

# DMM

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## DRUG MANAGEMENT FOR MALARIA: DATA COLLECTOR'S GUIDE

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June 2000

Rational Pharmaceutical Management Project  
C.A. No. HRN-A-00-92-00059-13

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### Strategic Objective # 5

This publication was made possible through support provided by the U.S. Agency for International Development, under the terms of cooperative agreement number HRN-A-00-92-00059-13. The opinions expressed herein are those of the author and do not necessarily reflect the views of the U.S. Agency for International Development.

### **Recommended Citation**

Clark, Malcolm. 2000. *Drug Management for Malaria: Data Collector's Guide*. Published for the U.S. Agency for International Development by the Rational Pharmaceutical Management Project. Arlington, VA: Management Sciences for Health.

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## ACRONYMS

BASICS	Basic Support for Institutionalizing Child Survival
CDC	U.S. Centers for Disease Control and Prevention
CIF	cost, insurance, and freight
CMS	Central Medical Stores
DAS	Drug Availability Study
DMM	Drug Management for Malaria
DUS	Drug Use Study
EDL	Essential Drugs List
FOB	free on board
HIV	human immunodeficiency virus
IDA	International Dispensary Association
INRUD	International Network for Rational Use of Drugs
LA/C	Latin American/Caribbean
MOH	Ministry of Health
MSH	Management Sciences for Health
NDF	National Drug Formulary
NGO	nongovernmental organization
OTC	over-the-counter
PAHO	Pan American Health Organization
RMB	Roll Back Malaria
RMS	Regional Medical Stores
RPM	Rational Pharmaceutical Management [Project]
STG	Standard Treatment Guideline
SP	sulphadoxine pyrimethamine
USAID	U.S. Agency for International Development
WHO	World Health Organization
VEN	vital, essential, nonessential



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# Chapter 1.

## INTRODUCTION

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The *Drug Management for Malaria: Data Collector's Guide* will help data collectors identify, collect, and record data needed for the Drug Management for Malaria (DMM) studies. The *Guide* includes information on data collection techniques and the workplan for data collectors, as well as information on completing the forms that will be used in the field. This *Guide* also contains definitions of terms, examples of the proper way to fill out each form, and a list of typical problems encountered in data collecting and their possible solutions.

### Background

In 1997, malaria risk of varying degrees existed in 100 countries and territories. In 92 of these, transmission included the malignant (*Plasmodium falciparum*) form of the disease. Over 40 percent of the world population lived in areas with malaria risk. Every year there are between 300 million and 500 million new cases of malaria, which result in 1.5 million to 2.7 million deaths annually. Approximately 1 million of these deaths are among children under five years of age, mainly in Africa. Overall, countries in tropical Africa account for more than 90 percent of the total malaria incidence and the great majority of malaria deaths. The economic loss due to malaria in Africa in 1989 was estimated at \$800 million. By 1997 this figure had risen to \$2 billion, an enormous burden to an already poor continent.

The burden of malaria has been intensified by the appearance of chloroquine-resistant *Plasmodium falciparum* which arose in Southeast Asia and was first documented in East Africa in 1979. Since then, there have been reports of chloroquine resistance in most countries in Africa

with especially high resistance in East Africa.<sup>1</sup> In addition, resistance to sulfadoxine-pyrimethamine (SP) is increasing.<sup>2</sup>

Evidence is also growing to show the relationship between increased resistance to first-line antimalarial therapy and increased morbidity and mortality.<sup>3</sup> Resistance has also been implicated in the increasing frequency and severity of epidemics.

The growing threat from malaria<sup>4</sup> as a result of the development of resistance has prompted a number of African countries to change or reconsider their malaria drug policies. Malawi, Kenya, Botswana, and South Africa have already adopted SP as their first-line antimalarial drug while Tanzania changed its policy in early 2000. Combination therapies are also being increasingly considered as a strategy for overcoming the problem of resistance. It was also against this background that the World Health Organization (WHO) launched its global Roll Back Malaria (RBM) initiative in October 1998. RBM has set itself the objective of halving the malaria burden in participating countries by 2010.

A key part of any strategy to “Roll Back Malaria” is to have effective and affordable drugs widely available and to use them in a way that will delay the emergence of resistance. WHO/RBM has therefore identified improving the supply and management of antimalarial drugs as a critical part of any strategy for “rolling back malaria.”

To address issues of the essential drugs needed for treating malaria, the Rational Pharmaceutical Management (RPM) project, in collaboration with the United States Agency for International Development (USAID), developed the *Drug Management for Malaria (DMM) Manual*, an indicator-based assessment tool. The *DMM Manual* is designed to guide the review of drug availability and rational use of drugs for malaria treatment in drug retail outlets and in the health facilities of the Ministry of Health (MOH). Such reviews will help to provide the evidence required for making decisions on how to improve access to, as well as the use of, antimalarial drugs in both the public and private sectors.

The *Data Collector's Guide* is the companion document to the *DMM Manual*. The *Guide* provides step-by-step instructions for collecting the data necessary for reviewing aspects of drug management systems that are essential for the successful implementation of malaria programs.

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<sup>1</sup> Chloroquine treatment failure at 25mg per kg of body weight in Tanzania, for example, is 52%. (Report of the Tanzania MOH, Task Force on Antimalarial Drug Policy, July 23, 1999)

<sup>2</sup> In Tanzania, SP treatment failure is 9.5% (Tanzania MOH Task Force report, July 23, 1999).

<sup>3</sup> See (1) J.F. Trape, et al. 1998. Impact of chloroquine resistance on malaria mortality. *Comptes Rendus de l'Academie des Sciences Serie III*; 321(8): 689-97, (2) K. Marsh. 1998. Malaria disaster in Africa. *Lancet* 352: 924-25

<sup>4</sup> N.J. White, et al. 1999. Averting a malaria disaster. *Lancet* 353(9168): 1965-67.

## Methodology and Purpose

The *DMM Manual* and the *Data Collector's Guide* use objective measures, called indicators, to assess the functions of drug management systems for malaria programs. The indicator-based methodology uses retrospective and prospective techniques to collect qualitative and quantitative data and identify strengths and weaknesses in drug systems. The *DMM Manual* and the *Guide* build on two complementary studies, the “Drug Availability Study” and the “Drug Use Study.”

The purpose of the Drug Availability Study (DAS) is to determine the degree to which the drugs required for treating malaria are available. This study will use three data collection techniques: document reviews, structured interviews, and physical inventory checks. Data will be collected from MOH health facilities and drug retail outlets.

The purpose of the Drug Use Study (DUS) is to review prescribing and dispensing practices for malaria and assess their clinical and cost implications. The DUS will use retrospective (i.e., historical) and prospective (i.e., current) data collection techniques. Retrospective data will be collected by reviewing medical records in MOH facilities. Prospective data will be collected through direct observation, simulated patient exercises, and exit poll interviews in MOH facilities, as well as simulated purchases in drug retail outlets.



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## Chapter 2.

# TWO-PART STUDY APPROACH

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The review of the drug management system is performed by studying two specific areas of the drug management system, drug availability and drug use.

### **Drug Availability Study (DAS)**

- Purpose** The aim is to determine the degree to which the drugs required for treating malaria are available.
- Method** Three data collection techniques will be used for this study: document reviews, key informant interviews, and physical inventory checks.
- Sites** Data collection sites will include MOH central offices, central and regional medical stores, health facilities, and drug retail outlets.

### **Drug Use Study (DUS)**

- Purpose** The aim is to review prescribing and dispensing practices for malaria and assess their clinical and cost implications.
- Method** The DUS will use both retrospective and prospective data techniques. Retrospective (i.e., historical) data will be collected by reviewing medical records in MOH health facilities. Prospective (i.e., current) data will be collected through

direct observation of health workers, simulated patient exercises, exit poll interviews of caregivers, and simulated purchases.

**Sites** The retrospective data will be collected in MOH facilities. The prospective data will be collected in MOH facilities and drug retail outlets.

### **DMM Tracer List of Drugs and Supplies**

An “antimalarial drug list” was compiled for this study, and some of the data will be collected on the products in this list of selected drugs. The list is based on antimalarial drugs commonly included in essential drugs lists and standard treatment guidelines of countries with endemic malaria. In this study, the DMM antimalarial drug list will be used at the central, regional, health facility, and retail levels to collect data for inventory management and price indicators.

Because of the growth of resistance to traditional first-line antimalarial drugs such as chloroquine, many countries are considering changing their malaria drug policy. Some countries such as Malawi and Tanzania have, in fact, already changed their policy. The sample list below, therefore, should be adapted to country-specific settings to take account of local drug policy and treatment guidelines for malaria.

The sample DMM antimalarial drug list contains the following products:

<b>Antimalarial Drug</b>	<b>Dispensary</b>	<b>Health Center</b>	<b>District Hospital</b>	<b>Regional Hospital/CMS<sup>1</sup>/RMS<sup>2</sup></b>	<b>Drug Retail Outlets</b>
1. Chloroquine phosphate 150mg tablet	X	X	X	X	X
2a. Chloroquine injection 40mg/ml 30ml vial	X	X	X	X	X
2b. Chloroquine injection 40mg/ml 5ml vial	X	X	X	X	X
3. Chloroquine syrup 50mg/5ml	X	X	X	X	X
4. Sulphadoxine- pyrimethamine (Fansidar) 500mg/25mg	X	X	X	X	X
5. Amodiaquine	X	X	X	X	X
6. Quinine 300mg tablet		X	X	X	X
7. Quinine 300mg/ml injection		X	X	X	X
8. Sulphametopyrazine + pyrimethamine (Metakelfin) 500mg/25mg tablet				X	X

<sup>1</sup>Central Medical Store

<sup>2</sup>Regional Medical Store

## **Role of Data Collectors**

The data collectors are responsible for gathering information from MOH offices and facilities and from drug retail outlets. This work is best performed by data collectors who have some knowledge or experience in medicine, pharmacy, or nursing. Such a background is needed to adequately manage data on drugs and to be familiar with the organization of local health systems.

In addition, data collectors should have skills in interpersonal communication, so they can interact effectively with health providers. They must also be flexible enough to adapt the data collection process to a variety of sites.

Another responsibility of data collectors is to obtain data that are of the highest quality and reliability. The calculations of indicators is based on the data collected; therefore, the data required, if available, must be collected completely. Data collectors must pay close attention to detail in the data and fill out forms in ink. The completed forms must be legible to the study coordinator and to data entry personnel.

Following is the format of a four-day training workshop. The topics are intended to ensure that data collectors have the knowledge and skills needed to collect the data. The workshop addresses each aspect of the data collection process and provides opportunities for data collectors to practice these skills in the field.

## **Role of Team Managers**

Depending on the context (size of region, number of data collectors, etc.), it may be useful to build a team of managers. The team managers should meet at least one day in advance of the training in order to:

- Be briefed on all aspects of the study (background, objectives, methods)
- Review the role and responsibilities of the team managers (these points should be written)
- Review assignments of sites and data collectors
- Review the training program

To carry out both the Drug Availability and Drug Use Studies, a team of at least three or four data collectors (with one person serving as team manager) is needed, particularly for the observation and exit interviews in health settings. For example, one option for a three-member team for the division of data collection responsibilities in a health facility is as follows:

One person is team manager. He or she preselects patients who match the investigated diseases and reviews the checklists for completeness. Another data collector observes the consultation of the preselected patients, and the third one conducts the exit interview with the same patients. The team manager can collect the availability data and interview the clinic staff on standard treatments while the two other surveyors collect simulated purchase data at the drug retail outlet.

The team managers are preferably selected by the coordinator of the study and are usually senior personnel who have extensive knowledge of the health system or who have worked or are still working in health facilities. The decision to have data collection teams of three or four people should depend on the country-specific situation and should be determined by the study coordinator.

### Training Plan for Data Collectors

Day	Training Activities	Time
1	1. Opening" Introduction of the data collectors 2. General presentation: <ul style="list-style-type: none"> <li>C Purpose of the survey: to document drug availability and drug use for malaria</li> <li>C Training objectives: to familiarize data collectors with survey questionnaires and data collection techniques</li> <li>C Introduction of the <i>Data Collector's Guide</i></li> <li>C Where to collect data: health facilities and drug retail outlets</li> <li>C Data collection techniques to use: direct observation, interviews, simulated purchases, record reviews, simulated patients</li> <li>C Discussion of data collectors' expectations or concerns</li> </ul> 3. Work schedule and compensation 4. Location of sites to be surveyed	1 to 2 hours
	5. Review survey form DAS-1: General Data Collection Preparation Checklist	2 to 3 hours

## Training Plan for Data Collectors (cont'd.)

Day	Training Activities	Time
1	<p>6. With the remaining survey forms grouped according to where data are to be collected, review them one by one as follows:</p> <p><u>Central Medical Stores/Regional Medical Stores</u></p> <ul style="list-style-type: none"> <li>C DAS-2D: Inventory Data Form</li> <li>C DAS-3: Stock-Out Data Form</li> <li>C DAS-4: International Price Comparison Form</li> </ul> <p><u>MOH Health Facilities</u></p> <ul style="list-style-type: none"> <li>C DAS-2A-D: Inventory Data Form</li> <li>C DAS-3: Stock-Out Data Form</li> <li>C DAS-4: International Price Comparison Form (optional)</li> <li>C DUS-1: Medical Records Review Form</li> <li>C DUS-2: Observation of Health Workers Data Form</li> <li>C DUS-3: Exit Poll Interview Form</li> <li>C DUS-5: Simulated Patient Data Form</li> </ul> <p><u>Drug Retail Outlets</u></p> <ul style="list-style-type: none"> <li>C DAS-2E: Inventory Data Form</li> <li>C DUS-4: Simulated Purchase Form</li> <li>C DUS 1: Medical Records and Facility Resources</li> </ul> <p>7. Central medical stores/regional medical stores visits:</p> <ul style="list-style-type: none"> <li>C Practice filling out survey forms DAS-2, DAS-3, and DAS-4</li> <li>C Practice role play for forms DAS-2, DAS-3, and DAS-4</li> </ul> <p>8. MOH health facility visits:</p> <ul style="list-style-type: none"> <li>C Practice filling out survey forms DAS-2, DAS-3, DAS-4, DUS-1, DUS-2, DUS-3, and DUS-5</li> <li>C Practice role play for forms DAS-2, DAS-3, DAS-4, DUS-1, DUS-2, DUS-3, and DUS-5 in small groups</li> </ul> <p>9. Drug retail outlet visits:</p> <ul style="list-style-type: none"> <li>C Practice filling out survey forms DAS-2E, DUS-4</li> <li>C Practice role play for forms DAS-2E and DUS-4 in small groups</li> </ul> <p>10. Discuss policy of patient confidentiality</p>	2 to 3 hours

**Training Plan for Data Collectors (cont'd.)**

<b>Day</b>	<b>Training Activities</b>	<b>Time</b>
2	1. Practice how to draw a sample of patient encounters from health facility records	1 hour
	2. Visit predetermined health facilities and collect a complete set of data using survey forms: DAS-2, DAS-3, DAS-4, DUS-1, DUS-2, DUS-3, and DUS-5	5 to 6 hours
3	1. Debrief on health center practice visits: critique performances and troubleshoot problems	3 to 4 hours
	2. Discuss revisions of forms if any are necessary as a result of the practice visits	
3	3. Role play in small groups" check reliability (quality) of data collector knowledge, skills, and abilities for filling in the data collection forms	2 to 3 hours
	4. Visit predetermined drug retail outlets and collect a complete set of data using DAS-2E, DUS-1 (prices), DUS-4	
4	1. Debrief on drug retail outlet practice visits: critique performance and troubleshoot problems.	1 to 2 hours
	2. Discuss revision of forms if any are necessary as a result of the practice visits	
4	3. Role play in small groups" check reliability (quality) of data collector knowledge, skills, and abilities for filling in the data collection forms	1 to 2 hours
	4. Assign data collectors to teams and appoint team manager for each team	
4	5. Discuss purpose of regular team meetings during data collection: to discuss successes, problems, and how to overcome data collection problems	1 to 2 hours
	6. General review and open questions	
4	7. Review supervisory role with all team managers	1 to 2 hours
	<ul style="list-style-type: none"> <li>• Periodically observe data collectors</li> <li>• Ensure completeness of data collection forms before leaving the facility</li> <li>• Describe how to fill out shaded areas of data collection forms and establish standardized coding for identifying individual data collectors, patient records, encounters, etc.</li> <li>• Describe how to select an alternate health center when one becomes inaccessible to data collectors</li> <li>• Instruct on cleaning up data forms before data analysis</li> </ul>	



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## Chapter 3.

# SUMMARY OF INSTRUCTIONS FOR COMPLETING DATA

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**Data collectors need to know:**

**Where to go:** The specific site for each data form

**Whom to ask:** The specific personnel from whom to solicit data

**What to get:** Data from specific sources using specific techniques: review of records, observation, interview, simulated patient or simulated purchases

**Instructions:** How the terms used in the forms are defined and details on how to fill out each specific data form

**Data collectors must understand the purpose of the forms, be familiar with each form's data techniques, and be aware of the sequence in which they will be used:**

<b>Form</b>	<b>Purpose of the Form</b>
DAS-1	To serve as a checklist to ensure that all items are available before starting data collection
DAS-2A, 2B, 2C, 2D, 2E	To collect data on stock inventory to review the quality of inventory management (number of nonexpired products, physical count of inventory)
DAS-3A, 3B, 3C, 3D	To collect data on the status of out-of-stock DMM tracer products
DAS-4	To collect data on prices paid by public procurement agencies and to compare them to the best international prices available
DUS-1A, 1B	To collect data on prescribing practices (retrospectively, from review of medical records)
DUS-2	To collect data on the quality of certain aspects of the medical consultation and on the medical personnel's ability to prescribe drug treatment for malaria
DUS-3	To collect data on the level of understanding the patient/caregiver has on how to care for themselves/the patient and to collect data on the quality of dispensing practices
DUS-4	To collect data on the ability of retail drug sellers to manage (diagnose, prescribe, and dispense information and medication) for malaria
DUS-5	To collect data on the quality of certain aspects of the medical consultation and on the medical personnel's ability to prescribe drug treatment for malaria

### Summary of Data Sites and Techniques

Study	Data Sites	Data Collection Techniques
Drug Availability Study	Ministry of Health Central Offices	Structured interviews and document review
	Ministry of Health/Central and Regional Medical Stores	Verifying physical inventories and review of records
	Health Facilities	Verifying physical inventories and review of records
	Drug Retail Outlets	Verifying availability of listed antimalarial drugs
Drug Use Study	Health Facilities	Review of patient medical records Simulated patient Direct observation Exit interviews of caregivers
	Drug Retail Outlets	Simulated purchases

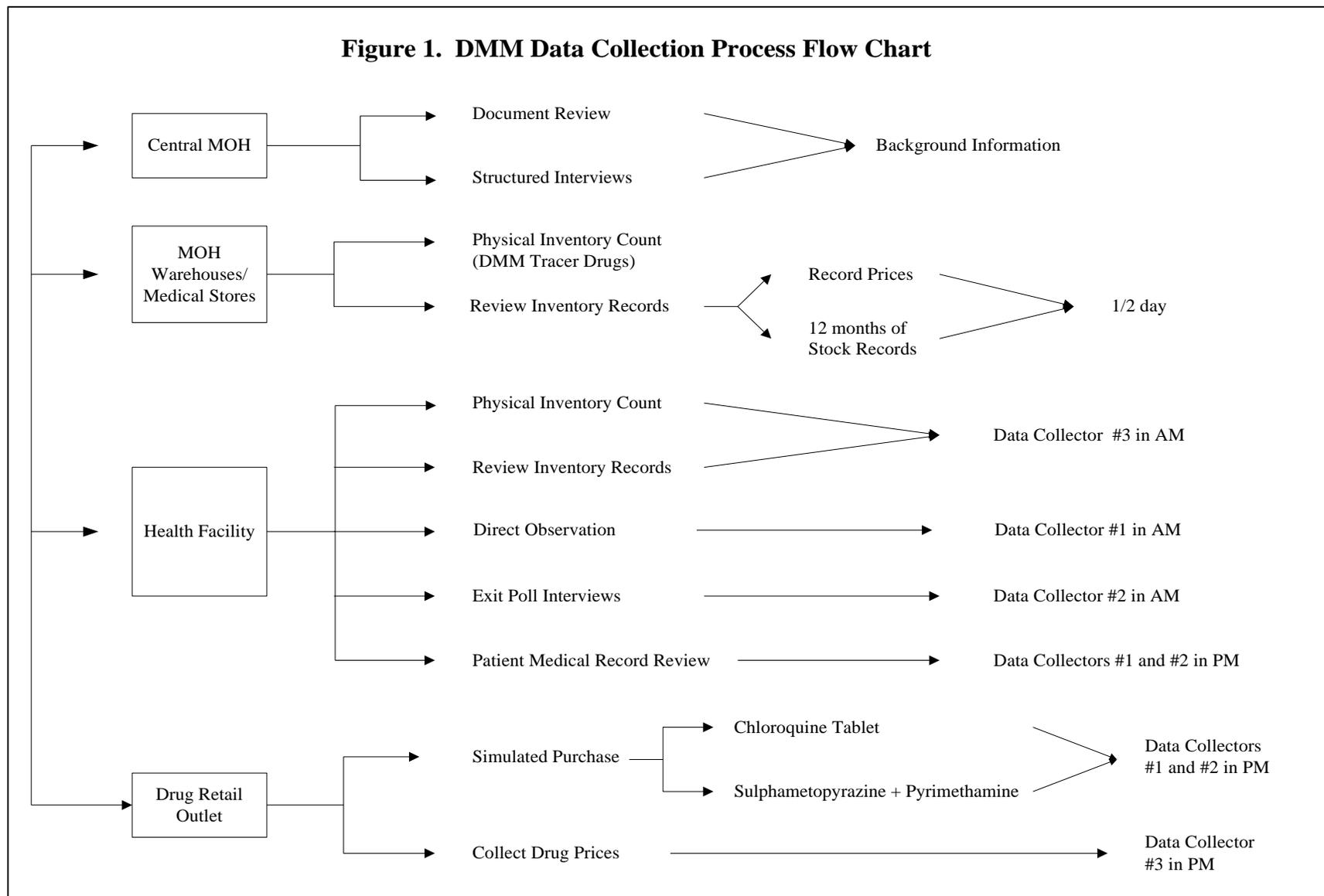
Following is a flow chart (Figure 1) that graphically depicts the data collection process and the role of each data collection team member at each site. The numbers 1, 2, and 3 to the far right refer to the team of three data collectors and their possible roles in the morning (AM) and afternoon (PM).

Before the study, organizers should discuss and reach consensus on a list of local terms used to describe symptoms that may be listed in health facility records to denote cases of malaria. Annex 1. Acceptable Terms for Diagnosing Malaria can be used to record agreed-upon terms to look for to indicate a case of malaria.

Likewise before the study, organizers should develop a list of which medications are to be counted as antimalarials. Annex 2. List of Equivalent Drugs (Brand and Generic) can be used to record the final list. (To avoid confusion or the need for interpretation by data collectors, all drugs prescribed should be transcribed exactly as listed in the patient record to the data collection forms.)

Annex 3. Medical Record Selection Form is intended to help data collectors keep track of the medical record selection process in each facility. It can be used to record the code of each medical record selected. At least three medical records per month for the malaria health problem under study should be selected for the most recent 12 months prior to the time of the study.

Figure 1. DMM Data Collection Process Flow Chart



Data collectors should start with the most recent full month and work backward (e.g., October 1998, September 1998, August 1998, etc.). Annex 4 lists the Drug Availability Study indicators and Drug Use Study indicators for which data are collected.

## Scripts (Sample Explanations)

### Purpose of the Scripts

If you encounter skepticism and/or reluctance from health workers at health facilities or retail drug outlets because personnel are not fully informed about the DMM study, be prepared to explain the purpose of the visit and why you need the cooperation of the health workers or retail drug outlet personnel. Be prepared, also, to explain why you need the information.

To help in such situations, you may use a script, a sample explanation, as in the examples below. These scripts are for example only, and should be adapted to the needs and context of the country-specific setting. Use of the scripts will also help ensure that each team uses the same explanation.

### Sample Script Number One

**Use this script when presenting yourselves in central and regional medical stores.**

*The Ministry of Health, WHO, USAID, and other international organizations are reviewing the status of care for malaria. This review is of interest because of the Roll Back Malaria initiative, the drug resistance problem, and planned changes to the malaria drug policy. This program requires the use of specific antimalarial drugs. To prepare for the RBM activities and, drug policy changes (and, later, to review the progress of implementation), it is important for the MOH to know which antimalarial drugs are currently available and how they are being used.*

*The central and regional medical stores are included in the study to help us understand the operation of the drug management system. We are data collectors (give names), and we need to work here today. We would like to ask for your cooperation so that we can complete the following tasks:*

- 1. Collect inventory data for certain drugs needed for treating malaria.*
- 2. Collect stock-level data for the antimalarial drugs.*

## Sample Script Number Two

**Use this script when presenting yourselves in health centers.**

*The Ministry of Health, WHO, USAID, and other international organizations are reviewing the status of care for malaria. This review is of interest because of the Roll Back Malaria initiative, the drug resistance problem, and planned changes to malaria drug policy. This program requires the use of specific antimalarial drugs. To prepare for the RBM activities and drug policy change (and, later, to review the progress of implementation), it is important for the MOH to know which antimalarial drugs are currently available and how they are being used.*

*This center (or subcenter or hospital) was selected randomly, and the data that we collect will remain confidential. No individual names will be used in the study. We are a team of three data collectors that will work here today (give names). We would like you and your staff to help us complete the following tasks:*

- 1. Review the stock of drugs and supplies in the center's pharmacy/store.*
- 2. Review the medical records of patients diagnosed and treated for malaria.*
- 3. Observe the medical consultations of malaria patients who are at the center for curative consultations.*
- 4. Interview patients and caregivers to find out which drugs they will give themselves/the patient under their care and to review the dispensing practices in the center.*

*We would also like to have a list of your medical staff to invite them to the formal presentation of the study's results. Thank you very much for your help.*

## Sample Script Number Three

**Use this script when collecting data on prices for antimalaria drugs in drug retail outlets.**

*The Ministry of Health is conducting a study to see which drug products that are essential to the treatment of malaria are available in the community. Sometimes, these products are unavailable in \_\_\_\_\_ (name of the nearest health clinic in which the data are collected). When the drugs are unavailable in the clinic, many caregivers of patients will go to private pharmacies. Therefore, we would like to know which products you have for sale. If doctors know which drugs are available in pharmacies, they will be able to prescribe more appropriately.*

*Do many patients from \_\_\_\_\_ come here?  
(name of nearest clinic in which data are collected)*

*Could you please give me the price on some drugs that you have for sale? Thank you very much.*

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# **Chapter 4.**

## **DRUG AVAILABILITY STUDY FORMS**

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This chapter contains the data collection forms and instructions necessary for collecting information for the Drug Availability Study.

**DAS-1: General Data Collection Preparation Checklist**

Each data collector or data collection team will need all of the following items before starting the actual collection of data. The study coordinator will likely provide these items. Check (T) each item as you receive it.

Item	Collected T
1. List of data collection teams and the sites to be visited	
2. Workplan and timeline by data collection teams	
3. Samples of information source documents (e.g., clinic record or Medical chart, stock cards, bin cards, etc.)	
4. List of medical terms and symptoms used locally for diagnosing malaria	
5. List of equivalent drug names (brand and generic)	
6. Contact information for data collectors	
7. Copies of Letters of Authorization or Introduction	
8. Set of data collection forms	
9. Pens and other supplies	
10. Per diem for local expenses	

## DAS-2A through DAS-2E: Inventory Data Forms

These forms are used for the indicators listed below:

2. Average percentage of a set of unexpired DMM antimalarial drugs available in (a) MOH storage and health facilities and (b) retail drug outlets
4. Average percentage of stock records that correspond with physical counts for a set of DMM antimalarial drugs in MOH storage and health facilities

For indicators 2 and 4, data are collected during a physical inspection of the drug products. Other data are collected from any or all of the computerized stock record-keeping systems, manual stock ledgers, or stock record cards and bin cards.

### Data Summary:

Where to Go	Whom to Ask	What to Get
Central Medical Store	Inventory Officer/ Storekeeper	Data from inventory records and stock count for DMM antimalarial drugs
Regional Medical Store	Manager/Storekeeper	
20 MOH health facilities (including 2 regional and 4 district hospitals)	Dispenser/Pharmacist/ Storekeeper	
20 drug retail outlets	Dispenser/Pharmacist	Stock availability for DMM antimalarial drugs

### General Instructions for Filling Out Data Forms

**Facility Name:** Write the name of the health facility or warehouse in which the data are being collected.

**Data Collector Code:** Write your identification code. Codes will be assigned during data collector training.

**Facility Type:** Write the type of facility in which you collect the data, for example, warehouse, district hospital, health center, or health post.

**Location:** Write the name of the geographic location of the facility, usually the name of a region, province, district, city, or town.

**Date:** Write the date on which you collect the data. At each facility, the data should be collected in one day, if possible.

**Existing inventory control systems:** Check all the inventory control systems that exist in each facility that you survey.

**Data collected from:** For each facility, check the type of inventory control system that you used to collect the data.

### Instructions for Filling Out Forms DAS-2A through DAS-2D

The name of each column on the form is in **bold** below. The numbers correspond to the column numbers on the data form.

1. **Product:** The study's list of DMM antimalarial products should be preprinted in *Column 1*. For each antimalarial product, include the generic name, dosage form, and strength.
2. **Counting Unit:** In *Column 2*, indicate the smallest unit by which the product is counted, for example, tablets or milliliters.
3. **Record Count:** In *Column 3*, write the record system's count of the units in stock.
4. **Unposted Receipts:** Posting of recent receipts is not always up to date. After the record's count of each antimalarial product has been entered, ask the staff to add up the unposted receipts. Enter the results in *Column 4*.
5. **Unposted Issues:** It is also often the case that recent issues of stock have not been posted. For each of the antimalarial products, add unposted issues of stock after the record-keeping tally has been entered. Enter the results in *Column 5*.
6. **Adjusted Total:** *Column 6* equals the system's record count *plus* recent receipts *minus* recent issues of stock. For each antimalarial product, make the following calculation, and enter the results in *Column 6*:

Adjusted Total = Record Count + Recent Receipts — Recent Issues

(Column 6) = (Column 3) + (Column 4) — (Column 5)

7. **Physical Count:** For each antimalarial product, take a physical count of the number of units actually present. Write the results in *Column 7*.
8. **Expired Stock:** Check the expiration date of each antimalarial product in stock that has an expiration date. In *Column 8*, write the number of units that have expired as of the day of the data collection. Write 0 in this column if there are no expired products. Write *N/A (not applicable)* if the product does not have an expiration date.

**Note:** ALL unshaded blanks should be filled in on this data form. Enter *N/A* if data for a particular item are not available.

### INSTRUCTIONS FOR TEAM MANAGER'S SECTIONS

The team manager for each data collection team will complete the shaded portions of forms DAS-2A through DAS-2D as follows:

- Column 9:** For each drug, determine whether unexpired stock is available by comparing the total of *expired stock (Column 8)* with the total *physical count (Column 7)*. If *Column 7* is greater than *Column 8* then write Y, for *YES*, in *Column 9*. This answer indicates that there is unexpired stock available for use. If *Column 8* is equal to *Column 7* then write N, for *NO*, in *Column 9*. This answer indicates that all stock on hand is expired and none is available for use.
- Row 1:** Observe the numbers recorded in *Columns 6* and *7*. Count the number of products where the number in *Column 6* exactly equals the number in *Column 7*. Write the total number to the far right of *Row 1*.
- Row 2:** Count the total number of products from *Column 1* that are stocked in the facility and use the number to calculate the *Percentage of Records Corresponding with Physical Counts* as follows: Take the number you recorded in *Row 1*, multiply by 100, and divide by the total number of products from *Column 1* that are stocked in the facility that you just counted. Record the percentage to the far right of *Row 2*.
- Row 3:** To calculate the percentage of antimalarial drugs available, divide the number of drugs for which there is nonexpired stock available by the number of drugs in *Column 1* and multiply by 100. See the following note on denominators (after Instructions for Filling Out Form DAS-2E).

### General Instructions for Filling Out Form DAS-2E

**Drug Outlet Name:** Write the name of the Drug Retail Outlet in which the data are being collected.

**Data Collector Code:** Write your identification code. Codes will be assigned during data collector training.

**Drug Outlet Type:** Write the type of outlet in which you collect the data, for example, pharmacy, *Duka la Dawa* (drug shop), general store, and so on.

**Location:** Write the name of the geographic location of the outlet, usually the name of a region, province, district, city, or town.

**Date:** Write the date on which you collect the data. At each outlet, the data should be collected in one day, if possible.

### Instructions for Completing Table

The name of each column on the form is in **bold** below. The numbers correspond to the column numbers on the data form.

1. **Product:** The study's list of DMM antimalarial products should be preprinted in *Column 1*. For each antimalarial product, include the generic name, dosage form, and strength.
2. **Presentations Available (Yes/No):** For each antimalarial preparation, availability will be recorded as *YES* should there be a single unit available in the retail outlet for sale, such as one tablet or one bottle. Only record *NO* should there be a complete absence of the drug. Note that all preparations are included even if they are different pack or vial sizes of the same drug, such as chloroquine injection 40mg/ml for which 5ml and 30ml vials are counted separately in *Column 2*.
3. **Drug Available (Yes/No):** For each antimalarial drug, availability will be recorded as *YES* should there be a single unit available in the retail outlet for sale, such as one tablet or one bottle. Only record *NO* should there be a complete absence of the drug. Different pack sizes of the same drug should be counted as one item. For example, if chloroquine 40mg/ml injection is available in 30ml vial, but not 5ml then it would be counted as available. Only if neither 30ml nor 5ml were available would it be counted as not available.

### INSTRUCTIONS FOR TEAM MANAGER'S SECTIONS

The team manager for each data collection team will complete the shaded portions of form DAS-2E as follows:

**Row 1:** To calculate the percentage of antimalarial drugs available, divide the number of drugs for which there is nonexpired stock available by the number of drugs in Column 1 and multiply by 100. See the following section on denominators.

#### *Change of Denominator for Forms DAS-2A through DAS-2E*

It should be carefully noted that the number of antimalarial drugs and therefore the denominator for calculating the indicators are different for each level of health facility. That is—

Form	Health Facility	Antimalarial Drugs	Denominator
DAS-2A	Dispensary	5	5
DAS-2B	Health Center	7	7
DAS-2C	District Hospital	7	7
DAS-2D and DAS-2E	Regional Hospital, Central and Regional Medical Stores, and Drug Retail Outlets	8	8

The appropriate denominator should be used when calculating the figures for *Rows 2 and 3* on the forms. For *Row 2* in dispensaries, for example, you would divide the number of products where physical and recorded quantities matched by 5, as shown in the table above. For health centers it would be 7 (as shown in the table above).

#### *Counting Drugs of Same Strength, but with Different Pack Sizes/Presentations*

The following information is important when team managers are completing *Column 9*.

Chloroquine injection is listed in two different presentations: 30ml and 5ml vials. As the only difference between each presentation is the size of the vial, they are only to be counted once. For example, if a health facility has chloroquine injection 40mg/ml in 30ml but not 5ml vials, then it will be recorded as having chloroquine injection available. For the purposes of the number of

drugs/denominators, chloroquine injection is counted as a single item, which is indicated by giving each presentation the letter a and b. Chloroquine injection in 30ml vials is 2a and chloroquine injection in 5ml vials is 2b for all levels of health facility.

### ***Reporting***

The results should be reported for (1) each facility level, (2) each retail outlet, (3) all facilities, and (4) all retail outlets.

**DAS-2A: Inventory Data Form—Dispensary [page 1 of 1]**

<b>Facility Name:</b>	<b>Data Collector Code:</b>	
<b>Facility Type:</b>	<b>Location:</b>	<b>Date:</b>

<b>Existing inventory control systems:</b>	Computerized	9	<b>Data collected from:</b>	Computerized	9
	Manual Ledger	9		Manual Ledger	9
	Stock Record Cards	9		Stock Record Cards	9
	Tally Sheets	9		Tally Sheets	9

Product	Counting Unit	Record Count	Unposted Receipts	Unposted Issues	Adjusted Total	Physical Count	Expired Stock	Non-expired Stock Available
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9

Product	Counting Unit	Record Count	Unposted Receipts	Unposted Issues	Adjusted Total	Physical Count	Expired Stock	Non-expired Stock Available
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9
1. Chloroquine phosphate 150mg tablet	<i>tablet</i>	<i>750</i>	<i>2000</i>	<i>140</i>	<i>2610</i>	<i>2350</i>	<i>0</i>	Yes
2a. Chloroquine injection 40mg/ml 30ml vial <sup>1</sup>	<i>vial</i>	<i>346</i>	<i>0</i>	<i>0</i>	<i>346</i>	<i>338</i>	<i>15</i>	Yes
2b. Chloroquine injection 40mg/ml 5ml vial	<i>vial</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	
3. Chloroquine syrup 50mg/5ml								
4. Sulphadoxine-pyrimethamine (Fansidar) 500mg/25mg								
5. Amodiaquine								
<b>Row 1: Total number of products where Col. 6 equals Col. 7:</b>								
<b>Row 2: % of records corresponding with physical counts: number in Row 1 x 100 ) total number of</b>								
<b>Row 3: % of antimalarial drugs available:</b>								

<sup>1</sup>2a and 2b are counted as a single item.

**DAS-2A: Use with indicators 2 and 4. Data collectors should not fill out the shaded rows or columns.**

**DAS-2B: Inventory Data Form—Health Center [page 1 of 1]**

<b>Facility Name:</b>	<b>Data Collector Code:</b>	
<b>Facility Type:</b>	<b>Location:</b>	<b>Date:</b>

<b>Existing inventory control systems:</b>	Computerized	9	<b>Data collected from:</b>	Computerized	9
	Manual Ledger	9		Manual Ledger	9
	Stock Record Cards	9		Stock Record Cards	9
	Tally Sheets	9		Tally Sheets	9

Product	Counting Unit	Record Count	Unposted Receipts	Unposted Issues	Adjusted Total	Physical Count	Expired Stock	Nonexpired Stock Available
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9
1. Chloroquine phosphate 150mg tablet	<i>tablet</i>	750	2000	140	2610	2350	0	Yes
2a. Chloroquine injection 40mg/ml 30ml vial <sup>1</sup>	<i>vial</i>	0	0	0	0	0	0	No
2b. Chloroquine injection 40mg/ml 5ml vial	<i>vial</i>	23	0	0	23	18	18	
3. Chloroquine syrup 50mg/5ml								
4. Sulphadoxine-pyrimethamine (Fansidar) 500mg/25mg								
5. Amodiaquine								
6. Quinine 300mg tablet								
7. Quinine 300mg/ml injection								
8. Sulphametopyrazine + pyrimethamine (Metakelfin) 500mg/25mg tablet								
<b>Row 1: Total number of products where Col. 6 equals Col. 7:</b>								
<b>Row 2: % of records corresponding with physical counts: number in Row 1 x 100) total number of products stocked in Col. 1:</b>								
<b>Row 3: % of antimalarial drugs available:</b>								

<sup>1</sup> 2a and 2b are counted as a single item.

**DAS-2B: Use with indicators 2 and 4. Data collectors should not fill out the shaded rows or columns.**



**DAS-2C: Inventory Data Form—District Hospital [page 1 of 1]**

<b>Facility Name:</b>	<b>Data Collector Code:</b>	
<b>Facility Type:</b>	<b>Location:</b>	<b>Date:</b>

<b>Existing inventory control systems:</b> Computerized	9	<b>Data collected from:</b> Computerized	9
Manual Ledger	9	Manual Ledger	9
Stock Record Cards	9	Stock Record Cards	9
Tally Sheets	9	Tally Sheets	9

Product	Counting Unit	Record Count	Unposted Receipts	Unposted Issues	Adjusted Total	Physical Count	Expired Stock	Nonexpired Stock Available
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9
1. Chloroquine phosphate 150mg tablet	tablet	750	2000	140	2610	2350	0	Yes
2a. Chloroquine injection 40mg/ml 30ml vial <sup>1</sup>								
2b. Chloroquine injection 40mg/ml 5ml vial								
3. Chloroquine syrup 50mg/5ml								
4. Sulphadoxine-pyrimethamine (Fansidar) 500mg/25mg								
5. Amodiaquine								
6. Quinine 300mg tablet								
7. Quinine 300mg/ml injection								
8. Sulphametopyrazine + pyrimethamine (Metakelfin) 500mg								
Row 1: Total number of products where Col. 6 equals Col. 7:								
Row 2: % of records corresponding with physical counts: number in Row 1 x 100 ? total number of products stocked in Col. 1:								
Row 3: % of antimalarial drugs available								

<sup>1</sup>2a and 2b are counted as a single item.

**DAS-2C: Use with indicators 2 and 4. Data collectors should not fill out the shaded rows or columns.**



## DAS-2D: Inventory Data Form—Regional Hospital/Central and Regional Medical Stores [page 1 of 1]

Facility Name:	Data Collector Code:	
Facility Type:	Location:	Date:

<b>Existing inventory control systems:</b>	Computerized	9	<b>Data collected from:</b>	Computer	9
	Manual Ledger	9		Manual Ledger	9
	Stock Record Cards	9		Stock Record Cards	9
	Tally Sheets	9		Tally Sheets	9

Product	Counting Unit	Record Count	Unposted Receipts	Unposted Issues	Adjusted Total	Physical Count	Expired Stock	Nonexpired Stock Available
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9

Product	Counting Unit	Record Count	Unposted Receipts	Unposted Issues	Adjusted Total	Physical Count	Expired Stock	Nonexpired Stock Available
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9
1. Chloroquine phosphate 150mg tablet	<i>tablet</i>	750	2000	140	2610	2350	0	Yes
2a. Chloroquine injection 40mg/ml 30ml vial <sup>1</sup>								
2b. Chloroquine injection 40mg/ml 5ml vial								
3. Chloroquine syrup 50mg/5ml								
4. Sulphadoxine-pyrimethamine (Fansidar) 500mg/25mg								
5. Amodiaquine								
6. Quinine 300mg tablet								
7. Quinine 300mg/ml injection								
8. Sulphametopyrazine + pyrimethamine (Metakelfin) 500mg/25mg tablet								
<b>Row 1: Total number of products where Col. 6 equals Col. 7:</b>								
<b>Row 2: % of records corresponding with physical counts: number in Row 1 x 100 ) total number of products stocked in Col. 1:</b>								
<b>Row 3: % of antimalarial drugs available</b>								

<sup>1</sup>2(a) and 2(b) are counted as a single item.

**DAS-2D: Use with indicators 2 and 4. Data collectors should not fill out the shaded rows or columns**



**DAS-2E: Inventory Data Form—Private Pharmacy/Drug Retail Outlet [page 1 of 1]**

<b>Drug Outlet Name:</b>	<b>Data Collector Code:</b>	
<b>Drug Outlet Type:</b>	<b>Location:</b>	<b>Date:</b>

<b>Product</b>	<b>Presentations Available (Yes/No)</b>	<b>Drug Available (Yes/No)</b>
<b>Col. 1</b>	<b>Col. 2</b>	<b>Col. 3</b>
1. Chloroquine phosphate 150mg tablet	Yes	Yes
2a. Chloroquine injection 40mg/ml 30ml vial <sup>1</sup>	Yes	Yes
2b. Chloroquine injection 40mg/ml 5ml vial	No	
3. Chloroquine syrup 50mg/5ml	Yes	Yes
4. Sulphadoxine-pyrimethamine (Fansidar) 500mg/25mg	Yes	Yes
5. Amodiaquine		Yes
6. Quinine 300mg tablet	Yes	Yes
7. Quinine 300mg/ml injection	No	No
8. Sulphametopyrazine + pyrimethamine (Metakelfin) 500mg/25mg tablet	No	No
<b>Row 1: % of antimalarial drugs</b>	<b>75%</b>	

<sup>1</sup>2a and 2b are counted as a single item.

**DAS-2E: Use with indicator 2. Data collectors should not fill out the shaded row.**

## DAS-3A through DAS-3D: Stock-Out Data Form

These forms are used for the indicator listed below:

- Average percentage of time out of stock for a set of DMM antimalarial drugs in MOH storage and health facilities

Collect data for this indicator on each antimalarial product. Use data from each facility's stock record-keeping system, whether computerized or manual. Systems based on ledgers or stock record cards, for example, are manual systems.

### Data Summary:

Where to Go	Whom to Ask	What to Get
Central Medical Store	Inventory Officer/Storekeeper	Drugs on the antimalarial list that are usually stocked
Regional Medical Store	Manager	
20 MOH health facilities	Dispenser/Pharmacist/Storekeeper	Number of days that each usually-stocked drug was out of stock during the 12 months prior to data collection (or during the previous year)

### General Instructions for Filling Out Data Forms

**Facility Name:** Write the name of the health facility or warehouse in which the data are being collected.

**Data Collector Code:** Write your identification code. Codes will be assigned during data collector training.

**Facility Type:** Write the type of facility in which you collect the data, for example, warehouse, district hospital, health center, or health post.

**Location:** Write the name of the geographic location of the facility, usually the name of a region, province, district, city, or town.

**Date:** Write the date on which you collect the data. At each facility, the data should be collected in one day, if possible.

**Record Type:** Write the type of record from which the data was collected, e.g., bin card, stock ledger, computer stock records, etc.

### Instructions for Filling Out Form DAS-3

The name of each column on the form is in **bold** below.

**Product:** The study's list of DMM antimalarial products should be preprinted in Column 1. Each antimalarial product should include the generic name, dosage form, and strength.

**Columns for the Months (and Reference Year):** Preprinted abbreviations of the month and a space for the last two digits of the year are at the top of each column. The number of days are to facilitate counting how many days in the month the product was out of stock. The months should be adjusted to coincide with the 12 months preceding the one in which the data are being collected. Fill in the years accordingly. For each antimalarial product and each of the 12 months, write the number of days that the product was out of stock.

**Total Days Out of Stock:** In this column, sum for each product the total number of days in the 12-month period that each product was out of stock. In other words, in each row, add up the numbers in the 12 columns and enter the total in the far right column.

**Note:** Regarding 2a and 2b (the two presentations of chloroquine injection) for all types of health facility, the facility will be counted as having stock if it has either of the presentations listed for chloroquine injection. These items will be counted as out of stock only for each day that NEITHER presentation is available.

**Note:** ALL unshaded blanks should be filled in on this data form. Enter *N/A* if data for a particular item are not available. If a product on the antimalarial list is not authorized for a particular level, e.g., quinine for a dispensary, then enter *N/A* beside this item.

**INSTRUCTIONS FOR TEAM MANAGER'S SECTIONS**

The team manager for each data collection team will complete the shaded portions of forms DAS-3 as follows:

- Row 1:** Sum the numbers in the Total Days Out of Stock column and place the total sum to the far right of Row 1.
- Row 2:** Count the total number of products listed in Column 1 **that are stocked in the facility**. Record this number to the far right of Row 2. This will vary depending on the level of facility. Care should also be taken with the denominator" see notes for Forms 2A through 2D.
- Row 3:** Calculate the Average percentage of time out of stock for a set of DMM antimalarial drugs according to the following formula and record to the far right of Row 3:

$$\text{Average \% time out of stock} = \frac{\text{Number in Row 1} \times 100}{365 \times \text{number in Row 2}}$$

**DAS-3A: Stock-Out Data Form—Dispensary [page 1 of 1]**

<b>Facility Name:</b>	<b>Data Collector Code:</b>	
<b>Facility Type:</b>	<b>Location:</b>	<b>Date:</b>
<b>Record Type:</b>		

For each antimalarial, write the number of days out of stock for each month.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Days Out of Stock
Product	99	99	99	99	99	99	99	98	98	98	98	98	
1. Chloroquine phosphate 150mg tablet	0	0	1	0	0	5	0	3	2	0	0	0	11
2a. Chloroquine injection 40mg/ml 30ml vial <sup>1</sup>													
2b. Chloroquine injection 40mg/ml 5ml vial													
3. Chloroquine syrup 50mg/5ml													
4. Sulphadoxine-pyrimethamine (Fansidar) 500mg/25mg													
5. Amodiaquine													
<b>Row 1: Sum total days out of stock for all stocked drugs:</b>													
<b>Row 2: Count total number of products stocked in Column 1:</b>													
<b>Row 3: Average % time out of stock = (number in Row 1 x 100) / (365 x number in Row 2):</b>													

<sup>1</sup>2a and 2b are counted as a single item.

**DAS-3A: Use with indicator 3. Data collectors should not fill out the shaded rows, except for the years at the top of the table.**



**DAS-3B: Stock-Out Data Form—Health Center [page 1 of 1]**

<b>Facility Name:</b>	<b>Data Collector Code:</b>	
<b>Facility Type:</b>	<b>Location:</b>	<b>Date:</b>
<b>Record Type:</b>		

For each product, write the number of days out of stock for each month.

Product	Jan 99	Feb 99	Mar 99	Apr 99	Ma y 99	Jun 99	Jul 99	Aug 98	Sep 98	Oct 98	Nov 98	Dec 98	Total Days Out of Stock
1. Chloroquine phosphate 150mg tablet	0	0	1	0	0	5	0	3	2	0	0	0	11
2a. Chloroquine injection 40mg/ml 30ml vial <sup>1</sup>													
2b. Chloroquine injection 40mg/ml 5ml vial													
3. Chloroquine syrup 50mg/5ml													
4. Sulphadoxine-pyrimethamine (Fansidar) 500mg/25mg													
5. Amodiaquine													
6. Quinine 300mg tablet													
7. Quinine 300mg/ml injection													
<b>Row 1: Sum total days out of stock for all stocked drugs:</b>													
<b>Row 2: Count total number of products stocked in Column 1:</b>													
<b>Row 3: Average % time out of stock = (number in Row 1 x 100) / (365 x number in Row 2):</b>													

<sup>1</sup>2a and 2b are counted as a single item.

**DAS-3B: Use with indicator 3. Data collectors should not fill out the shaded rows, except for the years at the top of the table.**



**DAS-3C: Stock-Out Data Form—District Hospital [page 1 of 1]**

<b>Facility Name:</b>	<b>Data Collector Code:</b>		
<b>Facility Type:</b>	<b>Location:</b>	<b>Date:</b>	
<b>Record Type:</b>			

For each product, write the number of days out of stock for each month.

	Jan	Feb	Mar	Apr	Ma y	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Days Out of Stock
<b>Product</b>	99	99	99	99	99	99	99	98	98	98	98	98	
1. Chloroquine phosphate 150mg tablet	0	0	1	0	0	5	0	3	2	0	0	0	11
2a. Chloroquine injection 40mg/ml 30ml vial <sup>1</sup>													
2b. Chloroquine injection 40mg/ml 5ml vial													
3. Chloroquine syrup 50mg/5ml													
4. Sulphadoxine-pyrimethamine (Fansidar) 500mg/25mg													
5. Amodiaquine													
6. Quinine 300mg tablet													
7. Quinine 300mg/ml injection													
8. Sulphametopyrazine + pyrimethamine (Metakelfin) 500mg/25mg tablet													
<b>Row 1: Sum total days out of stock for all stocked drugs:</b>													
<b>Row 2: Count total number of products stocked in Column 1:</b>													
<b>Row 3: Average % time out of stock = (number in Row 1 x 100) / (365 x number in Row 2):</b>													

<sup>1</sup>2a and 2b are counted as a single item.

**DAS-3C: Use with indicator 3. Data collectors should not fill out the shaded rows, except for the years at the top of the table.**



## DAS-3D: Stock-Out Data Form—Regional Hospital/Central and Regional Medical Stores [page 1 of 1]

<b>Facility Name:</b>	<b>Data Collector Code:</b>		
<b>Facility Type:</b>	<b>Location:</b>	<b>Date:</b>	
<b>Record Type:</b>			

For each product, write the number of days out of stock for each month.

	Jan	Feb	Mar	Apr	Ma y	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Days Out of Stock
Product	99	99	99	99	99	99	99	98	98	98	98	98	
1. Chloroquine phosphate 150mg tablet	0	0	1	0	0	5	0	3	2	0	0	0	11
2a. Chloroquine injection 40mg/ml 30ml vial <sup>1</sup>													
2b. Chloroquine injection 40mg/ml 5ml vial													
3. Chloroquine syrup 50mg/5ml													
4. Sulphadoxine-pyrimethamine (Fansidar) 500mg/25mg													
5. Amodiaquine													
6. Quinine 300mg tablet													
7. Quinine 300mg/ml injection													
8. Sulphametopyrazine + pyrimethamine (Metakelfin) 500mg/25mg tablet													
<b>Row 1: Sum total days out of stock for all stocked drugs:</b>													
<b>Row 2: Count total number of products stocked in Column 1:</b>													

	Jan	Feb	Mar	Apr	Ma y	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Days Out of Stock
Product	99	99	99	99	99	99	99	98	98	98	98	98	
<b>Row 3: Average % time out of stock = (number in Row 1 x 100) / (365 x number in Row 2):</b>													

<sup>1</sup>2a and 2b are counted as a single item.

**DAS-3D: Use with indicator 3. Data collectors should not fill out the shaded rows, except for the years at the top of the table.**

## DAS-4: International Price Comparison

**This form is used for the indicator listed below:**

1. Percentage of median international price paid for a set of DMM antimalarial drugs that was part of the last regular MOH procurement

**Note:** For those countries that have a decentralized system of drug procurement, this form can be adapted to collect price data at the MOH health facility level. During the data collector training, the instructor will provide specific instructions for the use of this form at the health facility level.

### DMM Antimalarial Products

The data for this indicator are collected at the MOH office that is responsible for purchasing drugs. The last regular procurement price should include the cost, insurance, and freight (CIF). For the set of antimalarial drugs, the CIF prices for the most recent regular procurement are written in and compared with international prices.

#### Data Summary:

Where to Go	Whom to Ask	What to Get
MOH Procurement Unit	Officer in charge of pharmaceutical purchases	List of most recent prices paid for a set of DMM antimalarial products. For each product, the records must be reviewed to determine the CIF price for each product.
Central Medical Store	Manager or Reception Officer	
Regional Government Administration or Medical Store	Manager	
MOH health facilities	Dispenser/Pharmacist/Store-keeper	Tender documents and supplier invoices may be the source of prices.

## General Instructions for Filling Out Data Forms

**Facility Name:** Write the name of the health facility or warehouse in which the data are being collected.

**Data Collector Code:** Write your identification code. Codes will be assigned during data collector training.

**Location:** Write the name of the geographic location of the facility, usually the name of a region, province, district, city, or town.

**Date:** Write the date on which you collect the data. At each facility, the data should be collected in one day, if possible.

**Currency Used:** Write in the currency used for the price data for DMM antimalarial drugs.

**One U.S. Dollar:** Write in the exchange rate for a U.S. dollar in the currency used.

## Instructions for Filling Out Form DAS-4

The name of each column in the form is in **bold** below. The numbers correspond to the column numbers on the data form.

1. **Product:** The study's list of DMM antimalarial products should be preprinted in Column 1. For each antimalarial product, include the generic name, dosage form, and strength.
2. **Date of Last Procurement:** For each item, write the date when it was last procured.
3. **Other Names (brand or generic):** For each antimalarial product, write the brand or generic name of the product purchased by the MOH medical store, warehouse, or health facility.
4. **Comparison Unit:** For each antimalarial product, write the comparison unit being used (e.g., tab, ml., sachet, each).
5. **Number of Units per Pack:** For each antimalarial product, write the number of comparison units per pack (e.g., 1,000 tablets per pack or 100 ml per bottle).

6. **MOH Comparison Pack Price:** For each antimalarial product, write the MOH CIF pack price.

**INSTRUCTIONS FOR TEAM MANAGER'S SECTIONS**

7. **MOH Comparison Unit Price:** For each product, write the MOH CIF unit price for the most recent regular procurement. The MOH CIF unit price is calculated by dividing the MOH pack price by the number of units per pack. For example, the unit price is the price per tablet, milliliter, or ampoule. You must enter the price to four decimal places because the units involved are so small.
8. **Exchange Rate at Time of Payment:** For each item, write in the exchange rate to US\$ at the date of the last procurement.
9. **MOH Comparison Unit Price (US\$):** For each item, calculate the unit price in US\$ using the information in Columns 8 and 9.
10. **International Unit Price (US\$):** For each item. write the median international prices for the antimalarial drugs. These prices may be determined by reference to the international unit prices in the MSH International Drug Price Indicator Guide. Do not use the average cost listed in the Guide. Instead, use the median price for each antimalarial drug. The prices in the International Drug Price Indicator Guide are free on board (FOB), and should be adjusted upward by 20 percent to reflect average shipping and insurance costs, i.e., CIF.

**Note:** ALL unshaded blanks should be filled in on this data form. Enter *N/A* if data for a particular item are not available.

**DAS-4: International Price Comparison Form [page 1 of 1]**

<b>Facility Name:</b>	<b>Data Collector Code:</b>	<b>Facility Type:</b>	
<b>Location:</b>	<b>Date:</b>	<b>Currency Used:</b>	<b>One U.S. Dollar =</b>

DMM Antimalarial Drugs

<b>Product</b>	<b>Date of Last Procurement</b>	<b>Other Names (Brand or Generic)</b>	<b>Comparison Unit</b>	<b>Number of Units per Pack</b>	<b>MOH Comparison Pack Price</b>	<b>MOH Comparison Unit Price</b>	<b>Exchange Rate at Time of Payment</b>	<b>MOH Comparison Unit Price (US\$)</b>	<b>International Unit Price (US\$)</b>
<b>Col. 1</b>	<b>Col. 2</b>	<b>Col. 3</b>	<b>Col. 4</b>	<b>Col. 5</b>	<b>Col. 6</b>	<b>Col. 7</b>	<b>Col. 8</b>	<b>Col. 9</b>	<b>Col. 10</b>
1. Chloroquine phosphate 150mg tablet	6/99	Malariaquin	tablet	1000	833	0.833	600	0.0014	0.002
2a. Chloroquine injection 40mg/ml 30ml vial									
2b. Chloroquine injection 40mg/ml 5ml vial									
3. Chloroquine syrup 50mg/5ml									
4. Sulphadoxine-pyrimethamine (Fansidar) 500mg/25mg									
5. Amodiaquine									
6. Quinine 300mg tablet									
7. Quinine 300mg/ml injection									
8. Sulphametopyrazine + pyrimethamine (Metakelfin) 500mg/25mg tablet									

**DAS-4: Use with indicator 1. Data collectors should not fill out the shaded columns.**

## Troubleshooting

The key to successful data collection is good planning. However, no matter how thorough the planning, problems can always arise. Unexpected problems can be minimized if study team members maintain good, open communication and if participants remain flexible and willing to adapt to new situations. The table below presents a few typical problems, along with possible solutions. Remember, these examples are only illustrative. Each country can present data collectors with different problems.

### Drug Availability Study: Illustrative Examples of Potential Problems and Possible Solutions

Potential Problems	Possible Solutions
The dosage form of the drug at the data collection site is different from the dosage form indicated on the sample data form.	The sample data forms should be adapted and tested, as outlined in Chapter 2, to catch inconsistencies before data collection begins. However, if the dosage form is different, change the data form to reflect the dosage form found at the data collection site.
Health facility and drug retail managers are skeptical or resistant to permitting someone to go through confidential patient records.	Sometimes having an “official government letter of authorization” may not be enough. Talk to the managers about the study and emphasize its ultimate benefit to the country.
A sample facility is temporarily or permanently closed.	Have a defined “substitute” list of facilities ready in anticipation of closings. Do not wait until you get to the field site to make the decision on your own about selecting facilities.
Data forms are incomplete and/or illegible.	Be sure to use pens, not pencils, to fill out the forms. They may be checked later, and your pay may depend upon the legibility and completeness of your forms.

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# **Chapter 5.**

## **DRUG USE STUDY FORMS**

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This chapter contains the data collection forms and instructions necessary for collecting information for the Drug Use Study.

## **DUS-1: Medical Records and Facility Resources Review Form**

**This form is used for the indicators listed below:**

5. Percentage of MOH health facilities visited that had a copy of official standard treatment guidelines for malaria
6. Percentage of encounters with patients diagnosed with uncomplicated malaria who are prescribed an antimalarial consistent with treatment guidelines
7. Percentage of encounters with patients diagnosed with uncomplicated malaria who are prescribed quantities of appropriate antimalarials sufficient to complete a full course of treatment
8. Percentage of prescribed antimalarial drugs actually dispensed by public health facilities
9. Percentage of cases where the quantity of antimalarial drugs dispensed by public health facilities was sufficient to complete a course of treatment
10. Average cost of drugs prescribed as a percentage of costs if STG norms for treatment were followed

### **Supplemental Indicator**

13. Percentage of encounters with pregnant women living in endemic areas who are prescribed an appropriate antimalarial prophylaxis at antenatal clinics

**Data Summary:**

<b>Where to Go</b>	<b>Whom to Ask</b>	<b>What to Get</b>
MOH health facilities	Medical Records Officer/Health Facility Manager/ Pharmacist  (Note: For supplemental indicator 13.)	Identify a sample of 30 malaria encounters for uncomplicated malaria covered by form DUS-1A.  Identify a sample of 30 pregnant women attending antenatal clinics covered by DUS-1B
Drug Retail Outlets	Proprietor/Pharmacist/Assist ant on Duty	Prices for all drugs and supplies prescribed by health facility

**General Instructions for Filling Out Data Forms**

**Facility Name:** Write the name of the health facility in which the data are being collected.

**Data Collector Code:** Write your identification code. Codes will be assigned during data collector training.

**Facility Type:** Write the type of facility in which you collect the data, for example, district hospital, health center, or dispensary.

**Location:** Write the name of the geographic location of the facility, usually the name of a region, province, district, city, or town.

**Date:** Write the date on which you collect the data. At each facility, the data should be collected in one day, if possible.

**Currency Used:** Write in the currency used for the price data for DMM tracer drugs.

**One U.S. Dollar:** Write in the exchange rate for a U.S. dollar in the currency used.

**Is an official manual of treatment guidelines available?** Check the appropriate box to designate whether an official treatment manual is available. If a manual is available, write from what year.

**Data collected from:** Check the appropriate box to designate whether the data were collected from medical records, patient registry, antenatal records, or directly from health facility staff.

### Instructions for Filling Out Form DUS-1A

The name of each column on the form is in **bold** below. The numbers correspond to the column numbers on the data form.

1. **Encounter Number:** Write the patient's identification number. If no identification exists, simply number the encounter (patient) records that you studied 1, 2, 3, etc.
2. **Age:** For all patients 5 and over, write their age in years. For a child 8 years old, for example, write 8 in this column. For a 32-year-old adult, write 32. For children under 5 write the age in months on the day of the medical consultation. For example, if the record showed that a girl, born December 2, 1994, was 26 months old when she had a consultation on February 2, 1997, you would write 26 months in this column.
3. **Sex (M/F):** Write the patient's sex by writing an M for male or F for female.
4. **Pregnant (Yes/No):** Write YES or NO to indicate if the patient was pregnant. This is important for deciding if STGs were followed for indicator 6.
5. **Date:** Write the date that the prescriber saw the patient. Indicate the month and year. For example, all the following dates, 28-10-97, 97-10-28, 28/10/97, 28 Oct 97, would be written as 10/97.
6. **Prescriber Type:** Write the type of health facility staff who prescribed the medication, for example, doctor, nurse, health worker, or other care provider. Abbreviations can be used in Column 6 if specific abbreviations were agreed upon during the data collectors' training.
7. **Drug Name, Strength, and Dosage Form:** Write the name and strength of all prescribed drugs. Write the names exactly as they appear in the medical record. Also, write the drug's strength as written in the medical record. If strength is not written in the medical record, write *N/A* (not available) after the name of the medication. Write the dosage form of each prescribed drug as it appears in the medical record, for example, tablet, syrup, etc. If the dosage form is unclear or

missing, write *Dosage N/A* (not available) in Column 7. Use a new row for each drug.

8. **Quantity Prescribed:** Write the quantity of the drug prescribed, for example, 3 tablets, 100ml, etc. Use a new row for each drug.
  
9. **Quantity Dispensed:** Write the quantity of the drug that was dispensed, for example, 3 tablets, 100ml, etc. Use a new row for each drug.

**Note:** ALL blanks should be filled in on this data form. Enter *N/A* if data for a particular item are not available.

### *Drug Price Data in Drug Retail Outlets*

The data for the remaining columns (Columns 10 and 11) will be collected from drug retail outlets. Immediately upon leaving the health facility, go to the nearest private drug retail outlet. Ask the drug seller the price of each drug, and record the sales prices for each drug prescribed in Column 7.

Ask the drug seller the price of the smallest amount or quantity of the drug that he or she would dispense (e.g., one tablet, 100 ml, etc.) If a price for one full bottle is given, be sure to include the volume amount of the bottle. Do not purchase the product; merely ask for a price quote.

If an item is not stocked, skip that drug and go on to the next one. Where a drug retail outlet stocks more than one brand of the same product, record the name and price of the least expensive product. For drugs that are repeated in Column 7, only record the price the first time it appears on the form.

**Column 10:** For each drug listed in Column 7, record the number of units that the drug seller would dispense in the drug retail outlet. The number of units should be for the smallest amount that the drug seller would dispense.

**Column 11:** For each drug listed in Column 7, record the selling price for the number of units the drug seller would dispense in the drug retail outlet.

<b>INSTRUCTIONS FOR TEAM MANAGER'S SECTIONS</b>
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### *Full Course of Treatment*

**Column 12:** This column is shaded indicating it is to be completed by the team manager. For each drug write YES or NO to indicate whether enough was prescribed according to standard treatment guidelines for the patient to complete a full course of treatment.

**Column 13:** This column is shaded indicating it is to be completed by the team manager. For each drug write YES or NO to indicate whether enough was dispensed for the patient to complete a full course of treatment.

### **Instructions for Filling Out Form DUS-1B**

The name of each column on the form is in **bold** below. The numbers correspond to the column numbers on the data form.

1. **Encounter Number:** Complete as directed for DUS-1A.
2. **Age:** Complete as directed for DUS-1A.
3. **Prescribed Prophylaxis (Yes or No):** Write YES or NO to this question. If nothing is indicated on the patients' records, write NO.
4. **Date:** Complete as directed for DUS-1A.
5. **Prescriber Type:** Complete as directed for DUS-1A.
6. **Drug Name, Strength, and Dosage Form:** Complete as directed for DUS-1A.
7. **Quantity Prescribed:** Complete as directed for DUS-1A.
8. **Quantity Dispensed:** Complete as directed for DUS-1A.

**Note:** ALL blanks should be filled in on this data form. Enter *N/A* if data for a particular item are not available.

### ***Drug Price Data in Drug Retail Outlets***

9. **Number of Units:** For each drug listed in Column 6, record the number of units that the drug seller would dispense in the drug retail outlet. The number of units should be for the smallest amount that the drug seller would dispense.
10. **Retail Price:** For each drug listed in Column 6, record the selling price for the number of units the drug seller would dispense in the drug retail outlet.

***Full Course of Treatment***

11. **Full Course Prescribed (Yes/No):** This column is shaded indicating it is to be completed by the team manager. For each drug, write YES or NO to indicate whether enough was prescribed according to standard treatment guidelines for the patient to complete a full course of treatment.
  
12. **Full Course Dispensed (Yes/No):** This column is shaded indicating it is to be completed by the team manager. For each drug, write YES or NO to indicate whether enough was dispensed in sufficient quantities for the patient to complete a full course of treatment.

**Note on information not taken from medical records:** Any information that is received from an interview rather than from medical records should be circled on the form.



**DUS-1: Medical Records and Facility Review Form [page 1 of 3]**

<b>Facility Name:</b>	<b>Data Collector Code:</b>	<b>Facility Type:</b>	
<b>Location:</b>	<b>Date:</b>	<b>Currency Used:</b>	<b>One U.S. Dollar =</b>

Does the facility have a copy of the national malaria treatment guidelines? Yes 9 No 9

If yes, from what year? \_\_\_\_\_

Data collected from: Medical Records 9  
 Patient Registry 9  
 Antenatal records 9  
 Health facility staff 9

**DUS-1: Use with indicators 5, 6, 7, 8, 9, and 10.**

## DUS-1A: Medical Records and Facility Review Form—Uncomplicated Malaria [page 2 of 3]

Facility Name:	Data Collector Code:
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Encounter Number	Age	Sex (M/F)	Pregnant (Yes/No)	Date	Prescriber Type	Drug Name, Strength, and Dosage Form	Quantity Prescribed	Quantity Dispensed	Number of Units	Retail Price	Full Course Prescribed (Yes/No)	Full Course Dispensed (Yes/No)
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10	Col. 11	Col. 12	Col. 13
1	24	F	No	3/99	Clinical Officer	Chloroquine 150mg tabs	10	10	1	0.03	Yes	Yes

DUS-1A: Use with indicators 5, 6, 7, 8, 9, and 10. Data collectors should not fill out the shaded columns.

**DUS-1B: Medical Records and Facility Review Form—Pregnant Women (Antenatal) [page 3 of 3]**

<b>Facility Name:</b>	<b>Data Collector Code:</b>
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Encounter Number	Age	Prescribed Prophylaxis (Yes/No)	Date	Prescriber Type	Drug Name, Strength, and Dosage Form	Quantity Prescribed	Quantity Dispensed	Number of Units	Retail Price	Full Course Prescribed (Yes/No)	Full Course Dispensed (Yes/No)
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10	Col. 11	Col. 12
1	24	Yes	5/99	Nurse	<i>Chloroquine 150mg, Tablet</i>	10	10	1	0.04	Yes	Yes

**DUS-1B: Use with indicators 5, 6, 7, 8, 9, and 10. Data collectors should not fill out the shaded columns.**

## DUS-2: Observation of Health Worker Data Form

**This form is used for the indicators listed below:**

6. Percentage of encounters with patients diagnosed with uncomplicated malaria who are prescribed an antimalarial consistent with treatment guidelines
7. Percentage of encounters with patients diagnosed with uncomplicated malaria who are prescribed quantities of appropriate antimalarials sufficient to complete a full course of treatment
12. Percentage of health workers and drug retail outlets that provided [some] information to patients/caregivers on how to give the recommended drug(s)

### Data Summary:

Where to Go	Whom to Ask	What to Get
20 MOH health facilities	Health facility supervisor for permission to observe. Also, briefly explain your purpose to the practitioner you want to observe.	Data from observing 10 to 15 encounters with malaria patients in each health facility

**Note:** Given that data are being collected for only one disease it may not always be possible to observe 10 to 15 encounters in each health facility in the time available. In this situation it will be necessary to do one or a combination of the following:

1. Spend longer at each health facility
2. Cover more health facilities
3. Collect additional retrospective data using DUS-1

### General Instructions for Filling Out Data Forms

**Facility Name:** Write the name of the health facility in which the data are being collected.

**Data Collector Code:** Write your identification code. Codes will be assigned during data collector training.

**Facility Type:** Write the type of facility in which you collect the data, for example, warehouse, district hospital, health center, or dispensary.

**Location:** Write the name of the geographic location of the facility, usually the name of a region, province, district, city, or town.

**Date:** Write the date on which you collect the data. At each facility, the data should be collected in one day, if possible. However, see the earlier note on data collection if not enough malaria patient encounters can be observed in the time allowed.

**Encounter Number:** Write the patient's identification number. If no identification exists, simply number the encounter (patient) records that you studied 1, 2, 3, etc.

**Pregnant (Y/N):** Write YES or NO to indicate if the patient was pregnant.

**Diagnosis:** Write the diagnosis as determined by the prescriber. If you cannot hear the diagnosis made during the medical consultation, ask the health worker about the diagnosis after the caregiver and/or patient has left the consultation room.

**Age:** Write the actual age, in years, of the patient on the day of the medical consultation. For children under 5, write the age in months and include the word "months."

**Sex (M/F):** Indicate the patient's sex by writing an M for male or F for female.

## Instructions for Filling Out Form DUS-2

Use one copy of form DUS-2 per patient encounter. The name of each column is in **bold** below. The numbers correspond to the column numbers in the DUS-2 form.

1. **Drug Name, Strength, and Dosage Form:** Write the name, strength, and dosage form of each prescribed drug in Column 1. Write the name of the drug exactly as it is told to the patient/caregiver by the health worker, for example, chloroquine (generic name) or Malaroquine (brand name). Also, write the strength of the drug prescribed by the health worker, for example, 150 mg. If strength is not mentioned, write *N/A* (not available) after the name of the medication. Then write the dosage form of the prescribed drug, for example, tablet, syrup, vial, etc. If the health worker does not mention dosage form, write *N/A* (not available). Use a new row for each drug prescribed. Examples of a complete record are chloroquine 150 mg tablet and chloroquine 50mg/5ml syrup.

2. **Dosage Quantity:** Write the quantity or unit of each prescribed drug exactly as the health worker prescribes, for example, 5 ml, 1 tablet, 300mg, etc. If dosage is not mentioned, write *N/A* (not available) in Column 2. Use a new row for each drug.
3. **Frequency:** For each drug prescribed, write how many times a day the dosage is to be given, for example, once a day, twice a day, three times a day, etc. If frequency is not mentioned, write *N/A* (not available) in Column 3. Use a new row for each drug.
4. **Duration of Treatment (days):** Write the number of days the prescribed drug is to be given for a full course of treatment. Write exactly what the health worker says. The duration could be expressed as 3 days, 7 days, etc. If duration is not mentioned, write *N/A* (not available) in Column 4. Use a new row for each drug.
5. **Administration:** Write exactly what the health worker mentions to the caregiver on how to administer the drug. Administration can be expressed as with food, with water, etc. If administration instructions are not mentioned, write *N/A* (not available) in Column 5.

<b>INSTRUCTIONS FOR TEAM MANAGER'S SECTION</b>
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**Column 6. Full Course Prescribed (Yes, No, NA):** For each drug write *YES* or *NO* to indicate whether enough was prescribed according to standard treatment guidelines for the patient to complete a full course of treatment. If a drug is prescribed that falls outside the guidelines for malaria then write *N/A*.

**Row 1. Did the health worker/prescriber explain to the patient/caregiver how to take/give the medication?** For all the drugs recommended in Column 1, note if the information in Column 2 through Column 5 (Dosage Quantity, Frequency, Duration of Treatment and Administration) are filled out. If any of the information for Columns 2 through 5 is provided for the drug listed in Column 1, check *YES* in Row 1. Otherwise, check *NO* in Row 1.

**Row 2. Was the treatment consistent with STGs?** If the treatment given was consistent with STGs check *YES* in Row 2. Otherwise check *NO* in Row 2.

**Note:** ALL unshaded blanks should be filled in on this data form. Enter *N/A* if data for a particular item are not available.

**DUS-2: Observation of Health Worker Data Form [page 1 of 1]**

<b>Facility Name:</b>	<b>Data Collector Code:</b>	<b>Facility Type:</b>	
<b>Location:</b>	<b>Date:</b>	<b>Encounter Number:</b>	
<b>Pregnant (Y/N):</b>	<b>Diagnosis:</b>	<b>Age:</b>	<b>(M/F):</b>

For each drug that the health worker/prescriber gives or prescribes, write down the following information.

<b>Drug Name, Strength, and Dosage Form</b>	<b>Dosage Quantity</b>	<b>Frequency</b>	<b>Duration of Treatment (days)</b>	<b>Administration</b>	<b>Full Course Prescribed (Yes, No, N/A)</b>
<b>Col. 1</b>	<b>Col. 2</b>	<b>Col. 3</b>	<b>Col. 4</b>	<b>Col. 5</b>	<b>Col. 6</b>
<i>Chloroquine 150 mg Tablet</i>	<i>4 Tablets</i>	<i>1 time/day</i>	<i>2</i>	<i>with food</i>	<i>Yes</i>
<i>Chloroquine 150 mg Tablet</i>	<i>2 Tablets</i>	<i>1 time/day</i>	<i>1</i>	<i>with food</i>	<i>Yes</i>
<b>1. Did the health worker explain to the patient/caregiver how to take/give the medication?</b>				<b>YES 9</b>	<b>NO 9</b>
<b>2. Was treatment consistent with STGs?</b>				<b>YES 9</b>	<b>NO 9</b>

**DUS-2: Use with indicators 6, 7, and 12. Data collectors should not fill out the shaded rows or columns.**

## DUS-3: Exit Poll Interview Form

**This form is used for the indicators listed below:**

7. Percentage of encounters with patients diagnosed with uncomplicated malaria who are prescribed quantities of appropriate antimalarials sufficient to complete a full course of treatment
8. Percentage of prescribed antimalarial drugs actually dispensed by public health facilities
9. Percentage of cases where the quantity of drugs dispensed by public health facilities was sufficient to complete a course of treatment
11. Percentage of patients/caregivers who could correctly describe how to give the prescribed medication

### Data Summary:

Where to Go	Whom to Ask	What to Get
MOH health facilities	Health facility supervisor for permission to observe and interview	Data from interviews with 10 to 15 patients/caregivers whose consultation you observed

**Note:** Given that data are being collected for only one disease it may not always be possible to observe 10 to 15 encounters in each health facility in the time available. In this situation it will be necessary to do one or a combination of the following:

1. Spend longer at each health facility
2. Cover more health facilities
3. Collect additional retrospective data using DUS-1

### General Instructions for Filling Out Data Forms

**Facility Name:** Write the name of the health facility in which the data are being collected.

**Data Collector Code:** Write your identification code. Codes will be assigned during data collector training.

**Facility Type:** Write the type of facility in which you collect the data, for example, district hospital, health center, or health post.

**Location:** Write the name of the geographic location of the facility, usually the name of a region, province, district, city, or town.

**Date:** Write the date on which you collect the data. At each facility, the data should be collected in one day, if possible.

**Encounter Number:** Write the patient's identification number. If no identification exists, simply number the encounter (patient) records that you studied 1, 2, 3, etc.

**Interview Number:** To keep track of the patients/caregivers interviewed, use a number for each exit poll interview. **DO NOT USE THE NAME OF THE PERSON BEING INTERVIEWED.** Write the number of the interview (from 1 to 15) per survey site. In each health center start numbering at 1.

**Age:** Write the actual age, in years or months, of the patient on the day of the medical consultation. For children under 5 years old, indicate the age in months. For all other children and adults, indicate age in years.

**Sex (M/F):** Write the patient's sex by writing an M for male or F for female.

**Pregnant (Y/N):** Indicate Y (Yes) or N (No) if the patient is pregnant.

### Instructions for Filling Out Form DUS-3

After the patient/caregiver visits the pharmacy or dispensing unit, ask the patient/caregiver the following questions. If the clinic does not have a pharmacy or dispensing unit, approach the patient/caregiver immediately before or after the patient/caregiver leaves the clinic (depending on the layout of the clinic). Use a new copy of form DUS-3 for each interview.

**What drugs were prescribed and how are you going to give/take them?**

Fill out the DUS-3 form with the answers the patient/caregiver provides. The name of each column on the form is in **bold** below. The numbers correspond to the column numbers on the data form.

**Note:** Record patient/caregiver's knowledge of each drug prescribed even if not yet dispensed.

1. **Name of Drug:** Write the name of each prescribed drug exactly as indicated by the patient/caregiver, for example, chloroquine (generic name) or Malaroquine (commercial name). The data collector should not read the prescription; the patient/caregiver should read the prescription for this information. Use a new row for each drug prescribed.
2. **Dosage Quantity:** Write the patient/caregiver's version of the quantity or unit amount of each drug prescribed. Write exactly what is stated by the patient/caregiver, for example, 1 tablet, 2 tablets, 1 teaspoon (tsp), a vial, half the bottle, etc. If the dosage is not mentioned, ask the patient/caregiver if he/she knows how much of the drug to take or give to the patient. If the patient/caregiver does not know write DNK (does not know).
3. **Frequency:** Write how many times a day the drug must be taken, as remembered by the patient/caregiver. For each drug prescribed, write exactly what the patient/caregiver recalls of the number of times a day the dose is to be given. The frequency can be expressed as once a day, twice a day, three times a day, etc. If frequency is not mentioned, ask the patient/caregiver if he/she knows how often to give the drug each day. If the patient/caregiver does not know, write DNK (does not know).
4. **Duration of Treatment (days):** For each drug, write what the patient/caregiver recalls as the number of days the drug should be taken/given to the patient. Write exactly what the patient/caregiver mentions. The duration could be expressed as 3 days, 7 days, or until the drug is finished, etc. If duration is not mentioned, ask the patient/caregiver if he/she knows how many days the patient should be given the drug. If the patient/caregiver does not know, write DNK (does not know).
5. **Administration:** Write how the patient/caregiver will administer the drug. Write exactly what the patient/caregiver says. Administration can be expressed as after meals, with water, etc. If the patient/caregiver does not know, write DNK (does not know).
6. **Did the Patient/Caregiver Receive the Drug?** For those patients/caregivers who presented a prescription for dispensing, write *YES* if the patient/caregiver actually has the drug in hand and *NO* if the patient/caregiver only has a prescription order to be filled. Provide a response for each individual drug or prescription for a drug in the patient/caregiver's possession.

7. **Quantity Dispensed:** If the answer to 6 was YES, then ask the patient/caregiver what quantity of each drug they received at the dispensary. Write down the figures against the appropriate drug.

### INSTRUCTIONS FOR TEAM MANAGER'S SECTIONS

The team manager for each data collection team will complete the shaded portions of form DUS-3 as follows:

- Row 1:** Count the total number of drugs prescribed in Column 1 at the time of the visit and record in Row 1.
- Row 2:** For all the drugs prescribed in Column 1, note if Column 2 through Column 5 (Dosage Quantity, Frequency, Duration of Treatment, and Administration) are filled out. If all columns are filled out for all drugs listed in Column 1, check YES in Row 2. Otherwise, check NO in Row 2.
- Row 3:** Count the number of YES responses in Column 6 and record the number in Row 3. This is the total number of drugs dispensed to or received by the patient/caregiver.
- Row 4:** The team manager should check YES if the drugs were prescribed in quantities sufficient to cover a full course of treatment according to national treatment guidelines. If the quantity prescribed was not enough for a full course of treatment then he/she should check NO.
- Row 5:** The team manager should check YES if the drugs were dispensed in quantities sufficient to cover a full course of treatment according to national treatment guidelines. If the quantity dispensed was not enough for a full course of treatment then he/she should check NO.



**DUS-3: Exit Poll Interview Form [page 1 of 1]**

<b>Facility Name:</b>		<b>Data Collector Code:</b>	
<b>Facility Type:</b>	<b>Location:</b>	<b>Date:</b>	<b>Encounter Number:</b>
<b>Interview Number:</b>	<b>Age (years/months):</b>	<b>Sex (M/F):</b>	<b>Pregnant (Y/N):</b>

Ask the patient/caregiver: “What drugs were prescribed and how are you going to take/give them to the patient?”

Name of Drug	Dosage Quantity	Frequency	Duration of Treatment (days)	Administration	Did the Patient/Caregiver Receive the Drug? YES/NO	Quantity Dispensed
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7
<i>Fansidar</i>	<i>3 tablets</i>	<i>once</i>	<i>1 day</i>	<i>with food</i>	<i>yes</i>	<i>3 tablets</i>
<b>Row 1: Total number of drugs prescribed _____</b>						
<b>Row 2: Can patient/caregiver correctly describe how to give prescribed medications? YES 9 NO 9</b>						
<b>Row 3: Total number of drugs dispensed _____</b>						
<b>Row 4: Did the prescription cover a full course of treatment? YES 9 NO 9</b>						
<b>Row 5: Did the quantity dispensed cover a full course of treatment? YES 9 NO 9</b>						

**DUS-3: Use with indicators 7, 8, 9, and 11. Data collectors should not fill out shaded areas.**

## DUS-4: Simulated Purchase Data Form

**This form is used for the indicators listed below:**

6. Percentage of encounters with patients diagnosed with uncomplicated malaria who are prescribed an antimalarial consistent with treatment guidelines
7. Percentage of encounters with patients diagnosed with uncomplicated malaria who are prescribed quantities of appropriate antimalarials sufficient to complete a full course of treatment
10. Average cost of drugs prescribed as a percentage of costs if STG norms for treatment were followed
12. Percentage of health workers and drug retail outlets that provided [some] information to patients/caregivers on how to give the recommended drug(s)

### Data Summary:

Where to Go	Whom to Ask	What to Get
Drug Retail Outlets	Data collection is done as a simulation. Store managers should be unaware of the process so no permission is needed.	Determine the prescribing practice for a sample of 20 simulated purchases for malaria.  Determine the cost of treatment as prescribed in drug retail outlets.

### General Instructions for Filling Out Data Form

**Facility Name:** Write the name of the drug retail outlet in which the data are being collected.

**Data Collector Code:** Write your identification code. Codes will be assigned during data collector training.

**Location:** Write the name of the geographic location of the pharmacy, usually the name of a region, province, district, city, or town.

**Date:** Write the date on which you collect the data. At each facility, the data should be collected in one day, if possible.

**Currency Used:** Write in the currency used for the price data for the drugs purchased.

**One U.S. Dollar:** Write in the exchange rate for a U.S. dollar in the currency used.

### Instructions for Filling Out Form DUS-4

**For detailed instructions, see Scenario for Simulated Purchases following the DUS-4 form.** This data form should be completed immediately after the simulated purchase. Doing so will facilitate remembering the interactions during the purchase. It will also help ensure that retail drug sellers do not realize that they are being evaluated.

#### **Which drugs were recommended for purchase by the drug seller?**

Record information on each drug recommended for purchase during the simulated purchase encounter. The name of each column on the data form is in **bold** below. The numbers correspond to the column numbers on the data form.

1. **Name, Strength, and Dosage Form:** Write the name, strength, and dosage form of each purchased drug. Write the name of the drug that the retail drug seller gives, for example, chloroquine (generic name) or Malaroquine (commercial name). Also, write in the strength of the drug prescribed by the drug seller, for example, 150 mg. If strength is not mentioned, write *N/A* (not available) after the name of the medication. Write the dosage form of the prescribed drug, for example, tablet, liquid, ampoule, vial, etc. If the drug seller does not mention dosage form, write *N/A* (not available). Use a new row for each drug purchased. An example of a complete record is Fansidar 500mg/25mg tablet.
2. **Dosage Quantity:** For the quantity or unit of each drug purchased, write exactly what the drug seller dispensed. For example, 5 ml, 1 tablet, etc. Use a new row for each drug.
3. **Frequency:** For each drug purchased, write the number of times a day that the drug seller told you the dose was to be taken, for example, once a day, twice a day, three times a day, etc. If frequency is not mentioned, write *N/A* (not available) in Column 3. Use a new row for each drug.
4. **Duration of Treatment (days):** Write the number of days the purchased drug is to be taken for a full course of treatment. Write exactly what the drug seller says. The duration could be expressed as 3 days, 7 days, etc. If duration is not mentioned, write *N/A* (not available) in Column 4. Use a new row for each drug.
5. **Administration:** For how to administer the drug, write exactly what the drug seller says to the patient/caregiver. Administration can be expressed as after meals, with water, etc. If

administration instructions are not mentioned by the drug seller, write *N/A (not available)* in *Column 5*.

6. **Price Paid:** For each drug recommended for purchase by the drug seller, record the total price paid for the drug.

<b>INSTRUCTIONS FOR TEAM MANAGER'S SECTIONS</b>
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The team manager for each data collection team will complete the shaded portions of form DUS-4 as follows:

- Column 7: Full Course Prescribed (Yes, No, N/A):** For each drug, write *YES* or *NO* to indicate whether enough was prescribed according to standard treatment guidelines for the patient to complete a full course of treatment. If a drug is prescribed that falls outside the guidelines for malaria, then check *N/A*.
- Row 1: Did dispenser provide some information on how to take the drugs?** For all the drugs recommended in Column 1, note if Column 2 through Column 5 (Dosage Quantity, Frequency, Duration of Treatment, and Administration) are filled out. If any of the information for Columns 2 through 5 is provided for the drug listed in Column 1, check *YES* in Row 1. Otherwise, check *NO* in Row 1.
- Row 2: Did the dispenser prescribe drugs in line with STGs?** If the treatment given was consistent with STGs, check *YES* in Row 2. Otherwise check *NO* in Row 2.
- Row 3: Total cost of prescribed treatment.** Total the price paid for each individual drug recorded in Column 6 and write the result in Row 3.
- Row 4: STG Cost.** Write the cost if STGs were followed in Row 4. (To determine the STG cost, all costs should be based on the prices collected in the drug retail outlets on data collection form DUS-1. Ideally, the median price of all of the prices collected for a drug should be used for the calculations, which are based on the country's standard treatment for a disease.)
- Row 5: % of STG Cost.** Calculate the cost of actual treatment as a percentage of STG treatment. This calculation is done by dividing Row 3 by Row 4 and multiplying by 100. For example, if Row 3 = \$4.50 and Row 4 = \$2.20, then the calculation would be"

$$\frac{4.50}{2.20} \times 100 = 205\%$$



## DUS-4: Simulated Purchase Form for Uncomplicated Malaria in Private Pharmacies [page 1 of 1]

Facility Name:		Data Collector Code:	
Location:	Date:	Currency Used:	One U.S. Dollar =

For all drugs recommended for purchase by the drug seller, write the following information.

Name, Strength, and Dosage Form	Dosage Quantity	Frequency	Duration of Treatment (days)	Administration	Price	Full Course Prescribed (Y/N/NA)
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col.7
<i>Fansidar</i>	<i>2 tablets</i>	<i>once</i>	<i>1 day</i>	<i>with food</i>	<i>12</i>	<i>Yes</i>
<b>Row 1: Did dispenser provide some information on how to take the drugs? YES 9 NO 9</b>						
<b>Row 2: Did the dispenser prescribe drugs in line with STGs? YES 9 NO 9</b>						
<b>Row 3: Total cost of prescribed treatment (Total of column 6):</b>						
<b>Row 4: STG Cost:</b>						
<b>Row 5: % of STG Cost:</b>						

DUS-4: Use with indicators 6, 7, 10, and 12. Data collectors should not fill out shaded areas.

***Scenario for Simulated Purchases: Uncomplicated***

Present yourself as the caregiver of a 12-year-old girl who has had a fever on and off for a week. Use local terms to describe the symptoms of the child. Request advice regarding which products to give the child. Do not provide any additional information unless directly asked for more information. Purchase the drugs recommended by the retail drug seller and leave the shop.

If the drug seller asks these questions, reply as follows:

The condition of the girl: In addition to the fever the child has complained of a headache and aches and pains since last week. She has been feeling generally unwell for a week.

If the girl took medication: Say that she took a full course of chloroquine a week ago. The fever went away after this, but returned three days later.

Can the girl take food and/or liquids: Say she is able to take both liquids and food.

***Actions***

Notice and remember the following (you can ask the drug seller to repeat questions):

- C Whether the drug seller gave instructions on how to administer the medication
- C Whether the drug seller told you about the warnings associated with the product
- C Whether the drug seller gave other advice or information on how to care for the child and treat the fever episode
- C The name(s) of the product(s) recommended to purchase

This information should be written on data form DUS-4 after exiting and leaving the area, but before conducting the next simulated purchase.

## DUS-5: Simulated Patient Data Form

**This form is used for the indicators listed below:**

6. Percentage of encounters with patients diagnosed with uncomplicated malaria who are prescribed an antimalarial consistent with treatment guidelines
7. Percentage of encounters with patients diagnosed with uncomplicated malaria who are prescribed quantities of appropriate antimalarials sufficient to complete a full course of treatment
10. Average cost of drugs prescribed as a percentage of costs if STG norms for treatment were followed
12. Percentage of health workers and drug retail outlets that provided some information to patients/caregivers on how to give the recommended drug(s)

### Data Summary:

Where to Go	Whom to Ask	What to Get
MOH Health Facilities	Data collection is done as a simulation. Health workers should be unaware of the process so no permission is needed.	Determine the prescribing practice for a sample of 20 simulated purchases for malaria.  Determine the cost of treatment as prescribed in drug retail outlets.

### General Instructions for Filling Out Data Form

**Facility Name:** Write the name of the health facility in which the data are being collected.

**Data Collector Code:** Write your identification code. Codes will be assigned during data collector training.

**Location:** Write the name of the geographic location of the health facility, usually the name of a region, province, district, city, or town.

**Date:** Write the date on which you collect the data. At each facility, the data should be collected in one day, if possible.

**Currency Used:** Write in the currency used for the price data for the drugs purchased.

**One U.S. Dollar:** Write in the exchange rate for a U.S. dollar in the currency used.

### Instructions for Filling Out Form DUS-5

**For detailed instructions, see Scenario for Simulated Patient following the DUS-5 form.** This data form should be completed immediately after the simulated patient exercise. Doing so will facilitate remembering the interactions during the encounter. It will also help ensure that health workers do not realize that they are being evaluated.

### Which Drugs Were Prescribed by the Health Worker?

Record information on each drug prescribed during the simulated patient encounter. The name of each column on the data form is in **bold** below. The numbers correspond to the column numbers on the data form.

1. **Name, Strength, and Dosage Form:** Write the name, strength, and dosage form of each prescribed drug. Write the name of the drug that the health worker gives, for example, chloroquine (generic name) or Malaroquine (commercial name). Also, write in the strength of the drug prescribed by the health worker, for example, 150 mg. If strength is not mentioned, write *N/A* (not available) after the name of the medication. Write the dosage form of the prescribed drug, for example, tablet, liquid, ampoule, vial, etc. If the health worker does not mention dosage form, write *N/A* (not available). Use a new row for each drug prescribed. An example of a complete record is Fansidar 500mg/25mg tablet.
2. **Dosage Quantity:** For the quantity or unit of each drug prescribed, write exactly what the health worker prescribed. For example, 5 ml, 1 tablet, etc. Use a new row for each drug.
3. **Frequency:** For each drug prescribed, write the number of times a day that the health worker told you the dose was to be taken, for example, once a day, twice a day, three times a day, etc. If frequency is not mentioned, write *N/A* (not available) in Column 3. Use a new row for each drug.
4. **Duration of Treatment (days):** Write the number of days the prescribed drug is to be taken for a full course of treatment. Write exactly what the health worker

says. The duration could be expressed as 3 days, 7 days, etc. If duration is not mentioned, write *N/A* (not available) in Column 4. Use a new row for each drug.

5. **Administration:** For how to administer the drug, write exactly what the health worker says. Administration can be expressed as after meals, with water, etc. If administration instructions are not mentioned by the health worker, write *N/A* (*not available*) in Column 5.
6. **Price Paid:** For each drug prescribed by the health worker, record the selling price in the local drug retail outlet for the number of units prescribed.

<b>INSTRUCTIONS FOR TEAM MANAGER'S SECTIONS</b>
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The team manager for each data collection team will complete the shaded portions of form DUS-5 as follows:

**Column 7: Full Course Prescribed (Y/N/NA):** For each drug, write *YES* or *NO* to indicate whether enough was prescribed according to standard treatment guidelines for the patient to complete a full course of treatment. If a drug is prescribed that falls outside the guidelines for malaria then write *N/A*.

**Row 1: Did health worker provide some information on how to take the drugs?** For all the drugs recommended in Column 1, note if Column 2 through Column 5 (Dosage Quantity, Frequency, Duration of Treatment, and Administration) are filled out. If any of the information for Columns 2 through 5 is provided for the drug listed in Column 1, check *YES* in Row 1. Otherwise, check *NO* in Row 1.

**Row 2: Did the health worker prescribe drugs in line with STGs?** If the treatment given was consistent with STGs, check *YES* in Row 2. Otherwise, check *NO* in Row 2.

**Row 3: Total cost of prescribed treatment.** Total the price paid for each individual drug recorded in Column 6 and write result in Row 3.

**Row 4: STG Cost.** Write the cost if STGs were followed in Row 4. (To determine the STG cost, all costs should be based on the prices collected in the drug retail outlets on data collection form DUS-1. Ideally, the median price of all of the prices collected for a drug should be used for the calculations, which are based on the country's standard treatment for a disease.)



**Row 5:**     **% of STG Cost.** Calculate the cost of actual treatment as a percentage of STG treatment. This calculation is done by dividing Row 3 by Row 4 and multiplying by 100. For example, if Row 3 = \$4.50 and Row 4 = \$2.20, then the calculation would be:

$$\frac{4.50}{2.20} \times 100 = 205\%$$

2.20

**DUS-5: Simulated Patient Form for Uncomplicated Malaria [page 1 of 1]**

<b>Facility Name:</b>		<b>Data Collector Code:</b>	
<b>Location:</b>	<b>Date:</b>	<b>Currency Used:</b>	<b>One U.S. Dollar =</b>

For all drugs prescribed by the health worker, write the following information.

<b>Name, Strength, and Dosage Form</b>	<b>Dosage Quantity</b>	<b>Frequency</b>	<b>Duration of Treatment (days)</b>	<b>Administration</b>	<b>Price</b>	<b>Full Course Prescribed (Y/N/NA)</b>
<b>Col. 1</b>	<b>Col. 2</b>	<b>Col. 3</b>	<b>Col. 4</b>	<b>Col. 5</b>	<b>Col. 6</b>	<b>Col. 7</b>
<i>Fansidar</i>	<i>2 tablets</i>	<i>once</i>	<i>1 day</i>	<i>with food</i>	<i>0.12</i>	<i>Yes</i>
<b>Row 1: Did health worker provide some information on how to take the drugs? YES 9 NO 9</b>						
<b>Row 2: Did the health worker prescribe drugs in line with STGs? YES 9 NO 9</b>						
<b>Row 3: Total cost of prescribed treatment (Total of column 6):</b>						
<b>Row 4: STG Cost:</b>						
<b>Row 5: % of STG Cost:</b>						



**DUS-5: Use with indicators 6, 7, 10, and 12. Data collectors should not fill out shaded areas.**

**Scenario for Simulated Purchase: Uncomplicated Malaria**

Present yourself as the caregiver of a 12-year-old girl who has had a fever on and off for a week. Use local terms to describe the symptoms of the child. Request advice regarding which drugs to give the child. Do not provide any additional information unless directly asked for more information. Take any prescription written by the health worker, remember any advice and/or directions given, and leave the health facility.

If the health worker asks these questions, reply as follows:

The condition of the girl: In addition to the fever the child has complained of a headache and aches and pains since last week. She has been feeling generally unwell for a week.

If the girl took medication: Say that she took a full course of chloroquine a week ago. The fever went away after this, but returned three days later.

Can the girl take food and/or liquids: Say she is able to take both liquids and food.

**Actions**

Notice and remember the following (you can ask the health worker to repeat questions):

- C Whether the health worker gave instructions on how to administer the medication
- C Whether the health worker told you about the warnings associated with the product
- C Whether the health worker gave other advice or information on how to care for the child and treat the fever episode
- C The name(s) of the drug(s) prescribed

This information should be written on data form DUS-5 after exiting and leaving the area, but before conducting the next simulated patient exercise.

## Troubleshooting

### Drug Use Study: Illustrative Examples of Potential Problems and Possible Solutions

Potential Problems	Possible Solutions
Fewer than 30 medical records exist for malaria.	Collect as many records as available and build in a process of either asking the team leader for advice or going to a predetermined backup facility.
The specific diagnosis is not on the medical records.	Before beginning the review of patient records, the study team should meet with health facility managers and health workers to define a list of local terms or symptoms that are equivalent to malaria. This should be part of the process for testing the data instruments and methodology. The team should develop (and reach consensus on) a master list of possible symptoms that can be used to describe malaria. The list can help identify patient encounters for malaria.
In rural areas, insufficient numbers of drug retail outlets are near the sampled health facility.	Use proportional sampling, so that more sampled drug retail outlets are concentrated in urban areas.
Health facility managers are skeptical, or they resist the idea of someone observing medical consultations.	Sometimes having an “official government letter of authorization” may not be enough to gain the cooperation of managers. Also, talk to the managers about the study and point out its ultimate benefit to the country. Assure the manager that neither the names of staff nor patients will be used on the data forms and that the information collected will be shared with them.
Local drug retail outlet community has identified a data collector as a simulated purchaser.	Data collectors should do the simulated purchases as quickly as possible after they arrive in a particular geographic area. However, if word still gets out that surveyors are in town, change the time (or other logistics pattern) for purchases to be made, or switch the list of outlets with a team member.



### Drug Use Study: Illustrative Examples of Potential Problems and Possible Solutions (cont'd.)

Potential Problems	Potential Solutions
Data collectors do not have enough money to make the simulated purchases.	As part of testing the data instruments and the simulated purchases scenarios, estimate the cost of local products in drug retail outlets and factor the cost into the budget for local expenses by data collectors. Build in a process to reimburse data collectors for purchases that exceed the estimate. Make sure that reimbursement is contingent upon returning with the products and the receipt.
Prescribed drugs are recorded by brand names that are unfamiliar to the data collectors.	Information should be written on the data forms exactly as written in the patient encounter record, even if the terms are unfamiliar to the data collector. Data collectors should not use their own interpretations of the information.
Prescribed drugs are identified, but numbers of units are not.	The data needed for a particular patient encounter may not be in the same record source. Start with the patient register, then move to the medical records. If drug data are still missing, see if the facility has pharmacy or dispensing records. If all else fails, ask the staff, during the completion of the medical personnel questionnaire, how many units of each drug they would normally provide for a child of that age with the symptom(s) listed in the record. Then write this information on the form, but draw a circle around it. The circle means that information missing from the record came from an interview.
Data forms are incomplete and/or illegible.	Be sure to use pens, not pencils, to fill out the forms. They may be checked later, and your pay may depend upon the legibility and completeness of your forms.



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# **ANNEXESANNEXESANNEXES**

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## **ANNEX 1. ACCEPTABLE TERMS FOR DIAGNOSING MALARIA**

This annex should be used to record agreed-upon terms to look for in the medical records to indicate a case of malaria. It should be completed in consultation with the study organizer(s) prior to the start of data collection.

### **MALARIA:**



## **ANNEX 2. LIST OF EQUIVALENT DRUGS (BRAND AND GENERIC)**

This annex should be used to record the list of medications that are to be counted as antimalarials. This list should be completed in consultation with the study organizer(s) prior to the start of data collection. However, to avoid confusion or the need for interpretation by data collectors, all drugs prescribed should be transcribed exactly as listed in the patient record to the data collection forms.



### ANNEX 3. MEDICAL RECORD SELECTION

This form is intended to help data collectors keep track of the medical record selection process in each facility. Record the identifying code of each medical record selected. Select at least three medical records for malaria per month for the most recent 12 months prior to the time of the study. Start with the most recent full month and work backward (e.g., October 1998, September 1998, August 1998, etc.).

Facility Name:		Data Collector's Code:	
Month	Medical Record #	Month	Medical Record #
JANUARY _____		MAY _____	
FEBRUARY _____ —		JUNE _____	
MARCH _____		JULY _____	
APRIL _____		AUGUST _____	

**Medical Record Selection Form (cont'd.)**

Facility Name:		Data Collector's Code:	
Month	Medical Record #	Month	Medical Record #
SEPTEMBER_____		NOVEMBER_____	
OCTOBER_____		DECEMBER_____	

## **ANNEX 4. INDICATORS FOR WHICH DATA ARE COLLECTED**

### **Drug Availability**

1. Percentage of median international price paid for a set of DMM antimalarial drugs that were part of the last regular MOH procurement
2. Average percentage of a set of unexpired DMM antimalarial drugs available in (a) MOH storage and health facilities and (b) retail drug outlets
3. Average percentage of time out of stock for a set of DMM antimalarial drugs in MOH storage and health facilities
4. Average percentage of stock records that correspond with physical counts for a set of DMM antimalarial drugs in MOH storage and health facilities

### **Drug Use Study Indicators**

5. Percentage of MOH health facilities visited with a copy of official treatment guidelines for malaria
6. Percentage of encounters with patients diagnosed with uncomplicated malaria that are prescribed an antimalarial consistent with treatment guidelines
7. Percentage of encounters with patients diagnosed with uncomplicated malaria that are prescribed quantities of appropriate antimalarials sufficient to complete a full course of treatment
8. Percentage of prescribed antimalarial drugs actually dispensed by public health facilities
9. Percentage of cases where the quantity of antimalarial drugs dispensed by public health facilities was sufficient to complete a course of treatment
10. Average cost of drugs prescribed as a percentage of costs if STG norms for treatment were followed
11. Percentage of patients/caregivers who could correctly describe how to give the prescribed antimalarial medication

12. Percentage of health workers and drug retail outlets that provided [some] information to patients/caregivers on how to give the recommended drug(s)

**Supplemental Indicator**

13. Percentage of encounters with pregnant women living in endemic areas that are prescribed appropriate antimalarial prophylaxis at antenatal clinics