placing an order by CRIV for your facility—

1. Conduct a physical inventory of the current stock for each medicine and other medical supplies.
2. Perform reconciliation between the physical balance and the stock ledger entries for each medicine and other medical supplies.
3. Prepare a summary of the total number of medicines dispensed for each listed species in the **Daily Issues Register** (Patient Register).
4. Complete a consumption report for the previous three months with data obtained from the stock ledger and **Daily Issues Register** (Patient Register).
5. Determine the average monthly consumption for each product.
6. Based on the out come i.e. if the stock on hand is greater than the average monthly consumption times 4 months, **DO NOT ORDER** the item. If it is less, order the item on CRIV,

Conducting a Physical Inventory

What Is a Physical Inventory?

Physical inventory is the process of counting *by hand* the total number of *each* medicine and other medical supply item in your store or health facility at any given time.

Whenever you count and record medicines and other medical or laboratory supplies, you should always count and record by the units of measure being used in the stock ledger.

Table 1. How Do You Conduct a Physical Inventory?

TASK:	**Conducting a Physical Inventory**
COMPLETED BY:	Each Bond Clerk, Pharmacist-in-Charge, Pharmacy Assistant, MEDEX, Community Health Worker, Malaria Supervisor
PURPOSE:	1. To verify the quantity of usable stock available for distribution 2. To identify discrepancies between actual supplies and the stock balance in the stock ledger 3. To detect damaged or expired items 4. To provide opportunity for store reorganization
WHEN TO PERFORM:	1. According to set schedule for facility throughout the year 2. At time of reorder from MMU or Regional Pharmacy Bond 3. At the end of each year, when MOH requires full physical inventory

STEPS	ACTIONS	NOTES
1.	Complete all outstanding transactions such as :- • Receiving of medicines • Dispensing of medicines • Issuing of medicines and medical products to wards and clinics And update to stock ledger/Bin card.	Should any dispensing of medicines/issues to wards and clinics be required, the health worker must • Suspend the stock count • Complete all transactions • Update the stock ledger Then resume the count
2.	Count all medicines and medical supplies. Separate any expired or damaged medicines and other medical supplies. • Count each medicine and other medical supply by hand.	Be sure to include all sealed bottles or blisters of stock held in storerooms, in cupboards, or in racks.
3.	On the line of the *Stock Ledger* immediately below the last entry, begin recording.	Record the date in the "Date" column of the stock ledger. Record the quantity counted in the "Balance" column. Write the words "physical

		Inventory" somewhere on the same line as the other information being recorded. For less quantities found insert a brief explanation in the "Received From/Issued To" column of the stock ledger for the discrepancy (especially if there were any expired or damaged items).to explain the variance and record the variance quantity Record the excess quantities found as a positive discrepancy in the "Receipts" Column of the *Stock Ledger.* For excess quantities found, write the words "Taken on Stock." Also enter the new stock balance (based on the physical count) in the balance column. Always enter each transaction on a separate line.
4.	If medicines are expired, remove from active stock; Mark the expiry date clearly, with large, dark numbers, on each box or carton.	Record the amount of expired medicines in Expired Products Register
5.	If physical count is less than stock record. Calculate the difference If there is a variance between the physical count and the stock ledger/bin card record, perform a recount.	If the variance still exists after a second recount, perform the investigation using the issuing and receipt documents (CRIV, Daily Issues register and other relevant records). If variance cannot be resolved, the physical count quantity will be accepted as the final balance Record the amount in Stock Ledger
6.	Reorganize medicines and other medical supplies according to expiry dates to comply with FEFO (first expiry, first out) distribution.	These steps may have been taken during routine receipt and management of drugs and other medical supplies. However, if unmarked stocks are found during a physical inventory, proceed with the above mentioned steps.

After recording a physical inventory on the *Stock Ledger*, begin recording the next transaction on the next line.

SAMPLE OF PHYSICAL COUNT STOCK SHEET

NAME OF FACILITY:_____DATE OF COUNT:_____

Product	Unit of measure	Batch Number	Expiry Date	Physical Count Quantity	Stock ledger / Bin Card Balance	Variance	Recount
Tablets							
Artesunate 50 mg							
Arthemeter /Lumefantrine 20/120 mg							
Arthemeter /Lumefantrine 20/120 mg							
Arthemeter /Lumefantrine 20/120 mg							
Chlorquine 150 mg							

NAME OF COUNTERS :

1. .....
2..... .....

SAMPLE OF CORRECTLY COMPLETED PHYSICAL COUNT STOCK SHEET

NAME OF FACILITY: Sebai Health Centre

DATE OF COUNT: 2011-01-31

PRODUCT	Unit of measure	Batch Number	Expiry Date	Physical Count Quantity	Stock ledger / Bin Card Balance	Variance	Recount
Tablets							
Artesunate 50 mg	Each	HL6241	02-2011	2000	2000	0	
Arthemeter /Lumefantrine 20/120 mg	6's	QW 4581	09 -2009	30	30	0	
Arthemeter /Lumefantrine 20/120 mg	12's	KO 852	08-2012	60	45	- 15	60
Arthemeter /Lumefantrine 20/120 mg	24's	LT 31	11-2012	140	142	+ 2	140
Chlorquine 150 mg	Each	XD459	11-2012	30	30	0	

NAME OF COUNTERS :

1. .....
2. .....

Unit 3

Receipts and Issues of Medicines and Medical Supplies

Stock Ledgers

Following are instructions for entering information from your CRIV for your malaria medicines and medical supplies in the appropriate stock ledger of the facility (e.g., tablets, injections, infusions, medical supplies etc.).

Table 2. How Do You Complete a Stock Ledger?

TASK: **Filling in the Stock Ledger**

COMPLETED BY: Each Pharmacist-in-Charge, Pharmacy Assistant, Pharmacy Bond Clerk, Multipurpose Technician, MEDEX, Community Health Worker

PURPOSE:
1. To maintain a continuous record of all medicines and other medical supplies transactions
2. To record results of a physical inventory

WHEN TO PERFORM: Each time you—
1. Receive medicines and other medical supplies from MMU, Regional Bond or another facility.
2. Issue medicines and other medical supplies from stockroom or cupboard within the pharmacy to the dispensing counter, to another facility or expired products register
3. Record a loss or adjustment
4. Conduct a physical inventory

SPECIAL NOTES:
- Allocate one section of the stock ledger for each preparation or dosage form of medicine or medical supply item.
- After recording a physical inventory in the stock ledger, begin recording the next transaction on the next line.
- When you have completed a full section of the ledger for an item, begin a new section in a ledger book.
- In the new book, write the words "Balance Forward" or "B/F" on the first line. Write quantity brought forward from the old ledger in the first "Balance" space in the new ledger.
- The ledger must be written up promptly. Figures are to be legible and crossed out neatly if values are changed.
- Lists of medicines and medical supplies should be arranged in alphabetical order on the first left-hand page of stock ledger.

STEPS	ACTION	NOTES	EXAMPLE
1	**Unit No.:**	This is also known as the stock number.	**Unit No.:** INJ001
2	**Article:** Enter the name of the medicine or other medical supply item. Enter dosage form and other descriptive information.	A separate page should be used for each medicine or other medical supply item.	**Article:** Primaquine 15 mg

3	**Location:** Enter the location of the item within the bond here.		**Location:** Not applicable
4	**Unit of Receipt and Issue:** Whatever unit of receipt and issue is being recorded in the stock ledger should be entered here.	The most easily observable and simplest unit of receipt and issue should be used.	**Unit of Receipt and Issue:** Each
5	**Unit Price:** Enter unit cost if unit cost of the item is known. Enter in Guyana dollars.		**Unit Cost:** Not applicable
6	**Maximum:** Enter the maximum months of stock to be kept for this item.		**Maximum:** 4 months of stock
7	**Minimum:** Enter the minimum months of stock to be kept for this item.		**Minimum:** 1 month
8	**Date:** Enter the date of the transaction.		**Date:** 2012-10-15
9	**Reference Number:** Enter the CRIV number of the item received or issued.		**Reference Number:** CRIV # 0039
10	**Received from/Issued to:** Enter the name of the supplier or the name of the facility being supplied in this column.	All **receipts** of medicines/medical supplies *must* be written in **black ink.**	**Received from:** MMU **Issued to:** Disp
11	**Receipts:** Enter the exact amount received on this date.	Stock transferred from one facility to another should be recorded as a receipt in this column.	**Received**: 1000
12	**Batch #:** Enter the batch number of the product.		**Batch #:** BN KD 1702
13	**Expiry date:** Enter the expiry date of the product		**Expiry date:** 10/2011
14	**Issue:** Enter the exact amount issued on this date.	Stock expired or damaged should also be recorded as an issue in this column. The words "expired/damaged and destroyed" should be written on this line as applicable.	**Issued:** 2000
15	**Balance:** Add any receipts or adjustments and subtract any issues or losses from the existing balance to determine new balance. Write this figure in the "Balance" column for this date.	This column should always represent the amount of the item presently in your store. When conducting a physical inventory, always record the exact amount counted. If physical inventory does not match the amount recorded, review issues and receipts against CRIV's.	**Balance:** 3000

SAMPLE OF STOCK LEDGER

ITEM NO ……………................ ARTICLE ……………….. LOCATION ……………………

UNIT OF RECEIPT AND ISSUE ………… UNIT PRICE …….. MAXIMUM …… MINIMUM …...

Date	Ref No:	Received From/ Issued To	Receipts	Batch #	Expiry Date	Issues	Balance

SAMPLE OF CORRECTLY COMPLETED STOCK LEDGER

ITEM NO ..... ARTICLE Primaquine 15 mg LOCATION .....

UNIT OF RECEIPT AND ISSUE Each UNIT PRICE ..... MAXIMUM ..... MINIMUM .....

Date	*Ref No:*	*Received From/ Issued To*	*Receipts*	*Batch #*	*Expiry Date*	*Issues*	*Balance*
2012-09-21	BALANCE BROUGHT FORWARD			HL6241	02-2011		2000
2012 -10-15	CRIV #0039	Materials Management Unit	1000	KD1702	10-2011		3000
2012-11-12		Dispensary				2000	1000
2012-12-31	PHYSICAL INVENTORY Variance of +1000						2000

Unit 4

Record Keeping and Reporting for Malaria Medicines and Supplies

In addition to maintaining the stock ledgers, it is necessary to keep other records in support of the Malaria Information System and to provide an adequate supply of malaria medicines and diagnostic supplies.
In addition to reporting to the regional level on a timely basis which will assist in reducing the number of stockouts, it is essential for an effective health management information system to require:-

- A malaria patient traveler's card for facilitating patient consultation and the filling in of the Daily Case Register.
- A Daily Case Register to record all the smears taken and examined by the microscopist on a daily basis
- A Weekly Production Report to summarize by epidemiological week all cases recorded in the daily case register at each facility.
- The Weekly Production Report is a summary by epidemiological week of the daily case register for all cases recorded at each facility.
- The Daily Examination Register to record all cases tested for malaria parasites with the test results.
- The Daily Issues Registers to record the *actual consumption* of medicines.
- The Consumption Report to report on the *actual consumption* of medicines. It is to be completed by health care facility at the end of each review period and covers the period since the previous review period.

The service begins with performing the malaria smear and thereafter recording begins as explained overleaf.

Preparing a Daily Case Register

What Is a Daily Case Register?

The Daily Case Register is a record of all the smears taken and examined by the microscopist on a daily basis.

Table 3. How Do You Complete a Daily Case Register?

TASK:	**Completing a Daily Case register**
COMPLETED BY:	Each Community Health Worker, Malaria Supervisor, and Malaria Microscopist
PURPOSE:	To provide a daily record of each blood smear taken and examined
WHEN TO PERFORM:	On a daily basis

NOTES:

1. All abbreviations needed for completion of this form are located at the bottom of the form.
2. The form is completed in triplicate. Copy **A** (original) of the completed **Daily Case Register** is sent to the *Central Level*
   Copy **B** of the completed **Daily Case Register** is submitted to the *Regional Malaria Officer*
   Copy **C** of the completed **Daily Case Register** is *retained by the facility.*

STEPS	ACTIONS	NOTES	EXAMPLE
1	**Region**: Enter your region number here.		**Region:** 1
2	**District:** Enter the name of the district.		**District:** Barima -Waini
3	**Locality:** Enter the name of the locality within the district.		**Locality:** Sebai
4	**Microscopist Name:** Enter the name of the microscopist.		**Microscopist Name**: John Smith
5	**Year:** Complete the year as shown.		**Year:** 2010
6	**Week:** Enter the epidemiological week.	Continue on the same form even if the month changes in the **Epi** week and there is space remaining	**Week:** 22
7	**Month:** Enter the name of the month.		**Month:** April
8	**Smear No.:** Enter the smear number in the named column.	The smear number must begin anew at the beginning of each month.	**Smear No.:** 1

9	**Detection Method:** Enter the detection method used in the named column.	ACD = Active Case Survey PCD = Passive Case Survey FCS = Fever Case Survey	**Detection Method**: ACD, PCD or FCS
10	**Smear:** Enter the date the smear was taken and the date the smear was examined in the named columns.	This column is subdivided into two columns. N.B The date of smear examination **may sometimes vary** from date that the smear was taken	**Smear:** Smear: Date Taken: 04-05-09; Date Examined: 05-05-09
11	**Smear Taken:** Enter the region's number and the name of the actual area within the region where the smear was taken.	This column is subdivided into two columns.	**Smear Taken:** Smear Taken: Region: 1; Locality: Mabaruma
12	**Diagnosis:** Enter the name of the parasite species seen and density.	For parasite specie and density refer to **Annex E**	**Diagnosis:** ++F 10 V
13	**Transmission Classification:** Enter the classification based on what the patient has said	For specie classification refer to **Annex F**	**Transmission Classification:** LI
14	**Name:** Enter the name of the patient.		**Name:** Paula Romascindo
15	**Age:** Enter the age of the patient.		**Age:** 34 yrs
16	**Sex:** Enter the sex of the patient.		**Sex:** F
17	**Pregnancy:** Record the response received from the patient.	Inquire of the patient if she is pregnant or not.	**Pregnancy:** Yes
18	**Nationality: :** Record the response received from the patient.		**Nationality:** Guyanese
19	**Ethnic group:** Enter the person's ethnicity.		**Ethnic group:** AI - Amerindian
20	**Address:** Enter the address of the patient.		**Address:** Sebai
21	**Case Type:** Enter the case type based on the response received from the patient.	Remember to find out the patient's history. Check the Traveler's card if possible	**Case Type:** New Case *or* Recheck
22	**Where Infected:** Enter the region's number and the name of the actual area within the region where the patient was infected.	This column is subdivided into two sub columns. N.B. The region and locality may vary from where the patient was	**Where Infected:** Where Infected: Region: 7; Locality: Itaballi

		diagnosed. The patient may presently be in Mabaruma, Region 1, but may have visited Itaballi, Region 7, three or four weeks earlier; hence, the area where infected is Itaballi.	
23	**Fever:** Examine the patient and record the presence or absence of fever.		**Fever:** No
24	**Diagnosis Method**: Enter the name of the diagnosis method used to examine the smear.		**Diagnosis Method:** Microscopy *or* Rapid Test

MINISTRY OF HEALTH GUYANA
DDC - MALARIA PROGRAMME
DAILY CASE REGISTER

Year ☐☐☐☐
Week ☐☐ Month _____

Region ☐☐ District _____ Locality _____ Microscopist Name _____

Smear No	Detection Method	Smear		Smear Taken		(Diagnosis) Parasite Species and Density	Transmission Classification	Name	Age	Sex	Pregnancy	Nationality	Ethnic Group	Address	Case	Where infection		Fever	Diagnoses Method
		Date taken	Date examined	Region	Locality											Region	Locality		

DETECTION METHOD
P = Passive
FC = Active Fever Case Survey
MB = Active Mass Blood Survey

SEX
F = Female
M = Male

NATIONALITY
G = Guyanese
B = Brazilian
V = Venezuelan
S = Suriname
C = Chinese
0 = Others

TRANSMISSION
LI= Locally Imported
FI=Foreing Imported
Ind=Indigenous
Int= Introduce
C=Cryptic
I =Induce

ETHNIC GROUP
AG=Afro Guyanese
AI=Amerindian
EI= East Indian
Ch = China
E = Europe
Mx = Mixte

CASE
N = New Case
R = Recheck

FEVER
N = No Fever
P = Present Fever
R = Recent fever

PREGNANCY
Y= Yes
N= No

DIAGNOSIS METHOD
M= Microscopy
RT = Rapid Test
O = Other

No of deaths ☐☐

*If deaths fill out the other side

M.1

Date of Death _____	Date of Death _____	Date of Death _____
Name _____	Name _____	Name _____
Age _____	Age _____	Age _____
Sex _____	Sex _____	Sex _____
Address _____	Address _____	Address _____
_____	_____	_____
_____	_____	_____
Contact names _____	Contact names _____	Contact names _____
_____	_____	_____
Cause of Death _____	Cause of Death _____	Cause of Death _____
_____	_____	_____
_____	_____	_____
Evolution of the disease _____	Evolution of the disease _____	Evolution of the disease _____
_____	_____	_____
_____	_____	_____
_____	_____	_____

M1

SAMPLE OF CORRECTLY COMPLETED DAILY CASE REGISTER

Region 0 9 District Annai Locality Annai Microscopist Name D. Singh

Year 2 0 1 1
Week 1 1 Month March

Smear No.	Detection Method	Smear		Smear Taken		Diagnosis (Parasite Species and Density)	Transmission Classification	Name	Age	Sex	Pregnancy	Nationality	Ethnic Group	Address	Case	Where infected		Fever	Diagnostic Method
		Date taken	Date examined	Region	Locality											Region	Locality		
1	PCD	14/03/11	14/03/11	9	Annai	+/2f	LI	Mark Peters	30	M	-	G	AG	Pike St. Kitty	N	7	Tamakay	P	M
2	PCD	14/03/11	14/03/11	9	Annai	+ v	LI	Mary Ally	22	F	N	G	EI	Good Hope Mahaica	R	10	Omai	N	M
																	No. of Deaths	0	0

Detection Method	Sex	Nationality		Transmission		Ethnic Group		Case	Fever	Pregnancy	Diagnosis Method
P=Passive	F= Female	G= Guyanaese	S=Surinamese	LI= Locally Imported	Int. = Introduce	AG= Afro Guyanese	Ch. = Chinese	N= Newcase	N= No Fever	Y= Yes	M= Microscopy
FC = Active Fever Case Survey	M=Male	B= Brazilian	C= Chinese	FI =Foreign Imported	C= Cryptic	AI=Amerindian	E= European	R=Recheck	P= Present Fever	N= No	Rt=R apid Test
MB =Active Mass Blood Survey		V= Venezuelan	O= Others	Ind. = Indigenous	I= Induce	EI= East Indian	Mx. = Mixed		R= Recent Fever		O= Other

Date of Death _____	Date of Death _____	Date of Death _____
Name _____	Name _____	Name _____
Age _____	Age _____	Age _____
Sex _____	Sex _____	Sex _____
Address _____	Address _____	Address _____
_____	_____	_____
_____	_____	_____
Contact names _____	Contact names _____	Contact names _____
_____	_____	_____
Cause of Death _____	Cause of Death _____	Cause of Death _____
_____	_____	_____
_____	_____	_____
Evolution of the disease _____	Evolution of the disease _____	Evolution of the disease _____
_____	_____	_____
_____	_____	_____
_____	_____	_____

M1

Preparing a Weekly Production Record

What Is a Weekly Production Report?

The Weekly Production Report is a summary by epidemiological week of the daily case register for all cases recorded at each facility.

Table 4. How Do You Complete a Weekly Production Report?

TASK:	**Completing a Weekly Production report**
COMPLETED BY:	Each MEDEX, Community Health Worker, Malaria Supervisor, and Malaria Microscopist
PURPOSE:	1. To provide a weekly summary of the daily case register 2. To assign the results by detection method, case type, and smear test
WHEN TO PERFORM:	At the end of each week
NOTE:	Completed in triplicate, Copy **A** (original) of the completed and signed **Weekly Production Report** is sent to the *Central Level.* Copy **B** of the completed and signed **Weekly Production Report** is submitted to the *Regional Malaria Officer.* Copy **C** of the completed and signed **Weekly Production Report** *is retained by the facility.*

STEPS	ACTIONS	NOTES	EXAMPLES
1	**Region**: Enter your region number here.		**Region:** 1
2	**District:** Enter the name of the district.		**District:** Barima –Waini
3	**Locality:** Enter the name of the locality within the district		**Locality:** Sebai
4	**Microscopist Name:** Enter the name of the microscopist.		**Microscopist Name**: John Smith
5	**Year:** Complete the year as shown.		**Year:** 2010
6	**Week:** Enter the epidemiological week.	According to the epidemiological calendar	**Week:** 22
7	**Month:** Enter the name of the month.	According to the epidemiological calendar	**Month:** April
8	**Diagnosis Method:** Select the diagnosis method based on the number of cases seen in the daily case register.	This form is a single-page document where either test is printed on the reverse side.	**Diagnosis Method:** Microscopy *or* Rapid Test

9	**Case Type:** Select the case type based on the number of cases seen in the daily case register.	Both case types may occur in one report.	**Case Type:** New Case *or* Recheck
10	**Detection Method:** Select the detection method used based on the number of cases seen in the daily case register.		**Detection Method:** Fever Case, Mass Blood Survey, or Passive
11	**Total Negatives:** Enter the total number of negative smears for each day, by case type and mode of detection.	Count the total number of negative smears for each day **according to the detection method** in the weekly production register.	
12	**Total Positives:** Enter the total number of positive cases from the daily case register for each day.	Count the total number of positive cases from the daily case register for each day.	
13	**Smears Examined:** Enter the total number of smears examined for each day.	Add together the total number of negative and positive smears for each day in the weekly production register. N.B. Recheck for a corresponding total in the Daily Case Register.	
14	**Signature Of Responsible Microscopist:** Enter the name of the microscopist who is compiling the report	Each microscopist must complete his or her report and sign at the end of each week.	**Signature of Responsible Microscopist**: John Smith

SAMPLE OF WEEKLY PRODUCTION REPORT

MINISTRY OF HEALTH GUYANA
D.D.C MALARIA PROGRAMME
WEEKLY PRODUCTION REGISTER

Region ☐☐

District _____

Locality _____

Microscopist Name _____

Year 2 0 ☐☐

Week ☐☐

Month _____

Day	BLOOD FILMS EXAMINED BY **MICROSCOPY**								
	NEGATIVES						TOTAL NEGATIVES	TOTAL POSITIVES	SMEARS EXAMINED
	NEW CASE			RECHECK					
	Fever Case Survey	Mass Blood Survey	Passive	Fever Case Survey	Mass Blood Survey	Passive			
SUNDAY									
MONDAY									
TUESDAY									
WEDNESDAY									
THURSDAY									
FRIDAY									
SATURDAY									
WEEK									

.....
Signature of Responsible

SAMPLE OF CORRECTLY COMPLETED WEEKLY PRODUCTION REPORT

M.2

MINISTRY OF HEALTH GUYANA
D.D.C MALARIA PROGRAMME
WEEKLY PRODUCTION REGISTER

Region | | |

District _____

Locality _____

Microscopist Name _____

Year | 2 | 0 | | |

Week | | |

Month _____

Day	BLOOD FILMS EXAMINED BY **MICROSCOPY**								
	NEGATIVES						TOTAL NEGATIVES	TOTAL POSITIVES	SMEARS EXAMINED
	NEW CASE			RECHECK					
	Fever Case Survey	Mass Blood Survey	Passive	Fever Case Survey	Mass Blood Survey	Passive			
SUNDAY	5	5		5	5		20	0	20
MONDAY			6			2	8	2	10
TUESDAY									
WEDNESDAY									
THURSDAY									
FRIDAY									
SATURDAY									
WEEK									

.....
Signature of Responsible

Preparing a Daily Microscopy Examination Register

The following are instructions for completing the Daily Microscopy Examination Register for recording all cases tested for malaria parasites with the test results. This register is to be completed by each practicing microscopist at the end of each blood smear examined. It must be kept in the facility where the microscopist operates.

Table 5. How Do You Complete the Daily Microscopy Examination Record?

TASK: Completing the Daily Microscopy Examination register

COMPLETED BY: Each practicing microscopist

PURPOSE: To keep an accurate record of the number of blood smears examined daily and the diagnosis for each patient's at your facility

WHEN TO PERFORM: After each smear is examined

MATERIALS NEEDED: Stained blood smears and Epidemiological calendar

SPECIAL NOTES: The Daily Examination register is maintained to serve as a control record for recording the number of smears completed

MALARIA FACILITY SOPS: This would be examined periodically through the supervisory tool

STEPS	ACTION	NOTES	EXAMPLE
1	**Region:** Enter your region number here.		**Region:** 1
2	**Name of Facility:** Enter the name of the facility		**Facility:** Sebai Health Post
3	**Name of microscopist:** Enter the name of the microscopist		**Name of microscopist :** J.Thomas
4	**Locality:** Enter the name of village		**Locality:** Sebai
5	**Week No.:** Enter the week number from the Epidemiological calendar calendar.		**Week No.:** 24
6	**Date:** Enter the date that the smear test is examined.		**Date:** 2012-07-21
7	**Smear No.** Enter the number allocated to the patient	Check the Daily Case Register for the information:	**Smear No.** Lab 106 or J.T 6
9	**Results:** Enter the results of the smear upon completion of the smear test	Identify and enter the type of specie seen.	**Results:** ++ v

10	**Total Smears examined :** Add the total number of smears done for the day	Each column with data should be counted and subtotaled each working day.	**Total :** 10 smears
	Total Positive: Enter the total number of positives seen		**Total Positive:**6
	Total Negative: Enter the total number of negatives seen		**Total Negative:** 4
	Smears positive by species: Enter the number of positive smears by specie		**Smears positive by species**: pf 3 pv 7

SAMPLE OF DAILY MICROSCOPY EXAMINATION REGISTER

Name of Facility: _____

Name of Microscopist: _____ Week No._____

Date of examination		Date of examination		Date of examination	
Smear #	Results	Smear #	Results	Smear #	Results

Total Smears examined															
Total Positives															
Total Negatives															
Smear positive by species	**pf**		**pv**		**pm**		**pfvm**		**pfv**		**pfm**		**pvm**		

SAMPLE OF CORRECTLY COMPLETED DAILY MICROSCOPY EXAMINATION REGISTER

Name of Facility: Annai Health Centre

Name of Microscopist: Jack Thomas _Week No.6

Date of examination 2012-07-21		Date of examination 2012-07-21		Date of examination	
Smear #	Results	Smear #	Results	Smear #	Results
1	-2f	6	negative		
2	+v	7	negative		
3	++f++v	8	+m		
4	negative	9	++f 10 m		
5	negative	10	++f++v		

Total Smears examined	10													
Total Positives	6													
Total Negatives	4													
Smear positive by species	**pf**	2	**pv**	1	**pm**	1	**pfvm**	0	**pfv**	2	**pfm**	1	**pvm**	0

Preparing Daily Issues Register

The Daily Issues Registers are the only registers that record the *actual consumption* of medicines. A health facility must maintain an **Outpatient Register**.

In addition to the name and address of patients, particular attention *must* be paid to the name of the medicine and amount of medicine given.

Table 6. How to Complete the Patient Daily Issues Register?

TASK: **Filling in the Patient Daily Issues Register**

COMPLETED BY: Each Pharmacist-in-Charge, Pharmacy Assistant, Pharmacy Bond Clerk, Multipurpose Technician , MEDEX, Community Health Worker

PURPOSE: To describe the procedure for maintaining records of medicines issued at the outpatient and inpatient pharmacies

WHEN TO PERFORM: Each time you dispense medicines to inpatients and outpatients

NOTES:

- Summary of total daily issues must be computed in *tabular form* on a daily basis in preparation of Monthly Consumption Reports.
- A single row should remain at the top and bottom of each page to show the balance brought forward from the previous day.
- The data summary calculated is used to update the stock ledger on a daily basis.
- The register should be inspected periodically for accuracy and completeness by the supervisor.

STEPS	ACTION	NOTES	EXAMPLE
1	**Date:** Enter the date of the transaction at the left-hand corner of the register		**Date:** 14-10-2010
2	**Number:** Enter the patient card/prescription number		**Number:** 121
3	**Name:** Enter the name of patient		**Name:** Paula Romascindo
4	**Address:** Enter the address of patient		**Address**: Sebai
5	**Age:** Enter the age of patient		**Age**: 34 yrs
6	**Sex :** Enter the sex of patient		**Sex:** F
7	**Diagnosis:** Enter diagnosis of patient	This column is only applicable if your health facility is a health center or health post.	**Diagnosis:** ++F 10V
8	**Medicines:** Enter the exact amount of medicine issued on this date under the respective column.	Arrange medicines according to **Drug Class.**	**Coartem:** 24 **Panadol 500 mg:** 21

9	**Comments**: Use this column to enter medicines that are not measured.	**Comments**: Calamine lotion

Table 7. How Do You Prepare a Summary Report of the Daily Issues Register (Patient Register)?

TASK:	**Preparing a summary of issues**
COMPLETED BY:	Each Bond Clerk, Pharmacist-in-Charge, Pharmacy Assistant, MEDEX, Community Health Worker, Malaria Supervisor
PURPOSE:	To verify the quantity of medicines dispensed to patients
WHEN TO PERFORM:	At end of each day and/or each week

STEPS	ACTIONS	NOTES
1	Identify the reporting period for malaria medicines.	These data should reflect all medicines issued to patients over the past three months.
2	Select malaria medicine and tally the number of tablets issued to patients during this period.	
3	Record the amount of tablets issued for each medicine.	

SAMPLE OF PHARMACY REGISTER FOR MALARIA MEDICINES

DATE.....

No.	Name	Address	Age	Sex	Diagnosis	Arthemeter/Lumefantrine 24's	Arthemeter/Lumefantrine 18's	Arthemeter/Lumefantrine 12's	Arthemeter/Lumefantrine 6's	Chloroquine 150 mg	Primaquine 7.5mg	Primaquine 15mg	Quinine 300mg	OTHER DRUGS

SAMPLE OF CORRECTLY COMPLETED PHARMACY REGISTER FOR MALARIA MEDICINES

DATE: 2012-07-21

No.	Name	Address	Age	Sex	Diagnosis	Arthemeter/Lumefantrine 24's	Arthemeter/Lumefantrine 18's	Arthemeter/Lumefantrine 12's	Arthemeter/Lumefantrine 6's	Chloroquine 150 mg	Primaquine 7.5mg	Primaquine 15mg	Quinine 300mg	OTHER DRUGS
1	Star Layne	Aishalton	49	F	++f++v	1				10		17		Paracetamol 500 mg (21)
2	Jack Day	Puruni	23	M	++v					10		14		
3	*Farouk*	*Puruni*	27	*M*	+++f+	1						3		Paracetamol 500 mg (21) Dimenhydrinate 50 mg (9)
4	*Alli*	*Georgetown*	2	*F*	++f+g+v				1	2	8			Paracetamol 125mg/5 ml (1)

Unit 5

REORDERING PROCEDURES FOR THE MATERIAL MANAGEMENT UNIT

Table 8. How Does A District Hospital, Health Center, or Health Post Calculate Amounts to Request?

TASK: Calculating the quantities of medicines and other medical supplies required for the requesting facility

COMPLETED BY: Each Pharmacist-in-Charge, Pharmacy Assistant, Pharmacy Bond Clerk, MEDEX, Community Health Worker, Malaria Supervisor

PURPOSE: To determine the quantity of each malaria medicine and other medical supply item to request according to the consumption method

WHEN TO PERFORM: Just prior to preparing the CRIV for reordering supplies

SPECIAL NOTES:

A year contains four quarters

Quarter 1- January, February, March
Quarter 2- April, May, June
Quarter 3 –July, August ,September
Quarter 4 – October, November, December

The **closing balance** for each medicine and health product of the **previous quarter** becomes the **opening balance** for the new quarter.

Example : Closing Balance of Quarter 4 = 1200
then
Opening Balance of Quarter 1 =1200

STEP 1

Determine the Average Monthly Consumption for the past three months based on cumulative issues from this facility. (See Section 6)

Example

If you are in January preparing the CRIV. The last three (3) months would have been December, November and October. If we use Aspirin 300mg and consumed (issued to patients) the following amount each month;

December - 220
November - 320
October - 240

Then $\frac{220 + 320 + 240}{3} = \frac{780}{3} = 260$

STEP 2

Calculate the **Requirement**
Requirement = (Order Interval + Lead Time) x AMC

Lead Time - time it takes for your order to be delivered from MMU/Regional Stores after submitting your fully authorized CRIV.

Order Interval - how often you are required to order (every 3 months or every month)
Lead Time - time it takes for your order to be delivered from MMU/Regional Stores after submitting your fully authorized CRIV.

If you are required to order **every quarter** i.e **(every 3 months)** and it takes **(1) month** for your order to be delivered from MMU the **Lead Time is one (1) month.**

Example

Using Aspirin 300mg

Requirement = (3 + 1) x 260
= (4) x 260
= **1040**

The maximum months of stock is 4 (which is equal to)
4x 260 = **1040 of Aspirin 300 mg**

STEP 3

Quantity To Order (Q t O)

QtO = Requirement – Closing Balance

Rules:

A) If the REQUIREMENT is greater than the CLOSING BALANCE,ORDER the DIFFERENCE

Example

If you had a Closing Balance of 200 for Aspirin 300mg, then 1040 > 200.

We will order the difference.

Quantity to order = 1040 – 200
= 840

Place this amount (840)in the Quantity Ordered column(l) of the CRIV

OR

B) If the REQUIREMENT is less than the CLOSING BALANCE, DO NOT ORDER

If you had a Closing Balance of 1200 for Aspirin 300mg,

then 1040 < 1200.

Quantity to order =1040 – 1200
= - 160

The facility has an excess of 160 Aspirin 300 mg tablets(Do not Order)

Submitting a Reorder Request

When the stock status of a facility is at the established reorder point, then it is time for that facility to place an order using the Combined Request and Issue Voucher, or CRIV. The Consumption Report for the facility must be submitted with the CRIV. All Regional Pharmacy Bonds or storerooms should follow the process flow in figure 2 when completing the CRIV.

Table 9. How does a malaria facility complete the CRIV at the end of each Reorder interval?

TASK:	**Filling in the Combined Requisition and Issue Voucher**
COMPLETED BY:	Each Bond Clerk, Regional Pharmacist-In-Charge, Hospital Pharmacist-In-Charge, Pharmacy Assistant, MEDEX, and Community Health Worker that is requesting re-supply.
PURPOSE:	To re-order supplies at the normal re-order point.
WHEN TO PERFORM:	At the normal re-order point (whether monthly, quarterly or semi-annually).

SPECIAL NOTES:

1. See figure 2 for complete CRIV information flow
2. This is a serially numbered quadruplicate form i.e A,B,C & D
3. Follow steps 1-8 below once per form.
4. Follow steps 9-20, below once for each product being ordered on this form.
5. Step 21 is completed by the supplying store. Step 22 is completed when the product is received
6. Step 24 & 25 are to be completed by the Requisition Officer.
7. . Step 26 & 26 is to be completed by the Approving Officer (R.H.O ,Medical Superintendent)

STEPS	ACTIONS	NOTES	EXAMPLES
1	**Name of Facility**: Enter the name of your facility.		**Facility:** Sebai Health Centre
2	**Region**: Enter your region number here.		**Region:** 1
3	**Facility Contact Telephone Number**: Enter the telephone contact number for your facility.		**Telephone Number**: 2252653Z
4	**Programme**: If this Requisition and Report form is meant for a particular programme, enter it here.	If relevant and known, enter the programme name established by the Finance Ministry.	
	Sub-Programme: If there is any	If relevant and known, enter the	

5	sub-programme associated with this re-order, enter it here.	sub-programme name established by the Finance Ministry.	
6	**Activity**: If there is any activity associated with this re-order, enter it here.	If relevant and known, enter the activity name established by the Finance Ministry.	
7	**Date, last receipt**: Enter the date for which drugs were last received.		**Date, last receipt:** 15/10/2010
8	**Date, last order**: Enter the date for which the last order was placed.		**Date, last order** : 14/09/2010
9	**Product Code (a):** Enter the code established by the Ministry of Health for this item.	On pre-printed forms just choose from the list of pre-printed product codes.	
10	**Product Generic Name (b):** Enter the name of the drug or other medical supply item. Where possible use the international non-proprietary name given by WHO.	Use the Essential Drugs List for preprinted product generic names.	**Product Generic Name:** Primaqine
11	**Reference No. (c):** Enter the page number of stock ledger for the indicated drug or other medical supply item.	See stock ledger	**Stock Ledger Primaqine**: Page 9
12	**Product Strength (d):** Enter the desired strength for the product here.	Use the Essential Drugs List for preprinted product strengths.	**Product Strength:** 15mg
13	**Product Form (e):** Enter the desired form for the product here.	Use the Essential Drugs List for preprinted product forms.	**Product Form**: tablet
14	**Unit of Issue (f) :** Whatever unit of measure is being used for this item should be entered here	It is recommended that the simplest unit of receipt and issue be used. On pre-printed forms just choose from the list of pre-printed unit of measures.	**Unit of Issue :** Each
15	**Opening Balance (g):** Enter the balance at the end of the last re-order period for each item.	This is the same as the closing balance at the end of the last reorder period.	**Opening Balance:** 2000
16	**Quantity Issued/Dispensed (h):** Enter the amount of this product consumed by your facility during this past reporting period.	This value should be taken from daily issues register at dispensing sites or from the stock ledger/bin card for warehouses.	**Quantity Issued/Dispensed**: 1400
17	**Stock on Hand (i):** Enter the	This column should always	**Stock on Hand:** 2000

	quantity in stock at your facility for this item on the last day of this reorder interval.	represent the amount of this item presently in your store. It includes all units of the products in the stores as well as all unopened units of the item in the dispensary.	
18	**Number of days out of stock (j):** Enter the number of days that this product has been out of stock during the reorder interval.		**No. of days out of stock:** 0
19	**Losses and Adjustments (k):** Enter the total number of products lost to damage and expiration, or unaccounted for.		**Losses and Adjustments:** 0
20	**Quantity Ordered (l):** Enter the amount being requested by the facility.	Normally, the amount to order should be the maximum months of stock established for your facility for this item minus the Closing Stock for this item. However, your facility can order different amounts but should provide some justification in the comments column.	**Quantity Ordered:** 3000
21	**Quantity Issued (m):** This column is completed by the supplying store. They are to enter the actual amount they supplied to this requesting facility.	Normally, the amount issued will be the amount ordered. If it is not, it is recommended that the supplying store indicate the reason for not supplying the requested amount in the comments column.	**Quantity Issued:** 3000
22	**Quantity Received (n):** This column completed by the receiving (requesting) facility after the product is delivered by the supplying store.	Normally, the amount issued by the supplying store will be the same as the amount received. If not, it is recommended that the receiving store indicate this in comments column.	**Quantity Received:** 3000
23	**Comments (o):** This column is filled in by anyone with a comment.	As indicated above, anything out of the ordinary should be entered in the comments column.	
24	**Requisition Officer:** Signature of requesting officer.	After completing the CRIV, the person responsible for requesting should sign in the space provided.	**Requisition Officer:** *John Smith*
25	**Date :** Enter the date of request here		**Date** :2011-01-13
26	**Approving Officer:** Signature of approving officer.	The CRIV must be approved by the Regional or Sub-regional officer	**Approving Officer**
27	**Date :** Enter the date of		**Date** : 2011-01-17

	approval here	
28.	**Government Pharmacist:** Signature of the pharmacist at the MMU.	
29.	**Date:** Enter the date on which the MMU Pharmacist signed the CRIV	**Date:** 2011-02-11
30.	**Issuing Officer:** Signature of Issuing Officer	
31.	**Date:** Enter the date on which the products were issued.	**Date:** 2011-02-11
32.	**MMU Director:** Signature of the MMU Director	**Date:** 2011-02-11
33.	**Packing Officer: S**ignature of the Packing Officer	
34.	**Date:** Enter the date on which the products were packed.	**Date:** 2011-02-13
35.	**Vehicle Number:** Enter the registration number of the vehicle which uplifted the packages from the MMU.	
36.	**Gate Pass Number:** Enter the number of the gate pass for the consignment	
37.	**Number of Packages:** Enter the number of packages making up the consignment	
38.	**Dispatch Officer: S**ignature of the Dispatch officer	
39.	**Date:** Enter date on which the consignment was dispatched	**Date:** 2011-02-15
40.	**Uplifting Officer:** Signature of the Uplifting Officer	
41.	**Date:** Enter the date on which the consignment was uplifted	**Date:** 2011-02-15

Distribution

- The first three copies **(A, B, C)** are forwarded to the Materials Management Unit or Regional Pharmacy Bond. The last copy **(D)** is retained by the requesting facility.
- Copy **A** of the completed and signed CRIV *is retained by the* MMU or Regional Pharmacy Bond.
- Copies **B and C** of the completed and signed CRIV *are returned to the requesting facility*.
- The **B and C** copies of the CRIV are used to check receipts of medicines and medical supplies from the MMU or Regional Pharmacy Bond to check for discrepancies between what was ordered and what is received.
- Upon receipt of supplies for the CRIV, the Pharmacist, Pharmacy Assistant, MEDEX, or Community Health Worker in charge *must* inspect amounts received and confirm the amounts said to be supplied on the CRIV. The pharmacist-in-charge or requesting officer should sign where it says "uplifted by."
- The **B** copy of the CRIV is returned to the Materials Management Unit or Regional Pharmacy Bond during the next reorder period. It is used to record any discrepancies that may have occurred and should be confirmed with the person who transported the goods and the supplying store informed.
- The **C** copy of the CRIV is retained by the requesting facility upon receipt of medicines and medical supplies from the Materials Management Unit or Regional Pharmacy Bond.

SAMPLE OF COMBINED REQUISITION AND ISSUE VOUCHER

Serial Number

Name of Facility_____ Region _____ Facility Phone_____ Date Last receipt_____

Programme_____ Sub-Programme _____ Activity_____ Date last Order _____

Product Code (a)	Product Generic Name (b)	Ref. (c)	Product Strength (d)	Product Form (e)	Unit of Issue (f)	Opening Balance (g)	Quantity Issued/ Dispensed (h)	Stock on Hand (i)	No. of Days of Stock Out (j)	Losses/ Adjustments (k)	Quantity Ordered (l)	Quantity Issued (m)	Quantity Received (n)	Comments (o)

Signed _____ Date _____

Requisition Officer

Signed _____ Date _____

Approving Officer

Signed _____ Date _____

Government Pharmacist

Signed _____ Date _____

Issuing Officer

Signed _____ Date _____

MMU Director

Signed _____ Date _____

Packing Officer

Vehicle Number:

Gate Pass Number:

Number of Packages:

Signed _____ Date _____

Dispatch Officer

Signed _____ Date _____

Uplifting Officer

SAMPLE OF CORRECTLY COMPLETED COMBINED REQUISITION AND ISSUE VOUCHER

Serial Number

Name of Facility: Annai Health Center Region 9 Facility Phone_____

Date Last receipt: 15th October,2010

Programme_____ Sub-Programme_____ Activity_____

Date last Order 14th September,2010

Product Code (a)	Product Generic Name (b)	Ref. (c)	Product Strength (d)	Product Form (e)	Unit of Issue (f)	Opening Balance (g)	Quantity Issued/ Dispensed (h)	Stock on Hand (i)	No. of Days of Stock Out (j)	Losses/ Adjustments (k)	Quantity Ordered (l)	Quantity Issued (m)	Quantity Received (n)	Comments (o)
	Primaquine	4	15 mg	Tablets	Each	2000	1400	2000	0	0	0			
	Co-artem	16	20/120 mg	Tablets	24	8	6	2	0	0	8			
	Co-artem	20	20/120 mg	Tablets	12	9	3	6	0	0	0			

Signed _____ Date _____

Requisition Officer

Signed _____ Date _____

Issuing Officer

Vehicle Number:

Gate Pass Number:

Number of Packages:

Signed _____ Date _____

Approving Officer

Signed _____ Date _____

MMU Director

Signed _____ Date _____

Dispatch Officer

Signed _____ Date _____

Government Pharmacist

Signed _____ Date _____

Packing Officer

Signed _____ Date _____

Uplifting Officer

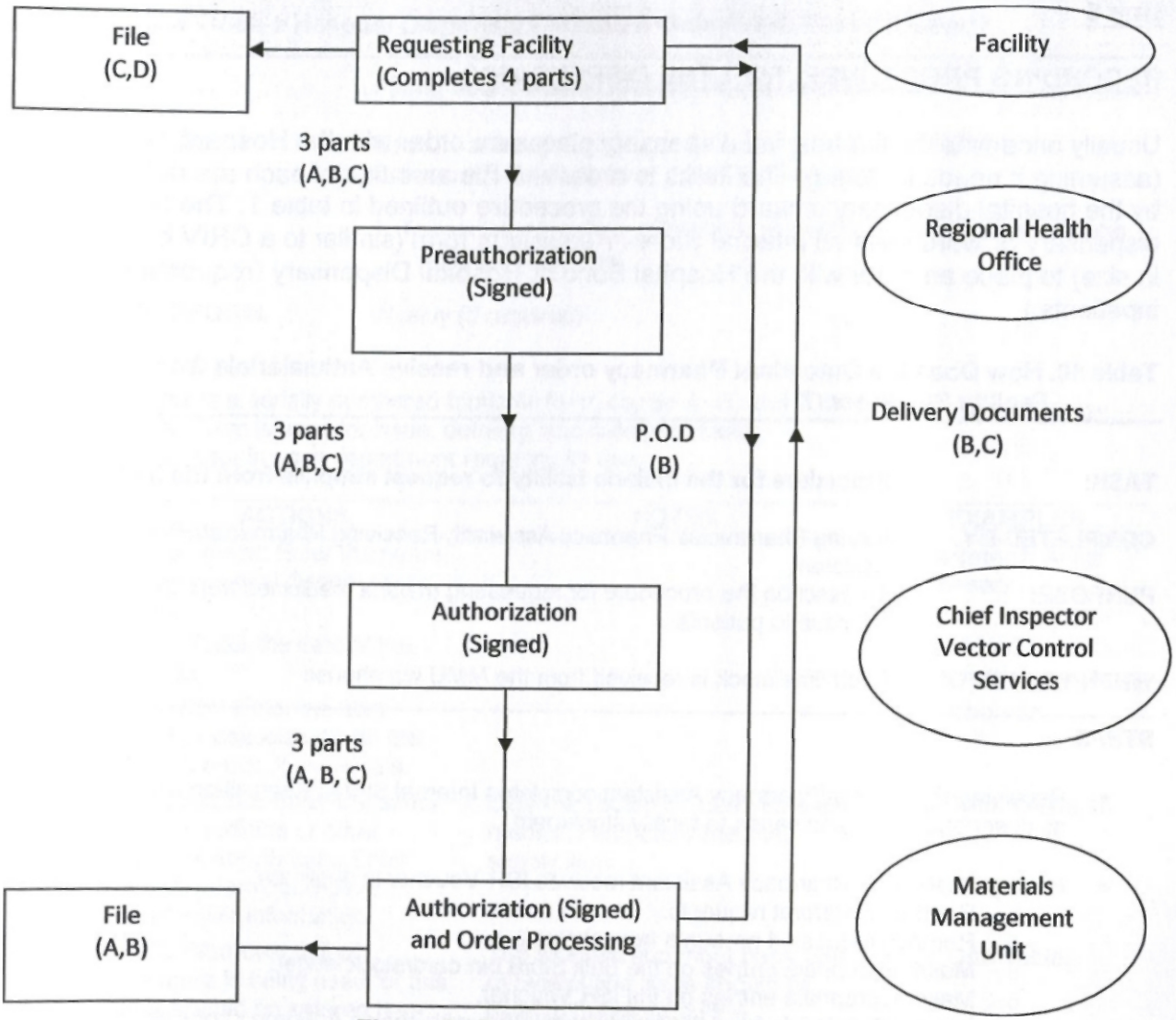


Figure 2. Guyana Malaria CRIV flows

Unit 6

RECORDING PROCEDURE (FOR THE DISPENSARY)

Usually once weekly, the hospital dispensary places an order with the Hospital Bond (assuming it needs to do so). The items to order and the amounts of each are determined by the hospital dispensary or ward using the procedure outlined in table 1. The hospital dispensary or ward uses an Internal Stores Requisition form (similar to a CRIV but smaller in size) to place an order with the Hospital Bond or Hospital Dispensary (requests for inpatients.)

Table 10. How Does the Outpatient Pharmacy order and receive Antimalarials from the Facility Stockroom?

TASK:	**Procedure for the malaria facility to request supplies from the bulk store**
COMPLETED BY:	Issuing Pharmacist/ Pharmacy Assistant, Receiving Pharmacist/Pharmacy Assistant,
PURPOSE:	To describe the procedure for requesting malaria medicines from the stock room for issue to patients
WHEN TO PERFORM:	Each time stock is received from the MMU warehouse

STEPS:

- Receiving Pharmacist/Pharmacy Assistant completes Internal Stores Requisition (ISR) Voucher as described below and sends to facility stockroom.

- Issuing Pharmacist/Pharmacy Assistant receives ISR Voucher in duplicate
  - Read and interpret requests.
  - Remove requested amounts from shelves.
  - Make appropriate entries on the Bulk Store bin card/stock ledger.
  - Make appropriate entries on the ISR Voucher.
  - Issue antimalarials from the facility stockroom with copies A, B and C of ISR.

Receiving Pharmacist/Pharmacy Assistant receives copies B and C of ISR.

- Check received products
- Make appropriate entries on the Pharmacy bin card/stock ledger.
- Store received products in appropriate cupboards.

N.B. This procedure DOES NOT APPLY at the Health Center or Health Post level.

Table 11. How Does a Hospital Dispensary Place an Order from Hospital Bond?

TASK: **Filling in the Internal Stores Requisition form**

COMPLETED BY: Each Pharmacist-in-Charge, Pharmacy Assistant, MEDEX, Community Health Worker, Malaria Supervisor

PURPOSE: 1. To reorder all malaria medicines and other medical supplies for the hospital dispensary

WHEN TO PERFORM: Weekly (if required)

NOTE:

1. This is a serially numbered triplicate form, copies A, B, and C.
2. The form is used for issue, delivery, and receipt of stock.
3. It is kept in each department requiring its use.

STEPS	ACTIONS	NOTES	EXAMPLES
1	**Department**: Enter the name of the hospital dispensary or ward.		**Department:** Annai Dispensary
2	**Date**: Enter the date of the reorder.		**Date:** 12/4/2010
3	**Item No.**: Enter the item number associated with the item to order, if one exists.		**Item No.:** 435
4	**Description**: Enter the name of the medicine or other medical supply item. Enter dosage, form, and other descriptive information.	One line should be used for each medicine and other medical supply item.	**Item:** Primaquine 15 mg tablet
5	**Unit**: Whatever unit of measure is being used for this item should be entered here.	The simplest and most basic unit of receipt and issue should be used (otherwise use the appropriate packing size).	**Unit**: One Tablet
6	**Quantity on Hand**: Enter the quantity in stock at your ward/dispensary for this item on the date of reorder.	This amount can be estimated if all that remains in working stock is a partially used jar.	**Quantity on Hand**: 1,000
7	**Quantity Requested**: Enter the amount being requested.	Please reference instructions provided in **Table 9**: How Does A District Hospital, Health Center, or Health Post Calculate Amounts to Request?	**Quantity Requested:** 5,000
8	**Quantity Supplied**: This column is filled in by the Hospital Bond.		**Quantity Supplied**: 4000
9	**Folio No.**: This column is filled in by the hospital bond if it keeps such numbers.		

- After completing the Internal Stores Requisition form, the requesting person of the hospital dispensary or ward should sign at the bottom in the space provided under "*requisitioned by.*"

- Then the person-in-charge should also sign at the bottom under *"approved by."*

- The hospital dispensary or ward should retain a copy of this form and send two copies to the hospital bond. The hospital bond can return the extra copy upon delivery of supplies.

- When the hospital bond receives this form, the issuing officer or person-in-charge should sign under "*issued by*" upon preparation for delivery to the dispensary or ward.

- The bond should attempt to resupply on the same day it receives the request (or shortly thereafter). The bond can establish specific days for each ward or dispensary to submit its request if this will make resupply more efficient.

- Upon receipt of supplies, the Pharmacist-in-charge at the hospital dispensary should inspect the amounts received and confirm that amounts are the same as those listed on the form.

- If there are any discrepancies, the Pharmacist-in-charge or Nurse in-charge should confirm these with the Hospital Bond.

- The person collecting the supplies at the dispensary or ward should then sign under "*Collected by,*" and someone at the dispensary or ward should confirm that the items were received by signing at the bottom of the form.

No.:

INTERNAL STORES REQUISITION
FOR HOSPITALS AND DISPENSARIES

Department : _____ **Date:** _____

Please supply the following:-

Item No.	Description	Unit	Qty. on Hand	Qty. Req'd	Qty Sup'd	Folio No.

Approved By: Date: ..... Requisitioned by: .....
.....

Issued by
.....Date.....
Collected
by.....Date.....

Medical –No.

No.:

INTERNAL STORES REQUISITION

No.:

INTERNAL STORES REQUISITION
FOR HOSPITALS AND DISPENSARIES

Department : Mabaruma Malaria Department **Date: 02-02-2011**

Please supply the following:-

Item No.	Description	Unit	Qty. on Hand	Qty. Req'd	Qty Sup'd	Folio No.
1	Cotton wool	roll	2	1	1	
2	Slides	box	1	3	1	
3	Coartem 24's	card	6	6	4	
4	Primaquine 15mg	each	600	1000	1000	

Approved By:
.....

Date: .....

Requisitioned by: .....

Issued by
.....Date.....
Collected
by.....Date.....

Medical –No.

Unit 7

STORAGE CONDITIONS

Good storage practices will enable the health facility to supply malaria medicines and other products that are safe and of good quality.

Table 12 . How Do You Store Drugs and Supplies Appropriately?

AT MEDICAL STORES AND PHARMACIES

TASK:	**Storing medicines and other medical supplies**
COMPLETED BY:	Each Pharmacist-In-Charge, Pharmacy Assistant, MEDEX, Community Health Worker, Bond Clerk, etc.
PURPOSE:	To protect quality and package integrity of medicines and other medical supplies while at the same time making them available for use
WHEN TO PERFORM:	When medicines and other medical supplies are being stored

STEPS	STORAGE GUIDELINES	NOTES
1	Store malaria medicines and other medical supplies separately from office supplies, insecticides, and chemicals.	Storing medicines and other medical supplies separately makes them more accessible for distribution. Fumes from insecticides and chemicals may reduce shelf life.
2	Secure malaria medicines and other medical supplies from water damage.	Water can destroy medicines and other medical supplies or their packaging, making them unacceptable to clients. Repair leaks in storage area.
3	Store malaria medicines and other medical supplies in a dry, well-ventilated storage area, out of direct sunlight.	Heat and ultraviolet radiation from sunlight will reduce the shelf life of medicines and other medical supplies.
4	Store latex products away from electric motors and fluorescent lights.	Electric motors and fluorescent lights produce ozone, which damages latex products.
5	Clean and disinfect the storeroom regularly.	A clean storeroom prevents pests from eating medicines and other medical supplies or their packaging.
6	Stack cartons—at least 10 cm off the floor 30 cm away from walls no more than 2.5 m high	Proper stacking promotes air circulation and reduces possible damage from water or moisture. Use shelves or pallets when possible. Limiting stacking height will prevent crushing cartons at the bottom of the stack and reduce potential injury to personnel.
7	Store malaria medicines and other medical supplies upright in a manner accessible for FEFO distribution, counting, and general management.	FEFO, or "first expiry, first out," is a distribution procedure whereby medicines and other medical supplies that are older or will expire soonest are issued to other facilities or dispensed to clients before other supplies.

8	Arrange cartons with arrows upward and identification labels and expiry dates visible.	If shipping cartons do not show expiry dates, determine expiry date from manufacturing date. If outer carton does not have dates, look for date on inner boxes or units. Store cartons with arrows upward to avoid product damage inside. Write expiry dates on cartons in large numbers.
9	Separate damaged or expired medicines and other medical supplies.	Damaged or expired supplies take up valuable space and make FEFO distribution difficult. Damaged or expired products should never be given to clients.
10	Ensure that fire safety equipment is available and accessible.	Working fire extinguishers or buckets of water or sand are appropriate. Fire extinguishers should be checked once a month to ensure they are in working condition.
11	Ensure security.	It is important to secure medicines and other medical supplies from theft while still making them accessible to authorized personnel.

NB: in all cases, the manufacturer's storage conditions should be referenced and observed

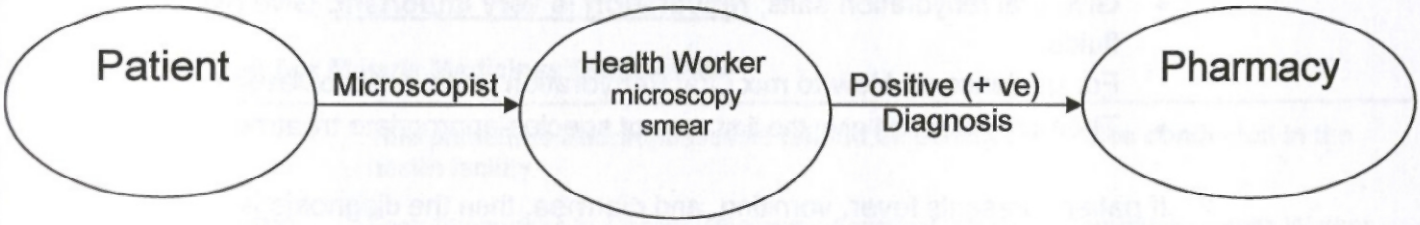
.

Unit 8

DIAGNOSIS

The primary objective in treating uncomplicated malaria is to achieve a clinical and parasitological cure i.e to eradicate parasites from the body .The secondary objectives are to prevent the emergence and spread of resistance to antimalarial medicines and reduce the parasite reservoir from which other persons may become infected.

Process Flow for Treating Malaria



1. A history is taken; vital signs and physical examination are taken.
2. A smear is taken.
3. Based on physical assessment and results of smear, diagnosis is confirmed.
4. Appropriate management is administered, that is—
    - Whether patient is to be referred to the next level of care
      OR
    - Whether patient is to be given treatment and sent home.
5. Consider if the patient is pregnant at the **Health Post Level**.

Uncomplicated Malaria Management

Refer to Annex D for treatment of uncomplicated malaria

Give species-specific treatment if the patient is stable, that there is :-

- No vomiting
  Fever of less than 39 ° C
- No diarrhea
- No jaundice
- Stable vitals (i.e., respiration, pulse, and blood pressure are stable)

Prescribe and give the first dose of species-appropriate treatment based on smear, remind the patient to return to the health facility **one week** after completion of treatment.

If the patient is stable as in case 1 and having a fever, prescribe and give the first dose of species-appropriate treatment and Paracetamol.

If patient is stable as in case 1 and with *history of vomiting without diarrhea*—

- Control vomiting with oral Dimenhydrinate (Gravol).
- Observe patient for 30 minutes to 1 hour.
- If no vomiting, then prescribe and administer species-appropriate treatment.
- Observe patient for 30 minutes to 1 hour.

1. If patient is stable as in case 1 with *history of diarrhea*—
   - Give oral rehydration salts; **rehydration is very important**. Give plenty of fluids.
     For guidance on How to mix Oral Rehydration Salts, refer to **Annex C**
   - Then prescribe and give the first dose of species-appropriate treatment.

2. If patient presents fever, vomiting, and diarrhea, then the diagnosis is *complicated malaria*. **Refer the patient.**

Complicated Malaria

If the patient presents with fever, vomiting, and diarrhea and also has jaundice, and the respiration rate is increased, then prepare the patient for referral to the next appropriate level i.e the medical doctor at the District or Regional Hospital

Signs and Symptoms of complicated malaria

- Frequent vomiting (three or more episodes) in less than one (1) hour
- Fever of more than 39 ° C
- Frequent diarrhea (three or more loose)bowels in less than one (1) hour
- Jaundice- yellowing of eye and skin

Unit 9

DISPENSING OF MEDICINES

The dispensing pharmacist or health care worker must always ensure that the dispensing unit—

- Has adequate lighting and ventilation
- Is fitted with a sink and has a reliable source of water
- Has a dispensing bench suitable for the preparation and dispensing of medicines
- Is fitted with cupboards for storage and protection of medicines

Table 13. How Are Malaria Medicines Dispensed?

TASK:	**This procedure encompasses all related dispensing activities conducted in the health facility**
COMPLETED BY:	Each Pharmacist-In-Charge, Pharmacy Assistant, MEDEX, Community Health Worker
PURPOSE:	To ensure that all prescriptions for malaria medicines are appropriately dispensed in accordance with the correct procedures
WHEN TO PERFORM:	Every time malaria medicines are dispensed to patients

STEPS	PROCEDURES	EXPLANATION
1	**Receive and validate the prescription**	Upon receiving the prescription, the Pharmacist, Pharmacy Assistant or MEDEX should asses the prescription and if required make contact with the prescriber to enable the following Patient name • Patient identification • Physician identification • Dosage form and strength • Directions for use
2	**Understand, interpret, and record the prescription**	• Check for the medicine • Read the prescription. • Correctly interpret any abbreviations used by the prescriber. • Check that the doses prescribed agree with the National Malaria Treatment Guidelines for the patient (noting age). Recheck for errors or mistakes in the prescription. • Correctly perform any dose calculations.
3	**Recheck the daily case register**	**NB. Steps 1 & 2 are not applicable to the Community Health Worker** The Community Health Worker must recheck the Daily Case register to be sure of the treatment to give .Recheck for the following— • Type of specie diagnosed **Refer to the Malaria Treatment Guidelines Poster for** • The name of medicine to give • Dosage form and strength • Directions for use •

4	**Record the prescription in the Daily Issues Register**	Record in Daily Issues Register— • Patient Record Number: fill in the next consecutive number • Patient's Name • Address • Age • Sex • Diagnosis • Select the malaria medicine preparations for the current regimen in columns following the Diagnosis column, and record the quantity of medicines to be dispensed
5	**Prepare medicine for dispensing to patient**	Work should begin in a clear workspace. • Take the stock bottle from the shelf and match the following to the prescription— o Correct malaria medicine o Strength/concentration o Dosage form • Inspect the medication from the stock bottle. Look for the following— o Broken or discolored tablets or capsules o Liquid medications that have changed color or odor • Check that bottles are free of cracks or chips. • If any of the above are found, do not dispense them to patient. • Write the label on the envelope. Add the following information and label the package— o Quantity o Times at which the medicine is to be taken o Patient's name o Date • Count out desired number of units using a spatula or knife on a counting tray or clean sheet of paper. Avoid touching medicine product with hands because contamination may result. • Recount number of units before packing into the envelope. • Replace medicine containers to its proper position after use. **N.B.** ***Where the health worker performs a dual role as a prescriber and dispenser, the standard pharmacy operating procedures must be followed to countercheck the product in ensuring that the labeled package contains the correct malaria medicine, strength, quantity, dosage form, and directions for use.***
6	**Issue/give medicine to patient with clear instructions and advice**	The medicine must be given to the named patient or the patient's representative with clear instructions and any appropriate advice about the medicine. The advice given must be— • When to take the medicine • How to take the medicine • How to store the medicine

Unit 10

USE OF MEDICINES

Table14. Adherence Counselling for Use of Antimalarial Therapy

An important approach is to encourage counselling, during which patients are told of the importance of taking the full treatment course and what to do if they become sicker. Always give the first dose of treatment at the health facility

TASK:	**Counselling on use of antimalarials**
COMPLETED BY:	Each Pharmacist-in-Charge, Pharmacy Assistant, MEDEX, Community Health Worker, Malaria Supervisor
PURPOSE:	To encourage patient adherence to antimalarial medicines
WHEN TO PERFORM:	Every time medicines are dispensed to patients

STEPS	COUNSELING POINTS	EXPLANATION	COMMENT
1	**Introduce yourself**	Give your name and position.	
2	**Identify who is being counseled**	Is the person picking up the malaria medicines the patient or caregiver or a representative?	
3	**Give medicine name and describe its appearance**	Tell the patient or his/her representative the name(s) of the medicines they are receiving. As you say the name of the medicine, point to the name on the package label. Open the package and show the patient or his/her representative a tablet, or show the patient a picture of the tablet from a poster or other aid you keep in the pharmacy. Refer to ***Malaria Treatment Guidelines Poster.***	
4	**Give route of administration**	For example, *"You should take these medicines by mouth with a glass of water."*	
5	**Give directions**	Explain to the patient or his/her representative the directions they should follow (number of pills or amount of fluid) to take and when to take the medication. Explain that the medicines must be taken regularly, exactly as directed, and not to miss any doses— • These malaria medications are meant only for you. Do not share these medications with others. • These malaria medications work best when there is a constant amount in the blood. To help keep the amount constant, do not miss any doses. • Take the malaria medicine exactly as the health care worker told you. You should not take more of it or take it more often	For example, the patient is supposed to take his/her medication at **8** in the morning and **8** at night. The patient remembers at **10** in the morning if he or she forgot the morning dose, what should the patient do? **(Correct answer: Patient should take the morning dose because it is not too close to evening dose).** What if the patient remembered that he or she forgot the morning dose at 6 in the

		than the health care worker has said. • If you miss a dose, take it as soon as possible. However, if it is almost time for the next dose, skip the missed dose and go back to the regular dosing schedule. You should not take your missed dose and your next dose at the same time (or two doses at the same time). • Keep taking the malaria medication, even if you start to feel better. Don't stop taking these medicines without checking with your doctor/nurse or health care worker first.	evening, what should the patient do? **(Correct answer: Patient should not take the forgotten dose but should take the evening dose as scheduled).**
6	**Make sure the patient understands how these medications work**	Tell the patient or his/her representative that these malaria medicines (together) are used to cure the infection caused by the malaria mosquito.	Refer to *Malaria Treatment Guidelines Manual*
7	**Give information on the side effects of the medicines**	**Side effects to report at the next visit:** These side effects usually do not need medical attention and go away during treatment as your body adjusts to the medicine. However, encourage the patient to talk with the health care worker if these side effects continue or are very bothersome. **Side effects to report immediately:** Encourage the patient to check with the health care worker **immediately** if they have Swelling of the face or lips.	
8	**Check for questions and concerns**	Ask, "*Do you have any questions or concerns, before I continue?"*	If you cannot address the patient's or his/her representative's questions or concerns, Refer to *Malaria Treatment Guidelines Manual.*
9	**Taking other medicines/herbs/ local medicines and medicine interactions**	Ask the patient or his/her representative if the patient has any medicine allergies. Ask the patient or his/her representative if the patient is taking any other medicines at the moment and check for interactions using the *Malaria Treatment Guidelines Manual.* Inform the prescriber or health care worker of any interactions identified. Tell the patient— • *Some medicines are not safe to take while you are taking malaria medicines.* • *You may or may not be able to tell if the other medicines are causing a problem.* • *It is always best to check with your doctor or health care worker before starting any new medicines (this includes herbals).* • *Avoid alcohol while taking malaria medicines.*	
10	**Check the understanding of the patient or his/her representative**	Do this by asking the patient or his/her representative to repeat back to you key information. Remind them of information they left out.	

You can say something like –

- "Can you repeat back to me the information I shared with you, so that I know if I missed telling you anything important information?"

OR

- "That was a lot of information .Just to make sure I covered all the information and you understand all of it, can you repeat back what we have covered?"

Unit 11

SUPPORT

Supervision

The malaria supervisory tool is a Guyana-specific variation of an instrument currently used in various Amazon countries of South America. It is designed to be administered at malaria-facility level in the public sector at no less than four-monthly intervals by a supervisory representative of the respective Regional Health Office. The outcome of each supervisory visit is documented on a preprinted form with copies retained at the facility and also distributed to regional and central offices. The tool was piloted initially in Guyana in 2008 and is being rolled out nationally in the course of 2009.

The tool addresses cross-functional categories of service, including the provision of microscopes, availability of medicines and diagnostic supplies, quality assurance of smear tests, prescription and dispensing practice, and related information systems. Each visit is envisioned to take two to three hours and will require verbal queries, access to various facility records, viewing of the service location, and observation of the practitioners delivering the services. The visits will be completed in accordance with prior agreement regarding the scheduling.

The tool depends heavily upon quantitative indicators to establish whether good practice is being followed and that appropriate resources are in place for the health providers to provide acceptable levels of service. Guidelines regarding the interpretation of the indicators, once the visit has been completed and documented, are provided, together with advice for officers at both regional and central levels in the Ministry of Health to facilitate follow-up and resolution of issues identified.

The tool may be viewed in a separate document that includes supporting documentation and advice.

Table 15. Inspection of Health Facilities Checklist

TASK:	**Inspection of health facilities**
COMPLETED BY:	Each Regional Health Officer, Pharmacist-in-Charge, Pharmacy Assistant, MEDEX, Malaria Supervisor
PURPOSE:	1. To monitor the malaria medicine supply chain system based on supervisory visits 2. To increase communication and coordination between the regional and central levels 3. To enhance decision making

WHEN TO PERFORM: Every four months

NOTE: This form is a serially numbered in triplicate, i.e., A, B, and C.

- Copy **A** of the completed and signed Malaria Supervisory tool is retained by the *Supervisor* (white copy).
- Copy **B** of the completed and signed Malaria Supervisory tool is submitted to the *Regional Health Officer* (yellow copy).
- Copy **C** of the completed and signed Malaria Supervisory tool is returned to the *facility visited* (pink copy).

STEPS	ACTIONS	NOTES	EXAMPLES
1	**Introduce yourself**: Give your name and position.	Regional Health Officer, Pharmacist-n-Charge, Pharmacy Assistant, MEDEX, or Malaria Supervisors visit dispensaries of health facilities during Inspectorate work plan schedule.	
2	**Explain the purpose** of your visit.	Inform the health care worker that you are there to look at procedures in place for the provision of prompt diagnosis and treatment of malaria.	
3	**Present the supervision tool** and begin asking questions according to the sections.	Follow the guide whenever necessary to ensure the correct responses. All sections of the supervision tool require that the products or articles be seen and noted with the responses given by the health care worker.	
3	When problems are discovered from the responses given, the supervisor *MUST* make note.	The problem is noted in Section K of the supervision tool.	
4	Corrective actions are initiated at the regional or central level.	Expired and damaged medicines are quarantined for destruction.	

Information Systems

The key documents for the management of the malaria program in a facility are as follows. Frequency of production is indicated in parentheses.

- CRIV (regular intervals, typically 2 or 3 months)
- Daily Issues Register (daily)

Daily Examination Register (daily)

- Daily Case Register (daily)
- Production Report (weekly)

- Stock Ledger (daily)
- Dispensing labels (as needed)

All are (or will be shortly) standard preprinted Ministry of Health documents, and instructions for their completion are in this document.

Exactly how completion of these forms is managed and responsibilities are assigned will be predicated on the organization, staffing, division of labor and layout within the facility. There is no standard approach. The information flows within the Vector Control Services are, however, indicated in figure 3 and can serve as a guide.

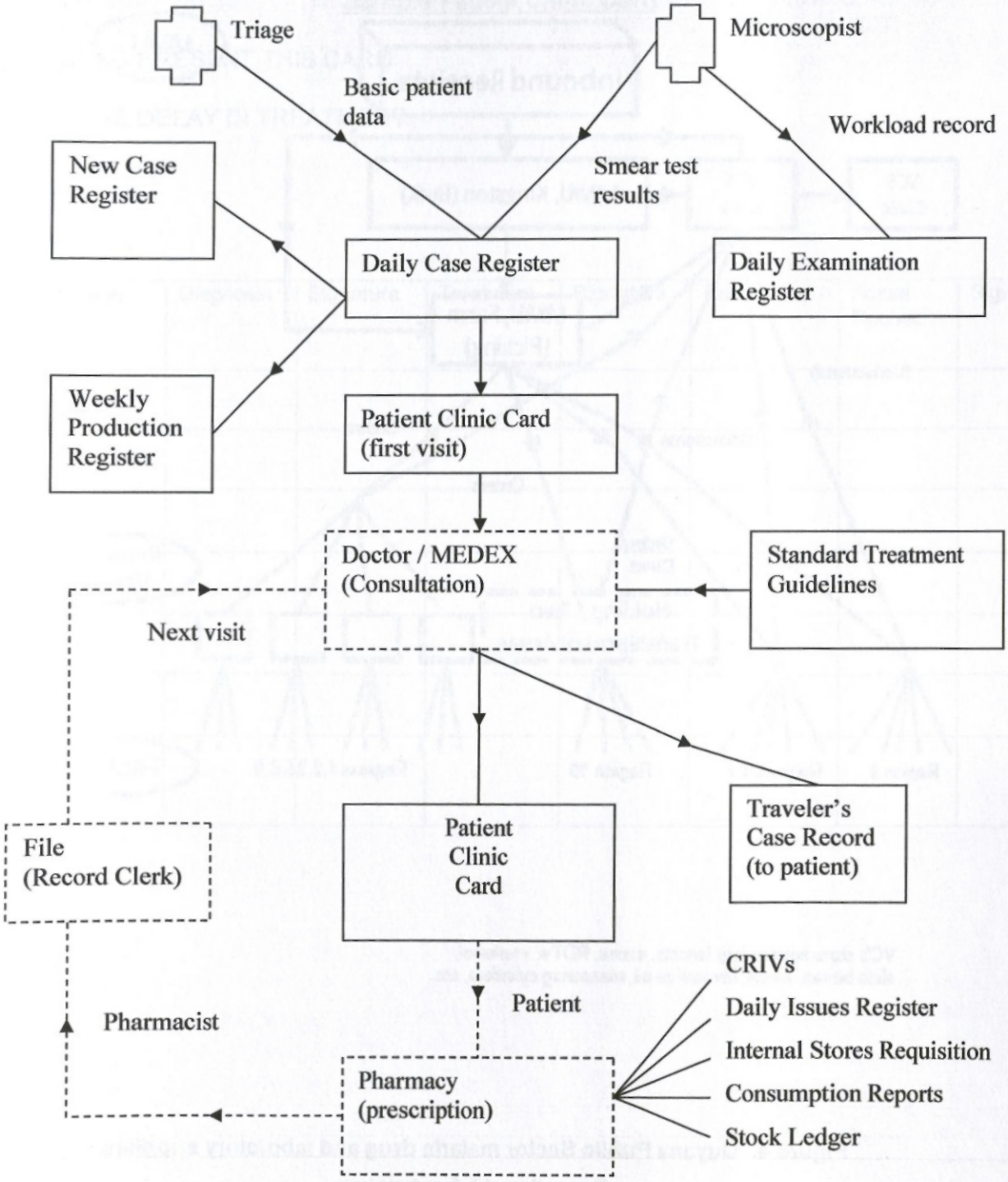
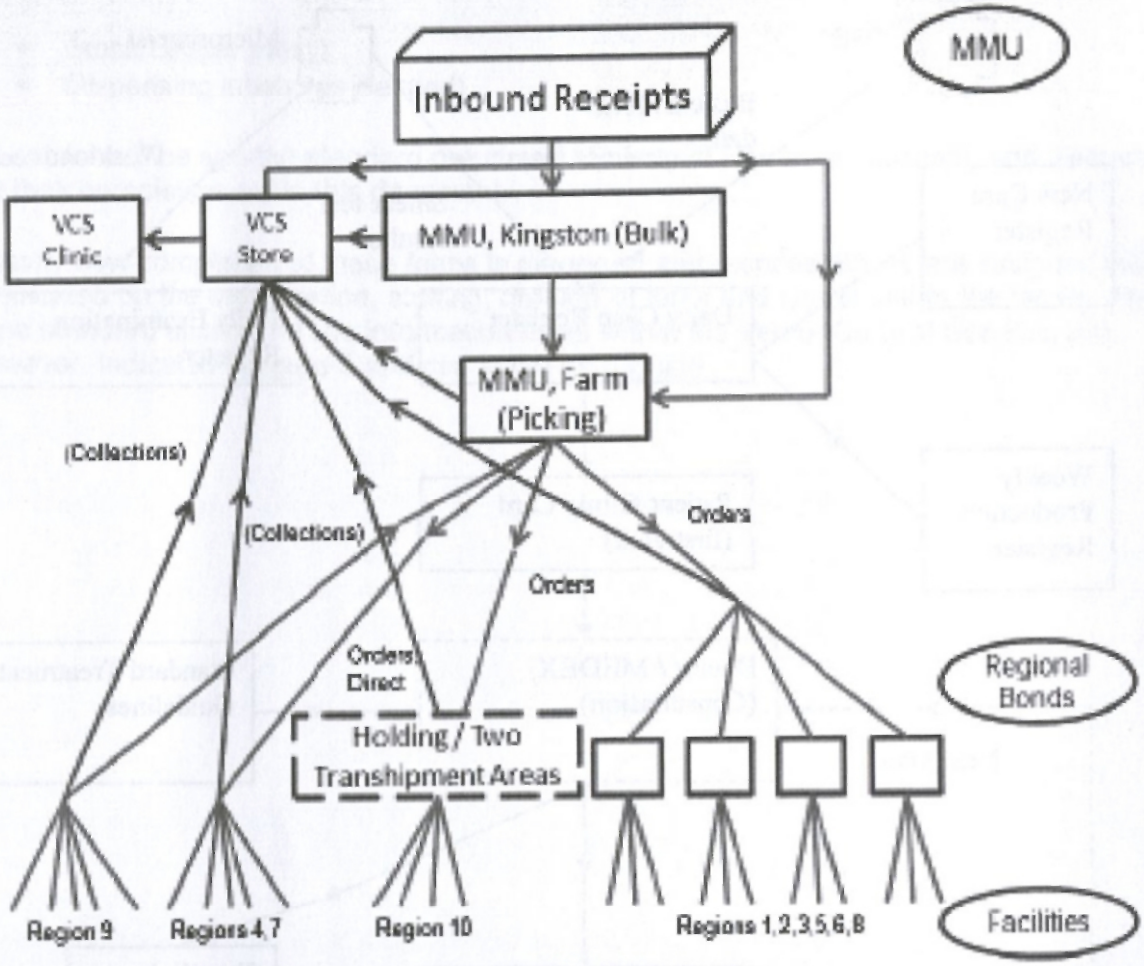


Figure 3. Guyana Vector Control Services patient information flows



VCS store houses (eg) lancets, stains, RDT's, methanol, slide boxes, forms, immersion oil, measuring cylinders, etc.

Figure 4. Guyana Public Sector malaria drug and laboratory supplies. Operational infrastructure

Sample Patient Clinic Card

FAILURE TO PRESENT THIS CARD

MAY CAUSE DELAY IN TREATMENT

Date	Last Place worked	Diagnosis	Signature	Treatment	Signature	Rechecked	Actual Recheck	Signature

SAMPLE DISPENSING LABELS

FALCIPARUM MALARIA

Co-artem 20/120MG
To be taken with a fatty meal

1st Day, Take 4 now, then 4 at _____
2nd Day, 4 at _____ then 4 at _____
3rd Day, 4 at _____ then 4 at _____

Name:…… Date:……

Specimen of Tablet label for
Arthemeter /Lumefantrine 20/120 mg

PRIMAQUINE 15MG

Take 3 tabs now

Name:…… Date:……

Specimen of Tablet label for
Primaquine15mg

MEFLOQUINE 250MG

2nd Day ____Tabs
3rd Day ____ Tabs

Name:…… Date:……

Specimen of Tablet label for Mefloquine 250 mg

ARTESUNATE 50MG

1st Day ____ Tabs
2nd Day ____ Tabs
3rd Day ____ Tabs

Name:…… Date:……

Specimen of Tablet label for Artesunate 50 mg

FALCIPARUM VIVAX & MALARIAE

CHLOROQUINE150MG

1st Day ____ Tabs
2nd Day ____ Tabs
3rd Day ____ Tabs

Name:…… Date:……

Specimen of Tablet label for Chloroquine 150 mg

PRIMAQUINE 15MG

Take ____ tab daily

Name:…… Date:……

Specimen of Tablet label for Primaquine 15 mg

Annex A: Good Labeling Practices For Malaria Medicines.

When medicines are being dispensed, they must be packaged properly for storage by the patient. Therefore it is important that malaria tablets are placed in envelopes and labeled to ensure the patient understands the type of drug he/she is taking.

Why are malaria medications placed in an envelope?

Packaging

The purpose of packaging is to:-

- preserve the quality of the malaria medicine up to the time of use by the patient
- provide a surface for writing or attaching a label with instructions for its use.

Labeling

Why are medications labeled?

The purpose of a label

- To describe and identify the medication.
- To avoid medication errors
- To achieve appropriate handling and storage of medications
- To allow the product to be traced if there are problems with either manufacturing, prescribing or dispensing process.
- To improve adherence

Labeling is also ***important*** because it reminds the patient

- when to take the medicine
- how much to take

Medicines used incorrectly may result in the patient

- taking an overdose
- not taking the required amount for the required time
- not taking the medicine altogether
- death

In labeling an envelope/pouch, the following must be clearly written:-

- Name and strength of medicine
- Quantity of medicine.
- Individual dosage instructions i.e. directions for use.
- Name of patient

DO NOT PLACE TWO OR MORE MEDICINES IN SAME ENVELOPE/POUCH

ANNEX B: QUALITY ASSURANCE AT THE HEALTH FACILITY LEVEL

Introduction

Quality Assurance of medicines is of great importance to the local health care system due to the prevalence of counterfeit and substandard medicines available." In 1988, the World Health Assembly adapted a resolution requesting governments and pharmaceutical manufacturers in all WHO member countries to cooperate in the detection and prevention of the increasing incidence of the export or smuggling of falsely labeled, spurious, counterfeit or substandard pharmaceutical preparations." This required countries to strengthen their local Medicines Regulatory Organizations and Official Medicines Quality Control (OMQC) laboratories. Developing countries are at greater risk of counterfeit and substandard medicines entering their marketplaces due to inadequate border control, weak regulations, lack enforcement and widespread corruption.

As a means of assisting developing countries, affordable and reliable analytical methods were developed to ensure that both locally manufactured and imported products meet prescribed standards and are guaranteed as safe for human consumption. The German Pharma Health Fund Minilab (GPHF-Minilab) was developed to monitor the quality of drugs in various places outside the (OMQC) laboratory, without the need of complicated methods and complex pieces of equipment. These minilabs utilizes three simple basic tests (Disintegration, Colour Reaction and Thin Layer Chromatography) that are capable of detecting bad quality medicines at very low cost and minimum training. The implementation of GPHF-Minilab testing within any health care system significantly increased the testing capabilities and coverage of the (OMQC) laboratories.

GPHF-Minilab testing of anti malarial medicines was introduced in 2007 with the establishment of the Mabaruma sentinel site region one and later that same year by the Vector Control Services sentinel site region four. These sentinel sites were established to increase the coverage and frequency of quality assurance testing of anti malarial medicines available in the malaria endemic regions of Guyana. At periodic times, sentinel site personnel or Government Analyst – Food and Drug Department Inspectors would visit health facilities within the malaria endemic regions to inspect and collect samples for testing at their respective locations. At the sentinel sites, L1and L2 testing are performed while at the Official Medicines Quality Control laboratory L1, L2 and L3 are performed.

Level 1 Testing

The first level of assessment is referred to as L1 and primarily involves just the Visual/Physical Inspection test as described below. This level of Quality Assurance can also be done by personnel at the health facilities.

Level 2 Testing

This is the second level of assessment and involves the Disintegration, Colour Reaction and Thin Layer Chromatography tests. The purpose of this level of Quality Assurance is to determine the identity, purity, and semi- qualitative analysis of samples. L2 is performed at the Sentinel sites or the OMQC laboratory.

Level 3 Testing

The final level of assessment of the sample and covers all the tests specified in the monograph of a standard Pharmacopeia. This assessment is performed only at the OMQC laboratory. Ten percent (10%) of total passed samples, ten percent (10%) of total failed samples and all questionable samples progress to this level.

ANALYSIS

1. Visual/Physical Inspection
   The person or analyst performing this assessment visually inspects the dosage forms, packaging and labels for any defects and missing information. All suspicious medicines with incorrect labels, missing information about the strength, dosage, or expiration date should be subject to further examination.

BASIC TESTS

2. Disintegration Test

   The test is performed to determine if medicines were manufactured under Good Manufacturing Practices and comply with established standards. Poor processing and wrong storage of tablets and capsules may cause hardening and subsequent failing of the test.. All quick release formulations, must comply with this test. **Sugarcoated tablets, modified-release and enteric-coated tablets and capsules should be labeled as such and must not be subject to this test.** Six units of each sample collected are immersed individually into six vessels containing a specified quantity of water at 37 ±2°C. All units must disintegrate fully within thirty minutes.

3. Colour Reaction Test

   The Colour reaction test is utilized primarily to verify the identification of medicines preparations. Methods were selected from reputable pharmacopeias and are rugged, accurate and sensitive for the purpose intended. The changing of the solution (s) under test to the expected colour indicates compliance. This test is however not utilized in the preliminary testing of anti malaria medicines since this determination can be made during the TLC test.

4. Thin Layer Chromatography TLC Test

TLC is primarily a separation technique, but under controlled conditions, it can be useful as an analytical tool for identification and quantification of substances, detection of impurities, and degradation productions, and for monitoring chemical reactions.

TLC is a solid-liquid technique in which there are two phases are :-

- solid (stationary phase)
- a liquid (mobile phase).

The stationary phase is thinly applied to a glass, thick aluminum foil or plastic support (TLC plate). The plates are spotted at one end with the sample and reference solutions. The spotted plate is placed in a solvent chamber to develop. The solvent or mobile phase travels up the plate separating the solutions components. The components are visible as spots at varying positions on the plate.

REPORTING

After the completion of analytical testing, a report of the survey is completed and sent to the relevant organizations/offices.

ANNEX C: HOW TO MIX ORAL REHYDRATION SALTS (ORS)

1. Wash hands with soap and water before preparing solution.
2. Put 1 litre of clean water to boil and allow to cool.
3. Empty the contents of O R S (1 packet) into the cool water while stirring.
4. Give the sick person as much of the solution they need in small amounts frequently.
5. Discard the remains after twenty – four (24) hours

ANNEX D: TREATMENT OF UNCOMPLICATED MALARIA

1. TREATMENT OF UNCOMPLICATED FALCIPARUM MALARIA

- First line treatment : Artemether-lumefantrine (Coartem®) -AL

Age	Weight	Artemether-lumefantrine 20mg +120 mg					
		No. of tablets at approximate time of dosing					
		0 h	8 h	24 h	36 h	48 h	60 h
< 3 yrs	5 – 14 kg	1	1	1	1	1	1
≥ 3-8 yrs	15 -24 kg	2	2	2	2	2	2
≥9-14	25 -34 kg	3	3	3	3	3	3
> 14 – Adult	> 35 kg	4	4	4	4	4	4

- Second line treatment : Artesunate + Mefloquine – AS+MQ

Age	Dose in mg (No. of tablets)					
	Artesunate 50 mg			Mefloquine 250 mg		
	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
≥ 5-11 months	25 (½)	25	25	-	125 (½)	-
≥ 1-6 yrs	50 (1)	50	50	-	250 (1)	-
≥7-13 yrs	100 (2)	100	100	-	500 (2)	250 (1)
> 13 – Adult	200 (4)	200	200	-	1000 (4)	500(2)

To be taken with first line and second line treatment.

Time of dosing	Primaquine 15 mg						
	Under 6 mths	6-11 mths	1-2 yrs	3-6 yrs	7-11 yrs	12-14 yrs	15yrs and over
Day one	0	½	½	1	2	3	3
	0	7.5 mg	7.5 mg	15mg	30 mg	45 mg	45 mg

2. TREATMENT OF UNCOMPLICATED VIVAX MALARIA

- Treatment : Chloroquine (3 days) + Primaquine (14 days)

Age (in years)	Weight (in kg)	Chloroquine 150 mg base		
		Day 1	Day 2	Day 3
< 6 months	< 6	¼	¼	¼
6-11 months	6- 10	½	½	½
1-2	11 – 14	1	½	½
3-6	15 -24	1	1	1
7-11	25 -34	2	1 ½	1 ½
12 -14	35 – 49	3	2	2
≥ 15	50	4	3	3

Age (in years)	Weight (in kg)	Primaquine 7.5 mg	Primaquine 15 mg
		Day 1-14	Day 1-14
< 6 months	< 6		
6-11 months	6- 10	½	¼
1-2	11 – 14	½	¼
3-6	15 -24	1	½
7-11	25 -34	-	1
12 -14	35 – 49	-	1
≥ 15	50	-	1

3. TREATMENT OF UNCOMPLICATED MALARIAE MALARIA

- Treatment : Chloroquine (3 days) + Primaquine (21 days)

Age	Weight	Chloroquine 150 mg base		
		Day 1	Day 2	Day 3
< 6 months	< 5 kg	¼	¼	¼
6-11 months	6- 10 kg	½	½	½
1-2 yrs	11 – 14 kg	1	½	½
3-6 yrs	15 -24 kg	1	1	1
7-11yrs	25 -34 kg	2	1 ½	1 ½
12 -14yrs	35 – 49 kg	3	2	2
≥ 15 yrs	50 kg	4	3	3

Age (in years)	Weight (in kg)	Primaquine 7.5 mg	Primaquine 15 mg
		Day 1-21	Day 1- 21
< 6 months	< 6		
6-11 months	6- 10	½	¼
1-2	11 – 14	½	¼
3-6	15 -24	1	½
7-11	25 -34	-	1
12 -14	35 – 49	-	1
≥ 15	50	-	1

4. TREATMENT FOR MIXED INFECTIONS

- The ACT Coartem® is the treatment of choice for all malaria species. Primaquine is given along with the ACT to patients with confirmed P. vivax infections.

- Treatments for Mixed Infection: Falciparum & Vivax
  Co-artem20/120mg + Primaquine 45mg
  To be taken with meals, Use fatty foods

Falciparum

Adult Treatment

1st Day → 4 tablets now+ 3 (15mg)primaquine, then 4 tablets eight hours later

2nd Day→4 Tablets at 8:00 AM + 4 Tablets at 8:00PM

3rd Day→4 Tablets at 8:00 AM + 4 Tablets at 8:00PM

Starting on 4th Day

Vivax

Adult Treatment

(Chloroquine 150mg)		**(Primaquine 15mg)**
4 White Tablets	**+**	**1 Brown Tablet**
3 White Tablets	**+**	**1 Brown Tablet**
3 White Tablets	**+**	**1 Brown Tablet**

Take 1 Brown Tablet daily for the next 11 days

ANNEX E: TREATMENT OF UNCOMPLICATED MALARIA IN PREGNANCY

1. Treatment of uncomplicated falciparum malaria in pregnancy

   Specie- Plasmodium Falciparum (P. Falciparum)

   All trimesters (particularly the 1st trimester) :-

   - Quinine 10 mg/kg (salt) three times daily (600mg t.i.d)

     and

   - Clindamycin 10 mg/kg twice daily (600 b.d) for 7 days

- Second line treatment : Artesunate + Clindamycin

Age	Artesunate 50 mg		
	Day 1	Day 2	Day 3
≥ 5-11 months	25 (½)	25	25
≥ 1-6 yrs	50 (1)	50	50
≥7-13 yrs	100 (2)	100	100
> 13 – Adult	200 (4)	200	200

- And Clindamycin 10 mg/kg twice daily (600 b.d) for 7 days

FOR MIXED INFECTIONS, START CHLOROQUINE ON 8TH DAY OF TREATMENT

For 2nd and 3rd trimesters

- Artemether- lumefantrine (Coartem®)

FOR MIXED INFECTIONS, START CHLOROQUINE ON 4TH DAY OF TREATMENT

Age	Weight	Chloroquine 150 mg base		
		Day 1	Day 2	Day 3
12 -14	35 – 49 kg	3	2	2
≥ 15	50 kg	4	3	3

Treatment of uncomplicated **Vivax and Malariae** malaria in pregnancy

All trimesters for Vivax and Malariae malaria: Chloroquine

Age	Weight	Chloroquine 150 mg base		
		Day 1	Day 2	Day 3
12 -14	35 – 49 kg	3	2	2
≥ 15	50 kg	4	3	3

NB : USE OF PRIMAQUINE IS CONTRAINDICATED DURING PREGNANCY AND SHOULD ONLY BE USED AT LEAST 4 WEEKS AFTER DELIVERY. (POST PARTUM)

ANNEX F: TREATMENT OF MALARIA IN CHILDREN UNDER 5 KG (6 MONTHS)

- The ACT Coartem® is licensed for use in children with body weight of < 5 kg.

ANNEX G: PARASITE COUNT

	2-39 parasites as counted
+/2	40- 60 parasites in every field to the 100 field
+	1 parasite in every field to the 100 field
++	2-20 parasites in every field to the 100 field
+++	21-100 parasites in every field to the 100 field
++++	Over 200 parasites in every field

ANNEX H: CATEGORY OF POSITIVE MALARIA CASES, THEIR DEFINITIONS AND EPIDEMIOLOGICAL AND OPERATIONAL SIGNIFICANCES

CATEGORY OF CASE	DEFINITION	EPIDEMIOLOGICAL SIGNIFICANCE	OPERATIONAL SIGNIFICANCE
Indigenous	A case that is natural to an area or country and where it cannot be disapproved that it originated from recent local transmission.	Recent local transmission has taken place either because interruption is not yet achieved or transmission has resumed in a former near area in which elimination has occurred.	Local recent transmission still occurring. Need to improve surveillance activities including MBS, FCS, etc, and other intervention e.g. use of LLINs, etc.
Relapsing	A case shown by the history of the subject to be a probable relapse of a pre-existing infection and also there is no epidemiological related cases in the same or nearby areas.	No recent or local transmission is involved when such cases are found	Sporadic findings of such cases of no major operational significance. However, with increase and constant findings of such cases the receptivity and vulnerability for resumption of transmission must be examined and surveillance activities for monitoring purposes be initiated.
Imported	A case in which the infection was acquired outside of the area in which it was found implying that its origin can be traced to a known malarious area.	**For a non-endemic area,** an imported case will be one where there is no recent local transmission involved. However, a case can be **imported from one endemic area to another.** In both instances, the cases are classified as **locally imported**. A case **can be imported** from	Sporadic findings of such cases are of no major operational significance. However, with increase and constant findings of such cases, the receptivity and vulnerability for resumption of transmission must be examined and surveillance activities for monitoring purposes be initiated.

		another malarious country and is classified as a **foreign imported** case	
Induced	A case in which the infection can probably be attributed to a blood transfusion or other form of parenteral inoculation e.g. drug addicts using common needles with infective malaria blood **but not** as a result of normal transmission by the mosquito.	Probably an unknown malaria carrier (host) is present.	Not serious but surveillance activities is recommended.
Introduced	A case in which it can be proven that the infection is the first step (direct secondary) of local transmission, subsequent to a proven imported case.	In most cases, it is very difficult to classify cases as introduced. Where and when in doubt classify as indigenous case.	Transmission may be occurring and close surveillance activities are necessary to prevent the re-establishment of endemicity.
Cryptic	A case which is related and not associated with secondary cases, as determined by appropriate epidemiological case investigation including MBS after the end of the incubation periods.	Local transmission is suspected, but if so is exceptional in character.	Keeping close watch and initiate surveillance activities.