

**RPM Plus Regional Training-of-Trainers Course in Antimalarial
Quantification for East Africa, Nairobi, Kenya
September 19–23, 2005: Workshop Report**

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About RPM Plus

RPM Plus works in more than 20 developing countries to provide technical assistance to strengthen pharmaceutical and health commodity management systems. The program offers technical guidance and assists in strategy development and program implementation both in improving the availability of health commodities—pharmaceuticals, vaccines, supplies, and basic medical equipment—of assured quality for maternal and child health, HIV/AIDS, infectious diseases, and family planning and in promoting the appropriate use of health commodities in the public and private sectors.

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ACRONYMS

ACT	artemisinin-based combination therapy
AIDS	acquired immune deficiency syndrome
AQ	amodiaquine
ART-LUM	artemether-lumefantrine
CMS	Central Medical Stores
DOMC	Division of Malaria Control
DRC	Democratic Republic of Congo
EML	Essential Medicines List
HIV	human immunodeficiency virus
HMIS	health management information system
ICT	information communication technology
IPT	intermittent preventive treatment
M&E	monitoring and evaluation
MOH	Ministry of Health
MSH	Management Sciences for Health
PMIS	pharmaceutical management information system
QAM	quantification of antimalarials
RPM Plus	Rational Pharmaceutical Management Plus [Program]
SP	sulfadoxine-pyrimethamine
STG	standard treatment guidelines
TOT	training of trainers
VEN	vital, essential, nonessential
WHO	World Health Organization

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The authors acknowledge and express their appreciation to the Ministry of Health, Government of Kenya, for ably hosting the workshop and for the steadfast participation of the staff of the Kenya Medical Supplies Agency, Office of the Chief Pharmacist, and DOMC.

The authors would also like to thank MSH staff in Arlington, VA, who contributed immensely to planning and executing the course. Particular thanks go to Dr. Malick Diara and Ms. Rima Shretta of the RPM Plus Malaria Team for their significant contribution to workshop materials development and to Catherine Adegoke, RPM Plus consultant, for her conscientious technical inputs. The authors recognize the MSH RPM Plus Regional Office in Kenya for providing administrative support to the training course.

The authors acknowledge particularly the workshop participants who traveled to Nairobi to learn how to conduct training on quantification of antimalarials to overcome the challenges of quantifying antimalarials in the context of changing treatment policies. These participants include persons in charge of National Malaria Control Programs, Essential Drugs Programs, Central Medical Stores, and Pharmacy/Procurement and Supply units in the Ministries of Health in Burundi, Democratic Republic of Congo, Ethiopia, Kenya, Malawi, Rwanda, Tanzania, and Uganda.

Immense gratitude goes to the workshop interpreters who made it possible for the French-speaking participants attending the workshop to understand the proceedings.

EXECUTIVE SUMMARY

The Rational Pharmaceutical Management Plus (RPM Plus) Program of Management Sciences for Health (MSH), in an attempt to strengthen pharmaceutical management for better health, developed a regional training-of-trainers course to train program managers and pharmacists in the techniques of quantification for antimalarials. Because many countries in East Africa have changed their first-line treatment policies for malaria to artemisinin-based combination therapy (ACT), one of the major challenges is to ensure an uninterrupted supply of effective antimalarials for rational use in all health facilities. Meeting this supply need requires timely and accurate forecasts as well as correct quantification. Quantification is the process that involves estimating the quantities of a specific item needed for procurement for a specific period. Quantification also involves estimating the financial requirements needed to purchase the items. Good quantification¹ provides for appropriate allocations of the pharmaceutical budget and results in enough antimalarial medicine stock to meet the demand for different malaria control situations, including intermittent preventive treatment (IPT) and emergency and epidemic needs.

The Regional Training-of-Trainers Course, a five-day event held September 19–23, 2005, in Nairobi, Kenya, was designed to be highly participatory, thus providing an opportunity for the exchange of skills and experience among participants as an added dimension of the learning process. Attendees included Ministry of Health (MOH) staff from malaria control programs, essential medicines programs, Central Medical Stores, and pharmacy or procurement units in eight countries in the East African subregion: Burundi, Democratic Republic of Congo (DRC), Ethiopia, Kenya, Malawi, Rwanda, Tanzania, and Uganda. (Annex 2 contains a list of the participants; Annex 3 presents the agenda of the event.)

The Regional Training-of-Trainers Course consisted of two integrated, yet distinct, components: the quantification of antimalarials (QAM) and the training of trainers (TOT). Days 1–3 of the course focused on training participants to quantify antimalarial needs for their programs, and days 4–5 focused on training participants as trainers, a component designed to better prepare participants to provide training in antimalarial quantification.

The workshop sessions used a combination of the following methods—

- Presentations
- Discussions
- Group exercises

The workshop was conducted in English; however, for the benefit of participants from French-speaking countries in the region, simultaneous interpretation was provided to and from French during presentations, discussions, and group exercises.

Materials for the training course were developed by RPM Plus.

¹ Estimating needs within a given context includes the finances, human resources capacity, storage capacity, and capacity of the system to deliver services.

Evaluations of the regional workshop revealed that its immediate objectives were met. Evaluations also showed evidence of the readiness and ability of participants to extend the outcomes to national and sub national levels.

It is clear, however, that the expected effect of this workshop cannot be realized without serious attention being paid to the basic structural indices of country health care systems in the region. Data management and information systems are inadequate and, in some cases, virtually nonexistent. No country attending the workshop could attest to having a good database for either of the two more-comprehensive quantification methods—morbidity and consumption. Countries also complained of weak structural foundations affecting quantification within their health systems, such as managerial, financial, and personnel deficiencies. It is therefore important to reflect keenly on country reports provided in Annex 5 to this report to determine the similar and sometimes uniquely specific issues described. The aim should be to establish interventions to overcome the barriers to good, sustainable country-level quantification processes for antimalarials.

As a next step, MSH's RPM Plus Program will develop a plan for liaison with countries in the East African region and will provide technical assistance as required for effective and efficient quantification of antimalarials, thus consolidating the processes initiated at the meeting. In addition, opportunities for replication at country level of best practices documented at the workshop will be identified and implemented in three selected follow-up countries.

INTRODUCTION

Background

The RPM Plus Program of MSH, in collaboration with the Ministry of Health of the Republic of Kenya and the Malaria Action Coalition, held the Regional Training-of-Trainers Course in Antimalarial Quantification for East Africa in Nairobi, Kenya, from September 19 to 23, 2005. The USAID's Regional Economic Development Services Office for Eastern, Central, and Southern Africa funded the course. The course was implemented in collaboration with the Division of Malaria Control, Ministry of Health, Kenya.

The goal of the workshop was to increase the knowledge and awareness on quantification methods and practices of the participants from the eight countries represented of the East African subregion, and to train participants as trainers who would work to develop local capacity to quantify antimalarial requirements at the national and regional levels.

Rationale for the Workshop

Malaria is among the most important global health problems in Africa, accounting for more than a million deaths each year. About 90 percent of cases occur in tropical Africa, where malaria is the leading cause of mortality in children below the age of five years. A key component of the global malaria strategy is early diagnosis and treatment. In recent years, mounting resistance to commonly used pharmaceutical therapies, such as chloroquine and sulfadoxine-pyrimethamine (SP), has rendered them ineffective. As a result, the World Health Organization (WHO) recommends that all countries changing antimalarial treatment policies should change to ACTs.

Early diagnosis and treatment as well as the provision of effective antimalarials to all levels of the delivery target require that antimalarials be available in the right quantities and used appropriately at the right time. This requirement highlights the responsibility of pharmacists and program managers at all levels to ensure that an uninterrupted supply of antimalarials is available while minimizing waste and costs and ensuring the antimalarials are used rationally.

Quantification is the process that involves estimating the quantities of a specific item needed for procurement for a specific period. Quantification also involves the financial requirements needed to purchase the items. Good quantification provides for appropriate allocations of the pharmaceutical budget and results in enough antimalarial stock to meet the demand for different malaria control situations, including IPT and emergency or epidemic needs, but the knowledge and skills for quantification are largely unavailable or insufficient.

Therefore, in an attempt to strengthen pharmaceutical management for better health, MSH's RPM Plus Program has developed a regional course to train program managers and pharmacists in the techniques of quantification for malaria management. The current lack of capability within malaria programs to determine the appropriate method of quantification to use, as well as ways of meeting the big challenges faced by program managers in obtaining accurate and reliable data, was identified as an area of immediate intervention. Also vital is the need to train program

managers of malaria control programs and essential medicines programs to use objective methods to adjust quantities in accordance with often-limited budgets, as well as to design and implement successful monitoring and evaluation processes. The complexity of the quantification processes highlights the fundamental need for practical tools to ease the process of order planning and budgeting. Because the course was designed for trainers who would train other key stakeholders in their respective country programs, the transference of training skills, particularly for an adult audience, was also a key feature in the design of the workshop.

Objectives of the Training Course

The training course on antimalarial quantification was designed to enable participants to be able to—

- Discuss the context of changing antimalarial medicine policy and current recommendations for antimalarial treatment and prevention
- Discuss pharmaceutical management and the context and relevance of quantification with an emphasis on the quantification of antimalarial medicines and commodities
- Describe the four methods for quantification and select an appropriate method depending on context
- Describe how quantification of antimalarials is different from other quantification and apply assumptions unique to antimalarials and ACTs
- Calculate the estimated needs for antimalarial medicines and commodities, and the costs for procuring those antimalarials, using the consumption and morbidity method and data from their own countries
- Describe which indicators to use to monitor the effectiveness of quantification
- Discuss the use of tools to assist in the quantification process
- Describe the common barriers to learning and discuss teaching methods available to minimize those barriers
- Review and critique examples of training methods used in the antimalarial quantification training course
- Demonstrate the range of teaching and learning methods that are most appropriate for the antimalarial quantification course materials

Expected Outcomes of the Training Course

- Twenty-five trainers trained to conduct training on quantification of antimalarials
- Trainers exposed to the fundamentals of pharmaceutical management and the context and relevance of quantification, with an emphasis on the quantification of antimalarial medicines and commodities
- Trainers able to describe the four methods for quantification and select an appropriate method depending on context
- Trainers able to describe how quantification of antimalarials is different from other quantification and apply assumptions unique to antimalarials and ACTs
- Trainers able to calculate the estimated needs for antimalarial medicines and commodities, and the costs for procuring those antimalarials, using the consumption and morbidity method and data from their own countries
- Trainers able to describe indicators and their use for monitoring the effectiveness of quantification
- Trainers aware of existing tools to assist in the quantification process
- Trainers aware of the common barriers to learning and of the teaching methods available to minimize these barriers
- Review of training methods used in the Antimalarial Quantification training course
- Demonstration of the range of teaching and learning methods that are most appropriate for the Antimalarial Quantification course materials

METHODOLOGY

The Regional Training of Trainers Course was a five-day event designed to be highly participatory in order to provide an opportunity for the exchange of skills and experience among participants as an added dimension of the learning process. Days 1–3 of the course focused on training participants to quantify antimalarial needs for their programs, and days 4–5 focused on training participants as trainers, a component designed to better prepare participants to provide training in antimalarial quantification.

The workshop sessions used a combination of the following methods—

- Presentations
- Discussions
- Group exercises

The workshop was conducted in English and French; all materials had been previously translated into French and packaged for the French-speaking participants. The workshop presentations were projected simultaneously in English and French, and although the facilitators employed English as the primary language, simultaneous interpretation to and from French was provided during presentations, discussions, and group exercises.

Materials for the training course were developed by RPM Plus.

Outline of the Training Course

The Regional Training-of-Trainers Course consisted of two integrated, yet distinct, components—the QAM component and the TOT component. An overview of the sessions is detailed below. (Annex 3 presents the agenda.)

Quantification of Antimalarials Component (Days 1–3)

- Session 0. Course Overview and Objectives
- Session 1. Global and Regional Malaria Context
- Session 2. Introduction to Quantification
- Session 3. Methods for Estimation of Antimalarial Needs
- Session 4. Data Needed for Quantification
- Session 5. Quantifying of Antimalarials and Assumptions
- Session 6. Practical Applications of Quantification: Calculating Need
- Session 7. Estimating Costs of Procurement
- Session 8. Monitoring and Evaluation
- Session 9. Quantimed and Other Tools for Quantification

Training-of-Trainers Component (Days 4–5)

- Session 1. Introduction to Training of Trainers
- Session 2. Adult Learning
- Session 3. Teaching and Learning Methods
- Session 4. Role of the Teacher
- Session 5. Preliminary Course Preparation
- Session 6. Presentation Techniques
- Session 7. Workshop Facilitation: Tips for Trainers
- Session 8. Preparation for Workshop Facilitation Activities
- Session 9. Workshop Facilitation Practice Session
- Session 10. Plenary Session: TOT Summary

WORKSHOP PROCEEDINGS—QAM COMPONENT

The highlights of the plenary presentations of the QAM component are summarized below.

Session 0. Course Overview and Objectives

Presenter: Dr. Gladys Tetteh

- The purpose of the workshop was explained: to train trainers to develop capacity at the national and regional levels to quantify antimalarial requirements.
- The objectives of the workshop, as described earlier in the report, were highlighted.

Session 1. Global and Regional Malaria Context

Presenter: Dr. Gladys Tetteh

This session discussed the context of malaria globally and regionally. It also introduced the concept of the pharmaceutical management cycle and emphasized the relationships between the cycle components and the role of quantification within the cycle, particularly in the context of the shift from the use of monotherapies to combination therapies.

Presentation highlights included—

- Scope of the malaria problem, especially in Africa
- Challenges to antimalarial treatment
 - Growing parasite (*Plasmodium falciparum*) resistance to commonly used therapies
 - New medicines more expensive
 - Limited experience with new medicines
 - Widespread use of the private sector
 - Poor-quality and substandard medicines
- WHO recommendations for antimalarial treatment
 - All countries needing to change first-line treatments for *P. falciparum* malaria advised to change to ACTs
 - Therapeutic options currently recommended by WHO—
 - Artemether/lumefantrine (in fixed-dose combination)
 - Artesunate plus amodiaquine
 - Artesunate plus SP (in areas where SP efficacy remains high)
 - Artesunate plus mefloquine (in areas of low transmission)

- Reminders of the Abuja targets for Africa (by 2005)
- The pharmaceutical supply management system
- How new malaria policies affect quantification—
 - There is little experience with these new medicines.
 - There are no past data on consumption.
 - Different recommendations exist at different levels of the health system.
 - Implementation of new policies is either phased or implemented nationwide.
 - The push versus pull supply systems raise a number of issues.
 - Public sector versus private sector availability is a factor.
 - Availability influences health facility utilization.

Session 2. Introduction to Quantification

Presenter: Dr. Catherine Adegoke

This session introduced the purpose and rationale for antimalarial medicine quantification. It identified the problems that result from poor quantification and discussed effective coordination of resources to achieve effective management of medicines and commodities.

The presentation highlights included—

- Definition of *quantification* as—
 - A process that involves estimating quantities of a specific item needed for a procurement for a specific period of time and determining the financial requirements needed to purchase the items
 - Estimating needs within a given context: finances, human resources capacity, storage capacity, and the capacity to deliver services
- Exploration of the rationale for quantification
- Identification of the symptoms of poor quantification
- Description of the signs of good quantification
- Discussion of the periodicity, actors, and targets of the quantification processes
- Monitoring, coordination, and implementation of activities

Session 3. Methods for Estimation of Antimalarial Needs

Presenter: Dr. Catherine Adegoke

This session introduced the various methods of quantification and defined the principles underlying the choice and use of the various methods. This session also provided guidance on the selection of an appropriate method for quantification depending on the situational context, and it enumerated the different uses of quantification results.

The presentation highlights included—

- Description of the four methods of quantification—
 - Consumption-based
 - Morbidity-based
 - Adjusted consumption
 - Service-level extrapolation
- Applications, limitations, and comparison of the methods
 - Illustrations using various methods
 - Limitations of each of the four methods of quantification
 - Comparison of methods by use, data, limitations, and requirements
 - Comparison of results using morbidity and consumption methods results: resolving inconsistencies
- Definition of quantification concepts, such as total consumption in a period, average monthly consumption, adjusted monthly consumption, filling the supply pipeline, lead time, stock on order, safety stock, adjusting for losses and program growth, number of months' stock on hand

Session 4. Data Needed for Quantification

Presenter: Dr. Catherine Adegoke

This session discussed the types and sources of essential data for each of the methods of quantification as well the inherent limitations of the various types of data.

The presentation highlights included—

- Types of data needed for the different quantification methods
- Potential sources of the data

- Steps for data collection
- Limitations associated with the various types of data
- Coordination of data collection
 - Manual tools
 - Electronic tools
- Data processing
 - Manual tools
 - Electronic tools
- Data reporting
- Coordination mechanisms
- Coordination processes

Session 5. Quantification of Antimalarials and Assumptions

Presenter: Dr. Gladys Tetteh

The introduction of ACTs into malaria treatment policies has changed the quantification process for antimalarials. The quantification process requires the application of several assumptions. Furthermore, unique properties of malaria treatment and ACTs require other assumptions.

This session discussed the challenges to the quantification of antimalarials in the context of changing treatment policies as well as the assumptions that need to be made in the practical execution of the quantification process.

The presentation highlights included—

- Peculiarities of antimalarial medicines in general
- Peculiarities of ACTs in particular
- Peculiarities of ACTs that affect quantification
- Capacity of manufacturers to meet demand for ACTs
- Financing of ACT procurement
- Assumptions to be made when quantifying for procurement of antimalarial medicines
 - Making assumptions: basic principles

- Evaluating the quality of the data
- Evaluating the accuracy of the assumptions

Session 6. Practical Applications of Quantification: Calculating Need

Presenter: Mr. Francis Aboagye-Nyame

This session highlighted the steps in the practical execution of the quantification process and incorporated the hands-on use of sample data given to participants to calculate needs.

The presentation highlights included—

- The process of quantification
- Critical issues in quantification
- Calculation steps
 - Morbidity method
 - Consumption method
 - Adjusted-consumption method
- Group activity

Session 7. Estimating Costs of Procurement

Presenter: Mr. Francis Aboagye-Nyame

The plenary session was combined with exercises, and it explored the objective methods for adjusting quantities according to budgets in a limited-resource setting.

The determination of procurement costs is the final step in the quantification process.

ABC analysis (a method of classifying medicines by rate of use and cost within a health facility or system to understand the actual costs of the medicines and to analyze which supplies should be purchased) and the VEN (vital, essential, nonessential) analysis (which classifies medicines into three categories according to their health impact) were also explained and demonstrated.

The presentation highlights included—

- Sources of prices for antimalarial medicines
- Projecting costs
- Adjusting quantities
- ABC analysis
- VEN analysis

- Comparing prices: for example, public versus private sector and wholesale versus retail
- Free on board (FOB); cost, insurance, freight (CIF); and handling charges
- International price comparisons

Session 8. Monitoring and Evaluation

Presenter: Dr. Catherine Adegoke

This session discussed the importance of a structured approach to assessing the effects of the quantification of antimalarials.

The presentation highlights included—

- Definition of monitoring, evaluation, and assessments
- Characteristics of performance indicators: definition, use, characteristics
- Evaluation questions
- Indicators for monitoring systems: applications of indicator-based assessments
 - Input indicators
 - Process indicators
 - Output and outcome indicators
 - Impact indicators
- Monitoring methods
 - Routine reporting
 - Supervisory visits
 - Sentinel reporting
 - Special studies
- Illustration of the bad-data cycle
- Pharmaceutical management information system (PMIS)
 - Common deficiencies in a functioning PMIS
 - Documents that form the PMIS
 - Record-keeping documents
 - Data reporting forms
 - Acquisition and issue vouchers to document stock transfers and periodic status reports

- Feedback reports status and analytical reports
- Procedures for collecting and distributing data and reports

Session 9. Quantimed and Other Tools for Quantification

Presenter: Mr. Francis Aboagye-Nyame

A number of practical tools have been designed by various organizations to ease the process of order planning and budgeting. These computerized quantification tools allow health planners, directors of essential medicines programs, and malaria control program managers to calculate pharmaceutical and product needs.

This session introduced Quantimed, an MSH-developed tool used to facilitate the task of manipulating large numbers of medicines and calculating the costs and quantities needed. This software program estimates medicine, medical supply, and laboratory material requirements based on past consumption and morbidity and treatment patterns; and enables a comparison of results between these methods.

The presentation highlights included—

- Description of Quantimed, including applications and features
- The design of Quantimed to facilitate and improve the order, planning, and budgeting processes
- Quantimed applications
 - What Quantimed can do
 - Limitations of Quantimed and similar tools
- Other tools available
 - Roll Back Malaria Costing Tool
 - Others
- Quantimed demonstration
 - A demonstration of the Quantimed tool was incorporated into this session. During this demonstration, participant groups were guided through computer installation of the tool and its use.
 - Quantimed was evaluated by the participants, and the evaluation results are provided in Annex 4.

WORKSHOP PROCEEDINGS—TOT COMPONENT

The highlights of the plenary presentations of the TOT component are summarized below.

Session 1. Introduction to the Training of Trainers

Presenter: Dr. Ross Holland

The goal of the two-day TOT program was to strengthen the capacity of the participants to facilitate an antimalarial quantification course successfully.

The presentation highlights included—

- Barriers to learning
- Characteristics of the adult learner
- Teaching and learning methods
- Communication and presentation skills
- Antimalarial quantification course
- Evaluation and assessment
- Teaching and learning: focus on participatory learning and active methods, including—
 - Group work
 - Discussions
 - Brainstorming
 - Role-playing
 - Case studies
 - Presentations

Session 2. Adult Learning

Presenter: Dr. Ross Holland

The objective of this session was to enable participants to describe the characteristics of positive and negative learning experiences, describe the characteristics of an adult learner, and identify common barriers to learning.

The presentation highlights included—

- Characteristics of positive and negative learning experiences
- Implications of those experiences
- The characteristics of an adult learner
- Common barriers to learning: physical, attitudinal, emotional
- Establishing a structure for adult learning
 - Setting a climate for learning
 - Assessing the interests, needs, and values of the learners
 - Formulating objectives
 - Designing learning activities
 - Implementing learning activities
 - Evaluating the results

Session 3. Teaching and Learning Methods

Presenter: Dr. Ross Holland

The objective of this session was to enable participants to analyze the relative merits of a variety of teaching and learning experiences as well as to describe where different methods are most appropriately used for developing knowledge, skills, and attitudes.

The presentation highlights included—

- Review of teaching and learning methods: lectures, whole group discussion, small group discussion, brainstorming, demonstration, role-playing, case studies, simulation exercises, games
- Dale’s Learning Pyramid (illustration of effectiveness of various teaching methods)

Session 4. Role of the Teacher

Presenter: Dr. Ross Holland

The objective of this session was to enable participants to describe the varied roles of a teacher as a group leader; as a planner; as a group member; as having a maintenance role; and as audience, learner, role model, and communicator.

The presentation highlights included the exploration of the roles of the teacher as—

- Facilitator
- Human resources developer
- Trainer
- Tutor
- Change agent

Session 5. Preliminary Course Preparation

Presenter: Dr. Ross Holland

The objective of this session was to enable participants to develop and use a checklist to review logistics arrangements for a workshop.

The presentation highlights included a group exercise that listed logistics problems that should be addressed in preparing for a workshop, using the following subject matter areas—

- Materials
- Support
- Administration

Session 6. Presentation Techniques

Presenter: Dr. Ross Holland

The objective of this session was to enable participants to identify and discuss issues associated with making a presentation, discuss how to prepare for an oral presentation, and give examples of helpful hints for improving presentation techniques.

The presentation highlights included—

- Features of a good presentation
- Characteristics of effective oral presentations
- What to determine before starting to prepare presentations—
 - Who your audience will be
 - What your presentation is trying to accomplish
 - What your presentation space will be
 - What your method will be: formal or informal, lecture style or interactive
- Preparing for your presentation: content
- Keeping the audience engaged

- Importance of being well prepared
- Planning for the worst
- Making the presentation: some general tips

Session 7. Workshop Facilitation: Tips for Trainers

Presenter: Dr. Ross Holland

The objective of this session was to enable participants to outline the actions and activities that help facilitate a successful workshop, and describe and discuss practical tips for workshop facilitation.

The presentation highlights included—

- Why workshops?
 - Instruction can be performance based.
 - Active participation increases learning.
 - Individualized instruction increases learning.
 - Immediate feedback increases learning.
 - Workshops allow for variety in teaching methods.
 - Workshops provide potential for positive reinforcement and motivation.
- Types of activities include—
 - Mini-presentation
 - Whole group discussion
 - Small group discussion
 - Two-person discussion
 - Role-playing
 - Simulation
 - Case studies
 - Video
- How to set up the training
 - Working with small groups
 - Using teaching aids
 - Using questions
 - Leading role-playing
 - Developing facilitation skills

Session 8. Preparation for Workshop Facilitation Activities

Presenter: Dr. Ross Holland

The objective of this session was to enable participants to identify the presentation and workshop techniques appropriate to each session of the antimalarial quantification course.

The presentation highlights included—

- Review of the outline and content of the antimalarial quantification course
- Identification of presentation and workshop facilitation techniques appropriate to each session of the quantification course
- Allocation of tasks for the practice sessions

Session 9. Workshop Facilitation Practice Sessions

Presenter: Dr. Ross Holland

The objectives of this session were to enable participants to demonstrate a degree of proficiency in making a short presentation on topics in the antimalarial quantification course and to demonstrate the application of facilitation skills to conduct a section of the antimalarial quantification course.

The presentation highlights included country group and individual practice at facilitating antimalarial quantification training sessions (see Annex 6 for country and case groupings).

Session 10. Plenary Session: TOT Summary

Presenter: Dr. Ross Holland

The objectives of this end-of-workshop session were to—

- Summarize the TOT workshop activities
- Complete the end-of-TOT self-assessment (Annex 7)
- Complete the TOT evaluation form

WORKSHOP PROCEEDINGS—PERTINENT ISSUES AND RESOLUTIONS

No.	Issue	Query	Plenary Resolution
1	Distribution of antimalarial medicines	The objectives of this workshop are focused on quantifying antimalarials for countries—what about the important issue of how the medicines get distributed to the patients?	This workshop is addressing quantification because of the urgency in getting countries to grasp the elements and processes of quantification in order to stem the delay in country ordering of ACTs to begin implementation of their policies. This concentration on quantification is not intended to downplay the other components of the pharmaceutical management cycle. In this regard, a comprehensive course on all the elements of pharmaceutical management (including distribution) is being organized by RPM Plus and is scheduled for November 2005.
2	MSH support to countries	The plans for follow-up after the workshop by RPM Plus are appreciated. Follow-up might be easier to do in countries with MSH offices; how easy will it be in countries that have no MSH offices?	MSH offices do exist in some of the countries represented at the workshop; however, the MSH regional office located in Kenya is responsible for supporting malaria control programs throughout the region in pharmaceutical management.
3	Quantification terms	What is the difference between <i>procurement</i> lead time and <i>supplier</i> lead time?	<i>Procurement</i> lead time takes into account the entire process and time for acquiring selected medicines, which includes the quantification, ordering, and receipt of medicines, along with the necessary official and financial ordering and clearing processes. <i>Supplier</i> lead time, in contrast, is limited to the period between when the definite order is given to the supplier and when the goods arrive in the country.
4		What is the difference between <i>buffer stock</i> and <i>safety stock</i> ?	<i>Safety stock</i> is a regular component of inventory management, for a particular level of health system that takes into account the regular schedule of supply and resupply of an inventory system to prevent stock-outs. <i>Buffer stock</i> is stock added to the inventory to take care of anticipated disruptions in inventory caused by heightened seasonal demands and anticipated logistics or other supply problems.

No.	Issue	Query	Plenary Resolution
5	Inventory management	Are consumption records from Central Medical Stores (CMS) dependable for quantification calculations?	More often than not, because of the complexity and expense of collecting and collating consumption data from the lower levels, this source remains the immediate viable option. However, it can be a dependable source only if stock levels over time have been good, if monitoring of the supplies at the lower levels has been continuous over time to make sure there is adequate correlation with demand and use, and if the data collected from the pipelines have been accurately kept and collated over time.
6		How do we ensure that the figures obtained for time out of stock are dependable?	To ensure dependable out-of-stock figures, it is necessary to encourage the requisition of goods according to needs, rather than as a response to availability. It is also necessary to monitor requisition and supplies to avoid the distortion of demand and hoarding.
7		How long a period is best for the review of consumption records?	<p>In general terms, the longer review period, the better—typically 12 months, but always a minimum of 6 months. The full 12 months is imperative when a seasonal variation exists in malaria occurrence.</p> <p>However, there are occasions when we need to use the immediate preceding 6 months. Examples of this are when we believe that this period presents a more realistic figure based on stock and usage levels, and when there has been a definite shift in the consumption pattern over the months preceding the review period, such as when the program is scaling up rapidly.</p>
8		When and where do we actually determine the days when products are out of stock? If the CMS records no stock to give out, it does not mean that the stores in the pipelines are not full of stock.	A reference needs to be determined where the quantification is being done. If quantification is being done at the CMS level, then products are out of stock when the CMS has no more stock to issue, even if there are physical goods in the store that have already been allocated to some facilities and have thus been deleted from available stock figures.

No.	Issue	Query	Plenary Resolution
9	Inventory management (continued)	Some stores practice the system of rationing stock when there is not likely to be enough of such stock for subsequent requests. This practice might make it impossible to trace the actual time that goods are out of stock.	The figures for out-of-stock commodities always need to be linked with demand figures. On a note of caution, we might also need to consider the effect of bureaucratic procedures, such as delays in approval, and slashing of numbers on the actual demand figures, because these factors have the potential of distorting the demand.
10		Are consumption records not ideally obtained from the hospitals?	The ideal consumption figures are those collated from the medicines dispensed to patients, but we may not always be able to obtain this figure; therefore we adjust for it. There are always some assumptions in consumption records.
11	Data management at lower levels	How do we ensure proper data management by the lower facilities, even when they have been given the necessary data collection tools?	<p>It is important not only that the data managers at lower levels learn how to collect data, but also that they learn how to collate them and do some primary analyses before forwarding these data up the chain. The managers also need to give immediate feedback to the primary health care facilities from where the data originated.</p> <p>At this point in the data management chain, lower-level data managers have the vantage point of contextual interpretation of data, which may be lost as the data become far removed from the immediate origin.</p>
12	Adverse drug reactions	To be able to feed data into quantification for second-line treatments, do countries need to start progressive monitoring of the side effects of the first-line medicines?	It is important that the monitoring of these side effects be carried out from the onset to help determine what population percentages may be expected to be placed on second-line treatment because of adverse reactions to the first-line medicines.

No.	Issue	Query	Plenary Resolution
13	Standard treatment guidelines (STGs)	Do we need to have different STGs for each health-system level?	Some countries have one national STG across the board, but others have a simplified version for the lower levels, for example, for the treatment of severe malaria, in which case the lower level facility may be required to start temporary management and then refer. These STGs need to be checked at country level to make sure that they slot in with other regulations; for example, if regulations exist against the use of intravenous treatment by staff at a health post with no doctor, a policy cannot recommend the use of intravenous quinine at that same level of health care.
14	Second-line treatment	Would a pregnant woman's inability to use ACT in the first trimester put her in the population being considered for second-line treatment during quantification?	Pregnant women are already a special population with their own quantification indices. A determination of the percentage of the population likely to be pregnant should be determined, and the quantification should be done for the medication recommended during the first, second, and third trimester by the policy.
15	Private sector involvement	Why should monitoring be performed for private-level usage of antimalarial medicines when that sector has no means of importing the medicines into the country? <i>(question from Ethiopia)</i>	In Ethiopia, there are strict laws on private sector importation, but some other countries do not have quite as strict policies that forbid the private sector from importation. The important issue is that every sector has to abide by the WHO guidelines on precertified suppliers. On this note, a lot of effort is being made to increase the pool of certified suppliers for ACTs.
16		The private sector has been involved in the use of monotherapies and has been able to win the confidence of the general population. How do we go forward with the public sector now quantifying for the private sector?	With the WHO-Novartis agreement, country governments may sanction the ordering of ACTs by the private sector in the country. However, the whole process has to be guided by firm decisions at the policy level, including whether or not to accredit the private sector for distribution of ACTs and what the cost to the beneficiary will be. This policy is entirely up to countries to buy into or not.
17	Quantification process	Can the formula for calculating quantities to be ordered be used for all levels of the health facilities?	Yes, the formula is applicable throughout. However, the units of the medicines might change to reflect the lower quantities needed at the primary health care level.

Workshop Proceedings—Pertinent Issues and Resolutions

No.	Issue	Query	Plenary Resolution
18	Quantification process (continued)	Is the 5 percent factor representing change of utilization a standard value, or can it be varied?	It is just a guide; the figure used should reflect the country's situation—changes in policy, changes in medicine availability, changes in malaria incidences or prevalence, changes in facility use, and other historical facts that will support the figures adopted should be used to determine the appropriate value to use.
19		The utilization adjustment time is a contentious issue between the CMS and the program managers because the CMS has to be very careful to justify all these figures because it would rather not hold finances as commodities in the stores.	The CMS and program managers have to dialogue and arrive at a definite adjustment with consensus based on principles that are elaborated in the entire quantification process as well as country situations and realities.
20	Budgeting for antimalarial commodities	What happens when there is a price change of any of the medicines?	A price change is an inevitable budget change, so there is need to immediately adjust quantification figures to reflect the purchase. Another type of change that calls for immediate adjustment is when foreign exchange rates change (when the orders are to be made in foreign currency).
21	Pricing of ACTs	Why are countries obtaining medicines at different prices?	Prices obtained for medicines are the results of policy and regulatory processes within the country, which may differ from country to country. Also, there are important issues of negotiating abilities, which need to be further addressed by individual countries and together as a subregion.
22	Monitoring and evaluation	Is there a need to assemble regional indicators for monitoring and evaluation of malarial control activities, especially for pharmaceutical quantification?	It is important that we address this need and establish these indicators as soon as possible because they allow self-monitoring as well as maintain objective indices for assessment of regional programs. The institutionalization of the regional indicators does not preclude individual countries from assembling their own additional country-specific indicators.
23		Do special studies fit into the monitoring concept or evaluation concept?	When monitoring is understood in the context of continuous inputs to add up to the evaluation process, these studies may be viewed essentially as monitoring, because they usually address only specific aspects of the entire process.

No.	Issue	Query	Plenary Resolution
24	Quantimed	Quantimed can be used only when good data exist, so are we saying that the tool cannot be used in African countries, since they do not generally have good data?	The process of ideal quantification will always involve having as accurate and complete a data set as possible, regardless of whether the system is manual or computer based. It is therefore better to look for ways to improve the data management and information systems in every country.
25		What is the difference between proxy consumption as shown in the Quantimed tool and the term we have been using—adjusted consumption?	Proxy data are data obtained from one system that are ascribed to another. In most cases, when these proxy figures cannot be directly applied, this process will involve making adjustments, hence the term adjusted consumption.

WORKSHOP PROCEEDINGS—CHALLENGES TO COUNTRY IMPLEMENTATION OF ANTIMALARIAL QUANTIFICATION

Comments and ensuing discussion during both plenary and group work highlighted some contextual factors that are very significant to the success or otherwise of country quantification processes. These comments were consolidated into this report for the purposes of documentation as the current baseline, as well as to draw out the processes for appropriate intervention.

No.	Issue	Challenges	Recommendations
1	Data management	Insufficient and unreliable data exist on countrywide malaria epidemiology morbidity and mortality (incidence, prevalence) as well as antimalarial medicine consumption.	<ul style="list-style-type: none"> • Surveillance activities should be intensified. • Computerization of surveillance data should be achieved. • National surveys on malaria incidence and prevalence should be conducted periodically. • Situational analysis with respect to data needs should be achieved.
		Data collection and management Data are not always completed/collected and there is poor use of data collection tools. There is an unacceptable inaccuracy of data as well as untimely reporting. There is always missing data on some indicators during assessments.	<ul style="list-style-type: none"> • Country programs need to strengthen proper recording and reporting systems with strict follow-up. • Training and motivation should be instituted in-country so as to achieve better data collection. • Follow-up and strengthening of data management are required
		Data preparation/communication Communication of data is poor and inconsistent.	<ul style="list-style-type: none"> • Build capacity at all levels of the data management system. • Establish an effective health management information system.
		Database and reporting system Several data collection and reporting systems exist.	<ul style="list-style-type: none"> • Streamline reporting requirements so that facilities are not overburdened.
		Inadequate tools for quantification	<ul style="list-style-type: none"> • Develop an integrated database for collecting and analyzing data.

No.	Issue	Challenges	Recommendations
2	Human resources	Insufficient trained and skilled personnel on pharmaceutical quantification at all levels of the health system <ul style="list-style-type: none"> • Insufficient personnel number and stability • Inadequate personnel management skill • Insufficient logistics • Inexperience in quantification 	Programs should integrate training on pharmaceutical management and quantification in the general content of training on malaria. <ul style="list-style-type: none"> • Hire and stabilize skilled personnel • Training in rational medicine use • Provide missing logistics • Training required • Capacity building
		Inappropriate deployment of personnel	Recruitment and deployment of personnel
3	Pharmaceutical regulation at country level	Poor operational database and capacity for antimalarial drug regulation	Countries should institutionalize capacity building in pharmaceutical regulation.
4	Awareness/ knowledge of quantification issues	Lack of awareness and knowledge of quantification processes	Training in quantification should be conducted at all levels within country health care systems.
5	Coordination/ partnership	Poor coordination between departments and stakeholders	Strengthening of coordination should occur, for example, by establishing task forces.
6	Information communication technology (ICT)	Lack of equipment Scarcity of funds Lack of skilled personnel	Training Lobbying for ICT
7	Essential medicine lists (EMLs) and STGs	Long overdue for revision	Review EMLs Review and publish new STGs
8	Resources availability	Demand does not correlate to supply because of shortage of financial resources (it is frustrating to closely estimate when the requirements will always be trimmed).	All stakeholders should be briefed on importance of accurate quantification and budget alignments to effect requirements.
	Financial constraints	Limited resources lead to inability to meet medicine requirements as well as inability to develop appropriate tools. It also translates to the inability of countries to hire and train health workers.	Improve allocation to the health sectors.
9	Malaria policy	Policies are not well enacted or disseminated to stakeholders.	Policies should be finalized and disseminated among all the relevant in-country stakeholders.
10	Supply pipeline	Supply pipelines are unreliable because of infrastructure and logistics problems.	Strengthening of the health infrastructure system and negotiations with primary suppliers should be achieved.

RECOMMENDATIONS

The participants attending the Regional Training-of-Trainers Course in Antimalarial Quantification made the following recommendations, which are grouped according to the major issues identified.

Policy Thrusts for Antimalarial Pharmaceutical Quantification and Management

Countries should be encouraged to put in place a clear and firm policy on pharmaceutical management to ensure quality of medicine storage, distribution, and use. These policies should advocate for the usefulness of good quantification.

- A review by countries of the quantification of antimalarials in light of the new malarial treatment policies should be achieved, and health systems should accord a leading role to the quantification and forecasting of antimalarials as part of implementation of new ACT policies.
- A mechanism to add value to the already existing quantification process needs to be created.

Team Building

- It is vital that the processes for quantification of antimalarials be structured to involve all stakeholders and partners. Subgroups of stakeholder task forces convened for changing malaria treatment policies could be used to achieve proper quantification for antimalarials. Private sector involvement is important.

Data Management

- Countries have noted a real need to have reliable and readily available data at all levels, including community-based health facility management information systems to enable accurate quantification. Ways of improving the methods of data collection and management should be designed; otherwise, the quantification exercise will be useless and misleading.
- Great need exists in all the countries attending the workshop for technical assistance in putting in place a proper data collection tool and system. It is recommended that this need be filled.
- Regional indicators for monitoring and evaluation of malarial control activities, especially for medicine quantification, should be established.

Training Cascades

A cascade of training on quantification of antimalarials should be rolled out immediately by the participant countries to implement the lessons of the quantification workshop. This training will involve the following—

- Training of trainers at the national level who will constitute the national training core team. This team will conduct zonal training of trainers.
- Zonal trainers will subsequently conduct training of health workers responsible for the management of medicines and supplies in health facilities and of the different cadres of the warehouse personnel.
- Additional training programs on quantification at the facility level should be held so that pharmacy staff and others responsible for pharmaceutical management can gain experience in quantifying antimalarials at their levels.
- MSH should provide feedback on the planned training activities.

Follow-up Plans

- MSH needs to actualize its promise to follow up workshop participants while they train others and put in place efficient quantification processes for their countries.
- The knowledge and the skills that have been acquired from the Regional Training-of-Trainers Course in Antimalarial Quantification are very essential and important. It is recommended that this training be extended to other African countries that have not yet benefited from the training.
- MSH/RPM Plus should begin immediately to implement the organization and preparation of a framework to follow up issues of antimalarial quantification in the region at national and sub national levels.

Financial Support for Programs

- As additional follow-up to the workshop, MSH should consider financial support in terms of equipment and materials to countries to carry out training workshops in their countries. Partners and donors should also consider the need to give financial support to institutional infrastructure and human resources strengthening, especially at the lower levels of implementation.
- Financial and other required resources should be mobilized in a timely way.

Monitoring and Evaluation

- M&E systems should be developed, based on the objectives and indicators of the Malaria Control Program, for the Central Medical Stores and the departments in charge of malaria medicines.
- Developing and setting up management tools for antimalarial medicines should be a high priority.
- Training on M&E at all levels in the area of quantification and management of antimalarial medicines should commence as soon as possible.
- All monitoring and evaluation of the processes of quantification and antimalarial use in each country should be documented and reported on.
- MSH should follow up with countries at least six months to one year after trainings to see how the training is being applied to quantification of antimalarials. MSH facilitators should follow up with countries to ensure that the antimalarial quantification is done through—
 - Field visit and supervision
 - Quarterly meeting and evaluation

Technical Assistance

- MSH/RPM Plus and other partners should provide technical and financial assistance to countries in order to develop and implement an effective participation system adapted to country realities (national procurement, management, and distribution systems).
- MSH/RPM Plus and other partners should provide technical support to the antimalarial medicine quantification process in countries.
- For those participants who have been trained, technical assistance in the form of expertise and financial aid are required to conduct cascade trainings.

Feedback Systems

- Countries should provide regular feedback to MSH/RPM Plus on all activities related to quantification and related constraints.

Regional Communication System

- It is important that countries share experiences with other country programs.
- Participants should keep the lines of communication open with each other and with the MSH facilitators.

Pharmaceutical Supply Management Workshop

- To effectively position the quantification process, there should be training on other aspects of the pharmaceutical management cycle.
- MSH and its partners are to continue with efforts to train pharmaceutical supply managers.
- Training should also focus on other elements of supply chain, for example, logistics management.

Recommendations for Future Quantification Workshop Organization

- Representatives from the following areas should be notified about workshops—
 - Ministry of Health (MOH)—pharmacy department
 - CMS
 - Malaria Control Program
- The representatives from those three areas should be asked to team up to prepare the country information/data before coming for the workshop so they can it with other participants.
- It is vital that a situational analysis be conducted on the problems and challenges of quantification of antimalarials, which include data on consumption and morbidity as well as the commodity distribution systems.
- It is important that experiences across the region continue be shared during these workshops.
- To allow the participants to assimilate technical quantification of antimalarials, RPM Plus should organize a session on management of medicines next time with the participants in the hosting country.
- The quantification methods taught in the workshop come with many assumptions and limitations, which makes them very theoretical. So, it would be convincing and profitable for the workshop if actual examples are given to see whether these actual quantification figures do really reflect the actual needs of a particular country.

- There should be better time management to reduce the length of presentations in order to allow for better concentration. Evaluation forms should be given out early in the day rather than at the end of the day.
- There should be time at the end of the workshop to prepare a plan of action outlining what countries intend to do in conducting training workshops when they go back to their countries.

Quantimed

- To institutionalize Quantimed, it is advisable that countries, in collaboration with RPM Plus, design and execute the Quantimed training individually.
- MSH should develop and improve Quantimed to be useful at health facility level to help in data collection.

CONCLUSION AND NEXT STEPS

As many countries in the East Africa region prepare to implement the change of their first-line treatment policies for malaria to ACT, one of the major challenges is to ensure an uninterrupted supply of effective antimalarials for rational use in all health facilities. Such a supply necessitates timely and accurate forecasts and correct quantification to enhance regional security of the commodities.

Participation in the Regional Training-of-Trainers Course in Antimalarial Quantification held in Nairobi, Kenya, from September 19 to 23, 2005, by representatives of eight countries in the East Africa subregion (Burundi, Democratic Republic of Congo, Ethiopia, Kenya, Malawi, Rwanda, Tanzania, and Uganda) is a major step in achieving these objectives. The workshop combined the technical component of antimalarial quantification with a training-of-trainers component to ensure the cascading delivery of the technical knowledge acquired at the workshop to the individual country level.

Participant evaluations of the regional workshop (both quantitative and qualitative for each of the two workshop components—QAM and TOT) are as detailed in Annex 4. The feedback from the individual sessions as well as the consolidated evaluation of the workshop as a whole revealed that the immediate objectives of the regional TOT workshop were met. They also showed the readiness and ability of participants to extend the outcomes to national and subnational levels.

It is clear, however, that the expected effect of this workshop cannot be realized without paying serious attention to the basic structural indices of country health care systems in the region. Data management and information systems are inadequate and, in some cases, virtually nonexistent. No country attending the workshop could attest to having a good database for either of the two more-comprehensive quantification methods—morbidity and consumption. Countries also complained of weak structural foundations within their health systems affecting quantification, such as managerial, financial, and personnel deficiencies. It is therefore important to reflect on country reports and their similar and sometimes uniquely specific issues provided in Annex 5 with the aim of unraveling the endemic contextual factors. This action is vital if good country (and regional) quantification of antimalarial commodities is to be a possibility.

As a major next step, MSH/RPM Plus will develop a plan for liaison with countries in the subregion and will provide technical assistance as required for effective and efficient quantification of antimalarials, thus consolidating the processes initiated at the meeting.

In addition, opportunities for replication of best practices documented at the workshop and country level will be identified and implemented in three selected follow-up countries.

The immediate next steps identified from this Regional Training-of-Trainers Course in Antimalarial Quantification therefore include—

1. Developing a comprehensive plan for technical assistance support for quantification for countries in the subregion. This plan will be based on the needs identified during the workshop and will detail support to selected countries to conduct a training of trainers to expand the number of core country trainers in quantification of antimalarial medicines as well as support to cascade training in quantification of antimalarials. The plan will also aim at taking stock of the antimalarials available in countries and providing support in country quantification of antimalarials to be purchased for 2006. It will also address ways of improving methods of data collection and management.
2. Exploring the feasibility of developing regional indicators for monitoring and evaluation of malarial control activities, especially for pharmaceutical management of malaria including quantification.
3. Planning for country-specific training on the Quantimed software and installation in conjunction with countries. This step will include discussions on country capacity to secure technical and financial support for the application of Quantimed.

**ANNEX 1. COUNTRY-SPECIFIC TECHNICAL ASSISTANCE REQUESTS
FOR QUANTIFICATION AND RELATED ISSUES**

	Challenges	Technical Assistance Required	Expected Time of Commencement
BURUNDI			
1	Human resources capacity building	Support for TOT at provincial level on quantification	May 2006
2	Capacity building and logistical support	Support for quantification with Quantimed tool	May 2006
3	Develop database	Support to development and implementation	June 2006
4	Issues of data collection tools use	Training on use of data collection tools	April 2006
5	Issues of data collection methodology	Training on appropriate methodology of data collection	April 2006
DEMOCRATIC REPUBLIC OF CONGO			
1	Operational database on antimalarial medicine management	Institutional capacity building for pharmaceutical regulation	November 2005
2	Train health workers on quantification and general antimalarial medicine management	Technical and logistical assistance for training	October 2005 (*)
3	Develop and implement national pharmacovigilance system	Technical and logistical assistance	January 2006
ETHIOPIA			
1	Lack of awareness on the importance of proper quantification of antimalarials	Assigning a national antimalarial supply officer	January 2006
2	Lack of knowledge and practice in quantification of antimalarials, especially at health facility level	Training for program managers and supply officer	February, May, and August 2006
3	Antimalarial pharmaceutical supply management assessment	Conduct a national survey and make recommendation for improvement	March 2006

(*) Integrate with the current training process on malaria prevention and case management.

	Challenges	Technical Assistance Required	Expected Time of Commencement
KENYA			
1	Record keeping at the health facilities is often haphazard and incomplete	Developing simple and easy-to-fill record form for all levels	January 2006
2	Use of computerized quantification software Quantimed in Kenya	Training on application of Quantimed software and introduction of the same in the malaria program in Kenya	June 2006
3	Data management	Training on better data management at all levels	January 2006
4	Rolling down the TOT to lower levels and lower cadres	Financial support Simple teaching material that is easy to understand for Kenya	November 2005
5	Integrating training of all personnel involved in pharmaceutical management	Staff to use in rolling out	March–April 2006
MALAWI			
1	Malaria medicine and treatment currently under review	None	To be advised
2	Collection of quality data	Improvement of the existing health management information system	As soon as possible
3	Training in medicine quantification	Training on Quantimed	First quarter 2006
RWANDA			
1	Lack of personnel trained in Quantimed	Training of personnel involved in quantification	December 2005
2	Lack of proper data collection system	Elaboration of standard operational procedures for data collection Implementation of the proper data collection system	February 2006 April 2006
3	Lack of trained personnel in quantification	One person for technical assistance during training at district level	March 2006
4	Lack of proper monitoring and evaluation system	Technical advice where needed	October 2006
TANZANIA			
1	Lack of funds for quantification training	Provide financial and technical support to conduct quantification training	November/December 2005
2	Lack of quantification software	Provide Quantimed, including different training software	November/December 2005
3	Tools for data collection on medicines and supplies quantification	Provide technical assistance in the development of appropriate tools	January/March 2006

Annex 1. Country-Specific Technical Assistance Requests for Quantification and Related Issues

	Challenges	Technical Assistance Required	Expected Time of Commencement
UGANDA			
1	Reliable data	Strengthening management information system	There is already a technical assistance with Danida
2	Uncoordinated and parallel procurement	Integrated procurement mechanism	July 2006
3	District capacity to quantify medicines is limited	Strengthening capacity of district in management of medicine supply	January 2006
4	Monitoring medicine supplies to health facilities	Need to build capacity of zonal coordination for malaria to monitor medicine supplies in health facilities	January 2006

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Annex 2. List of Participants

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ANNEX 3. AGENDA

Regional Training-of-Trainers Course in Antimalarial Quantification Nairobi, Kenya • September 19–23, 2005

Agenda

Sunday, September 18, 2005

Arrival and Registration

Monday, September 19, 2005

Time	Activity
9:00–9:15 a.m.	Official opening and welcome
9:15–9:30 a.m.	Purpose of workshop
9:30–10:00 a.m.	Overview of workshop objectives
10:00–10:15 a.m.	Tea break
10:15–11:00 a.m.	Session 1. Global and Regional Malaria Context
11:00–11:30 a.m.	Session 2. Introduction to Quantification
11:30 a.m.–12:15 p.m.	Activity
12:15–1:15 p.m.	Lunch
1:15–2:15 p.m.	Session 3. Methods for Estimation of Needs of Antimalarials
2:15–3:15 p.m.	Activity
3:15–3:30 p.m.	Tea break
3:30–4:30 p.m.	Session 4. Data Needed for Quantification
4:30–5:00 p.m.	Activity

Tuesday, September 20 2005

Time	Activity
9:00–9:30 a.m.	Recap of previous day's work
9:30–10:30 a.m.	Session 5. Quantifying for Antimalarials and Assumptions
10:30–10:45 a.m.	Tea break
10:45–11:45 a.m.	Session 6. Practical Applications of Quantification: Calculating Need
11:30 a.m.–1:00 p.m.	Activity
1:00–2:00 p.m.	Lunch
2:00–2:30 p.m.	Plenary discussion
2:30–3:30 p.m.	Session 7. Estimating Costs of Procurement
3:30–3:45 p.m.	Tea break
3:45–4:30 p.m.	Activity
4:30–5:00 p.m.	Plenary discussion

Wednesday, September 21, 2005

Time	Activity
9:00–10:00 a.m.	Session 8. Monitoring and Evaluation
10:00–10:15 a.m.	Tea break
10:15–11:00 a.m.	Session 9. Quantimed and Other Quantification Tools
11:00 a.m.–1:00 p.m.	Quantimed demonstration
1:00–2:00 p.m.	Lunch
2:00–4:00 p.m.	Plenary discussion

Thursday, September 22, 2005

Time	Activity
9:00–9:15 a.m.	TOT Session 1. Introduction to the Training of Trainers
9:15–10:30 a.m.	TOT Session 2. Adult Learning
10:30–10:45 a.m.	Tea break
10:45–11:30 a.m.	TOT Session 3. Teaching and Learning Methods
11:30 a.m.–12:00 p.m.	TOT Session 4. Role of the Teacher
12:00–1:00 p.m.	Lunch
1:00–1:30 pm	TOT Session 5. Preliminary Course Preparation
1:30–2:45 pm	TOT Session 6. Presentation Techniques
2:45–3:00 pm	Tea break
3:00–4:15 pm	TOT Session 7. Workshop Facilitation: Tips for Trainers
4:15–5:00 pm	TOT Session 8. Preparation for Workshop Facilitation Activities

Friday, September 23, 2005

Time	Activity
9:00–10:30 a.m.	TOT Session 9. Workshop Facilitation Practice Sessions
10:30–10:45 a.m.	Tea break
10:45–12:15 p.m.	Workshop Facilitation Activity (<i>Session 9, continued</i>)
12:15 –1:15 p.m.	Lunch
1:15–2:45 p.m.	Workshop Facilitation Activity (<i>Session 9, continued</i>)
2:45–3:00 p.m.	Tea break
3:00–3:45 p.m.	TOT Session 10. Plenary Session: TOT Summary
3:45–4:15 p.m.	Closing Session

ANNEX 4. WORKSHOP EVALUATION

Quantitative

4a. Consolidated Evaluation of QAM Component of Workshop (Days 1–3)

		SCORES (1–5 SCALE)					Total Number of Respondents	Weighted Total	Weighted Average
		5	4	3	2	1			
1	How would you rate your overall satisfaction with the course?	5	20	4	—	—	29	117	4.03
2	How effective was the overall format of the sessions, case studies, exercises, and discussions?	3	21	5	—	—	29	114	3.93
3	How would you rate the materials for this course (handouts, slides, supplementary materials)?	12	12	5	—	—	29	123	4.24

4b. Evaluations of Individual QAM Sessions (Sessions 0–9)

	Session	SCORES (1–5 SCALE)					Total Number of Respondents	Weighted Total	Weighted Average
		5	4	3	2	1			
0	Opening session: Purpose of workshop and overview of objectives	10	8	6	2	—	26	104	4.0
1	Global and regional malaria context	6	15	4	1	—	26	104	4.0
2	Introduction to quantification	7	15	5	—	—	27	110	4.07
3	Methods for estimation of needs of antimalarials	9	16	2	—	—	27	115	4.26
4	Data needed for quantification	4	20	3	—	—	27	109	4.04
5	Quantifying for antimalarials and assumptions	3	17	6	1	—	27	103	3.81
6	Practical applications of quantification: calculating need	4	15	8	—	—	27	104	3.85
7	Estimating costs of procurement	6	10	9	1	—	26	99	3.80
8	Monitoring and evaluation	12	12	3	—	—	27	117	4.33
9	Quantification tools	5	16	6	—	—	27	107	3.96
10	Quantimed demonstration	4	12	13	—	—	29	107	3.69

4c. Consolidated Evaluation of TOT Component of Workshop (Days 4–5)

		SCORES (1–5 SCALE)					Total Number of Respondents	Weighted Total	Weighted Average
		5	4	3	2	1			
1	How would you rate your overall satisfaction with the course?	13	12	2	—	—	27	119	4.41
2	How effective was the overall format of the sessions, case studies, exercises, and discussions?	16	9	2	—	—	27	126	4.67
3	How would you rate the materials for this course (handouts, slides, supplementary materials)?	16	8	2	1	—	27	120	4.44

4d. Evaluations of Individual TOT Sessions (Sessions 1–10)

	Session	SCORES (1–5 SCALE)					Total Number of Respondents	Weighted Total	Weighted Average
		5	4	3	2	1			
1	Introduction to TOT	13	12	1	—	—	26	116	4.46
2	Adult learning	12	13	1	—	—	26	115	4.42
3	Teaching and learning methods	12	13	1	—	—	26	115	4.42
4	Role of teacher	14	16	4	—	—	26	114	4.38
5	Preliminary course preparation	10	17	—	—	—	27	122	4.50
6	Presentation techniques	17	10	—	—	—	27	125	4.63
7	Workshop facilitation	13	13	1	—	—	27	120	4.45
8	Preparation for workshop facilitation activities	11	13	3	—	—	27	116	4.30
9	Workshop facilitation activities	11	14	2	—	—	27	117	4.33
10	Plenary session	15	8	3	—	—	26	116	4.46

4e. Consolidated Comments on QAM Sessions

How would you rate your overall satisfaction with the course?

- Very systematic and focused workshop with clear objectives
- Very good, interesting, and informative workshop
- The course was very helpful and came at an appropriate time
- The program was well facilitated, though the time was too tight to allow for sufficient interaction
- In comparison to the materials, the duration of the course was too short
- Some of the presentations are not well supported with case studies

How effective was the overall format of the sessions, case studies, exercises, and discussions?

- The depth of coverage of topics, the style of presentations and good use of examples allowed effective transfer of knowledge as well as the full involvement of participants in the process
- The case studies, exercises, and discussions were adequate but rushed
- The course was excellent; however, there seemed to be duplications in some presentations
- The case studies were very good; however, there was not enough time to finish the assignments
- Some of the exercises were difficult to understand

How would you rate the materials for this course (handouts, slides, supplementary materials)?

- The materials and handouts were extremely good and very well presented
- Perfect—the documents were well presented and arranged with no missing parts
- The handouts, as given in advance, served to facilitate the understanding of the subject matter
- This is the first course of its kind being attended and the materials are very good

How could this course be improved?

- There should have been the initial course on pharmaceutical supply management system before quantification
- It would be useful to have a field visit to gauge the actual availability of data, and try to use them
- We should have a session on the methodologies of data collection
- There should have been attempts from countries to use their data for quantification processes
- There is need to increase the duration of the course—more days are needed to carry out practical exercises on quantification; better time management is also important
- The time allocated for discussions and exercises was not sufficient after the presentations
- There is need to extend the course to regional and hospital pharmacists responsible for data collection
- The Quantimed tool should have been given to the participants as was done with other

handouts for reference and practice after the course; the demonstration was too fast

- Review training materials to include the necessary information so there is more time for exercises
- We could have used computers for the calculations instead of calculators

Are there any additional topics you would like to see covered?

- Design of logistics management and information systems
- How to improve the monitoring and evaluation system to support the public pharmaceutical supply system; logistics may need to be covered in another session
- The malaria situation overview focused too much on the global—country situations are more useful

Any other comments?

- The training was quite useful—an eye opener for country quantification
- There should have been time allocated for the sharing of country experiences
- Introduce the problem-based training approach as the lectures and presentations were monotonous
- It is expected that this course will be extended to the broader stakeholders—respective countries should be visited, and all these stakeholders oriented on the quantification issues and processes
- Procurement staff in each country should get such types of training
- It would have been necessary for countries to develop work plans for the quantification processes
- Each country should be trained on Quantimed
- Per diem should be given without deducting for hotel accommodation

4f. Consolidated Comments on TOT Sessions

How would you rate your overall satisfaction with the course?

- The TOT course was very useful, despite previous experience in facilitation
- The TOT course is very good and a very relevant one
- In all, the course was very good, but more time should have been reserved for the exercises
- The objectives were achieved
- The course has met my expectations of a TOT
- The course is very exciting

How effective was the overall format of the sessions, case studies, exercises, and discussions?

- The participatory approach of the TOT was an excellent way of getting everyone involved
- The format was excellent
- I found the principle of learning by doing actively applied in an interesting manner

- The activities were quite practical and very involving
- The sessions were well structured and sequenced
- More case studies should have been cited

How would you rate the materials for this course (handouts, slides, supplementary materials)?

- The materials were good and of high quality
- The materials were well packaged to meet the needs of the participants
- I particularly appreciated the handouts that came with the PowerPoint presentations
- The reference materials are quite useful and adequate
- Some of the session notes were too brief
- The materials were quite effective and orderly; they were quite clear and of good content
- Sometimes the French versions were not consistent, and the translation did not seem appropriate
- The materials reinforced the presentations

How has the course added to your knowledge of the common barriers to learning and how to overcome them?

- Moved participants from a position of minimum understanding of the subject to a well-informed position
- To a great extent, because some of the barriers to learning are often taken for granted
- The course has improved my presentation style
- It has enhanced my teaching-learning experience
- It has revealed how one tends to assume too much when teaching adults
- I learned how to respect the opinions of other participants
- We have acquired new knowledge and reinforced the previous ones

How has this course helped you understand the characteristics of the adult learner?

- This course has helped a lot because adult learning is so different—other methods are needed
- I have a much better understanding on how to deal with adult learners and the barriers to learning
- The methods learned will enable participants to deal with different audiences more appropriately
- The knowledge gained is important for every teacher who would like to be efficient
- The course has enhanced my knowledge of adult teaching and interaction
- For me, issues of adult learning is a discovery
- It has helped the understanding that adults need to be handled with flexibility when conducting courses
- It shows how adults are influenced by whether the subject has direct relevance to them

How well has this course demonstrated the range of teaching and learning methods appropriate to teaching the Antimalarial Quantification Course?

- The course gave a clear overview of the range of appropriate teaching and learning methods
- This is the first time I am being exposed to this kind of training
- The course is useful not only for antimalarials but for all training facilitation
- The course helped to demonstrate the realities that what we thought were peculiar are in fact general
- The Dale's Pyramid is an extremely useful concept

How could this TOT course be improved? Are there any additional topics you would like to see covered?

- Communication skills (like opening and ending prompts, etc.) should be incorporated
- There should be a section on how to evaluate sessions effectively to make the feedback form useful
- There should be more time given for the exercises
- The TOT appears appropriate for now
- If given more days, it will allow participants to go through preparing their own presentation materials
- In future TOTs, everyone should be given the chance to practice making a presentation
- Reduce the paperwork by providing a forum for feedback
- In future TOTs, add the topic of logistics for training
- We need to illustrate quantification with country experiences and issues
- More facilitators should have been provided—it was a bit taxing for the facilitator

Any other comments?

- Thank the facilitators for their willingness to share
- Others in the country training teams are also in need of the course
- The topics should be reviewed to avoid repetitions so as to give ample time for practice by individuals
- There should be more exercises within the groups to enhance learning and interactions
- The workshop provided an excellent opportunity to interact with neighboring countries
- Workshop well organized and excellent presentations from facilitators
- I wish the TOT sessions could follow immediately after the technical sessions
- I have gained so much knowledge and skills
- The course was informative and educative
- Thank you!

4g. Feedback on Quantimed

The Quantimed tool was demonstrated as one of the tools that can be used for the quantification process. Because of the potential role of the Quantimed software in fostering the practical application of the quantification concepts learned in this workshop, Quantimed as a tool for quantification was evaluated for its usefulness and limitations, and recommendations were made. The findings follow.

Usefulness

- QUANTIMED is an important tool to facilitate the calculation of antimalarial medicine requirements. With reliable data, this tool can prevent medicine shortages as well as wastages, particularly ACTs, that have short shelf lives (2 years).
- It will make quantification easier and more accurate.
- It will help to reduce the workload of the staff on the long run.
- It is user-friendly if one has been exposed to Microsoft Access.
- It allows the flexibility of quantifying for different regimens at the same time.
- Very useful tool and well thought out. It will save time in quantifying.
- Most useful for pharmaceutical managers at CMS.
- It will reduce calculation errors and enhance data storage.
- It can help in comparing the estimates of medicine quantities and budgets when using the two methods—morbidity and consumption.
- It helps also to compute and adjust the medicine budgeting, a key issue for most countries.
- The facilitation was very clear on the demonstration of the tool.

Limitations

- The unavailability of computers for practice has made it difficult to fully appreciate the limitations.
- The time allocated for the demonstration is far too short.
- Quantimed requires reliable and accurate data. In most countries, this tool cannot be applied, due to deficiencies in their health information system, which include lack of reliable data, as well as incomplete and late data reporting.
- It appears that Quantimed may be more applicable in advanced countries with reliable data rather than African countries where health management information system (HMIS) is unreliable.
- The Quantimed tool is very complex.
- The system does not check entries nor prompt one until the very last when one discovers an omission or a mis-entry.
- Quantimed cannot identify data or filing errors; it utilizes entered data.
- It does not address the parameters of different countries.
- There should be a section of the tool that addresses the data collection itself.
- Quantimed assumptions do not always match with field realities.
- Too much time is needed for feeding in data—the process is too tedious.
- Requires logistical support for user health facilities (computers), as well as follow-up and maintenance.

- The tool cannot distinguish between rational and irrational medicine use.
- Requires qualified personnel in pharmaceutical management (who are rare in most countries, especially at facility levels).
- What will be the cost of acquiring, updating, and maintaining this system for continual use? There is need for logistics support and maintenance.
- The tool is unsuitable for use at the service delivery points, which is a real shortcoming.
- There is a structural limitation of poor power supply in some countries.
- Some other limitations are still unknown for potential users to comment on.

Recommendations for Quantimed (and facilitation of training)

- It is important that participants have the software for hands-on experience.
- It is important to start the demonstration with elaboration of the theory.
- In future, take more time for the demonstration.
- Real hands-on training of participants on Quantimed is required.
- Disseminate the tool. Provide manuals, background notes, and software as CDs to the country teams involved in quantification.
- It is vital to introduce a warning/prompt device that will alert the user when some information is omitted or wrongly entered when inserting data before he moves on to the next stage.
- Intensive pharmaceutical management training of health workers in different countries is necessary before they can use the Quantimed tool.
- Start with scaling up training of all people responsible for quantification, as well as institutional capacity building of pharmaceutical regulation and system of data collection at all levels.
- Follow up with an evaluation of the training.
- Detailed data treatment and report interpretation will be needed.
- Redesign the Quantimed tool to be applicable at all levels of health care.
- The tool should be made to cover all the public health interventions in a synchronized manner.
- Let countries emphasize the necessity of accurate and reliable data first before Quantimed is introduced.
- Longer training session (2–3 months) is needed for Quantimed, and participants should all have access to computers.
- Identify people within the country to facilitate the Quantimed training in order to foster ownership.
- MSH needs to help monitor the introduction of, training on, and use of Quantimed.

ANNEX 5. COUNTRY REPORTS

5a. Situation Report on ACT Policy Adoption and Implementation

	Burundi	DRC	Ethiopia	Kenya	Malawi	Rwanda	Uganda	Tanzania
Population	7. 8 million	65 million	71 million	32 million	11.3 million	8.7 million	27 million	36 million
ACT policy adopted?	YES (July 2002)	YES (March 2005)	YES (July 2004)	YES (April 2004)	NO	YES 2005	YES (Sept. 2005)	YES 2005
ACT implementation commenced?	YES (November 2003)	NO	O (intended for November 2005)	NO (intended for January 2006)	NO	NO (Intended for 2006)	NO (intended for February 2005)	NO (Intended for 2006)
First-line medicine	ART/AQ	ART/AQ	ART/LUM	ART/LUM	SP	ART/LUM	ART/LUM	ART/LUM
Second-line medicine	Quinine	Quinine	Quinine	Quinine	Quinine	Quinine	Quinine	Quinine
Medicines for Treatment of:								
Children	SP	ART/LUM Quinine	ART/LUM Quinine	SP	SP	ART/LUM Quinine	ART/LUM Quinine	<5kg-i.v. Quinine > 5kg ART/LUM
Pregnant women								
1st trimester	Quinine	Quinine	Quinine	Quinine	Quinine	Quinine	Quinine	Quinine
2nd trimester	SP	ART/LUM	Quinine	SP	ART/LUM	Quinine	Quinine	SP
3rd trimester	SP	ART/LUM	Quinine	SP	ART/LUM	Quinine	Quinine	SP
Severe malaria	Quinine	i.v. Quinine	i.v. Quinine	Quinine	i.v. Quinine	i.v. Quinine	i.v. Quinine Inj. Artemether	Quinine
Prevention of malaria in pregnancy	SP	SP	SP	SP	SP	SP	SP	SP

	Burundi	DRC	Ethiopia	Kenya	Malawi	Rwanda	Uganda	Tanzania
General prophylaxis of malaria in the population	Chloroquine // Proguanil (Exclusive to travelers and based on personal choice, mostly in private outlets)	Mefloquine Doxycycline (for visitors)	Mefloquine for specific populations, such as travelers in general, and specifically in less endemic areas	Chloroquine // Proguanil (Exclusive to travelers and based on personal choice, mostly in private outlets)	Mefloquine Doxycycline (for visitors)	Mefloquine for specific populations, such as travelers in general, and specifically in less endemic areas	No medicines recommended	Chloroquine // Proguanil (Exclusive to travelers and based on personal choice, mostly in private outlets)
<i>Note:</i> Insecticide-treated nets are recommended for prophylaxis, especially in children and pregnant women.								

5b. Country Reports on Situation of Quantification

(Activity Session 2)

During the workshop, country participants were asked to—

1. Identify symptoms of poor quantification and highlight the three most important symptoms in their country context
2. Think about the situation in their respective countries with respect to the antimalarial medicine supply system and relate any of the symptoms of poor quantification to their country antimalarial medicine supply system
3. Mention what could be done to prevent the three outcomes of poor quantification listed

All countries identified the following symptoms of poor quantification—

- Chronic and widespread shortages
- Inequity of supply
- Inadequate cost-effectiveness
- Irrational adjustment to budgetary constraints
- Irrational, ineffective prescribing
- Suppression or distortion of demand

Few countries identified specific commodities (not ACTs) as being in surplus at certain times.

Symptoms that constituted the greatest issues in the eight countries, as well as suggestions for intervention in the different countries, are as shown in the following tables.

5b. Country Reports on Situation of Antimalarial Quantification

Country	Symptoms of Poor Quantification	Suggestions for Prevention
Burundi	<ul style="list-style-type: none"> • Irrational prescription • Inequity of supply • Suppression or distortion of demand 	<ul style="list-style-type: none"> • Training and sensitization of health providers • Supervision • Availability of technical guidelines and protocols at health facility • Monitoring and evaluation • Logistical support • Continuous availability of ACT
DRC	<ul style="list-style-type: none"> • Irrational prescription, caused by diversity in case management protocols • Inequity of supply, caused by poor coverage of the country in support to primary health care implementation • Lack of accurate data for quantification 	<ul style="list-style-type: none"> • Improve the country coverage with primary health care implementation, including pharmaceutical management • Improve pharmaceutical supply coordination • Standardize protocols • Train health workers • Sensitization • Improve Health Information System
Ethiopia	<ul style="list-style-type: none"> • Chronic and widespread shortages of ACTs and rapid diagnostic tests • Accumulation of surpluses and unwanted medicines • Irrational and ineffective prescription 	<ul style="list-style-type: none"> • Exercise proper quantification based on reliable infrastructure • Train on the basic techniques of quantification • Improve coordination (integration) among partners, international, MOH departments, private sectors, etc. for proper planning • Enhance the efficient recoding and reporting system • Have regular M&E activities • Prescriptions should stick to the protocols of the country STGs
Kenya	<ul style="list-style-type: none"> • Chronic and widespread shortages • Irrational adjustment to budgetary constraints • Irrational, ineffective prescribing 	<ul style="list-style-type: none"> • Improve record keeping to develop an effective management information system) • Train on quantification and implementation (skilled personnel) • Promote rational medicine use • Shift to a pull system • Establish a framework for coordinating quantification at the health facility level
Malawi	<ul style="list-style-type: none"> • Inequity of supply • Irrational adjustment to budgetary constraints • Suppression or distortion of demand 	<ul style="list-style-type: none"> • Adherence to an agreed ordering and delivery system, orders made on the basis of reliable consumption data • Reliable adequate funding and disbursement as planned • Multisectoral consensus on regular quantified (figures)

Country	Symptoms of Poor Quantification	Suggestions for Prevention
Rwanda	<ul style="list-style-type: none"> • Shortages, but not chronic and widespread • Irrational, ineffective prescription • Suppression or distortion of demand 	<ul style="list-style-type: none"> • Proper quantification • Review the supply period of suppliers • Advise prescribers and general population to adhere to the national policy of malaria treatment • Allow health facilities to control suppliers • Use the available reports from facilities
Tanzania	<ul style="list-style-type: none"> • Inequity of supply (push system does not allow for generation of data on consumption) • Overstocking/understocking (leading to wastage/expiry) • Untimely allocation and disbursement 	<ul style="list-style-type: none"> • Train health workers on appropriate data collection and use • Hire and deploy qualified and skilled health workers • Solicits more fund • Proper budgeting • Timely allocation and disbursement • Multisectoral involvement
Uganda	<ul style="list-style-type: none"> • Distortion of demand • Irrational adjustments to budgetary constraints • Inadequate cost-effectiveness 	<ul style="list-style-type: none"> • Integrated planning between project and existing national system • Improved management infrastructure • Policy emphasis on minimum health care package • Proper procurement planning

5c. Country Reports on Status and Management of Country Data

BURUNDI	
A. FOR THE CONSUMPTION METHOD	
A1. DATA AVAILABLE <ul style="list-style-type: none"> • Reliable inventory and consumption data • Data on networks • Procurement period • Medicine units costs • Lead time • Medicine shelf life 	A2. DATA NOT AVAILABLE <ul style="list-style-type: none"> • Estimation of shortage period • Estimation of buffer stock • Estimation of loss and wastages
A3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> • Data accuracy and reliability • Irrational use 	
A4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA <ul style="list-style-type: none"> • Capacity building in rational pharmaceutical management and correct use of data collection tools • Improve information system and provide logistics support 	
B. FOR THE MORBIDITY METHOD	
B1. DATA AVAILABLE <ul style="list-style-type: none"> • Age group population data • Outpatient attendance data from health structures • Malaria incidence: uncomplicated, severe, and in pregnancy • Standard treatment • Projected medicine cost • Lead time • Medicine shelf life 	B2. DATA NOT AVAILABLE <ul style="list-style-type: none"> • Estimation of outpatient attendance change • Data on percentage of first-line treatment failures
B3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> • Data accuracy and reliability 	
B4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA <ul style="list-style-type: none"> • Improve information system and data collection • Control data quality in health structures 	
C. FOR THE ADJUSTED-CONSUMPTION METHOD	
C1. DATA AVAILABLE <ul style="list-style-type: none"> • Number of health structures per category • Age group population • Lead time • Medicine shelf life 	C2. DATA NOT AVAILABLE <ul style="list-style-type: none"> • Data to compare individual consumption • Outpatient attendance • Service levels • Morbidity rate
C3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> • Data accuracy and reliability 	
C4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA <ul style="list-style-type: none"> • Capacity building in human resources • Rational pharmaceutical management 	

D. DATA MANAGEMENT	
D1. METHODS FOR OBTAINING DATA <ul style="list-style-type: none"> Consumption forms collected data Utilization data from health structures 	LIMITATIONS <ul style="list-style-type: none"> Data reliability
D2. METHODS FOR PROCESSING DATA <ul style="list-style-type: none"> Simple data aggregation Compilation of collected data 	LIMITATIONS <ul style="list-style-type: none"> Data reliability
D3. METHODS FOR REPORTING DATA <ul style="list-style-type: none"> Regular monthly report Generally, data compiled and sent to higher levels of the health system Standardized formats to reduce errors in data analysis 	LIMITATIONS <ul style="list-style-type: none"> Data reliability
D4. GENERAL COMMENTS ON MALARIA DATA MANAGEMENT IN THE COUNTRY Need to— <ul style="list-style-type: none"> Develop and implement a data registration system with specific indicators at the Malaria Control Program Train on epidemiological surveillance Actualize data collection tools 	
DEMOCRATIC REPUBLIC OF CONGO	
A. FOR THE CONSUMPTION METHOD	
A1. DATA AVAILABLE <ul style="list-style-type: none"> Medicine unit cost Medicine shelf life Procurement data from the public sector 	A2. DATA NOT AVAILABLE <ul style="list-style-type: none"> Reliable inventory data from health facility Estimation of shortage period Lead time Procurement period Estimation of buffer stock Estimation of lost
A3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> Data available do not relate to the whole country Problems to realize appropriate data analysis Information system operational for some health zones only 	
A4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA <ul style="list-style-type: none"> Training health workers Develop/improve data collection tools Develop and implement coordinating mechanism Allocate budget to pharmaceutical management activities 	
B. FOR THE MORBIDITY METHOD	
B1. DATA AVAILABLE <ul style="list-style-type: none"> STGs Population data Uncomplicated malaria incidence (estimation) Malaria treatment failure rates Estimated costs of medicines Medicine shelf life 	B2. DATA NOT AVAILABLE <ul style="list-style-type: none"> Accurate outpatient attendance Proportion of change in attendance Lead time

B3. LIMITATIONS OF AVAILABLE DATA	
<ul style="list-style-type: none"> • Available data do not relate to the whole country 	
B4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA	
<ul style="list-style-type: none"> • Training of health workers • Develop data collection tools • Develop and implement coordination mechanism • Allocate budget to pharmaceutical management activities 	
C. FOR THE ADJUSTED CONSUMPTION METHOD	
C1. DATA AVAILABLE	C2. DATA NOT AVAILABLE
<ul style="list-style-type: none"> • Number of in-country health structures • Estimation of utilization rate • Medicine shelf life 	<ul style="list-style-type: none"> • Comparison system • Lead time
C3. LIMITATIONS OF AVAILABLE DATA	
<ul style="list-style-type: none"> • Limited accuracy, generally extrapolation 	
C4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA	
<ul style="list-style-type: none"> • Training in data collection • Develop and implement coordination system • Develop data collection tools and allocate budget 	
D. DATA MANAGEMENT	
D1. METHODS FOR OBTAINING DATA	LIMITATIONS
<ul style="list-style-type: none"> • Sentinel sites • Epidemiological surveillance • National information system 	<ul style="list-style-type: none"> • Some sentinel sites not operational • Poor country coverage with surveillance system
D2. METHODS FOR PROCESSING DATA	LIMITATIONS
<ul style="list-style-type: none"> • Computerization of sentinel sites data 	<ul style="list-style-type: none"> • Currently limited at national and intermediary levels
D3. METHODS FOR REPORTING DATA	LIMITATIONS
<ul style="list-style-type: none"> • Ministry of Health administration network 	<ul style="list-style-type: none"> • Not very operational because of limited resources in a large country
D4. GENERAL COMMENTS ON MALARIA DATA MANAGEMENT IN THE COUNTRY	
<ul style="list-style-type: none"> • Poor data management • Would like RPM Plus and Global Fund to Fight AIDS, Tuberculosis and Malaria to reinforce our system 	
ETHIOPIA	
A. FOR THE CONSUMPTION METHOD	
A1. DATA AVAILABLE	A2. DATA NOT AVAILABLE
<ul style="list-style-type: none"> • Inventory record of consumption • Estimation of time out of stock • Records of existing pipelines • Supplier lead time • Estimation of wastages • Projected unit costs • Procurement lead time • Shelf life of medicines 	<ul style="list-style-type: none"> • Estimation of buffer stock • Aggregated consumption data
A3. LIMITATIONS OF AVAILABLE DATA	
<ul style="list-style-type: none"> • Reliability of data 	

A4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA	
<ul style="list-style-type: none"> • Build up coordination • Encourage commitment • Awareness creation on the need for keeping proper records 	
B. FOR THE MORBIDITY METHOD	
B1. DATA AVAILABLE	B2. DATA NOT AVAILABLE
<ul style="list-style-type: none"> • Population data according to ages • Projected incidence of uncomplicated and severe malaria • Standard Treatment Guidelines • Data on percentage treatment failures to first-line medicines • Projected medicine costs • Procurement lead time • Shelf life of medicines 	<ul style="list-style-type: none"> • Accurate data on patient attendance • Estimations on percentage change in attendance
B3. LIMITATIONS OF AVAILABLE DATA	
<ul style="list-style-type: none"> • Lack of coordination • Irrational medicine use • Time consuming to verify 	
B4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA	
<ul style="list-style-type: none"> • Improve coordination • Provide resources to keep records and documents for further use by all the levels • Treatment protocols should be disseminated to the health care providers 	
C. FOR THE ADJUSTED CONSUMPTION METHOD	
C1. DATA AVAILABLE	C2. DATA NOT AVAILABLE
<ul style="list-style-type: none"> • Data on consumption • Consumption by service level • Consumption on morbidity • Estimation of population with breakdown by age • Procurement lead time • Shelf life of medicines 	<ul style="list-style-type: none"> • Accurate data on patient attendance
C3. LIMITATIONS OF AVAILABLE DATA	
<ul style="list-style-type: none"> • Lack of aggregated data • Absence of past documents to show trends over the years 	
C4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA	
<ul style="list-style-type: none"> • Improve coordination • Recording and reporting activities should be made major components of the health policy 	
D. DATA MANAGEMENT	
D1. METHODS FOR OBTAINING DATA	LIMITATIONS
<ul style="list-style-type: none"> • Inventory control cards • Health indicators • Health survey • DMS • Patient registration books 	<ul style="list-style-type: none"> • Reliability
D2. METHODS FOR PROCESSING DATA	LIMITATIONS
<ul style="list-style-type: none"> • Manual 	<ul style="list-style-type: none"> • Time consuming and unreliable

D3. METHODS FOR REPORTING DATA <ul style="list-style-type: none"> Health facilities—regular reporting 	LIMITATIONS <ul style="list-style-type: none"> Irregular/absence of reports from lower level
D4. GENERAL COMMENTS ON MALARIA DATA MANAGEMENT IN THE COUNTRY N/A	
KENYA	
A. FOR THE CONSUMPTION METHOD	
A1. DATA AVAILABLE <ul style="list-style-type: none"> Records of time out of stock Records of existing pipelines Supplier lead time Estimation of wastages Projected unit medicine costs Procurement lead time Shelf life of medicines 	A2. DATA NOT AVAILABLE <ul style="list-style-type: none"> Reliable inventory management Estimation of buffer stock
A3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> Not accurate nor reliable Monitoring and evaluation activities are not in place 	
A4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA <ul style="list-style-type: none"> Close monitoring and evaluation 	
B. FOR THE MORBIDITY METHOD	
B1. DATA AVAILABLE <ul style="list-style-type: none"> Data on population according to age groups Accurate data on patients at facilities Standard treatment (actual and ideal) Procurement lead time Shelf life Projected medicine costs 	B2. DATA NOT AVAILABLE <ul style="list-style-type: none"> Estimations on percentage change in attendance Actual/projected incidence of uncomplicated malaria and in pregnancy for IPT
B3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> Accuracy Not reliable Irrational medicine use 	
B4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA <ul style="list-style-type: none"> Pull system and improvement of ICT 	
C. FOR THE ADJUSTED CONSUMPTION METHOD	
C1. DATA AVAILABLE <ul style="list-style-type: none"> Comparison area/system with per capita data Number of local health facilities Estimation of population Procurement lead time Shelf life 	C2. DATA NOT AVAILABLE
C3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> Accuracy of number of facilities Data not available for facilities set up by private and missionary organizations Inaccuracies of comparison data 	

C4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA	
<ul style="list-style-type: none"> • MOH should capture data on facilities in the country and provide the lists to KEMSA • MOH should classify the facilities adequately according to the level of provision of services 	
D. DATA MANAGEMENT	
D1. METHODS FOR OBTAINING DATA	LIMITATIONS
<ul style="list-style-type: none"> • Supervisory visits • Reports from the lower units • Surveys • Sentinel site reporting 	<ul style="list-style-type: none"> • Surveys and supervisory visits expensive • Uncooperative officers • Inconsistent reporting
D2. METHODS FOR PROCESSING DATA	LIMITATIONS
<ul style="list-style-type: none"> • Computerized analysis of data to generate a report 	<ul style="list-style-type: none"> • Expensive and needs expertise
D3. METHODS FOR REPORTING DATA	LIMITATIONS
<ul style="list-style-type: none"> • Tools are sent by post to the central level • Sometimes the reports are hand delivered • Some use electronic methods, for example the ART Program 	<ul style="list-style-type: none"> • Time consuming • There's risk of delay or loss of data
D4. GENERAL COMMENTS ON MALARIA DATA MANAGEMENT IN THE COUNTRY	
<ul style="list-style-type: none"> • Can be improved; tools need to be reviewed to be simpler • Should be computerized • Feedback reports should be enhanced 	
MALAWI	
A. FOR THE CONSUMPTION METHOD	
A1. DATA AVAILABLE	A2. DATA NOT AVAILABLE
<ul style="list-style-type: none"> • Reliable inventory for supply data to facilities • Estimated time out of stock • Records of existing pipelines • Supplier lead time • Estimation of wastages • Projected unit medicine costs • Procurement lead time 	<ul style="list-style-type: none"> • Comprehensive data of consumption from facilities • Estimation of buffer stock
A3. LIMITATIONS OF AVAILABLE DATA	
<ul style="list-style-type: none"> • Data are not precise in addressing real consumption • The data are not complete since some facilities may not have any records 	
A4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA	
<ul style="list-style-type: none"> • Better data management information systems need to be established at the Central Medical Stores and at facility level to be able to strengthen the supply chain • There is need for intensive training on management information system • Reporting systems need to be strengthened with supervision 	
B. FOR THE MORBIDITY METHOD	
B1. DATA AVAILABLE	B2. DATA NOT AVAILABLE
<ul style="list-style-type: none"> • Data on population according to age • Patient attendance records • Estimation on percentage change in attendance • Actual/projected incidence of uncomplicated malaria, severe malaria, and pregnancies for IPT 	(not provided)

<ul style="list-style-type: none"> • Standard treatment guidelines • Data on treatment failures • Projected medicine costs • Procurement lead time • Shelf life 	
B3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> • Accuracy of data • Malaria 	
B4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA <ul style="list-style-type: none"> • Improve capacity of HMIS • Conduct revision with the aim of reflecting changes in the antimalarial medicine policy 	
C. FOR THE ADJUSTED CONSUMPTION METHOD	
C1. DATA AVAILABLE <ul style="list-style-type: none"> • Comparison per district on morbidity and attendance • Number of local health facilities • Estimation of local use • Procurement lead time • Shelf life 	C2. DATA NOT AVAILABLE <ul style="list-style-type: none"> • Per capita data
C3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> • Accuracy of data 	
C4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA <ul style="list-style-type: none"> • Improve capacity of HMIS 	
D. DATA MANAGEMENT	
D1. METHODS FOR OBTAINING DATA <ul style="list-style-type: none"> • Routine reporting • Supervisory checklists + visits • Surveys • Efficacy studies • Reviews (annual or biannual) 	LIMITATIONS <ul style="list-style-type: none"> • Adherence to desired frequency of collection is lacking
D2. METHODS FOR PROCESSING DATA <ul style="list-style-type: none"> • HMIS analysis • Institutional analysis 	LIMITATIONS <ul style="list-style-type: none"> • Analytical capacity needs enhancing especially in HMIS
D3. METHODS FOR REPORTING DATA <ul style="list-style-type: none"> • Quarterly/monthly HMIS bulletins • Meetings • Seminars • Workshops • Technical working groups sessions and task forces 	LIMITATIONS <ul style="list-style-type: none"> • Irregular feedback sessions
D4. GENERAL COMMENTS ON MALARIA DATA MANAGEMENT IN THE COUNTRY <ul style="list-style-type: none"> • Requires collection of real medicine consumption and use data to contribute to quantification • HMIS requires strengthening to improve collection, dissemination, and use of morbidity and mortality data on malaria 	

RWANDA	
A. FOR THE CONSUMPTION METHOD	
A1. DATA AVAILABLE <ul style="list-style-type: none"> • Reliable inventory records of consumption at the CMS • Time out of stock at CMS • Supplier lead time at CMS • Buffer stock available at CMS • Projected unit medicine costs • Procurement lead time • Shelf life of medicines 	A2. DATA NOT AVAILABLE <ul style="list-style-type: none"> • Inventory records are not available at the private sector • Inventory records not available at the health facilities • Time out of stock at private centers • No records of existing pipelines • Suppliers lead time in private sector
A3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> • There is no link (flow of information) between the CMS and health districts regarding records • Information and records on consumption from the private sector are lacking 	
A4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA <ul style="list-style-type: none"> • There should be an emphasis in strengthening the link between the CMS and the health districts, and also with the private sector 	
B. FOR THE MORBIDITY METHOD	
B1. DATA AVAILABLE <ul style="list-style-type: none"> • Data on population according to age groups • Accurate data on patient attendances at health facilities • Actual or projected incidences of uncomplicated and severe malaria and pregnancies for IPT • Standard treatments • Data on percentage treatment failure of first-line medicines • Projected medicine costs in CMS • Procurement lead time • Shelf life of medicines for CMS 	B2. DATA NOT AVAILABLE <ul style="list-style-type: none"> • Estimations (assumptions) on percentage changes in attendance
B3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> • No data for the private sector 	
B4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA <ul style="list-style-type: none"> • Private data has to be accessed and included in the data for quantifying for the public sector 	
C. FOR THE ADJUSTED CONSUMPTION METHOD	
C1. DATA AVAILABLE <ul style="list-style-type: none"> • Number of local health facilities by category • Estimation of local user population broken down by age • Procurement lead time • Shelf life of medicines 	C2. DATA NOT AVAILABLE <ul style="list-style-type: none"> • Comparison areas or systems
C3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> • Lack of comparison areas 	
C4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA <ul style="list-style-type: none"> • Surveys should be done to obtain comparison areas 	

D. DATA MANAGEMENT	
D1. METHODS FOR OBTAINING DATA <ul style="list-style-type: none"> Regular reports Having a simple and uniform reporting system 	LIMITATIONS <ul style="list-style-type: none"> Not all health workers qualified Workers not trained in data management The system of reporting in private sector does not exist We don't get reliable reports
D2. METHODS FOR PROCESSING DATA <ul style="list-style-type: none"> Summary of reports made in the Health Information System 	LIMITATIONS <ul style="list-style-type: none"> We do not have data from private sector Not all data from the public sector is reliable
D3. METHODS FOR REPORTING DATA <ul style="list-style-type: none"> Regular reporting 	LIMITATIONS <ul style="list-style-type: none"> Not all facilities gives reports/data
D4. GENERAL COMMENTS ON MALARIA DATA MANAGEMENT IN THE COUNTRY <ul style="list-style-type: none"> Need for a properly coordinated flow of information (data) at all levels Need for a well monitored and evaluated system in health facilities at all levels N.B.: Need Quantimed training and software 	
TANZANIA	
A. FOR THE CONSUMPTION METHOD	
A1. DATA AVAILABLE <ul style="list-style-type: none"> Reliable inventory records of consumption Records of existing pipelines Suppliers' lead time in primary health care facilities Shelf life Projected unit medicine costs Procurement lead time 	A2. DATA NOT AVAILABLE <ul style="list-style-type: none"> Estimation of time out of stock Supplier lead time not available at lower levels Estimations of buffer stock Estimations of wastages
A3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> Quality of available data Lead time at all levels of health care Availability of data management tools 	
A4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA <ul style="list-style-type: none"> Develop appropriate tools for data collection Training on data collection, analysis, interpretation, and data use 	
B. FOR THE MORBIDITY METHOD	
B1. DATA AVAILABLE <ul style="list-style-type: none"> Population by age groups Attendance at health facilities Projected incidence of uncomplicated severe malaria and pregnancies for IPT Standard Treatment Guidelines Data on percentage treatment failures for first-line medicines Projected medicine costs Shelf life of medicines 	B2. DATA NOT AVAILABLE (not provided)

B3. LIMITATIONS OF AVAILABLE DATA	
<ul style="list-style-type: none"> • Data accuracy and availability • Inadequate reporting system 	
B4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA	
<ul style="list-style-type: none"> • Improve data collection and management • Conduct training of health workers on data management 	
C. FOR THE ADJUSTED CONSUMPTION METHOD	
C1. DATA AVAILABLE (not provided)	C2. DATA NOT AVAILABLE (not provided)
C3. LIMITATIONS OF AVAILABLE DATA (not provided)	
C4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA (not provided)	
D. DATA MANAGEMENT	
D1. METHODS FOR OBTAINING DATA	LIMITATIONS
<ul style="list-style-type: none"> • HMIS (manual and electronic) • Health facility utilization 	<ul style="list-style-type: none"> • HMIS system not user-friendly—currently there are too many data collecting tools
D2. METHODS FOR PROCESSING DATA	LIMITATIONS
<ul style="list-style-type: none"> • Manual and electronic 	<ul style="list-style-type: none"> • Limited hard- and software for data entry • Inadequately trained personnel
D3. METHODS FOR REPORTING DATA	LIMITATIONS
<ul style="list-style-type: none"> • Manual and electronic 	<ul style="list-style-type: none"> • Delays in reporting • Data integrity is sometimes questionable
D4. GENERAL COMMENTS ON MALARIA DATA MANAGEMENT IN THE COUNTRY	
<ul style="list-style-type: none"> • Improve HMIS on the following— <ul style="list-style-type: none"> ○ Data collection ○ Data integrity ○ Retraining of health workers on data management ○ Deployment of skilled personnel ○ Provide hard- and software for data collection and processing 	
UGANDA	
A. FOR THE CONSUMPTION METHOD	
A1. DATA AVAILABLE	A2. DATA NOT AVAILABLE
<ul style="list-style-type: none"> • Reliable inventory records of consumption • Records of existing pipelines • Supplier lead time • Buffer stock • Projected unit medicine costs • Procurement lead time • Shelf life of medicines 	<ul style="list-style-type: none"> • Estimations of stockout times
A3. LIMITATIONS OF AVAILABLE DATA	
<ul style="list-style-type: none"> • Incomplete and inconsistent data reporting • Records of pipelines only at the centers • Buffer stock only at the CMS 	
A4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA	
<ul style="list-style-type: none"> • Improvement of data management processes and team building 	

B. FOR THE MORBIDITY METHOD	
B1. DATA AVAILABLE <ul style="list-style-type: none"> • Data on population according to age • Patient attendance at health facilities • Estimation of percentage changes in attendance • Prevalence records • Standard treatment guidelines • Data on first-line treatment failures • Projected medicine costs • Procurement lead time • Product shelf life 	B2. DATA NOT AVAILABLE <ul style="list-style-type: none"> • Projected incidence of malaria
B3. LIMITATIONS OF AVAILABLE DATA <ul style="list-style-type: none"> • Difficult to measure incidences • Poor records at lower levels • Delayed and untimely reports 	
B4. STEPS TO BE TAKEN TO IMPROVE THE AVAILABLE DATA <ul style="list-style-type: none"> • Capacity building for lower-level facility personnel 	
C. FOR THE ADJUSTED CONSUMPTION METHOD	
C1. DATA AVAILABLE <ul style="list-style-type: none"> • Per capita data on consumption • Patient attendance • Prevalence rates • Number of facilities per category • Estimation of local user population • Procurement lead time • Shelf life 	C2. DATA NOT AVAILABLE
C3. LIMITATIONS OF AVAILABLE DATA	
D. DATA MANAGEMENT	
D1. METHODS FOR OBTAINING DATA <ul style="list-style-type: none"> • Demographic and Health Survey • Census • Studies • Review of records 	LIMITATIONS <ul style="list-style-type: none"> • Costly • Costly • May not be representative • Most records are incomplete
D2. METHODS FOR PROCESSING DATA <ul style="list-style-type: none"> • Manual • Electronic 	LIMITATIONS <ul style="list-style-type: none"> • Data incomplete • Computers not affordable
D3. METHODS FOR REPORTING DATA <ul style="list-style-type: none"> • Reports—monthly, annually • Journals 	LIMITATIONS <ul style="list-style-type: none"> • Lack of stationery
D4. GENERAL COMMENTS ON MALARIA DATA MANAGEMENT IN THE COUNTRY <ul style="list-style-type: none"> • Several health management information systems capture malaria data from rural health facilities to district levels, then to the MOH 	

**ANNEX 6. COUNTRY GROUPINGS FOR TOT PRACTICAL
(September 23, 2005)**

Time	Group A		Group B		Group C	
	Country	Activity	Country	Activity	Country	Activity
9:00–9:45 a.m.	Burundi	2	Ethiopia	2	Kenya 1	2
9:45–10:30 a.m.	DR Congo	2	Kenya 2	2	Tanzania	2
10:30–10:45 a.m.	Tea Break					
10:45–11:30 a.m.	Rwanda	2	Malawi	2	Uganda	2
11:30 a.m.–12:15 p.m.	Burundi	1 or 3	Ethiopia	1 or 3	Kenya 1	1 or 3
12:15–1:15 p.m.	Lunch Break					
1:15–2:00 p.m.	DR Congo	1 or 3	Kenya 2	1 or 3	Tanzania	1 or 3
2:00–2:45 p.m.	Rwanda	1 or 3	Malawi	1 or 3	Uganda	1 or 3

Kenya 1: Akhwale, Khaemba, Mwagwi, D.Otieno

Kenya 2: Ogaja, G. Otieno, Wambua, Shieshia

ANNEX 7. CONSOLIDATED TOT SELF-ASSESSMENT REPORTS

1. At the beginning of the Training-of-Trainers Workshop

A. *Strengths of participants as trainer/facilitator*

- Good time-keeping ability
- Friendliness
- Ability to plan and coordinate a meeting
- Ability to use visual aids
- Organizational skills
- Precision in answering participants' questions
- Ability to be ready as a trainer at short notice
- Coordination of facilitation
- Knowledge of the subject matter
- Field experience with regard to the antimalarials
- Ability to articulate issues
- Good ICT skills
- Enthusiasm
- Willingness to learn new techniques
- Good command of English

B. *Areas that participants want to develop*

- Building confidence in self while presenting
- Better communication skills
- Patience when making presentations
- Ability to apply training skills to antimalarial quantification
- Good time management
- Interaction skills
- Staying in charge when speaking to crowds
- Diction, audibility, and intonation of voice for public speaking
- Learning by practice
- Listening skills
- Methods of interaction with the audience
- Preparation skills
- How to conduct research on training
- Presentation skills
- Developing a timetable for training programs
- Using PowerPoint to develop training materials
- Evaluation of trainings
- Skills in preparing handouts
- Handling adult participants

2. After the Training-of-Trainers Workshop

A. Strengths of participants as trainers/facilitators

- Knowledge of subject matter
- Good use of language
- Having good interaction with the audience
- Understanding the context of presentations
- Organizational skills
- Time management skills
- Patience in taking criticisms
- Ability to communicate and exchange ideas
- Captivating delivery of audience
- Good voice projection
- Participatory approach to facilitation
- Good articulation of points

B. Areas that have been developed/improved during the TOT Workshop

- Demonstrating the knowledge of the subject matter
- Making sure of readiness before presentation starts
- Preparation of workshop materials
- Styles of presentation
- Public speaking and facilitation
- Learning to speak at an appropriate speed
- Ability to tolerate the comments of different people
- How to conduct a presentation
- How to communicate with the audience with questions and comments
- Effective use of body language
- How to handle different types of participants
- Making a good presentation with PowerPoint slides
- Learning how to manage materials
- Time management
- Team work
- How to avoid the common facilitating mistakes

C. Areas that still need to be developed

- How to go from slide to slide
- How to use nonverbal skills
- Overcoming shyness
- Techniques of capturing attention early in the presentation
- Eye contacts with the audience rather than on the screen
- Improvement of communication skills
- Language barriers
- Getting the audience better involved in a participatory style

- How to move around during presentations
- Containing the meeting—unruly crowds and individuals
- How to prepare slides
- How to prepare training manuals and handouts
- Become familiar with audiovisual facilities
- How to practice with experiencing the worst
- How to organize events at national and international levels

