

Republic of Malawi Ministry of Health National Malaria Control Program Supervision Report for Monitoring ACT and Malaria Control Activities

November 2008



The supervision activity and this report are made possible by the generous support of the American people through the U.S. Agency for International Development (USAID), under the terms of Cooperative Agreement #GHN-A-00-07-00002-00. The contents are the responsibility of Management Sciences for Health and do not necessarily reflect the views of USAID or the United States Government.

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2008. *Republic of Malawi Ministry of Health National Malaria Control Program Supervision Report for Monitoring ACT and Malaria Control Activities*

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ACKNOWLEDGMENTS

The National Malaria Control Program would like to thank the supervisors who committed to the supervisory visits and provided technical support to the health facilities. They are—

- Deputy Zonal officers: Mrs. E. Chirwa, Mr. M. Msadala
- NMCP malaria officers: Mr. S. Ndau, Mr. J. Sande
- Case management trainer: Mrs. R. Chikumbe
- District malaria coordinators and pharmacy technicians from Karonga, Rumphi, Nkhata Bay, Mzimba, Kasungu, Nchisi, Dowa, Nkhotakota, Salima, Mchinji, Lilongwe, Dedza, Ntcheu, Mangochi, Balaka, Machinga, Phalombe, Mulanje, Zomba, Blantyre, Mwanza, Nsanje, and Neno Districts
- USAID|DELIVER: Ms. J. Waweru, Mr. M. Msefula
- MSH/SPS: Ms. C. Kamtengeni, Ms. J. Wang

We would particularly like to express our appreciation to MSH/SPS for the organization of the supervisory activities and data analysis, as well as to USAID for the financial support.

Special thanks go to the District Health Officers and the visited facilities that fully supported the supervisory activities and cooperated with the supervisors.

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ACRONYMS

ACCESS	Access to Clinical and Community Maternal, Neonatal and Women's Health Services
ACT	artemisinin-based combination therapy
ADR	adverse drug reactions
CHAM	Christian Health Association of Malawi
CMS	Central Medical Stores
DH	District Hospital
DHO	District Health Officer
DNs	Delivery Notes
HC	Health Center
HSAs	Health Surveillance Assistants
IEC	information, education, and communication
IPT	intermittent preventive treatment
ITNs	insecticide-treated nets
LA	lumefantrine-artemether
MG	Malawi Government
Mg	milligram
MSH	Management Sciences for Health
NMCP	National Malaria Control Program
RMSs	Regional Medical Stores
RMS-C	Regional Medical Stores-Central
RMS-N	Regional Medical Stores-North
RMS-S	Regional Medical Stores-South
SP	sulfadoxine-pyrimethamine
SPS	Strengthening Pharmaceutical Systems
USAID	U. S. Agency for International Development

EXECUTIVE SUMMARY

The new malaria treatment policy that calls for using lumefantrine-artemether (LA) 20 milligram (mg)/120 mg (Coartem[®]) for the treatment of uncomplicated malaria was officially launched in Malawi in December 2007. To support the health facilities on the implementation of the new malaria treatment policy and to routinely monitor implementation progress, quarterly supervision visits were scheduled for 2008. The first supervisory visits were conducted on March 10–20, 2008. Supervisory teams included malaria officers from National Malaria Control Program (NMCP), zonal medical officers, members from U. S. Agency for International Development (USAID)/DELIVER, Management Sciences for Health's (MSH) Strengthening Pharmaceutical Systems (SPS) Program, case management trainers, and district malaria coordinators, and district pharmacy technicians. Forty-four facilities in 23 districts in the 5 zones were visited. These included 14 government District Hospitals, 1 rural hospital, 12 health centers, and 9 Christian Health Association of Malawi (CHAM) hospitals and 8 CHAM health centers.

Discussions and Recommendations

In summary, there are some challenges to implementing new malaria treatment as observed from the supervision —

- Poor documentation on health management information system (HMIS), stock cards, and dispensing registers which might affect LA quantification and procurement
- Late monthly reporting of some facilities affected the whole district which then affected the timely drug supply
- Rationed supply by RMS due to short stock caused the further rationing and delay of the supply from DHOs to the facilities
- Diagnostic tools (microscopes) were not available in most of the health centers
- Some untrained health workers were prescribing or managing LA
- Communication with patients on how to use LA was compromised mainly due to high workload

- Shortage of staff and the lack of interest in drug management of the relief-duty staff negatively impacted the drug management in some facilities

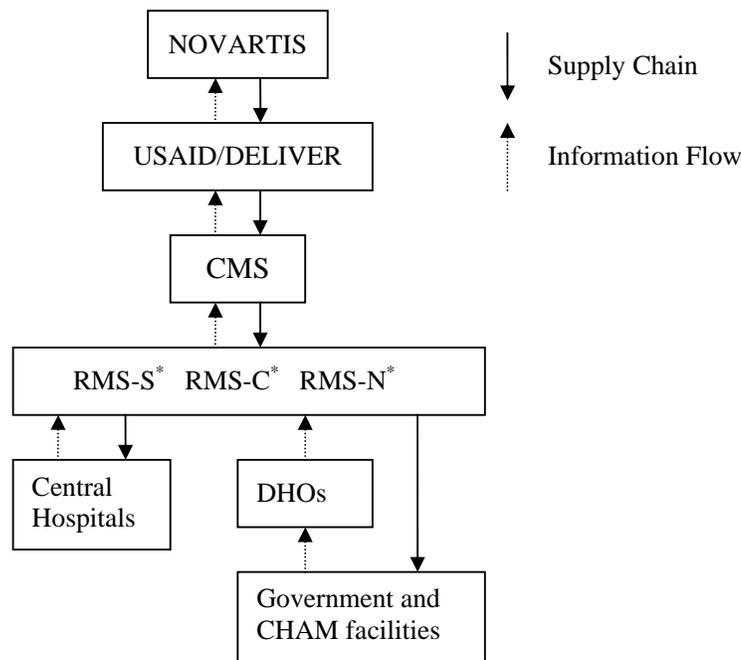
Proposed recommendations to address the challenges are as follows.

- Provide training and orientation in—
 - Case management, including the auxiliary workers that perform dispensing
 - Drug management and the documentation of stock cards, dispensing registers, delivery notes, and related documents
 - Monthly reporting
- Strengthen the recording of LA in the dispensing registers outside the pharmacy such as in wards, outreach clinics, and any peripheral units
- Make diagnostic tools available and training lab assistants for the health centers
- When quantifying LA, take under-recording of malaria cases and the increasing referrals from communities into consideration
- Strengthen the information flow for routine monitoring and evaluation for drug management
- Introduce performance evaluation and recognition system to improve implementation
- Improve data collection procedures once the HMIS is strengthened

INTRODUCTION

Artemisinin-based combination therapy (ACT) for the treatment of uncomplicated malaria was introduced to Malawi in September 2007. All government and Christian Health Association of Malawi (CHAM) health facilities received the first consignment of the first-line ACT medicine, lumefantrine-artemether (LA) 20 milligram (mg)/120 mg, in October 2007. Most of the clinical workers in government and CHAM health facilities—clinicians, nurses, pharmacy technicians, and laboratory technicians—received training on case management and drug management during the same period of time. Hence, the use of LA was launched in December 2007.

After the first “pushing” of LA, all government and CHAM facilities are supposed to submit their monthly reports on the consumption and stock status to the district health officers (DHOs) and request for replenishment. The procedure is to ensure the sustainable supply of LA to the facilities. The supply chain and information flow is shown below.



*Regional Medical Stores-South, Central, North

Figure 1. Supply chain and information flow for LA

To better document LA dispensing, a dispensing register was introduced and given to the DHOs to further distribute to the facilities in their districts in February 2008. The use of dispensing register will capture the flow of LA from drug store to the patients and keep the detail of the treatment records. It will provide the information on how the medicines were used and the information for quantification.

The supervision aims to support the facilities on the implementation of the new malaria treatment and to assess health care workers' and the patients' level of understanding of the new treatment. A supervision orientation meeting was held in February to review the supervisory tool and plan the schedule for the supervision visits. Quarterly visits were scheduled and facilities were selected to be visited. The supervisory teams include two members from Central level—National Malaria Control Program (NMCP), zonal offices, and partners Management Sciences for Health's (MSH) Strengthening Pharmaceutical Systems (SPS) Program and U. S. Agency for International Development (USAID)/DELIVER, as well as two members from the districts, the district malaria coordinators, and pharmacy technicians. The first supervisory visits were conducted March 10–20, 2008. Forty-four facilities in 23 districts of 5 zones were visited.

Methodology

A check list was used as a supervisory tool for the activity. It was developed through a consultative process and was reviewed and revised in the supervisory orientation meeting. Supervisors were divided into five teams for the five zones. Each team comprised two central members and two district members. When the central members arrived in the district, one district malaria coordinator and pharmacy technician joined the team. Two facilities were visited in each district in one day. While at the facility, the team divided to two subgroups, case management and drug management. Feedback was given to the in-charge of the facilities at the end of the visits.

Originally, 54 facilities in 27 districts were to be visited; however, 44 facilities in 23 districts were actually visited because of Easter holiday. The facilities visited include 14 government District Hospitals, 1 rural hospital, and 12 health centers, and 9 CHAM hospitals and 8 CHAM health centers.

The supervisors are listed in Appendix 1 while the facilities visited are listed in Appendix 2..

Findings

The presentation of the findings are in four categories (based on supervisory tool)—

1. Training and communication
2. Case management
3. Drug management
4. IPT and ITN

Training and Communications

The number of health care workers trained in ACT in the visited facilities and 7 districts was 1,760 while the number of untrained was 346. All the facilities have at least one staff on duty trained in ACT except one CHAM facility, Mlowe Health Center in Rumphu District, which has been served by different staff for short-term relief duty due to lack of personnel.

With regard to information, education, and communication materials, 21 of 44 (48 percent) facilities received patient posters and 15 (34 percent) facilities received leaflets, but the posters were only visible in 14 (32 percent) facilities and leaflets in 11 (25 percent) facilities.

Case Management

Malaria Cases

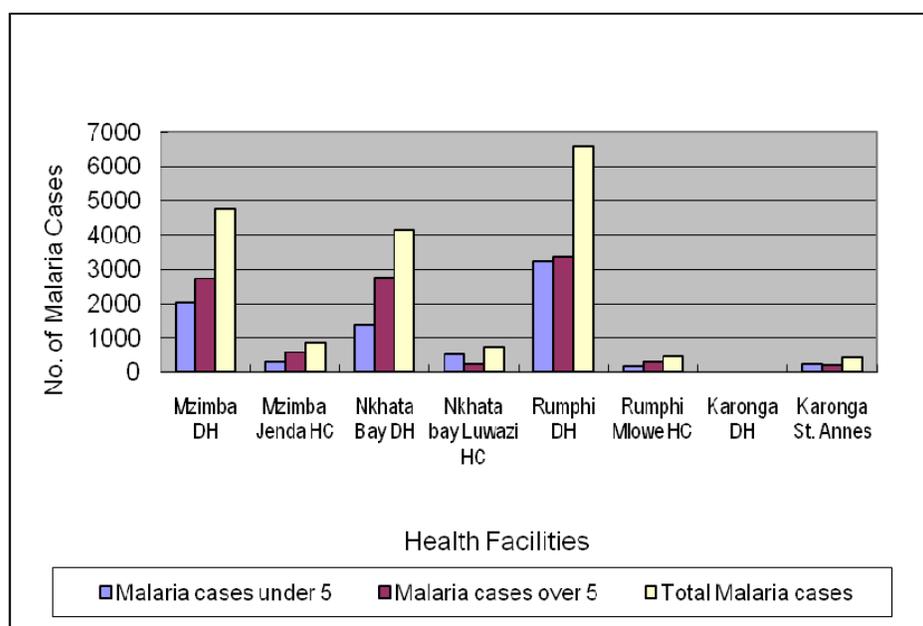
The complete data of malaria cases were available in 36 (82 percent) of 44 facilities. Data was unavailable in Ncheu District Hospital, and incomplete in the following facilities: Nkhata Bay, Karonga, Mchinji, Dedza District Hospitals, Mkhuzi Health Center in Nchisi, Dwanbazi Health Center in Nkhotakota, and St. Lukes Hospital in Zomba. The number of malaria cases from December 2007 to February 2008 for each facility was collected and presented in figures 1–5. Total number of malaria cases in the 43 facilities December 2007–February 2008 was 203,055 (tables 1 and 2). It is observed that high malaria cases were mainly in children under the age of five (51 percent) and in southern zones where 20 facilities contributed to 68 percent of malaria cases of 43 facilities.

Table 1. Malaria Cases in 43 Facilities by Age Groups, Dec. 2007–Feb. 2008

	December 07	January 08	February 08	Total
Under 5 years of age	32,385 (52%)	36,817 (53%)	33,975 (48%)	103,177 (51%)
Over 5 years of age	30,407 (48%)	31,839 (47%)	34,738 (52%)	96,994 (49%)
Total malaria cases	62,792	70,023	70,240	203,055

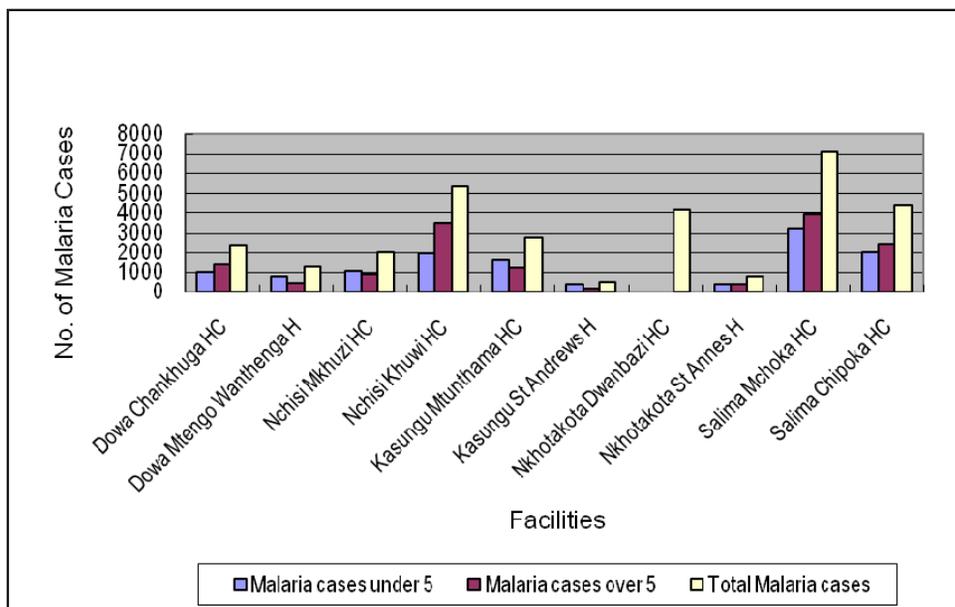
Table 2. Malaria Cases in 43 Facilities by Zones, Dec. 2007–Feb. 2008

Zone (No. of facilities provided data)	Northern Zone (8)	Central East Zone (10)	Central West Zone (5)	Southern East Zone (12)	Southern West Zone (8)
Under 5 years of age	9,939	12,641	9,574	41,326	29,697
Over 5 years of age	10,066	15,148	7,286	36,765	27,729
Total malaria cases	20,005	27,789	16,860	78,091	57,426



Note: Data was incomplete in Nkhata Bay and Karonga District Hospitals

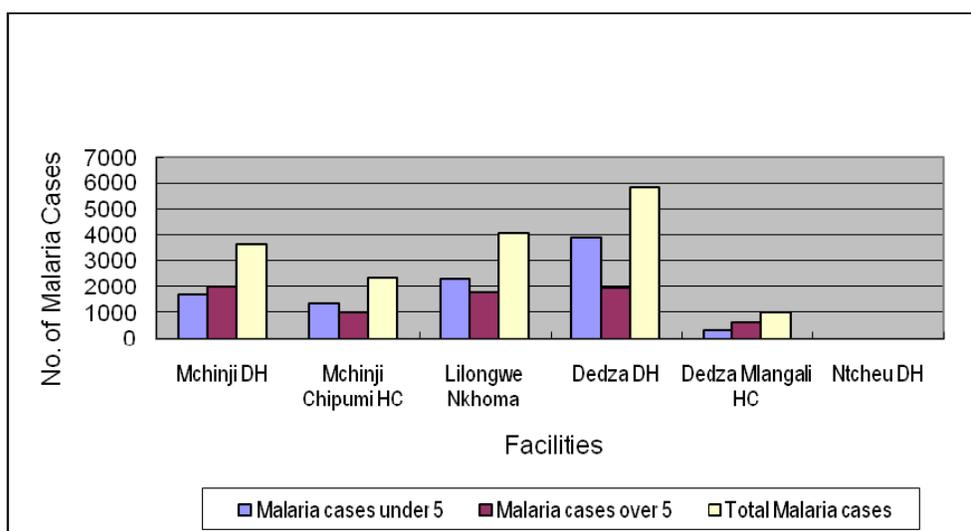
Figure 2. Malaria cases in Northern Zone facilities, Dec. 2007–Feb. 2008



Note: Data was incomplete in Mkhuzi Health Center in Nchisi and the Dwanbazi Health Center in Nkhotakota.

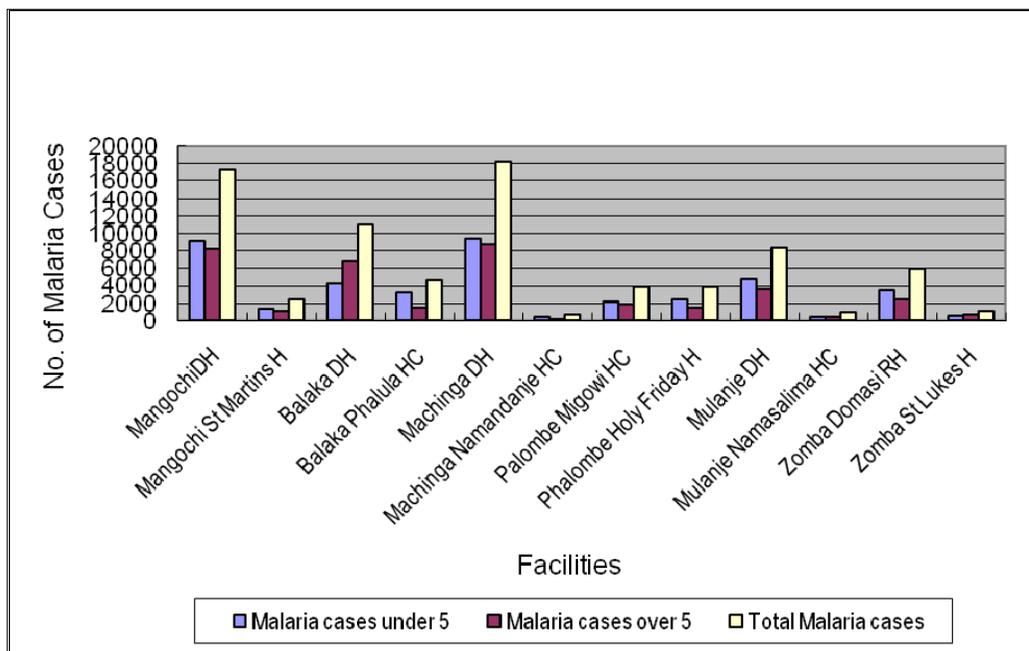
Figure 3. Malaria cases in Central East Zone facilities, Dec. 2007–Feb. 2008

Malaria cases were high in the Salima district health facilities. Fewer malaria cases were observed in the facilities with microscopes services, such as Mtengo Wanthenga Hospital, St. Andrews Hospital, St. Annes Hospital (all CHAM facilities). In addition, Chipoka Health Center (with microscope), compared to Mchoka Health Center (without microscope), also showed relative fewer malaria cases.



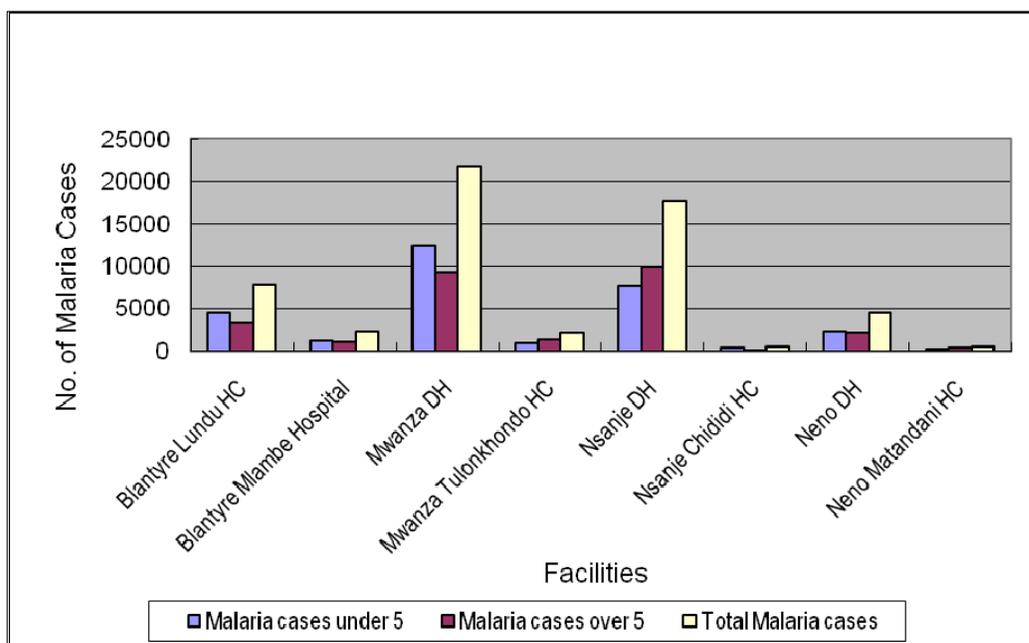
Note: Data was unavailable in Ntcheu District Hospital and incomplete in Mchinji and Dedza District Hospitals.

Figure 4. Malaria cases in Central West Zone facilities, Dec. 2007–Feb. 2008



Note: High malaria cases in Machinga and Mangochi District Hospitals. Data incomplete in St. Lukes Hospital.

Figure 5. Malaria cases in Southern East Zone facilities, Dec. 2007–Feb. 2008



Note: High malaria cases in Mwanza and Nsanje District Hospitals.

Figure 6. Malaria cases in Southern West Zone facilities, Dec. 2007–Feb. 2008

High numbers of malaria cases were reported in Mangochi (17,328), Machinga (18,243), Mwanza (21,713), and Nsanje (17,602) District Hospitals, all in the Southern zones. The

malaria cases in these 4 hospitals accounted for 37 percent of all cases reported. Both the Khuwi Health Center in Nchisi District and Mchoka Health Center in Salima District in Central East Zone also had high numbers of malaria cases—5,364 and 7,097 cases, respectively.

Suspected Treatment Failure and Adverse Reactions

There were 26 facilities indicating suspected treatment failures. Although 15 facilities provided exact numbers indicating that 59 patients switched to quinine, there was no direct evidence of the treatment failure.

There were eight facilities that observed suspected adverse reactions. Table 3 indicates the reactions and the number of cases. None of the reactions was reported to NMCP because most of the skin reactions were mild enough that they were not regarded as adverse reactions, and there is no direct evidence that LA was the cause of the reactions. In addition, the report form for reporting adverse reactions was not available, and the facilities were not aware how to report the adverse reactions.

Table 3. Suspected Adverse Reactions Observed in 44 facilities, Dec. 2007–Feb. 2008

Reactions	Urticaria	Skin rash	Hypersensitivity	Palpitation	Dizziness
Number of cases	3	3	1	2	1

Case Management and Patient Awareness

Only 26 (59 percent) facilities, including 24 hospitals and 2 health centers, have laboratories or microscopes for malaria testing. However, clinical symptoms are used for the diagnosis of malaria in almost all the facilities. Only 4 (9 percent) respondents indicated that only lab tests were used for malaria diagnosis. Rapid diagnostic testing was not available in all facilities.

Observation on how prescribers (clinicians or nurses) manage malaria cases was conducted in all facilities except 5 facilities where no malaria patients were found during the time of visit. Thirty-six (90 percent) of 39 prescribers used treatment guidelines while prescribing. Table 4 summarizes the observations for case management.

Table 4. Summary of Case Management Observations

Descriptions	Yes	No
The patient's body weight was indicated on the prescriptions	24 (62%)	15 (38%)
The correct doses were prescribed	35 (90%)	4 (10%)
The prescribers communicated all the key messages when prescribing/giving LA	17 (44%)	22 (56%)

Some patients' body weights were at the lower margin of the band and the prescribers prescribed the dosage of the lower band for them. Most of the prescribers did not communicate all the key messages to the patients partly because the drug was given at the dispensary. However, most of the medicines are dispensed by pharmacy attendants who may not be able to communicate the medicine information or respond to inquiries properly.

Seventy-five patients who were prescribed LA were interviewed at 39 facilities, including 30 (40 percent) caretakers for sick children, 19 (25 percent) female adults, and 26 (35 percent) male adults. When they were asked if they understand how to use the drug, 80 percent of them were able to correctly indicate the regimen and 79 percent of them indicated that they will complete the three-day course. There is slight difference among the caretakers, female adults, and male adults (table 5) on awareness about LA use. It shows that the children's caretakers are more careful about how to use the medicine than female and male adult patients. However, it may not prove that there is significant difference because the sample size is small.

Table 5. Awareness on the Use of LA among Caretakers and Adult Patients

	Care takers	Female adults	Male adults	Total
Correctly indicated number of times and tablets taken per day	25 (83%)	15 (79%)	20 (77%)	60 (80%)
Correctly indicated that 3-day course will be completed	24 (80%)	15 (79%)	20 (77%)	59 (79%)
Number of the interviewees (Denominators)	30	19	26	75

When they were asked if they saw the education posters and understand the message on the posters, 20 had seen the posters, and only 15 (75 percent) understood the message (table 6), 2 glanced at the message without reading it, and 1 was unable to read it because of illiteracy. Since there were only 14 facilities with visible posters, the usefulness of the posters is questionable.

Table 6. Results of Reading and Understanding the Education Posters

	Care takers	Female adults	Male adults	Total
Number of interviewees who saw posters	8	4	8	20
Number of interviewees who understood message	7	2	6	15 (75%)

Drug Management

Reporting and Medicine Supply

To improve facilities' timely monthly reporting, a reporting calendar was given to the facilities together with the first consignment of LA. The calendar is supposed to be made visible to serve its function. However, it was only visible in 9 (20 percent) of the 44 facilities.

Pushing of LA was only applied for the first consignment. Facilities were asked to order LA after the first supply (pulling). All the government and CHAM facilities, except Central Hospitals, are supposed to submit their monthly report for LA to the corresponding District Health Officers (DHOs) by the fifth of each month regardless of whether they were ordering LA or not. There are two monthly report forms—LMIS01A or LMIS01B and original (white) copies of dispensing register. Government health centers and CHAM hospitals and health centers should fill out LMIS01A form while district hospitals fill out LMIS01B, which are now incorporated with the list of LA. After receiving the monthly reports from the facilities, the district pharmacy technicians will compile the reports using the tracking form, which is a programmed spread sheet in Supply Chain Manager, and the data will be translated to an ordering form for ordering LA. The pharmacy technicians will then fill the requisitions manually and submit the requisitions together with LMIS01A, LMIS01B, white copies of dispensing registers, tracking forms, and ordering forms to RMS to order LA by the tenth of each month. RMS will deliver LA and other supplies directly to the facilities by end of the month. The lead time is almost one month or could be longer if some facilities did not send their reports in time.

Among the 44 facilities, only 22 (50 percent) facilities reported that they are aware of the forms and the procedures for reporting and ordering. Most of the facilities did not know that the white copies of dispensing registers must be submitted for reporting. Some facilities were given the LMIS01A form without the list of LA and some CHAM facilities were not even given the LMIS01A form or did not know how to fill out and submit the report. Since the dispensing register books were delivered in February, the facilities have not yet submitted white copies for monthly reports. Table 7 shows that 33 facilities (75 percent) had submitted their report for January 2008, 24 were government facilities (55 percent), and 18 percent of

the CHAM facilities did not submit the report compared to 7 percent of the government facilities.

Table 7. Reporting Status of Facilities

	Government Facilities	CHAM Facilities	Total
No. and % of the facilities submitted LA report for Jan 2008 (Denominator: 44)	24 (55%)	9 (20%)	33 (75%)
No. and % of the facilities did not submit LA report for Jan 2008 (Denominator: 44)	3 (7%)	8 (18%)	11 (25%)

Twenty (45 percent) facilities submitted reports for January 2008 on time, only 18 (41 percent) facilities ordered LA because the other 2 facilities had adequate stock, and 13 (30 percent) facilities reported late. Table 8 indicates the response of RMS. Sixteen (36 percent) facilities received the second or third consignment of LA by the day of visit, 15 of them have reported for January 2008. One did not submit the report was supplied, which might be supplied by the DHO for the emergency order.

Table 8. Supply Status for Jan. 2008 Report

	Government Facilities	CHAM Facilities	Total
No. and % of the facilities submitted report and ordered LA for Jan 2008 timely (denominator: 44)	13 (30%)	5 (11%)	18 (41%)
<i>Those ordered timely were supplied by the day of visit (denominator: 18)</i>	8 (44%)	0 (0%)	8 (44%)
No. and % of the facilities submitted report and ordered LA for Jan 2008 late (denominator: 44)	10 (23%)	3 (7%)	13 (30%)
<i>Those ordered late were supplied by the day of visit (denominator: 13)</i>	7 (54%)	0 (0%)	7 (54%)
All those ordered were supplied by the day of visit (denominator: 31)	15 (48%)	0 (0%)	31 (100%)

Ten of the 15 facilities supplied after their January report are District hospitals. Because of the shortage in RMS, supplies were rationed; only DHOs were supplied and it was expected that the DHOs would supply the health centers and CHAM facilities.

Record Keeping for Delivery Notes

Delivery notes (DNs) were used to check against the stock cards for the received consignments. The district pharmacy technicians were requested to bring the delivery notes

which the facilities submitted for supervision. However, most of the facilities did not submit or even did not know that one copy of the delivery notes should be given to DHO. Therefore, the delivery notes filed at the facilities were used for the same purpose. There were 28 (64 percent) facilities with the number of delivery notes matching the number of records on the stock cards, and 27 (61 percent) facilities correctly captured the information on the stock cards. Only 19 (43 percent) facilities properly filed their delivery notes by the order of date or month. The district hospitals usually have many more delivery notes (including blue copies) which were not filed by the order of requisition numbers. Table 9 illustrates the documentation conditions of the delivery notes.

Table 9. Documentation of Delivery Notes

	All correctly recorded	Not all correctly recorded	DNs missing	Others^a	N/A
Information of DNs recorded on stock cards	27 (61%)	7 (16%)	3 (7%)	2 (5%)	5 (11%)
	Properly filed	Not properly filed	DNs missing ^b	DNs not given	N/A
Filing of delivery notes	19 (43%)	16 (36%)	3 (7%)	1 (2%)	5 (11%)

^aOthers: Delivery note was not given to 1 facility when it received the first consignment from CHAM; one facility did not open stock cards.

^bDelivery notes missing after they were filed.

Inventory Control of LA and Essential Drugs and Supplies for Malaria Treatment

The inventory control for the essential drugs and medical supplies for the treatment of malaria and its complications were assessed through the following criteria—

- Availability of commodities
- Presentation of the stock cards
- Updating of the stock cards—whether the physical stocks tally with the balance on the stock cards

The essential commodities were categorized into four groups: LA, other malaria medicines and medicines for complications, IV infusions and medical supplies, and diagnostic equipment. This is based on the observations of the different attentions paid to the above commodities by the pharmacy staff.

Table 10. Commodities and Equipment Selected for the Supervision

Categories	A	B	C	D
	LA	Malaria-related medicines	IV infusions and supplies	Diagnostic reagents and equipment
Items	4 packs	6 items	5 items	4 consumables, 2 equipment
	1x6 2x6 3x6 4x6	Quinine tablets Quinine ampoules SP tab Paracetamol tab Dextrose 50% vial Diazepam amp	5% Dextrose IV infusion 0.9% Nacl IV infusion IV cannulas IV giving sets 10 ml syringes	Field stain A Field stain B Microscope slides Microscope cover slips Microscopes Weighing scales

The results of the inventory control of the above items are presented in tables 11, 13, 14, and 15.

Table 11. Inventory Control of LA (category A)

Description	4 packs	1-3 packs	None
No. and % of facilities that LA was available on the day of visit	32 (73%)	9 (20%)	3 (7%)
No. and % of facilities that open stock cards for LA	41 (93%)	0 (0%)	3 (7%)
No. and % of facilities that the physical stock of LA tallied the balance on the stock cards on the day of visit	14 (32%)	23(52%)	7 (16%)

There were 32 (73 percent) facilities with all packs of LA available on the day of visit and 3 (7 percent) facilities with all packs of LA out of stock. Nine (20 percent) facilities ran out of stock of some packs of LA, most of them were 1x6 and 4x6. Some of these facilities have struggled on how to translate the available pack sizes into the stock-out ones when filling the dispensing register. Some of the supervisors provided instructions to some of these facilities on how to adjust the pack sizes on the stock cards and dispensing register, but the approaches do not appear standardized. The majority (93 percent) of the facilities had opened the stock cards for LA—only 3 (7 percent) of CHAM facilities didn't. However, one of these CHAM facilities uses a dispensing register as stock cards. With regard to the update on the stock cards, disappointingly, only 32 percent of the facilities tally for all the 4 pack sizes. Some of them were just updated a day before because of the supervision.

One thing taken for granted before the supervision was that the facilities all use tablet as the unit on the stock cards and dispensing register. Therefore, there was no specific question in the checklist to identify the problem of various units used in the facilities. However, it was observed that units used on the stock cards included tablet, treatment, and box; and units used on the dispensing register included tablet and treatment. Some of the facilities complained

that using the unit of tablet is very burdensome since it takes time to calculate and is prone to mathematical errors since most of the facilities do not have calculators, in particular in the district hospitals where large quantities are managed. Information collected from Central East Zone and Northern Zone (18 facilities) (table 12) indicates that slightly more facilities use the unit of treatment than use the tablet unit, so as the number of the facilities whose physical stock of all LA packs tally the balances on the stock cards. However, the small sample size may not allow this conclusion to apply to all country facilities. This requires further investigation and discussion with the people working in the pharmacy and filling dispensing registers.

Table 12. Unit Used on Stock Cards and Dispensing Registers

Descriptions	Tablet	Treatment	Box	Mixed
No. and % of facilities using the indicated units on the stock cards (denominator–18)	7 (39%)	8 (44%)	2(11%)	1 (6%)
No. and % of facilities using the indicated units on the dispensing register (denominator–18)	6 (33%)	5 (29%)	N/A	7 (39%)
No. and % of facilities that the physical stock of <u>all pack sizes</u> of LA tallied the balance on the stock cards on the day of visit (denominator–18)	1 (6%)	3 (17%)	0	0

N/A = nonapplicable

Tables 13 and 14 demonstrate that the facilities paid less attention to the management of essential medicines and sundries, particularly the IV infusions and medical supplies. Quinine tablets and injectables were out of stock in many facilities. Although quinine tablets are not eligible to be stocked in health centers, most of the health centers did have this medicine. The unit of dextrose 50 percent also caused confusion to many facilities since the volume of the bottle changed from 20 milliliter (ml) to 50 ml. The information in table 14 implies that the management of IV infusions and medical supplies needs more attention of the districts' management team. Some facilities did not open stock cards for IV infusions and medical supplies, and some of the supplies were seen mixed or stored in bad conditions such as in a leaking store or in a store mixed with expired commodities.

Table 13. Inventory Control of Essential Medicines (category B) Related to Malaria Treatment

Descriptions	6 items	1-5 items	None
No. and % of facilities that these items were available on the day of visit	20 (45%)	24 (55%)	0 (0%)
No. and % of facilities that open stock cards	34 (77%)	7 (16%)	3 (7%)
No. and % of facilities that the physical stock of items tallied the balance on the stock cards on the day of visit	10 (23%)	32 (73%)	2 (4%)

Table 14 Inventory Control of IV Infusions and Medical Supplies (category C)

Descriptions	5 items	1-4 items	None
No. and % of facilities that these items were available on the day of visit	20 (45%)	24 (55%)	0 (0%)
No. and % of facilities that open stock cards	17 (39%)	22 (50%)	5 (11%)
No. and % of facilities that the physical stock of these items tallied the balance on the stock cards on the day of visit	7 (16%)	29 (66%)	8 (18%)

As previously described, only 26 facilities have microscopes to use for malaria diagnosis. However, shortage of the reagents or slides might hamper the services. Table 15 presents the stock status of the consumables for microscopes. Most of these items were kept in the lab but most of the lab technicians or assistants do not know how to manage inventory.

Table 15. Inventory Control of Consumables for Microscopes (category D)

Descriptions	4 items	1-3 items	None
No. and % of facilities that these items were available on the day of visit	15 (58%)	11 (42%)	0 (0%)
No. and % of facilities that open stock cards	13 (50%)	5 (19%)	8 (31%)
No. and % of facilities that the physical stock of these items tallied the balance on the stock cards on the day of visit	9 (35%)	6 (23%)	11 (42%)

Data on the availability of weight scales was incomplete, 13 facilities did not provide the information, and 4 facilities showed that they do not have any weight scales that function.

Stock-out of LA and Essential Medicines, Dec. 2007–Feb. 2008

Most of the facilities started using LA in December 2007. By end of February 2008, the wide-spread complaints of stock-out had negatively affected how the implementation of the new malaria treatment was perceived. The data in Table 16 and 17 provide a better picture of

the situation. Twenty-one (47 percent) facilities experienced various levels of the stock-outs, from 1 pack size to all 4 pack sizes. It means that these facilities had struggled for the adjustment of the available pack sizes to the stock-out ones. The most stock-out pack sizes were 4x6 and 1x6, which also had longer period of stock-out than that of 2x6 and 3x6. The main causes of the stock-out were the stock-out at the RMS and not knowing how to produce the monthly report.

Table 16. Stock Status of LA in the Facilities, Dec. 2007–Feb. 2008

Description	4 pack sizes out of stock	1-3 pack sizes out of stock	None were out of stock
No. and % of facilities experienced LA stock-out between Dec. 2007 and Feb. 08	6 (14%)	15 (34%)	23 (53%)

Table 17. Stock Status of Various Pack Sizes of LA, Dec. 2007–Feb. 2008

Descriptions	1x6	2x6	3x6	4x6
No. and % of facilities experienced stock-out of specific pack sizes of LA	13 (30%)	9 (20%)	9 (20%)	18 (41%)
No. of days of stock-out between Dec 07 and Feb 08	4.82±9.36	3.39±8.60	1.60±4.81	5.45±9.69

The stock situation of other malaria medicines was much worse than the LA stock (table 18). SP was mainly used for IPT but some facilities opted for it when LA was out of stock. Its stock-out could affect the implementation of IPT for pregnant women. Quinine tablets and injectables were out of stock in most of the health centers. Since quinine injectable was expired in January 2008 and there was no fresh lot in CMS, some of the district hospitals had to procure from private suppliers.

Table 18. Stock Status of Other Medicines Related to Malaria Treatment, Dec. 2007–Feb. 08

Descriptions	Quinine tab	Quinine amp	SP	Paracetamol
No. and % of facilities experienced stock-out between Dec. 2007 and Feb. 08	16 (36%)	18 (41%)	13 (30%)	14 (32%)
No. of days of stock-out between Dec. 2007 and Feb. 2008	14.76±23.84	10.41±16.93	10.26±18.58	5.43±11.21

Malaria Cases and the Consumption of LA

The supervision intended to compare malaria cases against the consumption of LA from stock cards and dispensing registers in particular. However, most of the facilities only started using LA between the beginning of December 2007 and January 2008, and started using dispensing register between end of February and March. Quite a few recommendable facilities made photocopies of dispensing register from the treatment guidelines and started using it since the launch of LA treatment; however, very few of them continued until the receipt of the dispensing register books. With regard to the stock cards, some facilities did not update properly, some had mathematic errors which could not be identified at the time of visit. Some district hospitals issued LA to health centers and the collection of the adjusted information was unable to carry out due to time constraint. As described in the section of case management, some of the data of malaria cases was not available or incomplete in the following facilities: Nkhata Bay, Karonga, Mjinji, Dedza, Ncheu District Hospitals, Dwanbazi Health Center in Nkhotakota, St. Lukes Hospital in Zomba. Hence, figures 6-10 could only present the actual data no matter if the cases were completed or not. (The facilities followed by “GM” means government facility. The high issues of LA from stock cards of district hospitals was because that they not only issued to its own facility but also issued to health centers.)

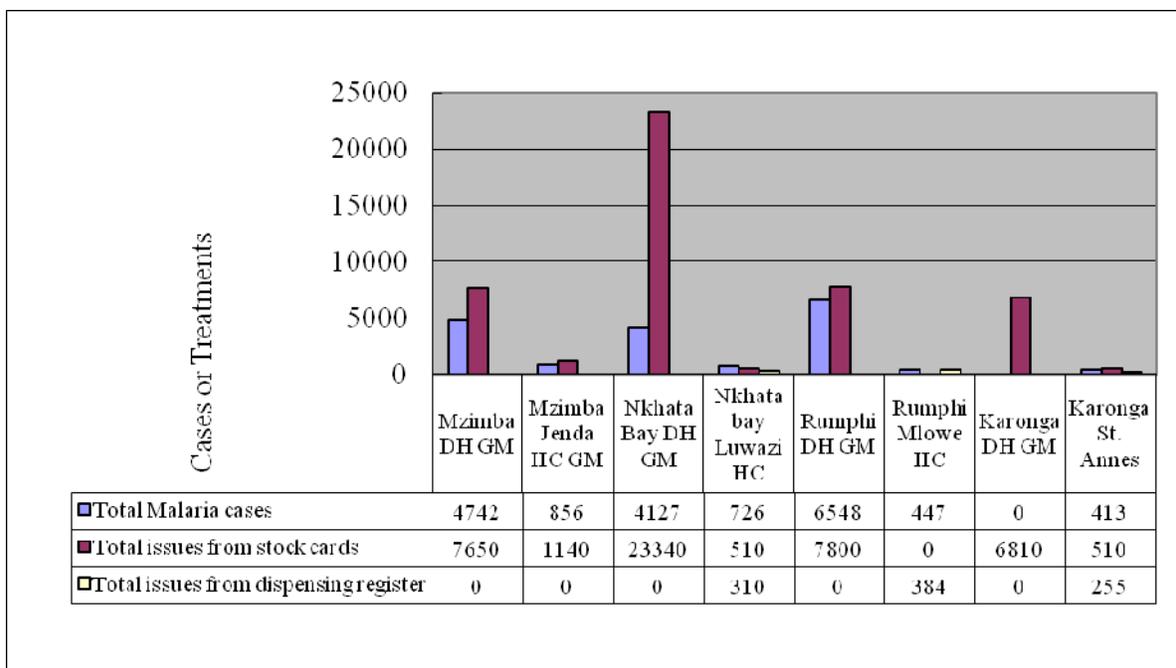
Table 19 presents malaria cases and LA consumption (in treatments) between Dec. 2007 and Feb. 2008. It provides the trend of the consumption rather than the significance for comparison.

Table 19. Malaria Cases and LA treatments, Dec. 2007–Feb. 2008

	Dec. 2007^a	Jan. 2008	Feb. 2008^b	Total
Total malaria cases (A)	62,792	70,023	70,240	203,055
LA treatments (B)	34,246	93,872	107,256	235,374
Difference (B-A)	-28,546	23,849	37,016	32,319

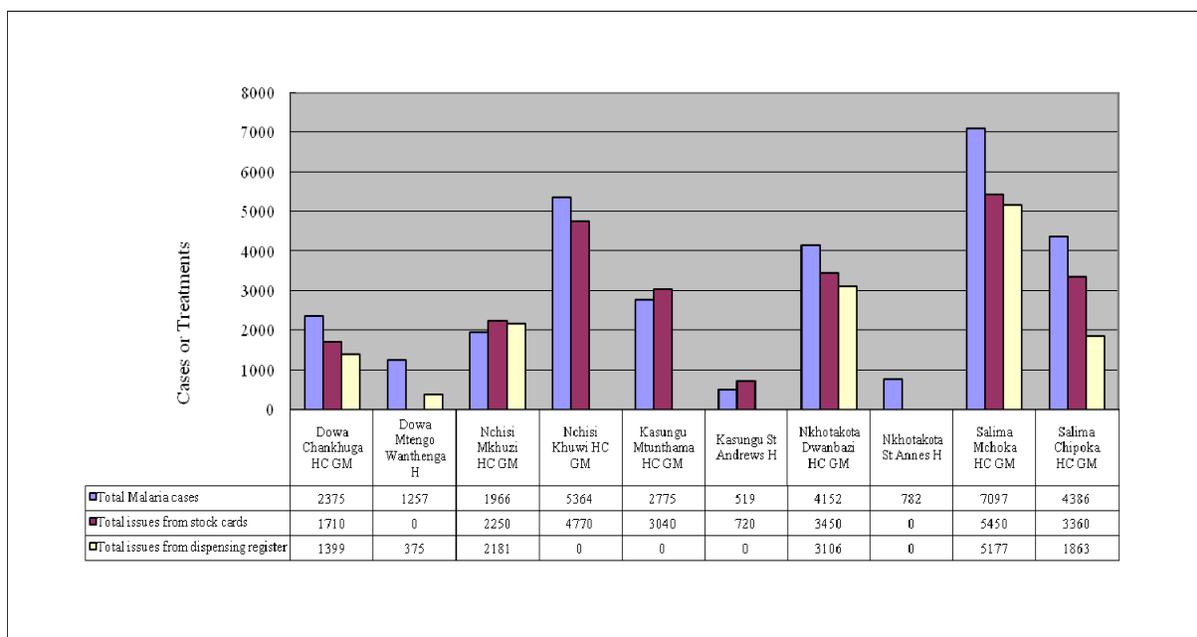
Note: a. Low consumption of LA in Dec 07 because launch of LA was late and varied among facilities.

b.. LA treatments were not directly related to the malaria cases of district hospitals because district hospitals also supply LA to health centers, particularly in Feb. 2008.



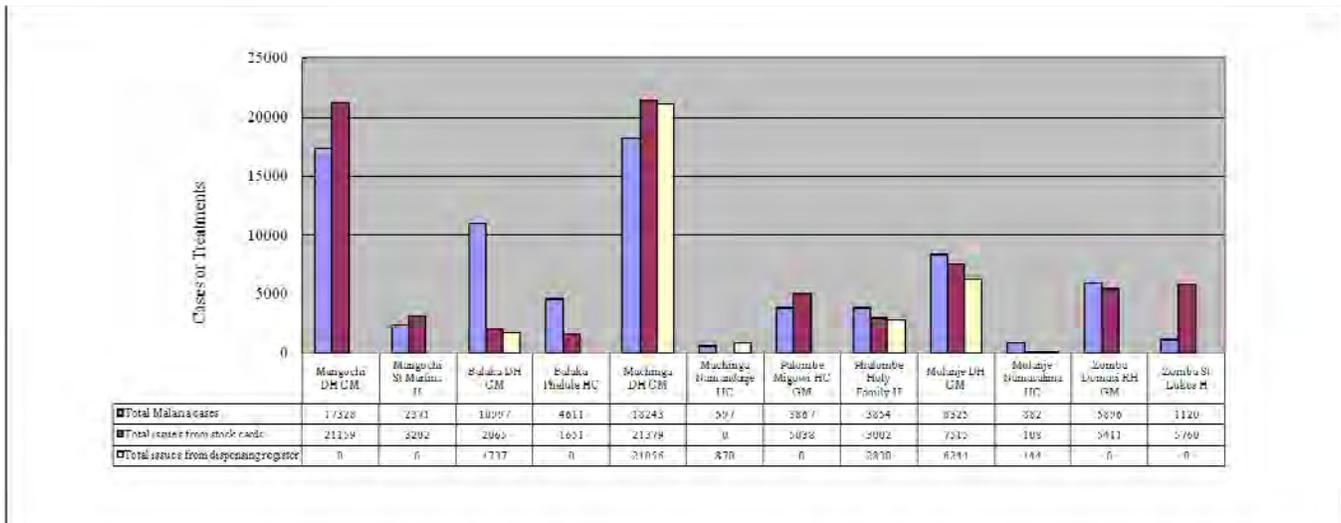
Note: Data of malaria cases was incomplete in Nkhata Bay and Karonga District Hospitals. Data of LA issues from stock cards was incomplete in Rumphi district hospital.

Figure 7. Comparison of malaria cases and LA issues in Northern Zone, Dec. 2007–Feb. 2008



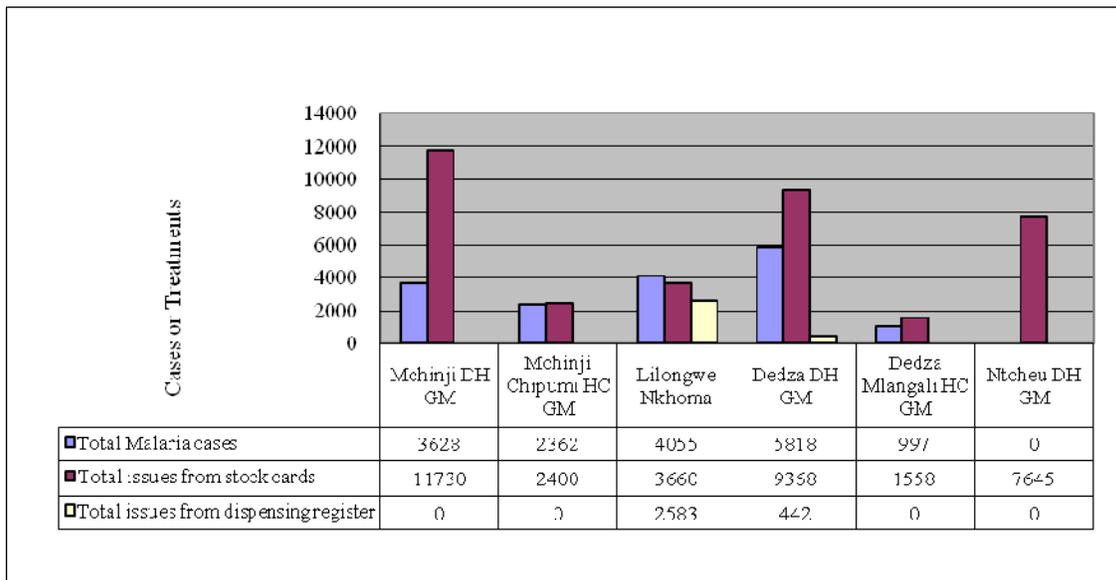
Note: Data of malaria cases was incomplete in Dwanbazi Health Center (GM) in Nkhotakota district. Mtengo Wanthenaga Hospital used dispensing registers as stock cards.

Figure 8. Comparison of malaria cases and LA issues in Central East Zone, Dec. 2007–Feb. 2008



Note: Data of malaria cases was not available or incomplete in Mchinji, Dedza, and Ncheu District Hospitals.

Figure 9. Comparison of malaria cases and LA issues in Central West Zone, Dec. 2007–Feb. 2008



Note: Data of malaria cases was incomplete in St. Lukes Hospital in Zomba. Higher LA issues in dispensing registers than malaria cases reported in Machinga District Hospital.

Figure 10. Comparison of malaria cases and LA issues in Southern East Zone, Dec. 2007–Feb. 2008



Note: Data of LA issues from dispensing register in Mlambe Hospital was incomplete. Chididi Health Center did not open stock cards for LA.

Figure 11. Comparison of malaria cases and LA issues in Southern West Zone, Dec. 2007–Feb. 2008

The Holy Family Hospital in Phalombe (Southern East zone) presented a better idea of the relationship of the data among malaria cases, issues from stock cards, and from dispensing register since the difference between the issues from stock cards and dispensing registers was as small as possible, which is the hoped for outcome. Those facilities with higher issues of LA than malaria cases and with a big difference between the issues from stock cards and dispensing registers need to be further investigated.

IPT and SP Consumption

High consumption of SP in some facilities was observed during the supervision. Apart from being used for IPT, some SP was used before the new treatment was launched and while LA was out of stock. The district hospitals also supplied SP to the facilities if necessary. The extremely high consumption of SP in certain health centers implied the need for investigation and close supervision. Since SP is mainly used for IPT for pregnant women, figures 11 to 15 attempted to compare the issues of SP from stock cards against its consumption for IPT. The difference between the two may imply that SP was used for general malaria cases, and if compare to the consumption of LA and malaria cases, it might again highlight the problems of under-recording of malaria cases or over-consumption of the medicines.

Jenda Health Center in Mzimba district (figure 11) and Mtengo Wanthenga Hospital (figure 12) provide a good picture of how SP is issued for IPT. Special attention should be paid to Nkhotakota St. Annes Hospital (figure 12); Lilongwe Nkhoma Hospital (figure 13); Phalombe Migowi Health Center and Holy Family Hospital (figure 14); and Blantyre Lundu Health center (figure 15).

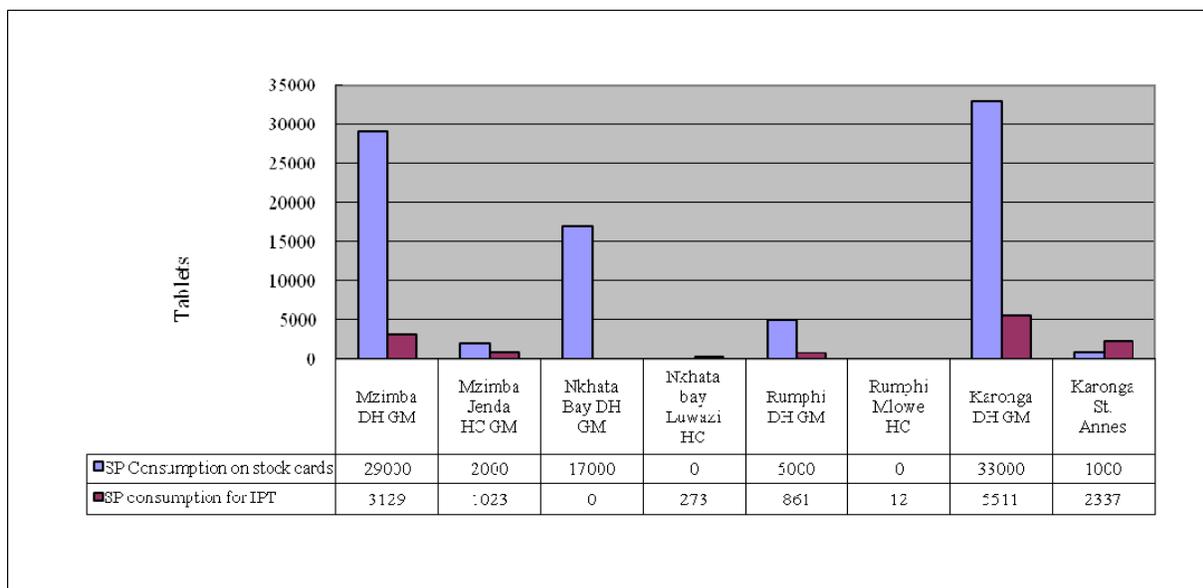


Figure 12. Comparison of SP issues and consumption for IPT in Northern Zone, Dec. 2007–Feb. 2008

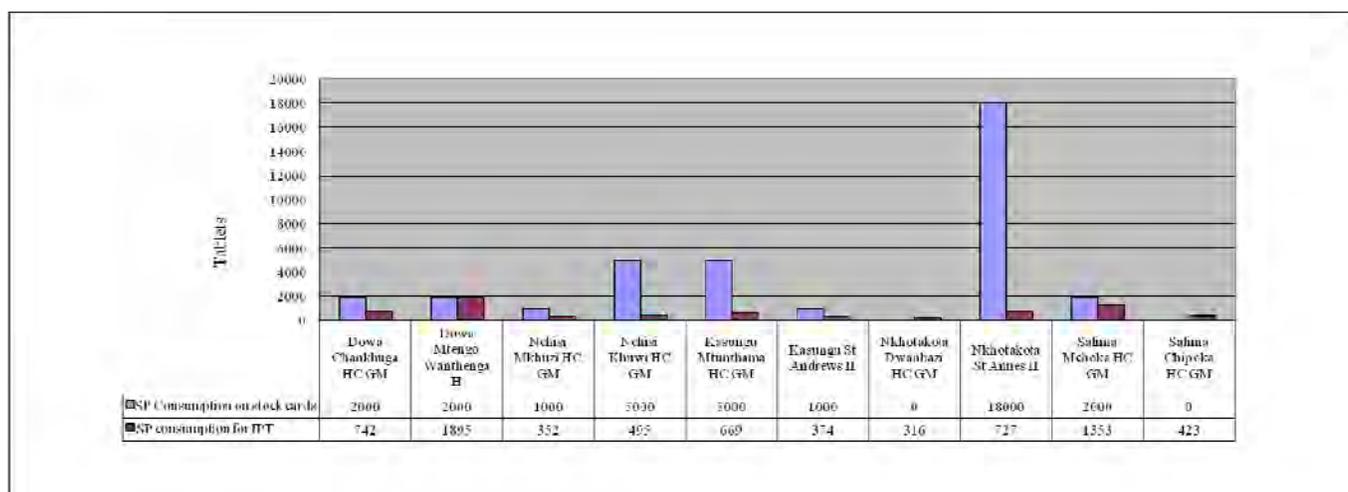


Figure 13. Comparison of SP issues and consumption for IPT in Central East Zone, Dec. 2007–Feb. 2008

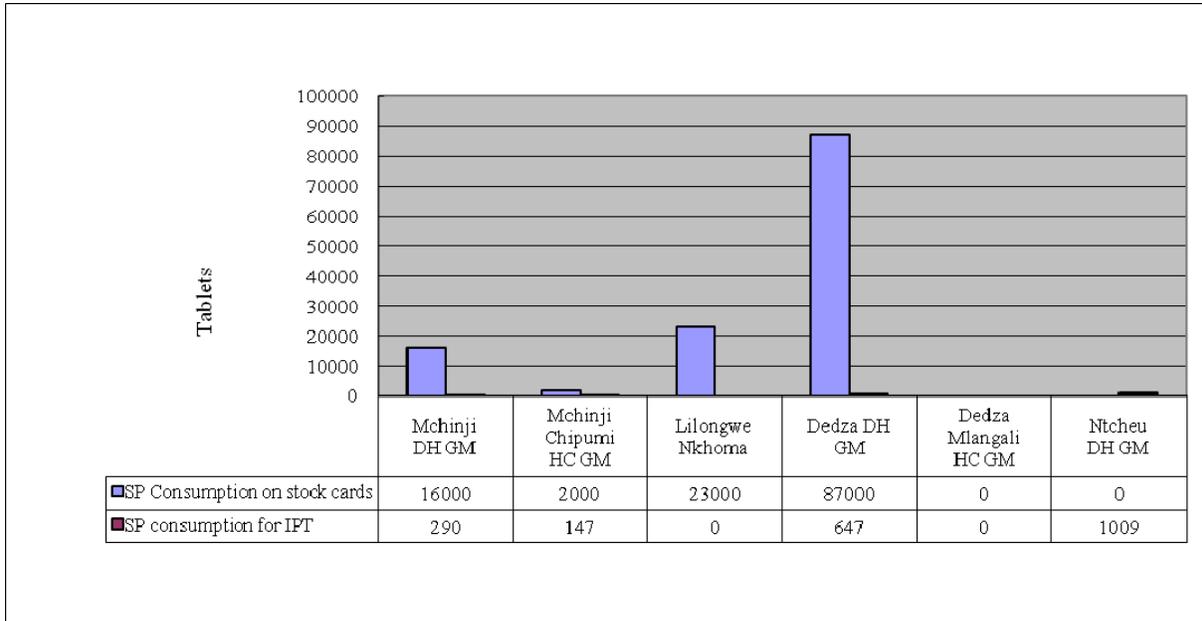


Figure 14. Comparison of SP issues and consumption for IPT in Central West Zone, Dec. 2007–Feb. 2008

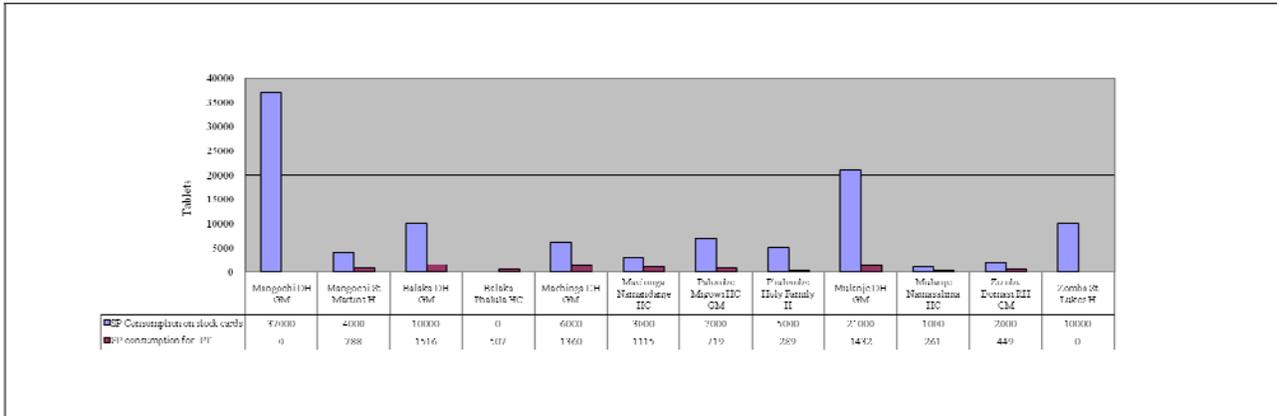


Figure 15. Comparison of SP issues and consumption for IPT in Southern East Zone, Dec. 2007–Feb. 2008

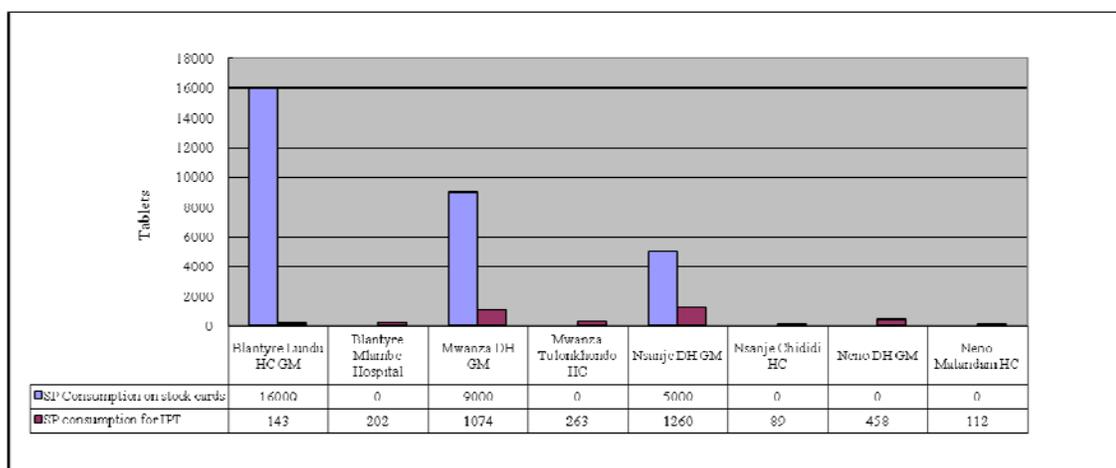


Figure 16. Comparison of SP issues and consumption for IPT in Southern West Zone, Dec. 2007–Feb. 2008

Use of Dispensing Register

The purpose of introducing dispensing register is to ensure the accountability of the dispensing of LA. However, confusion on how to fill in the dispensing register was seen in the facilities. Most of the facilities only filled the dispensing details without summarizing the receipts and balances (table 20). Again, the unit used in the dispensing register varied from tablets and treatments to boxes.

Table 20. Information Filled on the Dispensing Register

Descriptions	Yes	No	N/A
Issues on the stock cards were all correctly recorded on the Dispensing Register	12 (27%)	17 (39%)	15 (34%)
Balance end of page tallies with the brought forward of next pages	9 (20%)	18 (41%)	17 (39%)
Total Stock Available were correctly recorded	11(25%)	17 (39%)	16 (36%)
Total quantity dispensed was correctly recorded	12 (28%)	16(36%)	16(36%)
Descriptions	tablets	treatments	Boxes
Unit used on dispensing register	14	6	2

N/A = not applicable

Security and Stock Management of the Drug Stores

Most of the drug stores in the health centers did not have burglar bars for their doors, some of them did not have ceilings, and there was a chance of high temperatures in the stores (table 21) since no air conditioning was installed. The drug store in Neno district is too small and some medicines were kept in an open space in dispensary facing the main entrance which is

always open. It was designed for a rural hospital and now requires expanding since the hospital was upgraded to a district hospital.

Table 21. Security for Drug Stores

Descriptions (Denominator: 44)	Burglar bars installed for doors and windows	Ceiling was closed	Average no. of people accessible to the keys
No. and % of facilities	30 (68%)	36 (82%)	2

Table 22. Stock Management in Drug Stores

Descriptions (Denominator: 44)	Neat and tidy	Store without mixing with other products	Follow FEFO	Bulk stock is visible
No. & % of facilities	26 (59%)	24 (55%)	28 (64%)	34 (77%)

Table 22 gives an overall impression of the stock management in the drug stores which implies that more effort should be made. Apart from the knowledge and attitude of managing drug stores, some other factors also influence the performance. Most of the drug stores are too small, which inevitably contributes to the misplacing or mixing of the products. The practice of first expiring, first out (FEFO) was therefore affected, particularly on the injectables, bottles of medicines, IV infusions, and medical supplies. It was observed in some health centers that the clinicians who came in for relief duty did not manage the drug store well. The main problems were not updating stock cards, not storing the products in right locations, not filing documents in right files, etc. It highlights the problems of improper handover and less interest of the relief duty staff for managing the drug store.

Intermittent Preventive Treatment for Pregnant Women (IPT)

The supervision for IPT and ITNs was integrated. The check lists were based on one provided by NMCP and reviewed in the supervisory orientation meeting.

Items	Findings and Comments (denominator: 44)
Number of Health Workers (HW) trained in focused prenatal care and malaria in pregnancy	Total 245 HW were trained in the facilities visited.
Number of HW not trained in Focused Prenatal Care and Malaria in Pregnancy	1162 HW were not trained and 11 facilities did not have trained HW for focused prenatal care
Number of HSAs trained in community IPT	Only Mchinji DHO had trained 263 HSAs, Nkhata Bay is processing the training, 90 HSAs will be trained for the district.
Availability of prenatal records	Available in 41 (93%) facilities

Availability of DOT equipment	Available in 33 (75%) facilities. However, there was no supervision for DOT. Some facilities did not have cups, hence using drug containers.
Availability of IEC materials	Available in 29 (66%) facilities. It was not displayed at Mkhuzi health center in Nchisi district.
No. of pregnant women who received first dose of SP	14,834—Incomplete data
No. of pregnant women who received second dose of SP	11,024—Incomplete data

NMCP checklist for insecticide-treated nets (ITNs)

Items	Findings and Comments (denominator: 44)
No. and % of facilities had the ITNs in stock on the day of the visit	31 (70%) facilities
No. and % of facilities had stock-outs of the ITNs for one week or more within past 3 months	27 (61%) facilities
Number of ITNs received in the past 3 months	31,986 ITNs were received in 40 facilities. Mkhuzi HC (Nchisi), St Andrews hospital (Kasungu), Tulongkhondo HC (Mwanza), and Mtandani HC did not receive any nets in the past 3 months. Mtandani HC had old stock and did not request more nets. Machinga DHO only received 450 nets and estimated 1,000 to satisfy the need. St. Andrews hospital requested a supply of nets; the malaria coordinator will take up the issue.
No. and % of facilities had ITNs available for under one and pregnant women	33 (75%) facilities
Number of health workers trained in ITNS	681 HCW in 8 districts: Nkhata Bay, Karonga, Rumphu, Nkhotakota, Mjinji, Balaka, Machinga, Mulanje; 158 in rest of the facilities visited
No. and % of facilities had Client Register	41 (93%) facilities had client register. St. Andrews hospital did not have ITN service and requested to provide the service. Nkhoma hospital had the service but did not have client register.
No. and % of facilities correctly filled the clients registers	39 (87%) facilities had correctly filled the records.
No. and % of facilities had ITNs guidelines	Only 17 (39%) facilities had ITN guidelines.
No. and % of facilities had ITNs Stock Cards	40 (91%) facilities had ITN stock cards. It was observed that Chididi HC and Dedza DHO did not update the stock cards, and Namandanje HC did not use the stock cards. Nkhoma hospital did not have stock cards though provided services.

DISCUSSIONS AND RECOMMENDATIONS

In summary, there are some challenges facing the implementation of new malaria treatment as observed from the supervision—

- Poor documentation on HMIS, stock cards, and dispensing registers; these documents provide important information on epidemiology and drug management which will be used to understand the disease burden and to plan for drug supply.
- Late monthly reporting of some facilities affected the whole district that, in turn, affected the timely drug supply. Some facilities, particularly CHAM facilities, have struggled to understand the reporting procedures.
- Supplies were rationed by Regional Medical Stores because of short stock which caused the further rationing and delay of supply from DHOs to the facilities.
- Diagnostic tools (microscopes) were not available in most of the health centers. It was observed in Central East Zone that the facilities with microscopes had fewer malaria cases.
- Some untrained health workers were prescribing or managing LA. Most of them were newly recruited and yet to be identified for training.
- The communication with patients on how to use LA was compromised mainly because of to high workload
- Shortage of staff and the relief- duty staff's* lack of interest in drug management negatively impacted the drug management in some facilities. Interruption of record keeping at the drug store was often observed during the time that permanent staff was on leave and relief duty staff took over the responsibility.

* Relief-duty staff are the health care workers (mainly clinicians and nurses) who are on leave from their posted health facilities and part-time assist other facilities on locum basis.

Proposed recommendations on how to address the problems are as follows—

- Training and orientation are most needed since the new treatment was only started few months ago. These should include—
 - Case management, including the auxiliary workers that perform dispensing
 - Drug management and the documentation of stock cards, dispensing registers, delivery notes and related documents
 - Monthly reporting
- Strengthen the recording of LA outside the pharmacy such as wards, outreach clinics, and any peripheral units, in the dispensing registers.
- Make diagnostic tools available and training lab assistants for the health centers
- Take under-recording of malaria cases and the increasing referrals from communities into consideration on the quantification of LA
- Strengthen the information flow for routine monitoring and evaluation for drug management
- Introduce performance evaluation and recognition system would be helpful to the improvement of the implementation
- Strengthen the HMIS; the HMIS unit should take action to improve the data collecting procedures

Some actions to address the challenges of implementing the new treatment have been taken. These include re-orienting pharmaceutical management, documenting and reporting to the health worker in-charges in drug stores, routine progress review with district pharmacy technicians, strengthening public awareness on the use of LA and strengthening supervision on case management.

ANNEX 1. SUPERVISORS FOR THE SUPERVISORY VISITS

Zones and Central Supervisors	Districts	District Supervisors	
		Malaria Coordinator	Pharmacy Technician
Northern Zone Ms. J. Wang Mr. Mayaya	Mzimba	Mr. A Kaunda	Mr. A Mayaya
	Nkhata Bay	Mr. M Simboko	Mr. Limbika Ndovi
	Rumphi	Ms. A Moyo	Mr. M Chimtenga
	Karonga	Mr. Mbalasiya	Mr. C Nyirenda
Central East Zone Ms. E Chirwa Ms. J. Wang	Dowa	Mr. G T Waluza	Mr. Phuka
	Ntchisi	Mr. I Kumwenda	Mr. S Ziba
	Kasungu	Mr. R Kumwenda	Mr. A Mkangala
	Nkhotakota	Mr. Msiska	Mr. M Zaola
	Salima	Mr. J Munthali	Ms. R Khombe
Central West Zone Ms. J. Wawero Ms. R. Chikumbe Mr. M. Msefula (to Lilongwe and Ncheu)	Mchinji	Mrs. C Chipeta	Mr. S Bangelo
	Lilongwe	Mr. Masiyano	—
	Dedza	Mr. H Kanise	Mr. I Chisaka
	Ntcheu	Mr. N Mwamlima	—
Southern East Zone Mr. M. Msadala, Mr. S. Ndau	Mangochi	Mr. F Chidyaonga	Mr. Mlimba
	Balaka	Mr. D Moyo	Mr. J Chidamwa
	Machinga	Mr. A Jotifala	Mr. B Gama
	Phalombe	Mr. J Phameya	Ms. A Chirwa
	Mulanje	Mr. Alubino	Mr. Makaika
	Zomba	Mr. T. Chinula	Mr. J. Kankhulungo
Southern West Zone Mr. J. Sande, Ms. C Kamtengeni	Blantyre	Ms. M Makuta	Mr. E Kapila
	Mwanza	Mr. I Namala	Mr. D Cindimba
	Nsanje	Mr. I Mapelera	Mr. R F Maseya
	Neno	Mr. Kalombo	Mr. Makani

Note: No technicians were present during visits to Lilongwe and Ntcheu.

ANNEX 2. FACILITIES VISITED MARCH 10–20, 2008

Zones	Districts	Government Facilities	CHAM Facilities
Northern	Mzimba	District Hospital	Jenda HC
	Nkhata Bay	District Hospital	Luwazi HC
	Rumphi	District Hospital	Mlowe HC
	Karonga	District Hospital	St. Annes Hospital
Central East	Dowa	Chankhuga HC	Mtango Wanthenga Hospital
	Nchisi	Mkhuzi HC	Khuwi HC
	Kasungu	Mtunthama HC	St Andrews Hospital
	Nkhotakota	Dwanbazi HC	St Annes Hospital
	Salima	Mchoka HC	Chipoka HC
Central West	Mchinji	District Hospital	Chipumi HC
	Lilongwe		Nkhoma Hospital
	Dedza	District Hospital	Mlangali HC
	Ntcheu	District Hospital	
Southern East	Mangochi	District Hospital	St Martins Hospital
	Balaka	District Hospital	Phalula HC
	Machinga	District Hospital	Namandanje HC
	Phalombe	Migowi HC	Holy Family Hospital
	Mulanje	District Hospital	Namasalima HC
	Zomba	Domasi RH	St Lukes Hospital
Southern West	Blantyre	Lundu HC	Mlambe Hospital
	Mwanza	District Hospital	Tulonkhondo HC
	Nsanje	District Hospital	Chididi HC
	Neno	District Hospital	Matandani HC