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MALAWI LOGISTICS SYSTEM ASSESSMENT AND STOCK STATUS REPORT 2006

COMPARISON OF 2004 AND 2006 ASSESSMENT RESULTS



NOVEMBER 2006

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DELIVER
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MALAWI LOGISTICS SYSTEM ASSESSMENT AND STOCK STATUS REPORT 2006

COMPARISON OF 2004 AND 2006 ASSESSMENT
RESULTS

DELIVER

DELIVER, a six-year worldwide technical assistance support contract, is funded by the U.S. Agency for International Development.

Implemented by John Snow, Inc. (JSI), (contract no. HRN-C-00-00-00010-00) and subcontractors (Manoff Group, Program for Appropriate Technology in Health [PATH], and Crown Agents Consultancy, Inc.), DELIVER strengthens the supply chains of health and family planning programs in developing countries to ensure the availability of critical health products for customers. DELIVER also provides technical management of USAID's central contraceptive management information system.

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Abstract

In March 2006, DELIVER conducted a nationally representative survey on the availability of selected health commodities at Ministry of Health (MOH) and nongovernmental organization (NGO) facilities throughout Malawi. The information provided through this survey, along with the results from any previous surveys, will allow the MOH and its partners to monitor the effectiveness and efficiency of the health commodity logistics system and to make adjustments as necessary. The Logistics Indicators Assessment Tool (LIAT), which was tailored in Malawi in 2004, was used again with minor adaptations to address current assessment needs. Comparative analysis was conducted with the results from the 2004 survey and to determine any change in the health commodity logistics system over the last two years.

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ACRONYMS

ART	antiretroviral therapy
CDLMIS	Contraceptive Distribution and Logistics Management Information System
CHAM	Christian Health Association of Malawi
CMS	Central Medical Stores
DELIVER	Health Logistics Strengthening Program
DFID	Department for International Development
FEFO	first-to-expire, first out
FPLM	Family Planning Logistics Management (project)
GSI	Global Information System
HC	health center
HCT	HIV counseling and testing
HIV	human immunodeficiency virus
HLMIS	Health Logistics Management Information System
HMIS	Health Management Information System
HTSS	Health and Technical Support Services
LATH	Liverpool Associates in Tropical Health
LIAT	Logistics Indicators Assessment Tool
LIP	Logistics Improvement Plan
LMIS	Logistics Management Information System
MCH	maternal and child health
MOH	Ministry of Health
MSH	Management Sciences for Health
OI	opportunistic infection
ORS	oral rehydration salts
NGO	nongovernmental organization
PMTCT	preventing mother-to-child transmission
RHLMIS	Reproductive Health Logistics Management Information System
RHU	Reproductive Health Unit
RMS	Regional Medical Stores
SDPs	service delivery points
SIGMD	integrated inventory control management system

SOPs	standard operating procedures
SP	sulfadoxine-pyrimethamine
SPSS	statistical analysis software
SRHP	Sexual and Reproductive Health Program
STI	sexually transmitted infection
SWAp	sector wide approach (basket funds)
USAID	U. S. Agency for International Development

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A special thank you goes to Management Sciences for Health (MSH) for providing a training arena and data collectors for the survey.

EXECUTIVE SUMMARY

In March 2006, DELIVER conducted throughout Malawi a nationally representative survey on the availability of selected health commodities at the Ministry of Health (MOH) and nongovernmental organization (NGO) facilities. The information gathered from this survey, combined with any previous and subsequent surveys, will allow the MOH and its partners to monitor the effectiveness and efficiency of the health commodity logistics system and to make adjustments as necessary.

The product categories included in the survey were—

- contraceptives
- STI/OI drugs
- Essential and Maternal and Child Health Drugs
- HIV test kits.

Nine survey teams visited 70 randomly selected health facilities in 15 districts throughout the country—62 were government (MOH) facilities and eight were NGO facilities. In addition, the country's three Regional Medical Stores (RMS) were also included in the survey. The 70 facilities visited represent approximately 15 percent of all MOH and NGO facilities in the country that provide sexual and reproductive health services. The facilities visited for this survey were also visited in 2004; comparisons between the two studies are made throughout the report.

Specific survey objectives included—

- assessing inventory control procedures and logistics management practices (i.e., ordering, distribution, supervision, etc.) within the system
- collecting data on stockout rates and duration, consumption/issue rates, current stock on hand, and storage conditions
- providing the findings and conclusions of the survey to the MOH, USAID/Malawi, and other stakeholders.

The instrument used for the survey was a version of the DELIVER Logistics Indicators Assessment Tool (LIAT), which was tailored in Malawi in 2004. The tool was used again with minor adaptations to address current assessment needs. The number and type of indicators were selected to ensure consistency with previous product availability surveys, while also providing stakeholders with up-to-date information on the current operating system.

Summarized below are the findings and conclusions that resulted from this survey; see the *Findings* section for more detail in each logistics management practice or product category. Comparative analysis was also conducted with the results from the 2004 survey to determine any change in the health commodity logistics system during the last two years.

LOGISTICS RECORDS

- Overall a higher number of facilities used stock cards in 2006 than in 2004. There was a marked improvement in the RMSs updating of stock cards. In 2004, only the southern RMS consistently had updated stock cards for most of the products.

- More health centers are managing HIV test kits in 2006 compared to 2004, when none of the health centers reported managing test kits. This is evidence of a successful expansion of testing services throughout the country. However, very few of the health centers keep stock cards on the kits (less than 30 percent).
- A marked decrease in maintaining accurate stock card balance (both at 100 percent accuracy and within 10 percent accuracy) from 2004 to 2006 for nearly all products was noted.

REPORTS

- In the survey, 94 percent of the facilities reported sending the LMIS forms to the higher level within the past month.
- Approximately 41 percent of the drug managers reported receiving training on how to complete the reports during a logistics workshop, as well as through on-the-job training (49 percent). The remainder of the managers reported that they taught themselves how to fill out the forms. This is a significant improvement over what was found in 2004 when 29 to 35 percent of the respondents at the health facilities reported never learning how to fill the forms.

PERSONNEL

Nurses are more likely to manage drugs at health centers; whereas, at the hospitals, pharmacy technicians or pharmacy assistants have the primary responsibility for managing drugs. This suggests that staff size at facilities plays a role in determining who will manage drugs.

SUPERVISION

- Compared to 2004, a decreased number of facilities received a supervision visit that included drug management. In 2006, 25 percent of the hospitals visited received drug management supervision within the last month compared to 41 percent in 2004.
- Similarly, there was a decline in the number of drug management supervision visits at the health centers within the last month: 44 percent in 2004 compared to 38 percent in 2006.
- In 2006, hospitals reported an increase in the percentage of supervision visits within the last three months: 40 percent in 2006 compared to 24 percent in 2004.

STORAGE CONDITIONS

- The storage conditions at the health centers showed a decline. Seven percent were found to be excellent in 2004, but in 2006 none of the health centers were categorized as maintaining excellent storage conditions.
- Seventy percent of the hospitals were found to have met an acceptable percentage of the storage conditions, with five percent found to be excellent. In the health centers visited, 56 percent had acceptable storage conditions, while 44 percent were unacceptable.

CONTRACEPTIVES

- Because contraceptives are in full supply at the central level, no stockouts of any duration should occur.
- Overall, the percentage of facilities that experienced stockouts for contraceptives during the last six months declined in 2006.

- Condoms are not evenly distributed in the supply chain, which resulted in some facilities receiving an overstock while others experienced a stockout of condoms.
- The average months of stock on hand show overstocks of contraceptives in 2006.
- In 2006, with the exception of Ovrette and condoms, the duration of the average stockout for contraceptives declined.

SEXUALLY TRANSMITTED INFECTION/OPPORTUNISTIC INFECTION DRUGS

- In 2006, there were significant stockouts of Nystatin and erythromycin, both at the hospital and the health center level.
- With the exception of benzathine and Diflucan, all other sexually transmitted infection/opportunistic infections drugs were stocked within the required minimum and maximum level.
- Stockouts occurred at a higher percentage of facilities for STI drugs than for contraceptives, although both are full supply products.

ESSENTIAL AND MATERNAL AND CHILD HEALTH DRUGS

- The procurement of maternal and child health (MCH) and other essential drugs differs from STI drugs and contraceptives. MCH drugs are normally non–full supply and are procured without considering consumption patterns but are procured on an ad-hoc basis, depending on the availability of funds.
- A high percentage of stockouts were noted for some essential drugs on the day of the visit at both hospitals and health centers. Approximately 60 percent of the health centers and hospitals were stocked out of amoxicillin. Similarly, 60 percent and 80 percent of the health centers would not have been able to complete orders from clients for cotrimoxazole and paracetamol, respectively.
- In 2006, a higher percentage of facilities experienced stockouts during the six-month review period. This suggests that either health facilities are not adequately ordering stock based on their consumption, or health facilities are not supplied with an accurate amount of stock needed to serve their clients.
- Over the course of six months, all three Regional Medical Stores experienced a stockout of sulfadoxine-pyrimethamine (SP).

TEST KITS

- *There was a decrease in the percentage of hospitals stocked out of Determine HIV test kits, but an increase at the RMS level.* Determine is used as one of the first (parallel) tests; without it, testing cannot occur. Determine is the one test used for blood safety at the hospitals, many of which still rely on their own labs to test incoming blood.
- *In 2006 more than 20 percent of the hospitals experienced a stockout of every test kit at some time between July and December 2005.* More than 80 percent of the hospitals and two of the three RMSs had stockouts of Determine HIV between July and December 2005. This finding indicates that there are still significant challenges in the logistics system for HIV test kits.
- *On average, the number of HIV test kit stockouts decreased between 2004 and 2006, however the duration of the stockouts increased.*

RECOMMENDATIONS

In the analysis of both the facility survey and the logistics system assessment completed in March 2006, a number of challenges were identified at the national level. The following recommendations are designed to address both short- and long-term needs. Some of the recommendations (e.g., storage conditions, removal of expired products) can be implemented immediately with little associated finances.

- More consistent communication and coordination is needed between the MOH working groups that focus on supply chain management (e.g., Drugs and Medicines Supplies Technical Working Group and Logistics Working Group). Strengthening the coordination between various partners will ensure that all relevant stakeholders are well informed and kept abreast of key strategic decisions.
- The existing procurement plan for contraceptives and essential drugs should be implemented immediately. Considering that the average procurement cycle may take eighteen months or more, and many essential drugs are currently stocked out, emergency procurement is also needed for certain essential and life saving drugs.
- If feasible, an immediate replenishing exercise (top-up) needs to be implemented for all essential drugs. Although, not all essential drugs are considered *full supply* products, they constitute the essential health package commodity list that should be available to all Malawians. For contraceptives, which are overstocked at many facilities but understocked or stocked out at some, a redistribution of existing supplies is needed to eliminate any stockouts at health facilities. It is likely that the current rationing practices at the RMS and the facilities that do not submit timely or accurate reports, have contributed to this problem.
- Create a feedback form that summarizes facility reporting rates. This quarterly form will be distributed to all District Medical Officers.
- To achieve commodity security, short- and long-term procurement commitments need to be solidified. At present, both donor and MOH financial commitments are based on possibly unreliable forecasts and may prove inadequate. These commitments must ensure funding through the sector wide approach (SWAp) mechanism for the purchase of contraceptives and drugs for sexually transmitted infections, in the event of inadequate funding.
- Clarify the roles and responsibilities of Central Medical Stores (CMS), MOH departments, and supporting projects (DELIVER, Management Sciences for Health, etc.) in integrated commodity management, forecasting, finance, and procurement.
- Storage condition guidelines must be distributed to all levels of the system. Supervisors and facility staff should review the storage conditions during each supervisory visit.
- At the Regional Medical Stores (RMS) level, there is a need for improved organization and a capital investment in proper racking and material handling equipment (forklifts).
- Expired items are being kept at health facilities. CMS, in cooperation with the MOH, should disseminate and enforce guidelines for the correct disposal of expired and/or damaged drugs. These guidelines must be distributed to all health and storage facilities.
- Continued supervision should emphasize the timely and accurate completion of logistics reports (LMIS 01A/B/C). Currently, if a facility fails to submit reports, they do not receive a resupply of commodities. Under-reporting is evidence of poor inventory management at the facility level and contributes to a higher rate of both stockouts and wastage.

- Build logistics capacity of district pharmacy technicians who are now on the district management team. This can be done with on-the-job training for current pharmacy technicians and by continuing logistics sessions in the pharmaceutical training program.
- Clarify the roles and responsibilities of the zonal supervisors to avoid an overlap of effort between supervisors at the zonal level and district management teams.
- Encourage coordination between the drug managers and reproductive health coordinators at all levels to ensure that contraceptive are management correctly. For example, District Reproductive Health Coordinators could submit reports to the Reproductive Health Unit on family planning that include information on couple-years of protection achieved. This information is now readily available through Supply Chain Manager and can be produced by the Pharmacy Technician. These reports can help reproductive health coordinators determine actual consumption levels for facilities.

BACKGROUND

With funding provided by USAID/Malawi, the DELIVER project (follow-on to the Family Planning Logistics Management Project [FPLM]) has been providing technical and training assistance to the MOH in Malawi since the late 1980s. Until 1995, however, this was mainly limited to assisting the family planning program in forecasting its annual contraceptive needs and placing orders. Technical assistance targeted at developing and implementing a standardized logistics system in Malawi began in 1995, with the design of the Contraceptive Distribution and Logistics Management Information System (CDLMIS). The CDLMIS has been operational since the first quarter of 1997.

The CDLMIS significantly improved the reliability of contraceptive supplies at health facilities; it enhanced the MOH Reproductive Health Unit's (RHU) ability to track information about contraceptive use and distribution in the country. Based on the success of the CDLMIS, the RHU decided to integrate STI drugs procured under its Sexual and Reproductive Health Program (SRHP) into the CDLMIS. This integrated information system, the Reproductive Health Logistics Management Information System (RHLMIS), was the next phase in the development of the Malawi Health Commodities Logistics Management System (MHCLMS). The MHCLMS was intended to track all health supplies from RMSs to health facilities.

In 1998, to provide a framework for the multi-donor logistics improvement activities, a national Logistics Improvement Plan (LIP) was developed by members of the MOH's Logistics Subcommittee. The LIP described the logistics activities being conducted, identified targets for specified logistics indicators, and was intended to monitor and coordinate donor inputs into the logistics system. Ultimately, the LIP's purpose was to strengthen the CDLMIS to the point that the system could move away from being a vertical family planning logistics system to become an integrated system. The LIP identified objectives for improving the logistics system and targets to measure the achievement of each of the goals. The objectives included ensuring continuous availability of contraceptives at health facilities and strengthening and refining the CDLMIS through improved reporting.

Baseline and follow-up surveys were conducted in 1998 and 1999, respectively, to measure contraceptive availability and stock status at health facilities, and to enable future monitoring of the performance of the system. In December 2000 and 2002, and July 2004, other surveys were conducted that had the dual purpose of providing comparative data to measure progress in contraceptive availability and management and gathering new data on availability and management of STI drugs (including two HIV test kits in 2004, Determine HIV and HemaStrip).

In 2002, the MOH used a process mapping methodology to conduct a work process analysis of the logistics system. This methodology focused on getting input from all levels of the organizational system to achieve exponential (as opposed to incremental) improvements. The activity identified tasks in the system that were redundant, non-value added, and not required, and made recommendations for a more streamlined and integrated supply chain. The analysis also identified potential cost and time savings expected from the future streamlined logistics system.

As a result of this work process analysis, the MOH established an integrated health logistics system that ensures the availability of more than 80 essential products at the health center level. A new training program was designed based on a revised set of standard operating procedures (SOPs) that guides the improved system; it was provided to all district pharmacy technicians/assistants in September 2003. A refresher training was conducted during February and March 2005 to equip pharmacy technicians/assistants and stores personnel from the regional medical stores with the knowledge and skills

on the revised set of SOP's which includes some aspects of the computerization of some of the logistics functions at the District Level. The computerization process of the district pharmacies began in April 2004 when the Ministry, with support from JSI/DELIVER, conducted training for pharmacy personnel and other administrative staff from the eight MSH focus districts and some additional three priority districts on the use of a new version of JSI/DELIVER's Supply Chain Manager, a software tool that provides logistics management information to distribution system managers. The computerization of the district pharmacies has since rolled out to the rest of the country since June 2005.

Central Medical Stores play a pivotal role in the national drug supply chain. The major purpose of the CMS is to facilitate the purchase, storage, and distribution of medical supplies required for public purposes. CMS has three major stores, called Regional Medical Stores (RMS), located in each of the three regions of the country. Each store distributes medical supplies to district hospitals and health centers in that region.

In 2001 CMS received DFID support aimed at strengthening management systems and imparting skills as prerequisites to the transformation of CMS into a trust. This support included acquisition of a computerized accounting and stock management system, called SIGMED. SIGMED is an integrated inventory control management system; this implies that cooperation among the different divisions (e.g., Accounting, Procurement, Sales) is essential. Above all, management commitment and support are essential elements for success. This system was intended to help CMS/RMS manage inventory and track supply levels throughout the system. Unfortunately, CMS has encountered some limitations, such as inherent technical issues within the application itself, and networking and communications between regional stores and headquarters.

In September 2003, CMS started delivering health commodities directly to health centers in the Southern Region through RMS South. Each district pharmacist was still responsible for approving the facilities order and sending aggregated orders to RMS. Based on lessons learned from RMS South, the remaining regions adopted the system in January 2004. The three regional medical stores are delivering directly to health centers based on the orders derived by facility reports with input from district pharmacy technicians/assistants.

SURVEY PURPOSE AND OBJECTIVES

The purpose of this survey was to provide MOH, USAID, and other stakeholders in Malawi with data on the current availability of selected products essential for primary care, family planning, maternal and child health, STI treatment, and HIV testing.

This, along with previous and subsequent surveys, will allow the MOH and its partners to monitor progress over time and to adjust the logistics system as necessary. Specific survey objectives included:

- assessing certain inventory control procedures and logistics management practices (i.e., ordering, distribution, supervision, etc.) within the system;
- collecting data on stockout rates and duration, consumption/issue rates, current stock on hand, and storage conditions.

SURVEY METHODOLOGY

SAMPLE SELECTION

To visit the largest number of facilities in the days available, the team divided into nine teams consisting of one trained data collector and the district pharmacy technician in each of the 15 districts visited. The teams visited the following sample of sites:

- three RMS
- Seventy health facilities (62 MOH and 8 Christian Health Association of Malawi [CHAM])

In previous studies the sample differed in a few areas. In the 2000 study, the team visited all 27 districts. To get a larger sample of health facilities, the 2002 study sampled more facilities in each of the 12 districts. Within each of the 12 districts visited, the teams visited the health facilities visited during the 2000 study, and additional health facilities were selected at random within these districts. Based on an estimated total of 461 health facilities in the country that provide sexual and reproductive health services, the 2000 sample represented approximately 14 percent of relevant health facilities, the 2002 sample represented 12 percent, and the 2004 and 2006 sample represented 15 percent.

For ease, transparency, and comparability, the facilities visited in the previous surveys were revisited, while three additional districts were added in 2004, with their sites being selected randomly. These three additional districts were selected purposefully based on their participation in the project managed by Management Sciences for Health (MSH). Same facilities were also included in the 2006 survey. In the initial sample the following selection process was used:

- In 2002, the districts were divided by region, and each district was selected at random. Three districts were selected to represent the Northern Region, four for the Central Region, and five for the Southern Region. This division was felt to represent the population distribution more closely.
- All of the districts and health facilities that were visited in 2002 were visited during the 2004 survey. This year the district pharmacies, which no longer handled products for other facilities, were eliminated. To keep the sample size significant, replacement health facilities were chosen randomly from the Health Management Information System (HMIS) list of existing facilities.
- Each of the nine teams was assigned a list of four to six facilities to visit in each of the 15 districts.

This report focuses on the MOH and CHAM facilities with a memorandum of understanding (MOU) with the MOH to provide services and commodities to the community. A list of all the facilities visited can be found in Appendix 2. A list of data collectors can be found in Appendix 3.

INDICATOR CHOICE AND INSTRUMENT DEVELOPMENT

The instrument used for the survey was a modified version of the DELIVER Logistics Indicators Assessment Tool (LIAT). The number and type of indicators were selected to ensure consistency with previous contraceptive availability surveys, while also providing stakeholders with up-to-date information on the current operating system. Input from survey team members was integrated into the survey tool during training and following a pilot test of the tool. The final survey instrument is included as Appendix 1.

The indicators used in the first three surveys had been identified in the Ministry’s Logistics Improvement Plan (LIP). Use of consistent indicators simplified the survey training needs and allows measurement of trends through time. This was the fifth time such data have been collected for contraceptives, the third time for STI drugs and the second time for HIV test kits. This and the previous two surveys represent availability of contraceptives and STI drugs since they were integrated into the RLMIS. There are slight differences in the data collected over the years. Comparisons with the 2004 survey are made throughout the text of the findings.

Table 1: List of Indicators

Indicator	Data Source(s)
1. Percentage of facilities using stock cards by product	Presence of stock cards for each product in stores
2. Percentage of facilities with stock cards available and updated by product	Comparison of stock card balance and physical inventory count
3. Percent of facilities with accurate stock balances on stock cards	Stock card and physical inventory
4. Percentage of facilities with nurses or other qualifications managing drug supply (by region)	Respondent
5. Percentage of facilities receiving supervision within a reasonable amount of time	Respondent and visitor’s book
6. Percentage of sites stocked out of product at time of visit	Stock card records, respondent, and physical inventory
7. Percentage of sites stocked out of product in last 6 months	Stock card records and respondent
8. Average number of days stocked out in 6 months by product	Stock card records and respondent
9. Percentage of sites stocked according to plan; months of supply on hand	Average monthly consumption , physical count of product at SDP, and max-min of 1–3 months
10. Percentage of health facilities submitting the appropriate LMIS form (LMIS-01 A, B or C)	Respondent

DATA COLLECTION AND ANALYSIS

Before implementing the survey, data collectors participated in a three-day training in the use of the LIAT instrument. As part of the orientation, data collection guidelines were discussed to identify the types of information to be gathered, standardize the data collection process, and promote comparability of results. Each team was assigned a leader who was responsible for overseeing the process in each district. Data sources for each indicator are identified in Table 1. During the training, sites in the Central Region were visited, after which slight modifications were made to the form.

Data were collected within a week. A preliminary analysis was prepared and a report was made to MOH counterparts, USAID and other stakeholders. The data were entered into Epi Info and converted to a statistical analysis software (SPSS) for analysis. Further cleaning of the data, verification of the preliminary analysis and report writing was done in Washington in collaboration with the DELIVER/Malawi field office team.

FINDINGS

LOGISTICS MANAGEMENT PRACTICES

LOGISTICS RECORDS (STOCK CARDS)

The cornerstone of inventory management lies in consistent and accurate use of stock cards. The percentage of MOH facilities that had stock cards available for each product and updated (entry within last 30 days) is illustrated in Table 2.

Table 2: Percent of MOH facilities with stock cards available and updated by product (for those that manage those products)

	Hospitals		Health Centers		RMS	
	<i>Available</i>	<i>Updated</i>	<i>Available</i>	<i>Updated</i>	<i>Available</i>	<i>Updated</i>
Lo-Femenal®	90	94	86	74	100	100
Ovrette	79	94	81	64	100	100
Male condom	85	94	70	91	100	67
Depo-Provera® and Petogen	90	100	88	84	100	100
Norplant	100	91			100	100
Benzathine penicillin	100	100	89	82	100	100
Doxycycline	100	100	92	94	100	100
Metronidazole	100	100	90	93	100	100
Fluconazole	73	71			N/A	100
Nystatin	85	100	70	89	100	100
Erythromycin	100	100	94	94	100	100
Metronidazole injection	100	100			100	100
Ferrous Sulphate (FeFo)	90	100	90	98	100	100
Syntometrine	79	100	66	83	100	100
SP	100	100	90	91	100	100
Cotrimoxazole	100	95	84	93	100	100
Paracetamol	100	100	90	96	100	100
ORS	90	89	64	88	100	100
Amoxicillin	95	100	84	95	100	100
Aspirin	95	100	94	98	100	100
Gloves	95	100	62	90	100	100
Determine HIV	67	100	28	80	100	100
SD Bioline	65	100	24	75	100	100
Unigold	67	100	28	80	100	100

Inventory information kept on the stock cards allows facility and district managers to make informed decisions about what and how much to order each month. Overall there was an improvement in the use of stock cards. There was a marked improvement in the RMSs updating of stock cards. In 2004 only the southern RMS consistently had updated stock cards of most of the products.

More health centers are managing HIV test kits in 2006 than were in 2004; none of the health centers reported managing test kits in 2004. This is evidence of a successful expansion of testing services throughout the country. However, very few of the health centers keep stock cards on the kits (less than 30 percent). Late in 2005 the MOH specified that test kits are to be managed by the pharmacy store. In many of the facilities visited in 2006 the kits were being managed by the laboratory personnel .

The accuracy of the balance on the stock cards was also observed. Table 3 shows the percent of Health facilities that had accurate balance entries and the percent of facilities that had near accurate balances (less than a 10 percent discrepancy). These percentages are based only on those facilities that had stock cards available. There has been a marked decrease in maintaining accurate stock card balance (both at 100 percent accuracy and within 10 percent accuracy) from 2004 to 2006 for nearly all products. This finding indicates that there is considerable room for improvement and additional emphasis needs to be placed on maintaining accurate up-to-date stock cards.

Table 3: Percent of health facilities that had accurate or near accurate balance entries on stock cards

Product	Percent of facilities with accurate stock card balance where available)		Percent of facilities with stock card near accurate balance (within 10 percent)	
	<i>2004</i>	<i>2006</i>	<i>2004</i>	<i>2006</i>
Lo-Femenal®	63	59	80	68
Ovrette	59	36	77	70
Male Condom	43	35	57	59
Depo-Provera® and Petogen	59	52	69	67
Norplant	92	43	100	60
Benzathine penicillin	54	46	80	69
Doxycycline	79	62	86	75
Metronidazole	80	54	87	63
Fluconazole	40	39	70	80
Nystatin	67	78	71	80
Erythromycin	82	83	85	84
Metronidazole Injection (not surveyed in 2004)		54		73
Ferrous Sulphate (not surveyed in 2004)		46		72
Syntrometrine (not surveyed in 2004)		56		61

Sulfadoxine-pyrimethamine (SP)	73	59	79	68
Cotrimoxazole	78	74	89	79
Paracetamol	81	83	84	90
ORS	56	35	72	47
Determine HIV	78	63	89	65
SD Bioline		68	30	78
Unigold (not surveyed in 2004)		55		75
Amoxicillin (not surveyed in 2004)		82		85
Aspirin (not surveyed in 2004)		61		71
Gloves (not surveyed in 2004)		44		70

REPORTS

The reported information needed for proper drug management includes the stock on hand, amount dispensed to clients, and any losses and adjustments. The LMIS forms introduced in 2003 include this information and most facilities are now using them. At the district level, pharmacists have begun using the District Monthly Order Worksheets (produced from Supply Chain Manager), which identify the amount of each drug that was ordered and approved to be delivered to each facility, and a separate form for the district hospital. Some training on the new LMIS forms (LMIS 01A, 01B and 01C) was done in 2003 when the new logistics forms were introduced and a follow-on training was conducted in 2005. However, not all health center personnel have been trained due to non availability of funds to orient them on the forms. During this survey 94 percent of the facilities reported sending the LMIS forms within the past month.

Drug managers reported that they learned how to complete the reports during a logistics workshop (41 percent) as well as through on-the-job-training (49 percent). The remainder of the managers reported teaching themselves how to fill out the forms. This is an improvement to what was found in 2004 where 29 to 35 percent of the respondents at the health facilities reported never learning how to fill the forms.

PERSONNEL

The Ministry of Health Program of Work for the Implementation of Essential Health Package recommends the following personnel structure for the management of drugs and supplies: nurses or medical assistants at the health center level, pharmacy technicians/assistants at district level, and pharmacists at the central hospital. The MOH phased out Pharmacy Assistant training and upgraded to a diploma level to become a Pharmacy Technician. However, between December 2003 and March 2004, the MOH sent a directive that nurses should be responsible for drug management at the health centers. Nurses are more likely to manage drugs at health centers in all of the regions. Smaller staff size often makes this a necessity. At health centers, there were no pharmacy technicians or assistants managing drugs. At hospitals, the drug manager is usually a pharmacy technician or pharmacy assistant. This is consistent with the findings in 2004. None of the health centers had pharmacists managing the drugs, but there were pharmacists managing the drugs at the RMS and Hospitals.

Table 4 shows a breakdown of the people currently managing the drugs at both the hospitals and health centers by regions for 2004 and 2006.

Table 4: Percent of facilities in each region by type of personnel managing drugs

Hospitals* (2004/2006)						
	<i>Northern</i>		<i>Central</i>		<i>Southern</i>	
	<i>2004</i>	<i>2006</i>	<i>2004</i>	<i>2006</i>	<i>2004</i>	<i>2006</i>
Nurse	17	0	0	14	0	0
Clinical officer	17	14	0	0	0	0
Pharmacy technician	17	57	50	14	57	57
Pharmacy assistant	17	14	50	43	14	14
Pharmacist	33**	0	0	0	0	0
Medical assistant	17	0	0	14	29	29
Other	0	0	0	14		
Health centers (2004/2006)						
	<i>Northern</i>		<i>Central</i>		<i>Southern</i>	
	<i>2004</i>	<i>2006</i>	<i>2004</i>	<i>2006</i>	<i>2004</i>	<i>2006</i>
Nurse	40	29	63	44	24	41
Clinical officer	20	0	0	0	10	4
Pharmacy technician	0	0	0	0	0	4
Pharmacy assistant	0	0	0	0	0	0
Pharmacist	0	0	0	0	0	0
Medical assistant	20	71	34	50	48	48
Other	0	0	0	6	19	4

* Some hospital personnel reported multiple people managing drugs.

**Of the three hospitals visited, this 33 percent represents one pharmacist at Mzimba Hospital in the Northern Region.

As illustrated in the table above, the southern region is staffing according to plan by having technicians at the district hospital level, 57 percent in 2004 and 83 percent in 2006. Similar improvements can be seen in the northern region (17/57). This is encouraging, as most vacant district posts were filled by Pharmacy Technicians. In the central region the proportions declined from 50 percent in 2004 to 14 percent in 2006. The central region also reported an increase in the “other” category for both hospitals and health centers (0/14 and 0/6 respectively). The decline of Pharmacy Technicians in place and an increase in “other” category shows that the region continues to face problems in staffing appropriate personnel to manage drugs. This is in contrast to what is seen in the southern region which recorded highest proportions in 2004 (19 percent) and reduced it to 4 percent in 2006. At the health centers drugs are consistently being managed by nurses and medical assistants.

SUPERVISION

Supervision, an important element of quality assurance for the performance of any logistics system, is related to all aspects of logistics management. Supervision helps to improve individual and system performance and can alert managers to potential problems such as stockouts, poor storage conditions, and products near their expiry dates. Supervision can take several forms: the supervisor may review incoming reports, the supervisor may have face-to-face contact with those he or she supervises by bringing them to a central location, or the supervisor can visit each site.

Frequency of supervision is an essential element and a useful indicator in assessing the potential quality of supervision and its effect on system performance. Supervision also presents an opportunity to reinforce

new systems and forms. Table 5 shows the percentage of MOH facilities that received general supervision and those that received supervision that included drug management.

Compared to 2004, there has been a decrease in facilities that received a supervision visit on drug management. In 2006, 25 percent of the hospitals visited received a drug management visit within the last month compared to 41 percent in 2004. A similar trend can also be seen for health centers, where drug management supervision visits within the last month declined from 44 percent in 2004 to 38 percent in 2006. However, it is interesting to note that the hospitals in 2006 reported an increase in the percentage of supervision visits within the last three months (40 percent in 2006 compared to 24 percent in 2004).

Table 5: Percentage of facilities that received general supervision and those that received supervision that included drug management in 2004 and 2006

Facilities receiving general supervision				
	<i>Hospitals</i>		<i>Health Centers</i>	
	<i>2004</i>	<i>2006</i>	<i>2004</i>	<i>2006</i>
Never	12	10	5	4
Within the last month	53	55	56	54
Within the last 3 months	18	10	22	18
Within the last 6 months	6	10	12	10
Over 6 months ago	12	15	5	14
Facilities receiving supervision that included drug management				
Never	29	5	15	20
Within the last month	41	25	44	38
Within the last 3 months	24	40	24	18
Within the last 6 months	0	10	12	12
Over 6 months ago	6	20	5	12

STORAGE CONDITIONS

To provide clients with high-quality products, each facility must have safe, protected storage areas to help prevent damage and ensure efficient handling of products. In assessing storage areas, the survey examined the level of compliance with 12 guidelines for proper storage. The researchers assessed each facility's adherence to storage conditions through direct observation and interview questions asked of facility staff. The guidelines include:

1. Products that are ready for distribution are arranged so that identification labels and expiry dates and/or manufacturing dates are visible.
2. Products are stored and organized in a manner accessible for first-to-expire, first-out (FEFO) counting and general management.
3. Cartons and products are in good condition, not crushed due to mishandling. If cartons are open, personnel check whether products are wet or cracked due to heat/radiation.
4. Facility makes it a practice to separate damaged and/or expired products from good products and remove them from inventory.
5. Products are protected from direct sunlight at all times of the day.
6. Cartons and products are protected from water and humidity.

7. Storage area is visually free from harmful insects and rodents.
8. Storage area is secured with a lock and key but is accessible during normal working hours, with access limited to authorized personnel.
9. Products are stored at the appropriate temperature according to product temperature specifications.
10. Roof is maintained in good condition to avoid sunlight and water penetration at all times.
11. Storeroom is maintained in good condition (i.e., clean, all trash removed, sturdy shelves, and organized boxes).
12. The current space and organization is sufficient for existing products and reasonable expansion (i.e., receipt of expected product deliveries for the foreseeable future).
13. Fire safety equipment is available and accessible (any item identified as being used to promote fire safety should be considered).
14. Products are stored separately from insecticides and chemicals.

At each facility visited, data collectors visually inspected storage areas based on the above conditions. Table 6 depicts the percentage of facilities in compliance with 0–70 percent of the conditions, 71–90 percent of the conditions, and 91–100 percent of the storage conditions.

Table 6: Percentage of facility storage sites meeting acceptable percentage of storage conditions in 2004 and 2006

	Hospitals		Health Centers	
	<i>2004</i>	<i>2006</i>	<i>2004</i>	<i>2006</i>
Unacceptable (<70%)	35	25	5	44
Acceptable (between 71-90%)	47	70	24	56
Excellent (>90%)	18	5	71	0

Of the hospitals visited, 70 percent were found to have met an acceptable percentage of the storage conditions, with 5 percent found to be excellent. In 2006, percentage of hospitals with unacceptable storage conditions decreased by 10 percent. In the health centers and dispensaries visited, 56 percent had acceptable storage conditions, while 44 percent were found to be unacceptable. This represents a decline in the health center’s storage conditions where 71 percent were found to be excellent in 2004. The condition which was mostly not satisfied by health centers was lack of enough storage space, possibly due to a decline in supervision as observed above. This in turn also implied unclean environments.

STOCK AVAILABILITY BY PRODUCT TYPE

This section discusses findings on the most important outcome of a logistics system—stock availability. The survey collected data on both stock on hand and stockouts on the day of the visit and measured stockouts during a recent six-month period.¹

While stockouts demonstrate one outcome of a poorly functioning logistics system, overstocks are another important indicator of a logistics system’s lack of effectiveness. Overstocks put the products at

¹ July–Dec 2005 was selected as representing the most recently completed six months for which both records and reports should already be available at all levels as well as the duration of stockouts based on stock records.

greater risk of expiration or damage before they can be used; they also take up space, and other facilities may have inadequate stocks as a result. Even where stockouts are not high, facilities with too little stock at the time of the visit are either likely to stockout or will require an emergency order before they receive their next routine order.

To assess a facility's stock status, the average monthly consumption was calculated over the previous six months and adjusted for periods of stockouts. The current stock on hand was divided by average monthly consumption to determine how many months of stock were available. As noted above, this calculation could only be made for facilities maintaining adequate stock records. Therefore, figures in this report referring either to stockouts in the last six months or to months of supply are likely to underestimate improper stocking (stocking too little, too much, or none at all).

The findings in this section of the report are organized by product type and include analysis of the following:

- *Percentage of facilities that manage the product and were experiencing a stockout on the day of the visit.*
- *Percentage of facilities that manage the product and experienced a stockout during a six-month period before the start of the assessment.* Since some facilities did not have adequate records, the stockouts that were recorded underestimate the actual frequency of stockouts. Presumably, facilities with accurate and complete records manage their stock better, so they should have fewer stockouts than facilities without records.
- *Average duration of stockouts.* This calculation is based on stockouts observed in facilities' records. The number and duration of some stockouts could not be derived due to poor records or staff's inability to remember. This analysis only includes facilities that had at least three months of stock keeping records; where these data are unavailable, this measurement cannot be made (i.e., "n" is lower for these indicators). Therefore, the stockouts in this section's tables are thought to underestimate the frequency of stockouts for the products in this survey.
- *Mean months of stock on hand on the day of the visit by facility type.* This is based only on facilities that had physical inventory and three consumption records available, thus the number of facilities included in these calculations (i.e., "n") is lower than the number of overall facilities managing each product. The data presented in this report are the mean months of stock on hand. For most of the products, the median months of stock are lower. Where there are large months of stock on hand in the system, the mean illustrates the amount of stock that is at risk of damage and/or expiration. The minimum stock that should be held at hospitals and health centers is one month, and the maximum is three months. The minimum that should exist at the RMS is nine months, and the maximum is 15 months for contraceptives and STI drugs while for all other drugs and medical supplies the minimum at RMS is nine months and the maximum is 12 months.
- All analysis by product type was done only for facilities that report managing the product.

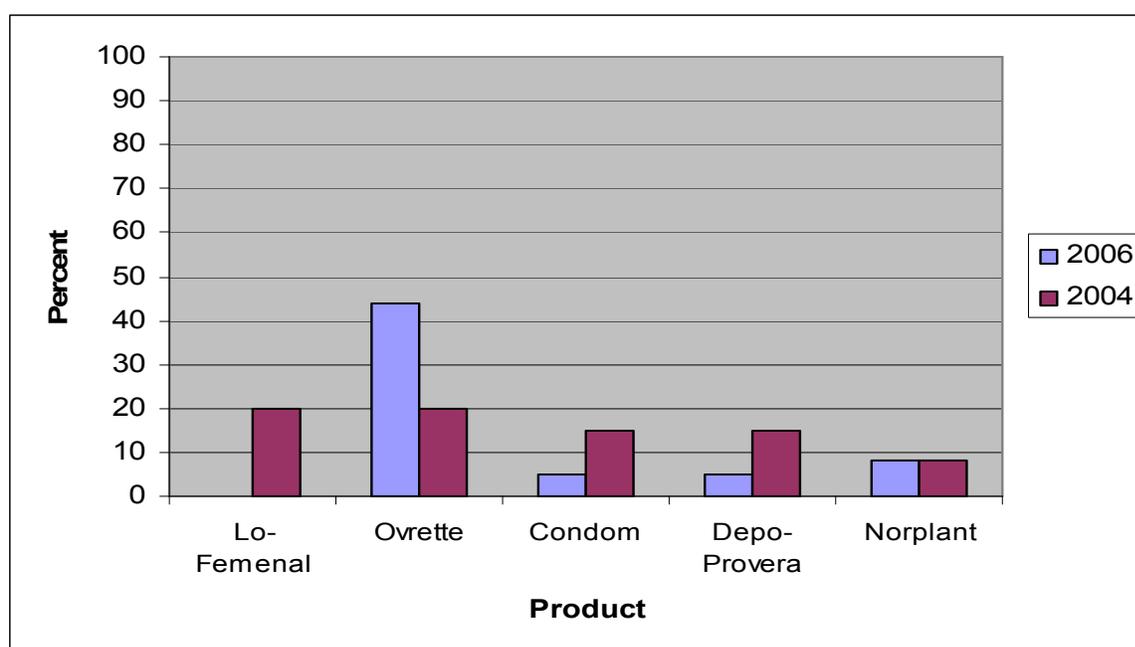
FINDINGS FOR CONTRACEPTIVES

Contraceptives in the survey included Lo-Femenal, Ovrette, male condoms, Depo-Provera/ Petogen, and Norplant.

STOCKOUTS OF CONTRACEPTIVES ON DAY OF VISIT

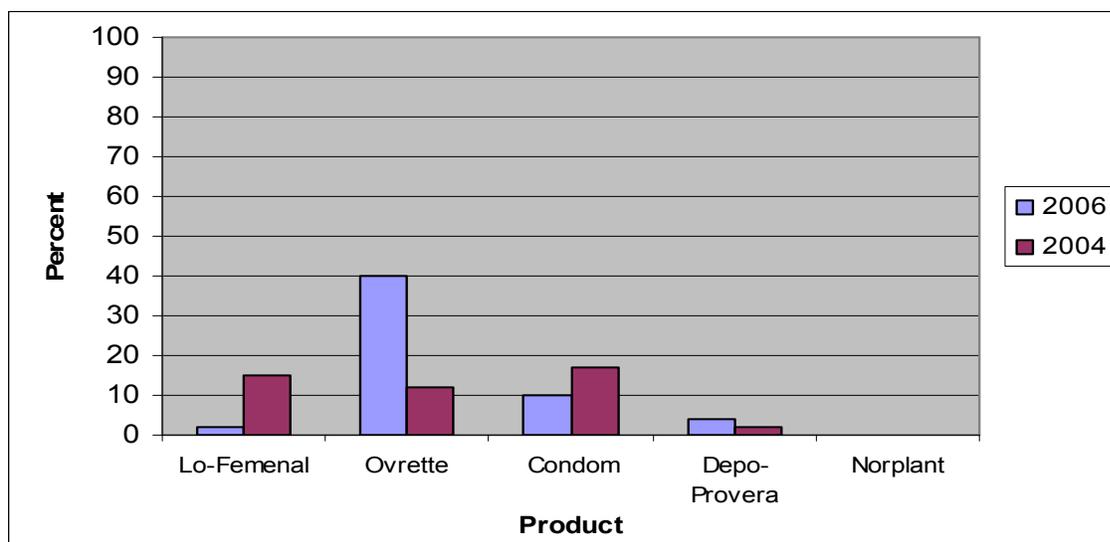
From Figure 1, it can be noted that of all contraceptives, Ovrette was stocked out at more than 40 percent of the hospitals in 2006 on the day of the visit unlike in 2004 when it was at 20 percent. This was due to the fact that most of the contraceptives expired in December 2005. In addition, it has been observed that there is a declining trend in the use of Ovrette as a family planning method, with more women preferring to use Depo Provera.

Figure 1: Percentage of hospitals that experienced a stockout of contraceptives on the day of the visit



The situation at the health centers as illustrated in Figure 2 was similar to the hospitals with 40 percent of the health centers visited having a stockout of Ovrette on the day of the visit. The reason for the stockout at the health centers was the same as for the hospitals. The stockouts for the other contraceptives were not due to non availability at the central level, but due to either non reporting, rationing (whereby facilities are only given one month supply which finishes before another delivery occurs), or delays in the delivery of the consignments. Norplant is not managed at the health centers. With the exception of Ovrette and Depo – Provera the situation for the other contraceptives improved in 2006 as compared to the one in 2004.

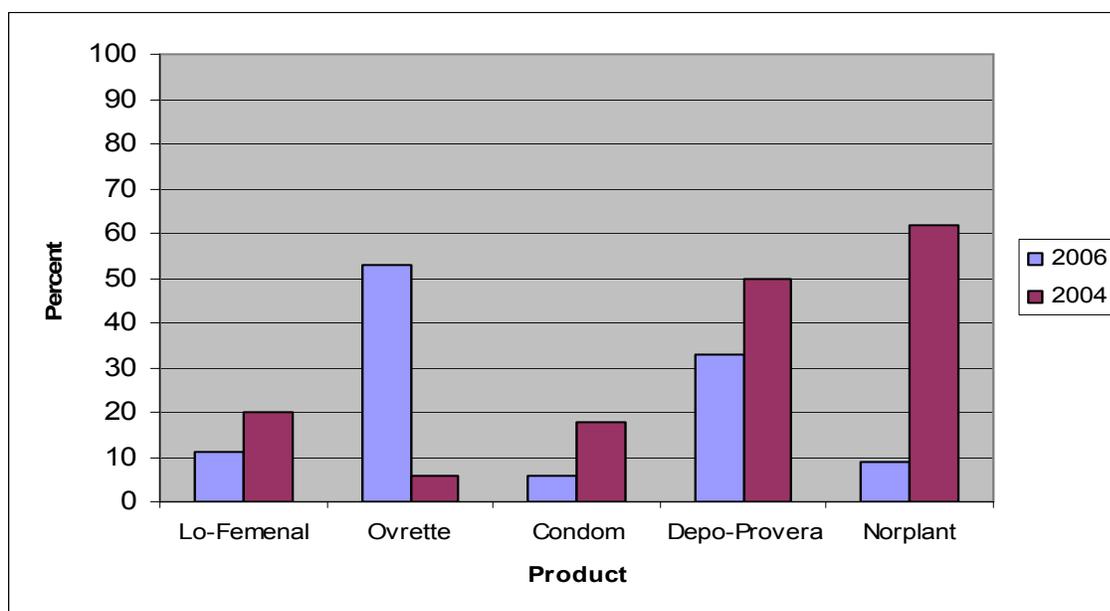
Figure 2: Percentage of Health Centers that experienced a stockout of contraceptives on the day of the visit



STOCKOUTS OF CONTRACEPTIVES WITHIN THE LAST SIX MONTHS

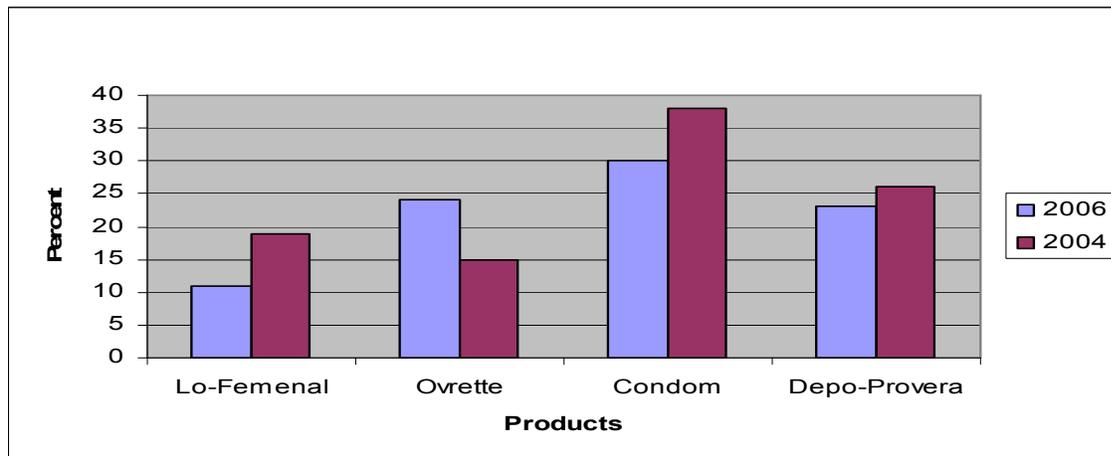
Between July and December 2005 it was noted that hospitals experienced lower levels of stockouts in 2006 as compared to 2004 with the exception of Ovrette for reasons already explained. Ten percent of the hospitals experienced a stockout of Norplant in the last six months as compared to 60 percent in 2004 which is a great improvement.

Figure 3: Percentage of hospitals that experienced a stockout of contraceptives during the last six months



The situation for health centers was similar to that of hospitals in that there were a lower number of facilities stocked out of contraceptives in 2006 than in 2004. Ten percent of the facilities were stocked out of Lo-Femenal in 2006 as compared to 20 percent in 2004. See Figure 4 below for additional details.

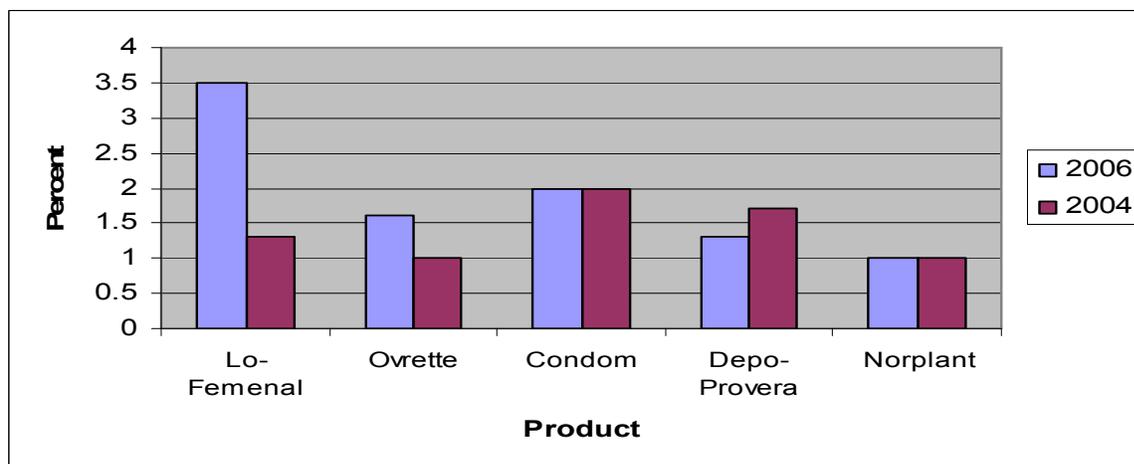
Figure 4: Percentage of Health Centers that experienced a stockout of contraceptives during the last six months



AVERAGE NUMBER AND DURATION OF STOCKOUTS OF CONTRACEPTIVES

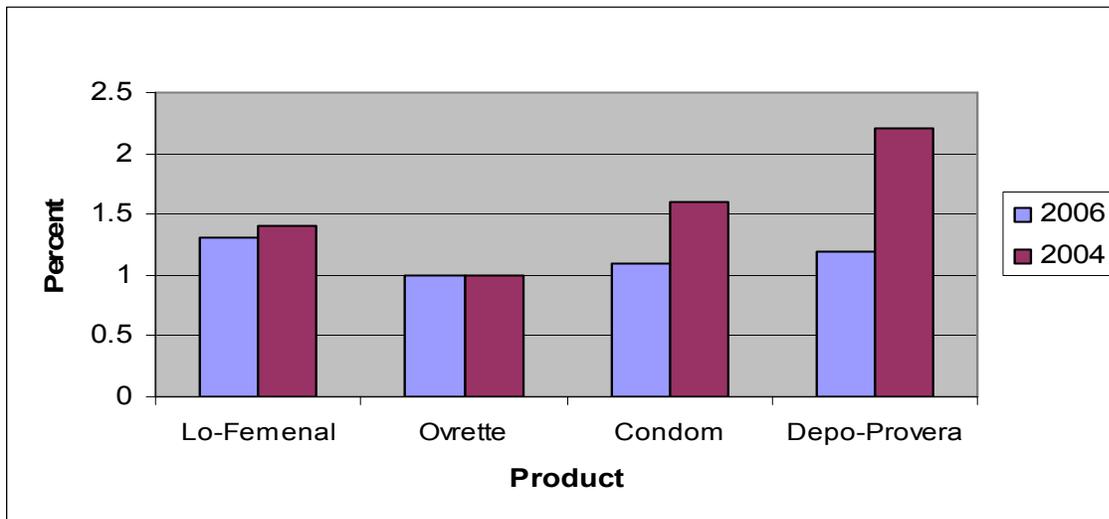
Figure 5 below illustrates the average number of stockouts for contraceptives between July and December 2005. When compared to 2004, with the exception of both condoms and Norplant (which experienced similar numbers of stockouts in both 2004 and 2006), there has been an increase in the average number of stockouts for Lo-Femenal and Ovrette. The exception has been Depo- Provera where the number of stockouts decreased in 2006, from 1.7 to 1.3. A higher number of stockouts for Lo-Femenal could be the result of late delivery or non-reporting by the concerned facilities. However, it is important to note that during the 2006 reporting period there was no stockout of Lo-Femenal at the central level. As for Ovrette, the reason for the increased number of stockouts in 2006 could be attributed to large amounts of stock that expired in December 2005, and Ovrette is considered a slow moving product that can be overlooked when orders are made by the health facilities.

Figure 5: Average number of stockouts - Hospitals



The situation at the health centers was better compared to the hospitals. As noted below in Table 6, between July and December 2005, there had been a small decrease in average number of stockouts for all of the contraceptives, with the exception of Ovrette which experienced same number of days of stockouts in 2004 and 2006.

Figure 6: Average number of stockouts – Health Centers



The duration for contraceptive stockout at hospitals ranged from less than 20 days for Lo-Femenal and Norplant to a maximum of 80 days for Ovrette. The situation for Ovrette and condoms was better in 2004 than in 2006. Condoms were not evenly distributed in the supply chain during the year with some facilities overstocked and others experiencing a stockout. However, for health centers (Figure 8), the average duration for stockouts was better in 2006 than it was in 2004 with the exception of Ovrette which had an average duration of 120 days in 2006 as compared to about 45 days in 2004.

Figure 7: Average duration of stockouts - Hospitals

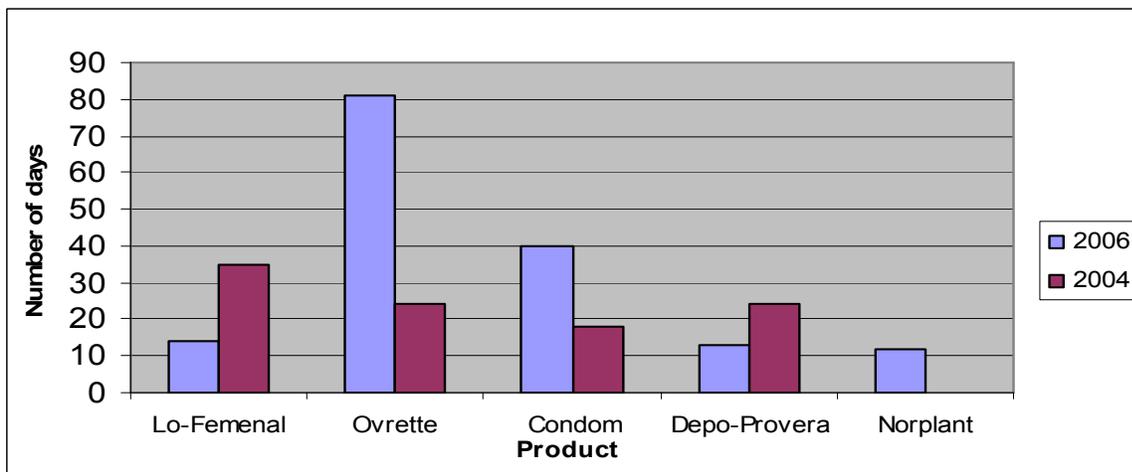
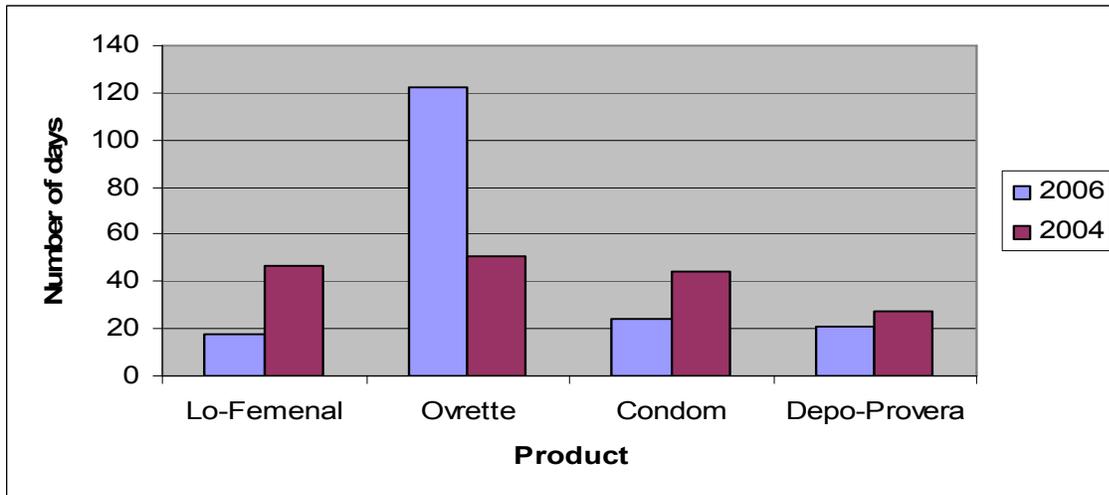


Figure 8: Average duration of stockouts – Health Centers



MONTHS OF STOCK ON HAND OF CONTRACEPTIVES

Figures 9&10 show the number of months of stock on hand for contraceptives. These numbers are based on the stock available in physical inventory, divided by the average monthly issues at that facility, or in the case of the RMS, the stock available divided by the average monthly issues to all facilities in that region.

Figure 9: Months of stock on hand of contraceptives - Hospitals

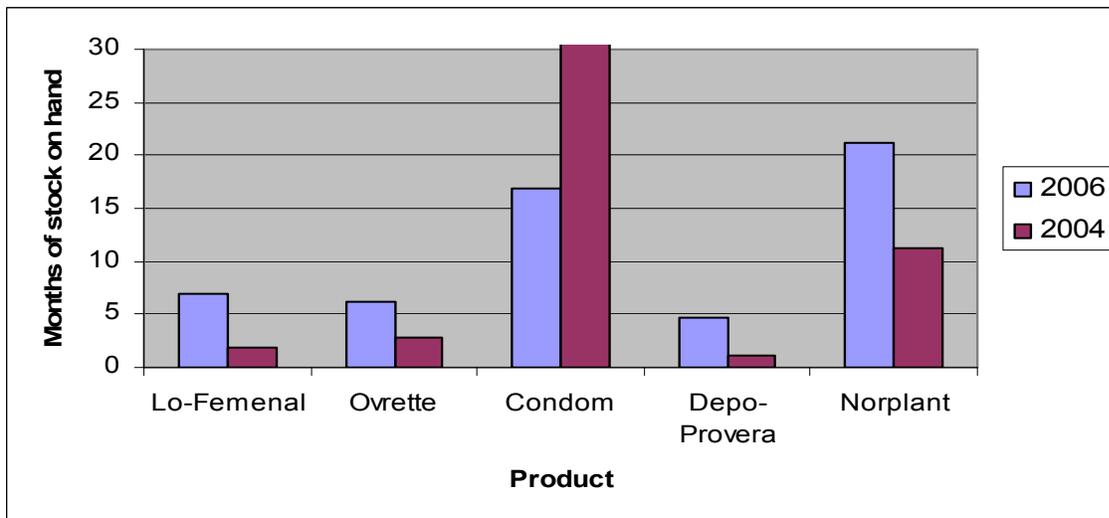
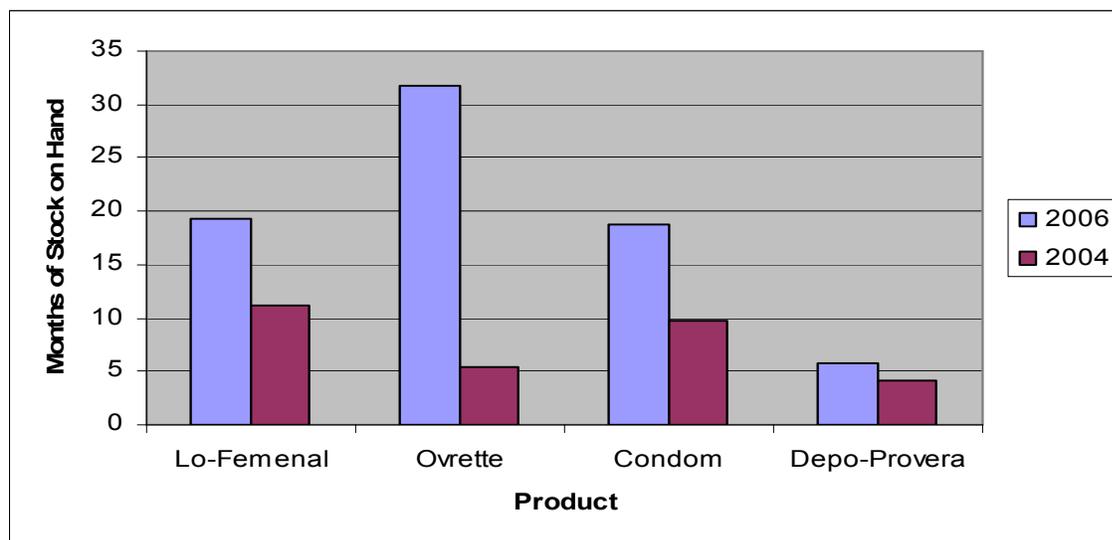


Figure 10: Months of stock on hand of contraceptives – Health Centers



In Malawi, both hospitals and health centers should maintain between one and three months of stock. Figure 9 above demonstrates that in 2006, hospitals were overstocked for all contraceptives, maintaining anywhere between 5-6 months of stock for Lo-Femenal, Ovrette and Depo-Provera. Meanwhile, both condoms and Norplant had major overstocks at sixteen and twenty-one months respectively. During data collection, it was noted that recently many districts received unsolicited shipments of condoms which has resulted in overstocks.

Norplant (considered a long term method compared to other methods), is not frequently requested by clients, which can explain why there is an overstock in both 2004 and 2006. In recent years, more women seem to prefer discreet methods like Depo- Provera where they are given a shot once every three months without any obvious evidence of using contraceptives. Depo- Provera also causes some women to gain weight which is given as a reason for their preference toward injectables compared to the other methods. Additionally, Norplant record keeping is somewhat dispersed in the hospitals. Norplant is ordered and received by the Pharmacy Technician, authorized as a method by the Family Planning Coordinator and inserted into a woman by the Clinician. HMIS introduced Family Planning Registers that collect the annual number of women inserted with Norplant. In 2005 8,822 women were inserted with Norplant (35 percent were inserted in Lilongwe). Comparing the findings above with the HMIS reveals problems with collection of information on Norplant insertion. The 2006 forecasting exercise requesting a shipment of over 7,000 Norplant by June 2006 to avoid a stockout also confirms that the overstocks of Norplant could be a result of insufficient essential data.

In practice, recording stock levels and reporting on condom distribution is scarce. This is confirmed from the findings above which reveal poor stock balances for condoms for both 2004 and 2006 (43/35 respectively). Additionally, since this indicator is based on the available stock divided by average months of stock, this result is anticipated for condoms because most stock keepers record receipt of condoms and seldom record what they have issued to clients.

Similar to hospitals, health centers were also overstocked in 2006. Condoms and Lo-Femenal had an average of nearly twenty months of stock; meanwhile Ovrette had an average of 31 months of stock available. As mentioned earlier, this is due to the fact that there has been a declining trend in the use of Ovrette by women who are opting for Depo-Provera instead, resulting in huge overstock of both Ovrette

and Lo- Femenal. The other reason for the overstock could be that facilities have been ordering the commodities without really considering their stock levels.

CONCLUSIONS FOR CONTRACEPTIVES

- **Since contraceptives are in full supply at the central level, there should be no stockouts of any duration.** Contraceptives are fully funded, and the Ministry is able to procure and distribute them to hospitals and health centers. One can conclude, therefore, that stockouts are due to a breakdown in logistics functions between the RMS and SDP levels (e.g., inappropriate ordering, not ordering on time, and/or transportation) rather than to a lack of supplies in the system.
- **Overall, the percentage of facilities that experienced stockouts for contraceptives during the last six months decreased in 2006.** The only exception was Ovrette which is not considered a method of choice by majority of women, who instead prefer Depo-Provera. Additionally, much of the Ovrette stock expired in December 2005 which is also a contributing factor for higher a stockout rate.
- **Condoms are not evenly distributed in the supply chain resulting in some facilities receiving an overstock while others experiencing a stockout of condoms.** This suggests that either the facilities are not ordering based on their consumption rates or the RMS is pushing condoms to the facilities in an attempt to eliminate extra inventory from their stock, resulting in an overstock at the facility level.
- **The average months of stock on hand show an overstock of contraceptives in 2006.** This was especially evident for both condoms and Norplant at the hospital level, with an average stock on hand of sixteen and twenty-one months respectively. However, at individual facilities in the survey, there were stockouts, undersupply, and oversupply of contraceptives, even if the levels on average are overstocked.
- **In 2006, with the exception of Ovrette and condoms, the average stockout duration for contraceptives decreased.** Ovrette on the other hand was stocked out at the health center, hospitals and the RMS level. It is also the only contraceptive stocked out at the RMS level (average of 81 days).

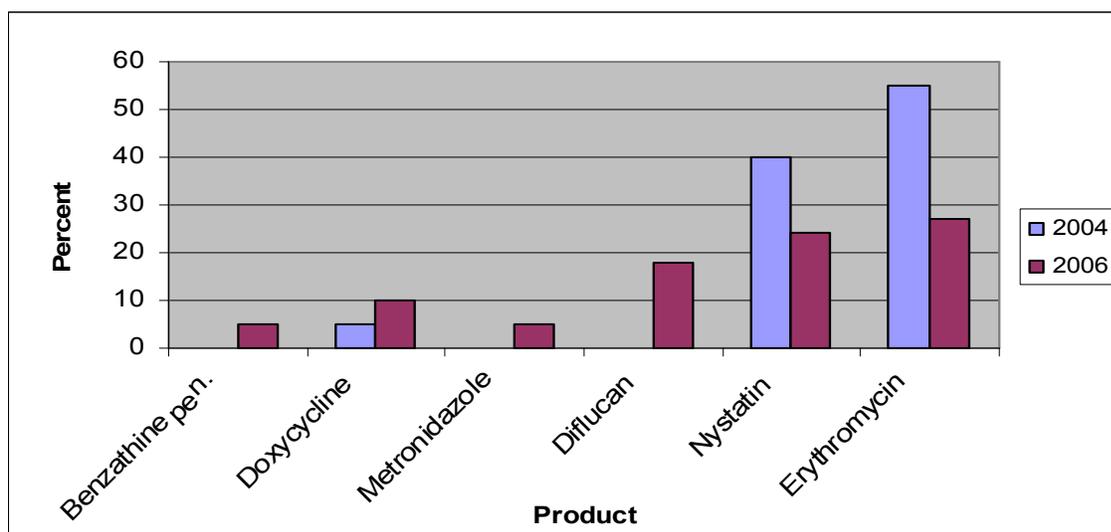
FINDINGS FOR STI/OI DRUGS

STI/OI drugs in the survey included: 2.4 mU vials of benzathine penicillin, 100 mg tablets of doxycycline, 200 mg tablets of metronidazole, 200 mg tablets of fluconazole, nystatin pessaries, and 250 mg tablets of erythromycin.

STOCKOUTS OF STI/OI DRUGS ON DAY OF VISIT

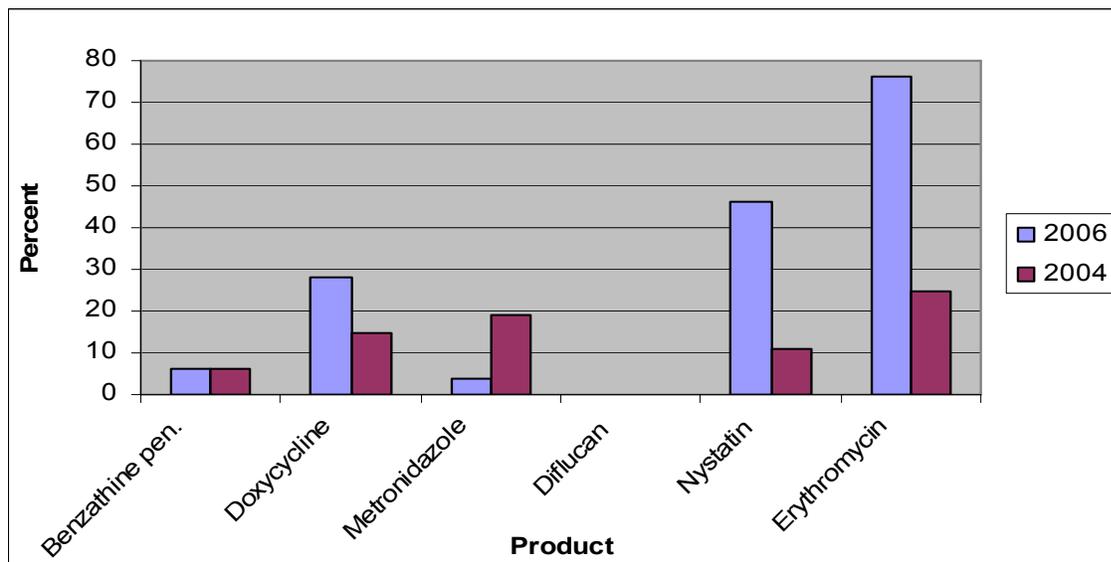
Since 2002, the Sexual and Reproductive Health program with support from DfID has provided for STI drugs. However, with the advent of SWAp, money through this program is now being channeled through SWAp for the procurement of these drugs. During the survey, over 50 percent of the facilities had a stockout for Erythromycin on the day of the visit with 40 percent experiencing a stockout for Nystatin pessaries. There was no stockout for Diflucan and Benzathine penicillin in 2006 as compared to close to 20 percent and 5 percent respectively in 2004.

Figure 11: Percentage of Hospitals that experienced a stockout of STI/OI drugs on the day of the visit



At the health centers, the situation for Erythromycin was worse than at the districts, with close to 80 percent experiencing a stockout of Erythromycin on the day of the visit and approximately 45 percent for Nystatin in 2006. The stockout for the two commodities was especially pronounced due to stockout at the central level.

Figure 12: Percentage of Health Centers that experienced a stockout of STI/OI drugs on the day of the visit



STOCKOUTS OF STI/OI DRUGS WITHIN THE LAST SIX MONTHS

Tables 13 & 14 below provide a detailed picture of the stock outs between July and December 2005. With the exception of Doxycycline and Metronidazole, hospitals experienced higher percentage of stockouts over the last six months in 2006 when compared to 2004. Approximately 80 percent of the hospitals experienced a stockout of Nystatin pessaries in the last six months in 2006 compared to 31 percent in 2004. Similarly 68 percent of the hospitals were stocked out of Erythromycin compared to 50 percent in 2004. Similar trend can also be seen for health centers especially for Nystatin, although overall health centers seem to fare better in 2006 compared to 2004.

Delays in procurement have caused major stockouts of all drugs, including STI drugs. For example, Erythromycin was stocked out at two of the three RMS's. Another reason for the high stockouts of Erythromycin could be because it is considered a multiple usage drug. Apart from being used to treat STI's it is also used for treating other ailments. As such, its consumption rates tend to be very high. This follows an agreement that was reached that STI drugs could also be used for treating other ailments. SRHP reported that they had enough money to provide the drugs in any quantities requested by the Ministry. Use of these drugs was increased in the treatment of HIV/AIDS opportunistic infections and treatment of STI's in pregnant women. However, the initial forecasts for STI drugs done in the year 2002 by LATH used the information from STI registers that only record patients treated with STI and did not take into consideration the treatment of OIs or pregnant women. This has resulted in underestimation in forecasting and subsequent stockouts.

Stockouts of Nystatin pessaries could have resulted due to discrepancy in using various units of count when recording Nystatin receipts and issues. Many health facilities continue to record it in units of 5 instead of 20 or 100. This inconsistent practice resulted in inaccurate forecasts for Nystatin. The last supply for Nystatin pessaries was delivered on 31st May 2005 and at the time of the survey; most facilities had run out of the commodity, including all three RMSs. There was no stockout for Diflucan or Benzathine penicillin in 2006 as compared to close to 20 percent and 5 percent respectively of the facilities in 2004.

Figure 13: Percentage of Hospitals that experienced a stockout of STI/OI drugs in the last six months

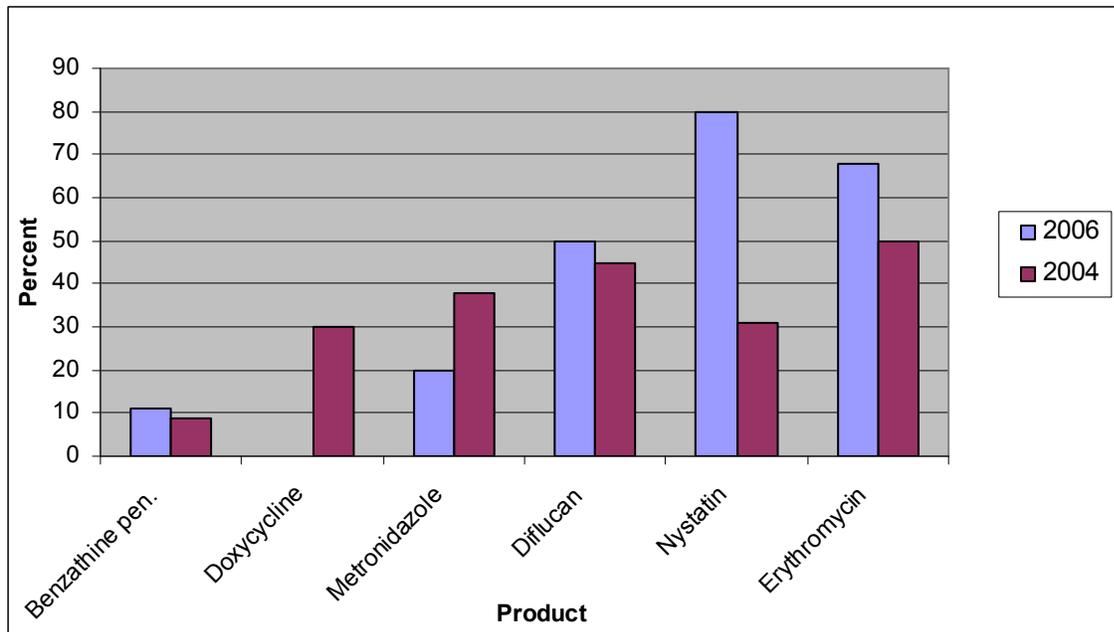
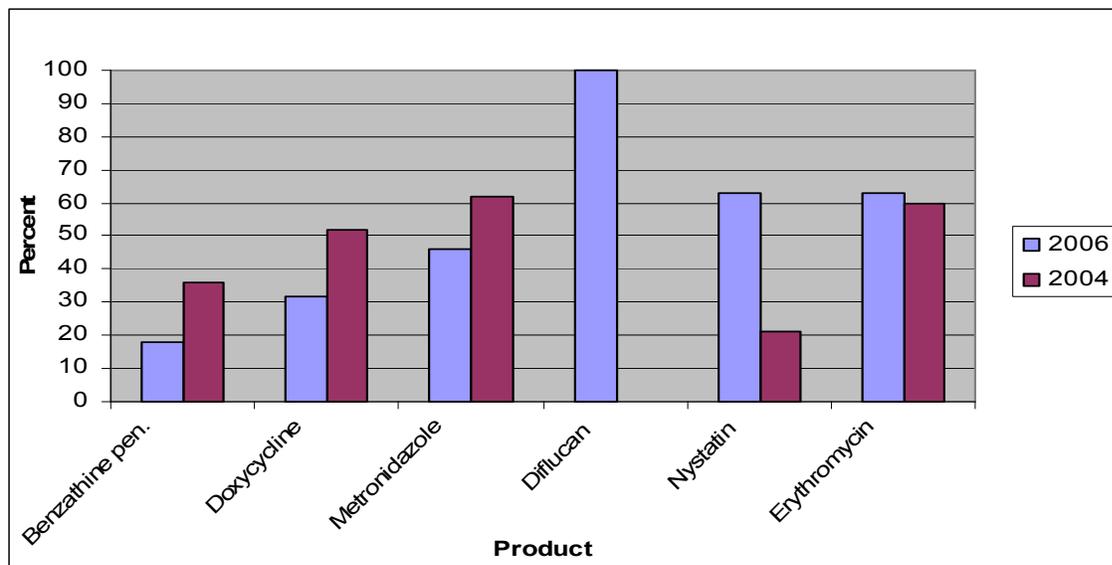


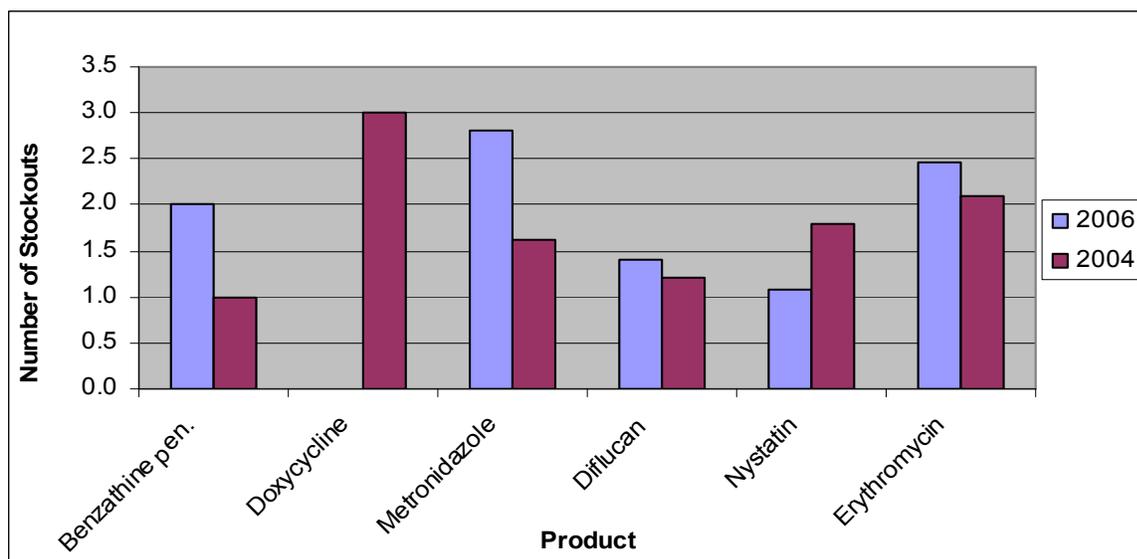
Figure 14: Percentage of Health Centers that experienced a stockout of STI/OI drugs in the last six months



AVERAGE NUMBER AND DURATION OF STOCKOUTS OF STI/OI DRUGS

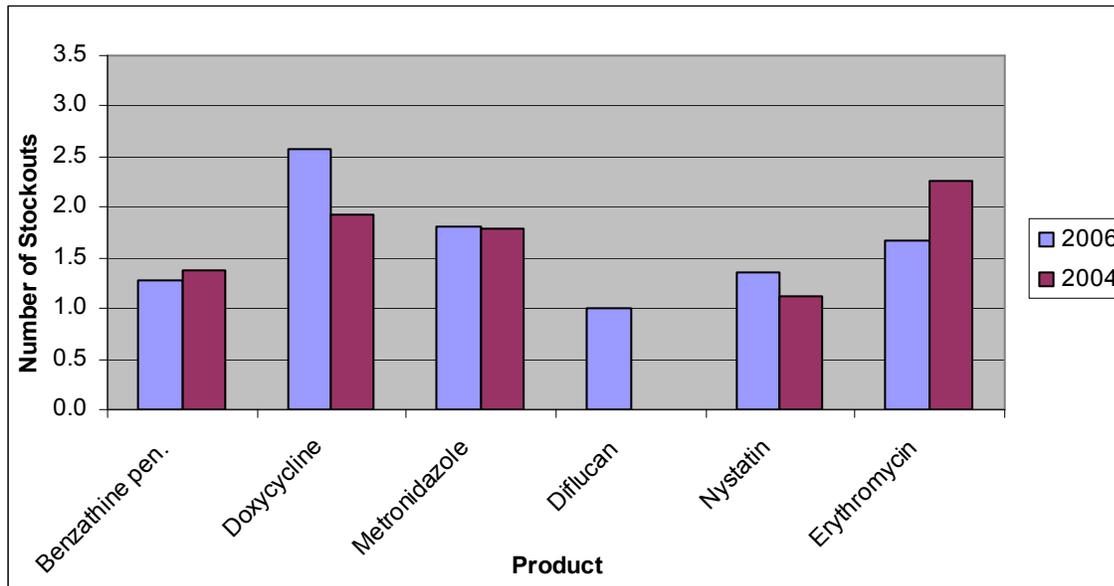
The highest average number of stockouts for STI drugs at hospitals occurred for Metronidazole tablets and Erythromycin in both 2004 and 2006 (Figure 15). In 2004, the average number for Erythromycin was slightly above 2 times compared to 2.5 times in 2006, and that of Metronidazole was slightly above 1.5 times in 2004 as compared to above 2.5 times in 2006. However, health centers experienced a higher average number of stockouts for Doxycycline in 2006, at 2.5 times, as compared to slightly less than 2 times in 2004.

Figure 15: Average number of stockouts - Hospitals



Similar to hospitals, health centers (Figure 16) also experienced higher average numbers of stockouts for both Erythromycin and Metronidazole in 2006, both at slightly above 1.5 times. However, Erythromycin, fared better in 2006 compared to 2004, at approximately 1.5 stockouts.

Figure 16: Average number of stockouts – Health Centers



As has been established in Figure 17 & 18 below, the situation for Nystatin has significantly worsened in 2006 at both health centers and hospitals. Additionally, it was also stocked out at the central level. The average duration of stockout for Nystatin was 120 days for hospitals and 100 days for Health centers.

Figure 17: Average duration of stockouts – Hospitals

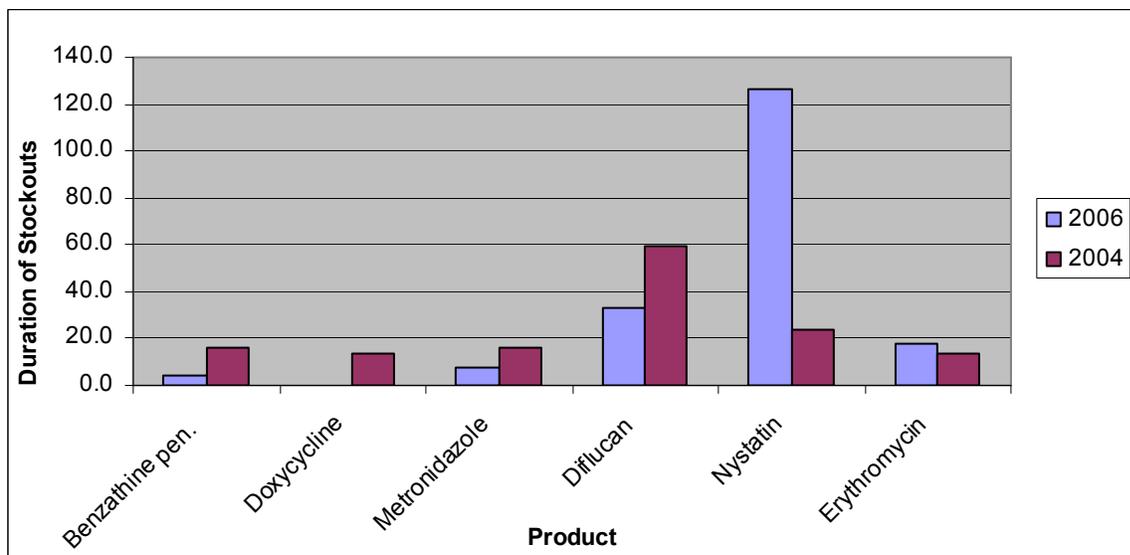
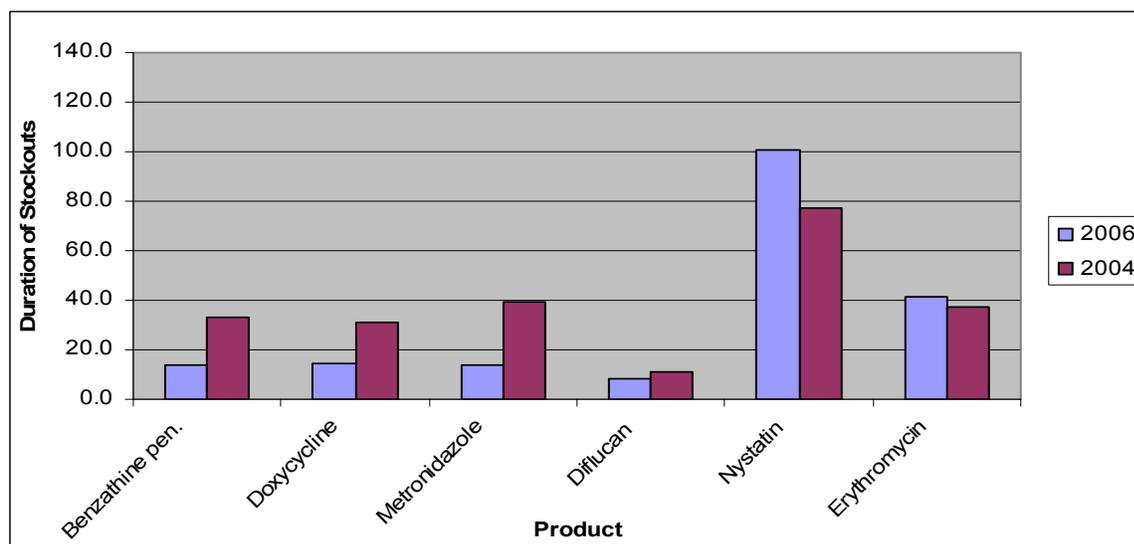


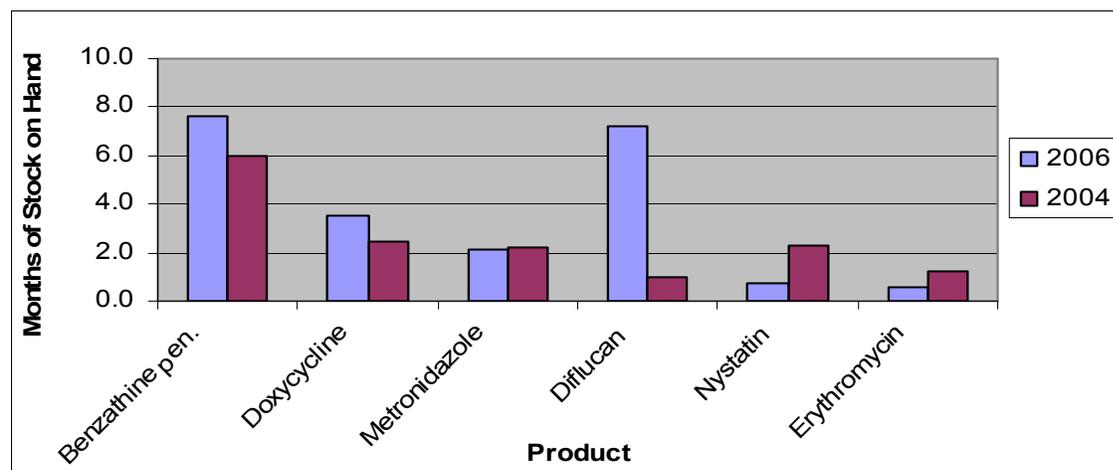
Figure 18: Average number of stockouts – Health Centers



MONTHS OF STOCK ON HAND OF STI/OI DRUGS

Figure 19 & 20 shows the number of months of stock on hand for STI/OI drugs. These figures are based on the stock available in physical inventory, divided by the average monthly consumption at that facility, or in the case of the RMS, the stock available divided by the average monthly consumption of all facilities in that region.

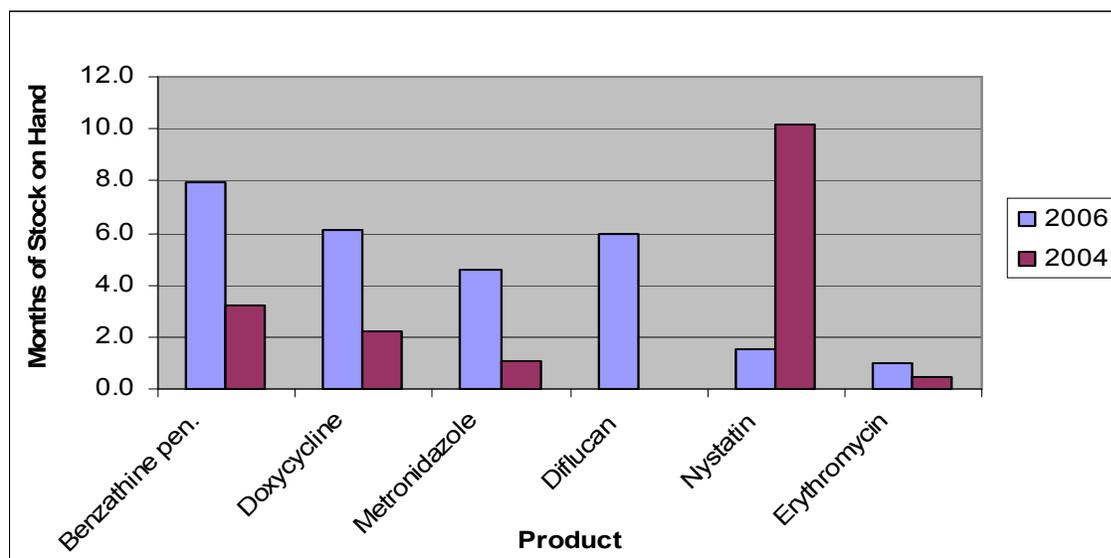
Figure 19: Months of stock of STI/OI drugs available - Hospitals



At the hospitals, the months of stock for all the STI drugs with the exception of Benzathine Penicillin and Diflucan fell within the required one month minimum and three months maximum. Diflucan is a Pfizer supported partnership program commodity and is managed at the central level. The distribution of Diflucan is centrally controlled at the Central Medical Stores by a desk officer who monitors the use by all facilities in the country. The distribution is based on the monthly usage reported by the facilities. Registers and stock cards are used to record both service statistics and logistics information and this is confirmed in Table 2 which shows that 73 percent of facilities had stock cards, of which 71 percent of the

facilities had updated stock cards. Benzathine was overstocked at both hospitals and health centers, with eight months of available stock on hand. Health centers on the other hand experienced overstock of Doxycycline and Metronidazole at six and slightly above four months respectively. However, it is important to understand that this stock on hand information is generalized for all surveyed facilities at each level, within each level, individual facilities may be overstocked, under stocked, stocked out, or adequately stocked, even if on average each level could be overstocked for a particular product.

Figure 20: Months of stock of STI/OI drugs available – Health Centers



CONCLUSIONS FOR STI/OI DRUGS

- In 2006, there were significant stockouts of Nystatin and Erythromycin, both at the hospital and the health center level.** On the day of the visit, 40 percent of the hospitals and 45 percent of the health centers were stocked out of Nystatin. Similarly, over 50 percent of the hospitals and almost 80 percent of the health centers were stocked out of Erythromycin. One of the reasons for high stockout of Erythromycin is that it is considered a multiple usage drug and can be used to treat other ailments besides STI/OI. The use of Erythromycin for treatment of other illnesses was not factored into the forecast which has subsequently resulted in the high stockout rate of the drug. In the case of Nystatin, facilities have encountered problems in determining its unit of issue. Many facilities continue to record it in units of 5 instead of 100. This error in counting of inventory and record keeping could have led to underestimating the quantity of drug needed at the national level, eventually resulting in stockouts.
- With the exception of Benzathine and Diflucan, all other STI/OI drugs were stocked within the required minimum and maximum level.** However, as stated earlier, this information is generalized for all surveyed facilities at each level, within each level. There are individual facilities which may be overstocked, under stocked, stocked out, or adequately stocked, even if on average each level could be overstocked for a particular product.
- Stockouts occurred at a higher percentage of facilities for STI drugs than for contraceptives, although both are full supply products.**

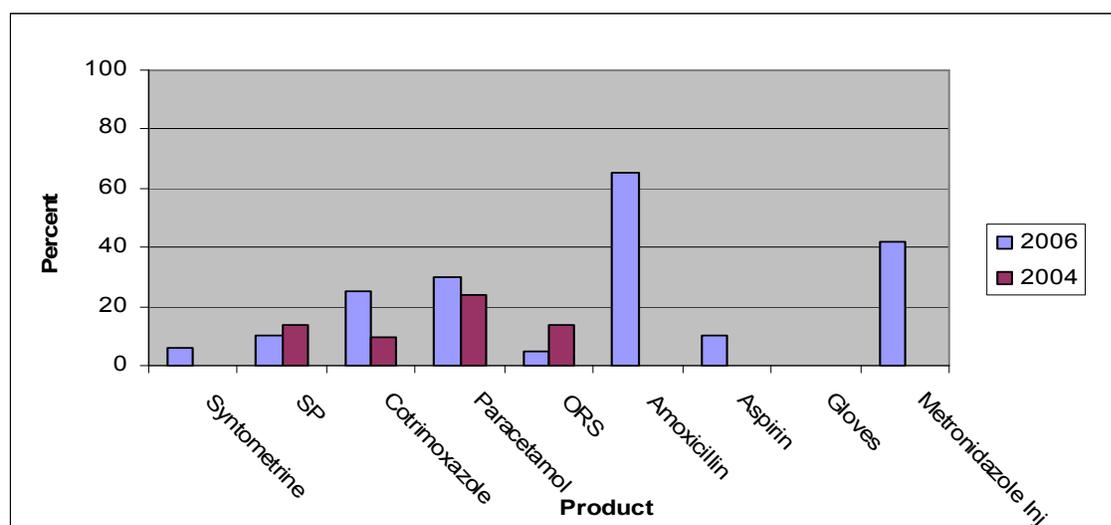
FINDINGS FOR ESSENTIAL DRUGS AND MATERNAL AND CHILD HEALTH

The malaria and child health commodities included in this survey are sulfadoxine-pyrimethamine (SP), 480 mg tablets of cotrimoxazole, 500 mg tablets of paracetamol, and ORS sachets. All of the MOH health facilities managed all of the malaria indicator drugs included in the survey. Also included were critical drugs used in maternal health like Syntometrine, Ferrous Sulphate and 5mg/ml vials of metronidazole injection. Two commonly used drugs, Amoxicillin and Aspirin were also included to check their availability.

STOCKOUTS OF MALARIA AND CHILD HEALTH PRODUCTS ON DAY OF VISIT

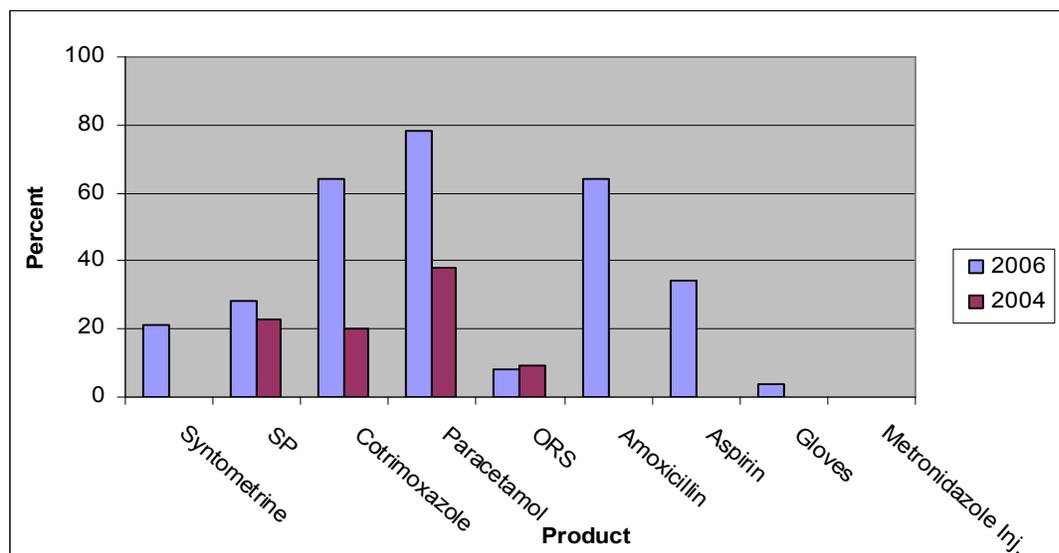
As illustrated in Figure 21, Amoxicillin was stocked out at slightly over 60 percent of the hospitals in 2006. Close to 30 percent of the hospitals also experienced stockouts on the day of the visit for paracetamol and less than 20 percent experienced stockouts for SP, Syntometrine, Aspirin and ORS. The situation for SP was slightly better in 2006 compared to 2004 although there were stockouts in the period under review at the central level. There was no stockout for gloves on the day of the visit because at the time of the visit, facilities had just been supplied with gloves after experiencing several stockouts in the previous months. The result for Metronidazole injection, a product added to the 2006 survey, indicates a stockout at slightly above 40 percent of the facilities.

Figure 21: Percentage of Hospitals that experienced a stockout of essential drugs and maternal and child health products on the day of the visit



As observed in Table 22, the situation for Health Centers was similar to that of hospitals with the exception that a higher percentage of the health centers experienced stockouts for Paracetamol and Cotrimoxazole at close to 80 percent and slightly above 60 percent respectively.

Figure 22: Percentage of Health Centers that experienced a stockout of essential drugs and maternal and child health products on the day of the visit



STOCKOUTS OF ESSENTIAL DRUGS AND MATERNAL AND CHILD HEALTH PRODUCTS IN THE LAST SIX MONTHS

Figure 23 & 24 present the results on percentage of facilities that were stocked out over the last six months. Approximately 80 percent of the hospitals and health centers experienced a stockout of Amoxicillin during that time. Approximately 60 percent of the hospitals also experienced a stockout of aspirin and gloves in 2006. The situation for SP deteriorated from 2004 to 2006. In 2004, only 20 percent of the facilities experienced a stockout for SP compared to nearly 70 percent in 2006. Similar trends are also evident for health centers where 90 percent of the health centers were stocked out of SP compared to 38 percent in 2004. This increase in stockout of SP and other drugs can be attributed to the fact that all three regional medical stores (RMS) had also experienced stockouts in 2006.

Figure 23: Percentage of Hospitals that experienced a stockout of essential drugs and maternal and child health products in the last six months

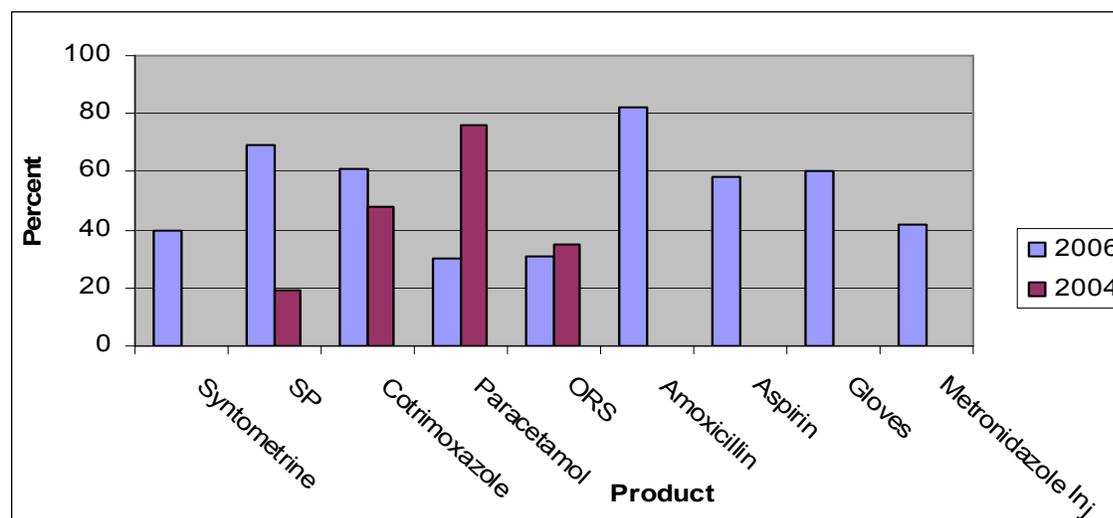
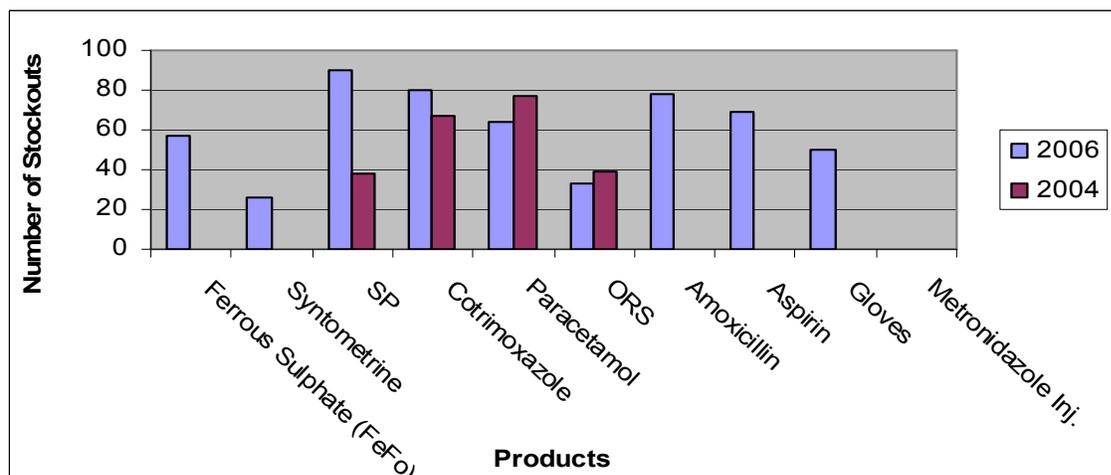


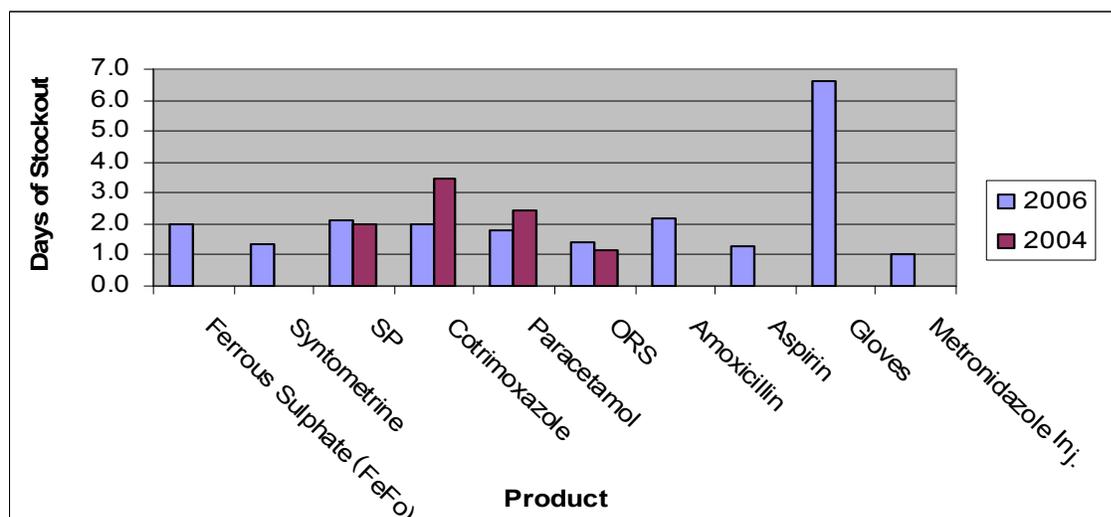
Figure 24: Percentage of Health Centers that experienced a stockout of essential drugs and maternal and child health products in the last six months



AVERAGE NUMBER AND DURATION OF STOCKOUTS OF MALARIA AND CHILD HEALTH PRODUCTS

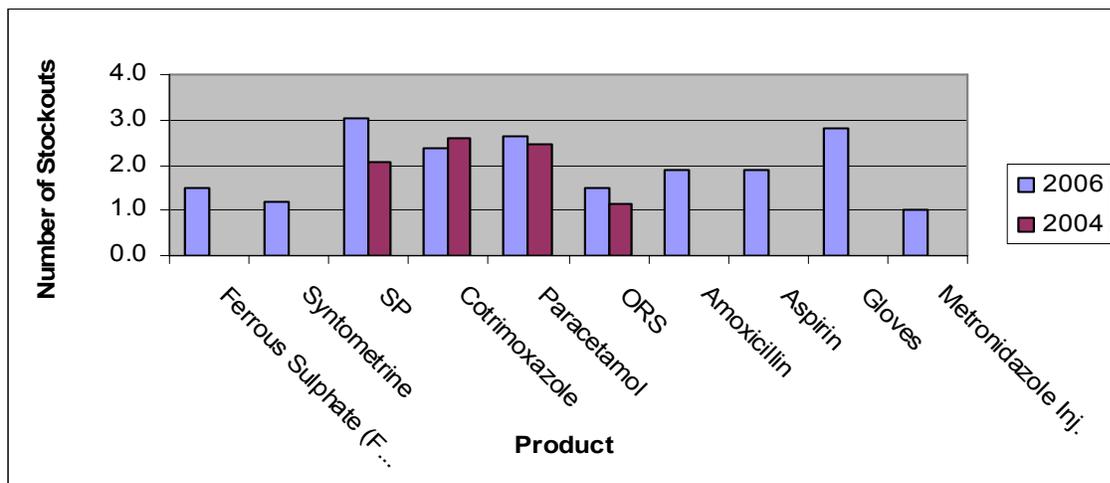
Figure 25 above illustrates the average number of stockouts for the MCH, other essential drugs and medical supplies. Over the six months under review, hospitals experienced 6.5 stockouts of gloves. This number is rather alarming considering the importance of gloves in the health care delivery system. Meanwhile, all other commodities experienced fewer numbers of stockouts in 2006, all below three. The number of stockouts for Cotrimoxazole dropped from an average of 3.5 in 2004 to 2.0 in 2006.

Figure 25: Average number of stockouts - Hospitals



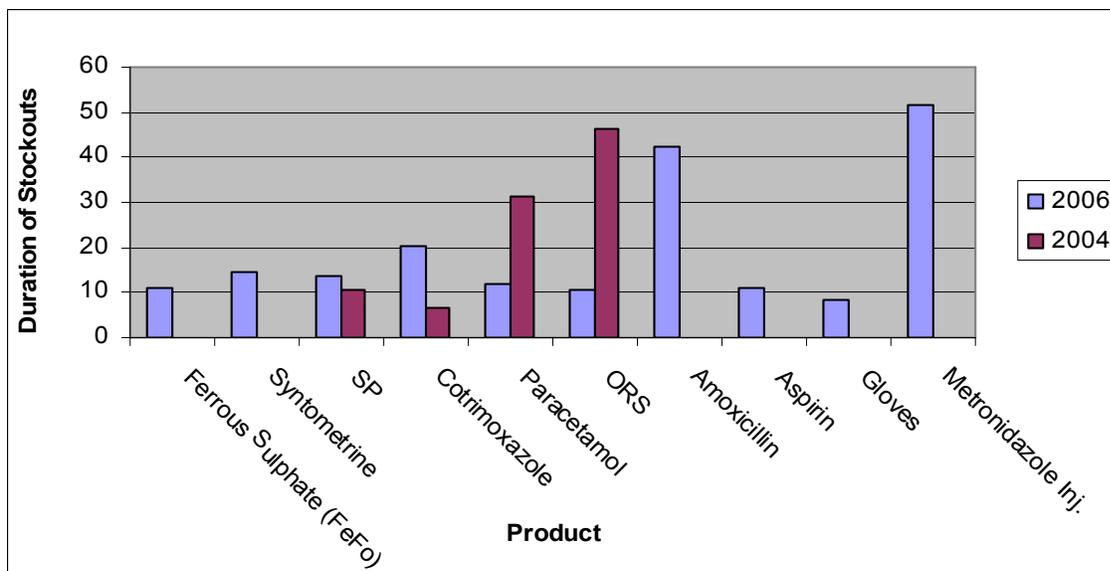
The same can also be said for the health centers (Fig 26) which also experienced fewer than three stockouts for all MCH and other essential commodities. However, the average number of stockouts for SP increased from two in 2004 to three in 2006. As mentioned earlier, central level also experienced a stockout during the period under survey in 2006. The situation could have been worse had the district hospitals not provided health centers with an emergency supply of SP.

Figure 26: Average number of stockouts – Health Centers



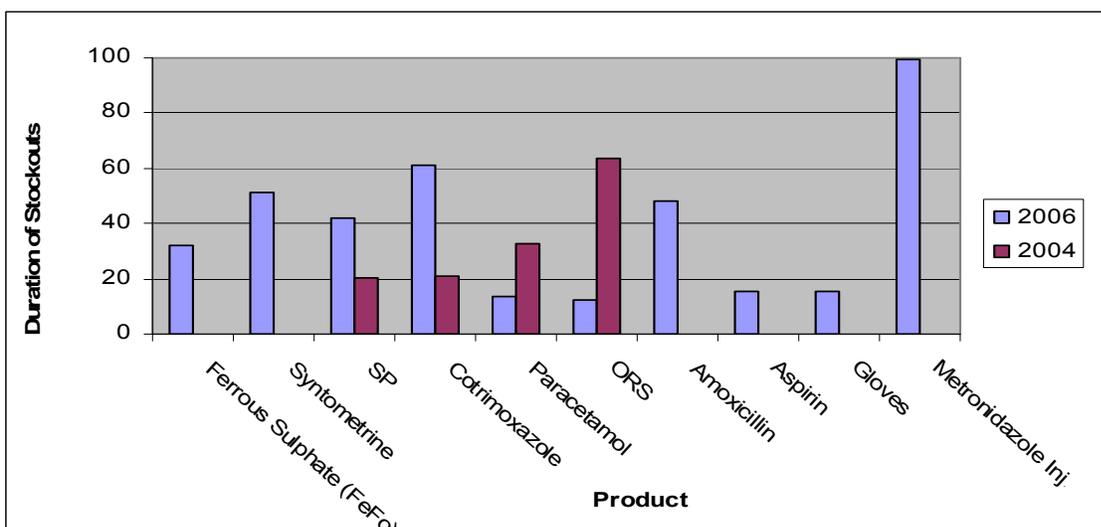
Average duration of stockouts for ORS at the hospitals and health centers declined in 2006, at 10 days compared to over 40 days in 2004, and above 60 days to than 20 days in 2006 respectively. The situation for Paracetamol also improved; from an average of 30 days of stockout in 2004 to 10 days in 2006. Although no comparative data is available for Amoxicillin and Syntometrine from 2004, an average stockout in 2006 lasted for over 40 days.

Figure 27: Average duration of stockouts - Hospitals



The situation at the health centers was worse for Cotrimoxazole at 60 days in 2006 compared to 20 days in 2004. Health centers also experienced higher durations of stockouts in 2006 for SP lasting for approximately 40 days. In the case of Metronidazole injection, it is important to note that only one health center managed Metronidazole injection and experienced one stockout for a duration of 100 days.

Figure 28: Average duration of stockouts in the last six months – Health Centers



AVERAGE MONTHS OF STOCK ON HAND FOR MALARIA AND CHILD HEALTH PRODUCTS

The months of stock for MCH and other essential commodities varied at both hospitals and health centers. Both levels are required to have a minimum of one month and a maximum of three months stock of the said commodities. ORS was overstocked at both the hospitals and the health centers at close to 10 months and 7 months respectively. While district hospitals maintained adequate stock of Syntometrine, it was heavily overstocked at the health center level- at 12 months of stock. At the time of the survey it was found that much of the Syntometrine had an expiration date of June 2006. Therefore, it is very likely that large quantities of Syntometrine will expire prior to consumption. In the case of Ferrous Sulphate, both hospitals and health centers were overstocked at 6 months. SP, cotrimoxazole, aspirin and gloves on the other hand were stocked within the set min – max levels.

Figure 29: Months of stock of essential drugs and maternal & child health products - Hospitals

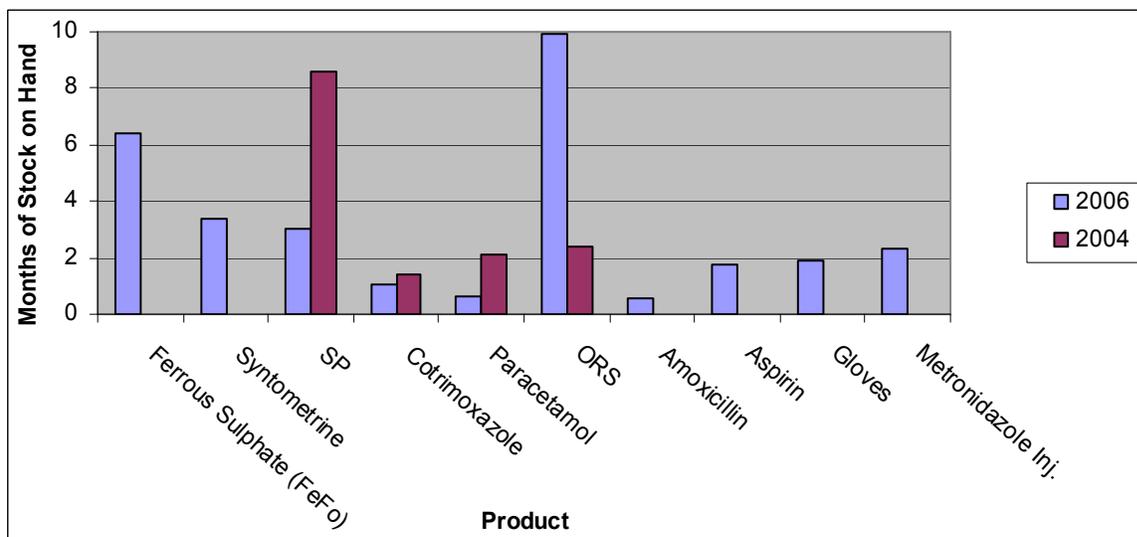
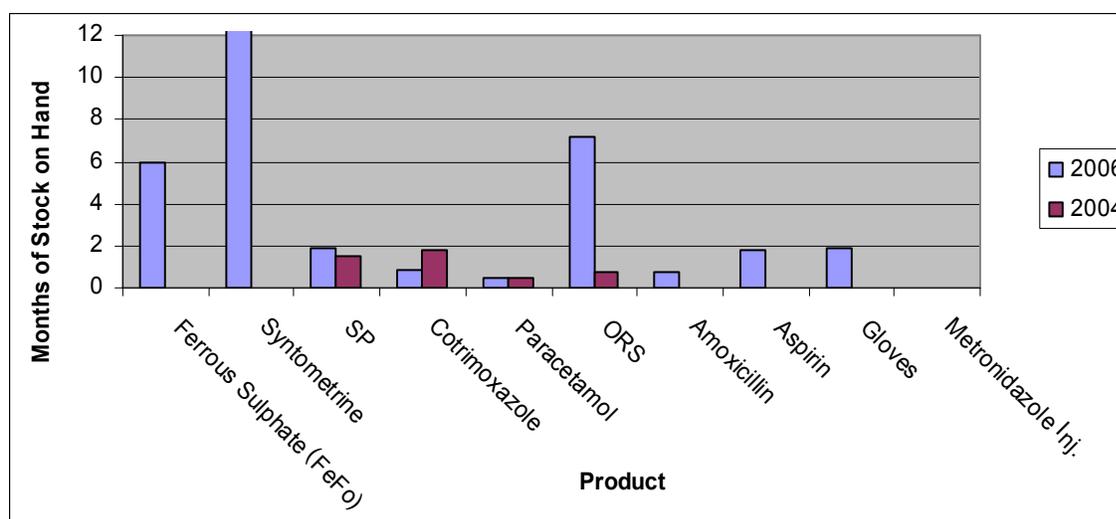


Figure 30: Months of stock of essential drugs and maternal and child health products – Health Centers



CONCLUSIONS FOR ESSENTIAL DRUGS AND MATERNAL AND CHILD HEALTH PRODUCTS

- **The procurement of MCH and other essential drugs differs from STI drugs and Contraceptives.** While Contraceptives and STI drugs are considered full supply and financing is guaranteed by the donors, MCH drugs are normally non-full supply and are procured without considering consumption patterns. They are procured on an ad-hoc basis depending on the availability of funds.
- **There were stockouts on the day of the visit at hospitals and health centers.** To provide comprehensive health services, facilities need adequate stock of essential and maternal and child health drugs. Analysis found that both 60 percent of the hospitals and health centers would be unable to provide Amoxicillin to their clients on the day of the visit. Similarly, 60 percent and 80 percent of the health centers would not have been able to complete orders from clients for Cotrimoxazole and Paracetamol respectively.
- **In 2006, higher percentage of facilities experienced stockouts during the six months under review period.** This suggests that either health facilities are not adequately ordering stock based on their consumption, or health facilities are not supplied with accurate amount of stock needed to serve their clients.
- **Over the course of six months, all three Regional Medical Stores experienced a stockout of SP.** This has resulted in major stockouts at the health facilities during that time. Furthermore, this can have a drastic impact on the health of all Malawians, especially younger children since SP is a much needed drug to combat the spread of Malaria.

FINDINGS FOR TEST KITS

In 2006, Determine HIV, SD Bioline, Unigold were included in the survey, with Unigold replacing Hemastrip from the 2004 survey. Approximately, 90 percent of the hospitals manage test kits compared to 35 percent of the health centers, so the analysis focused on hospitals and RMS. Although there has been an increase in the number of sites offering testing, the percentage of those sites stocked out has also

increased, compromising the effectiveness of the testing program. In 2004, only 71 percent of the hospitals (n=21) offered Determine HIV compared to 90 percent of the hospitals (n= 20) which now have provisions to offer on-site testing.

STOCKOUTS OF TEST KITS ON DAY OF VISIT

Percentage of hospitals that experienced a stockout on the day of the visit has slightly gone down in 2006, from approximately 20 percent in 2004 to 17 percent in 2006. However, approximately 19 percent of the hospitals were stocked out of SD Bioline and six percent of Unigold in 2006. Both Bioline and Unigold are considered alternative tests, therefore a stock out of Bioline at a facility that has Unigold available will not have an effect on availability of test kits so long as Unigold is available or vice-versa (provided under the assumption that the site uses both tests). Figure 31 below further illustrates this point. Approximately five percent of the facilities that manage HIV test kits were stocked out of Unigold on the day of the visit compared to 17 percent for SD Bioline. The situation at the RMS level is of particular concern since 66 percent (two of the three RMS) were stocked out of Determine HIV on the day of the visit (Figure 32). Having test kits available at the hospitals is the only way to confirm HIV status and direct clients into needed care and services, given the advent of “scaling up” for antiretroviral therapy and the need to have these tests readily available for testing clients.

Figure 31: Percentage of Hospitals that experienced a stockout of test kits on the day of the visit

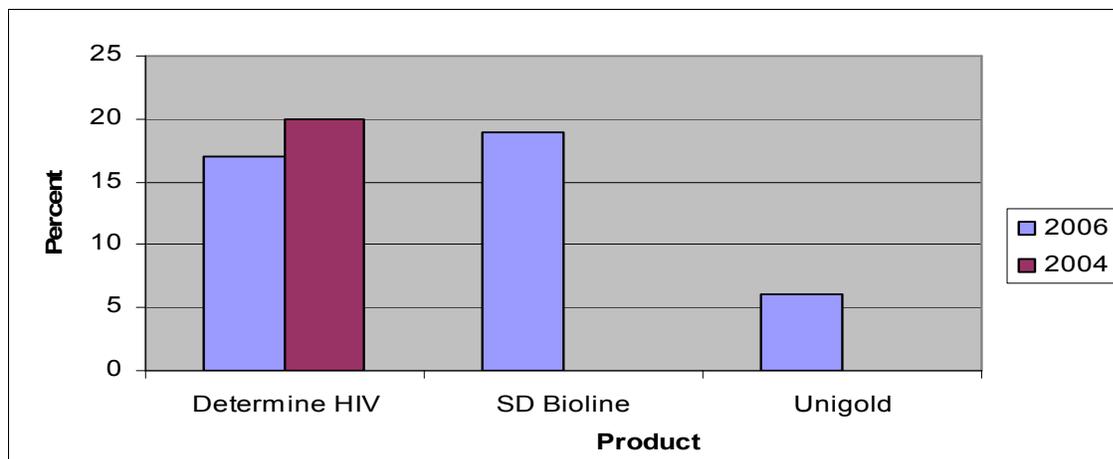
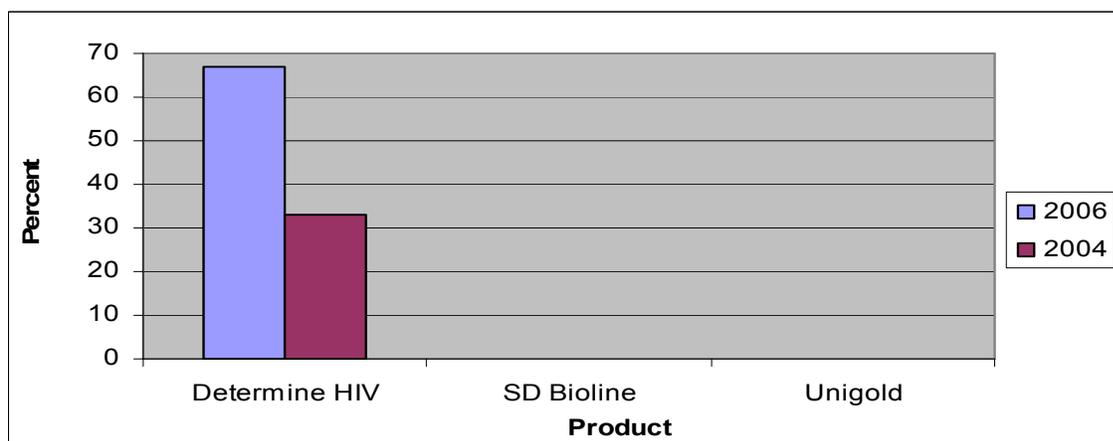


Figure 32: Percentage of RMS's that experienced a stockout of test kits on the day of the visit



STOCKOUTS OF TEST KITS DURING THE LAST SIX MONTHS

In 2006, there has been an increase in the average number of stockouts over the last six months. Over 80 percent of the hospitals and 66 percent (two of the three RMS) were stocked out of Determine HIV. Both SD Bioline and Unigold fared better than Determine HIV in 2006 although approximately 22 percent of the hospitals did experience a stockout in the last six months. In 2006, the stockout rate for SD Bioline significantly went down from 2004, when 100 percent of the hospitals experienced a stockout over period of six months. Additionally, there was no stockout of Unigold at the RMS level. As mentioned earlier, lack of test kits inventory at both the RMS and the hospital level has greater implications in providing testing for clients seeking services at the hospitals. Figures 33 and 34 further illustrate the results.

Figure 33: Percentage of Hospitals that experienced a stockout of test kits in the last six months

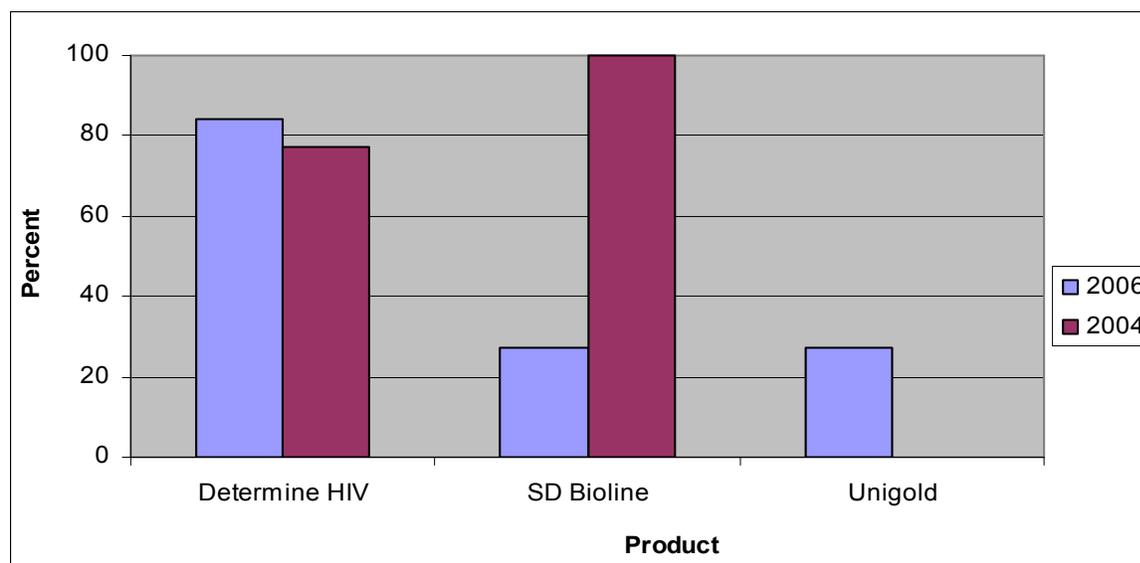
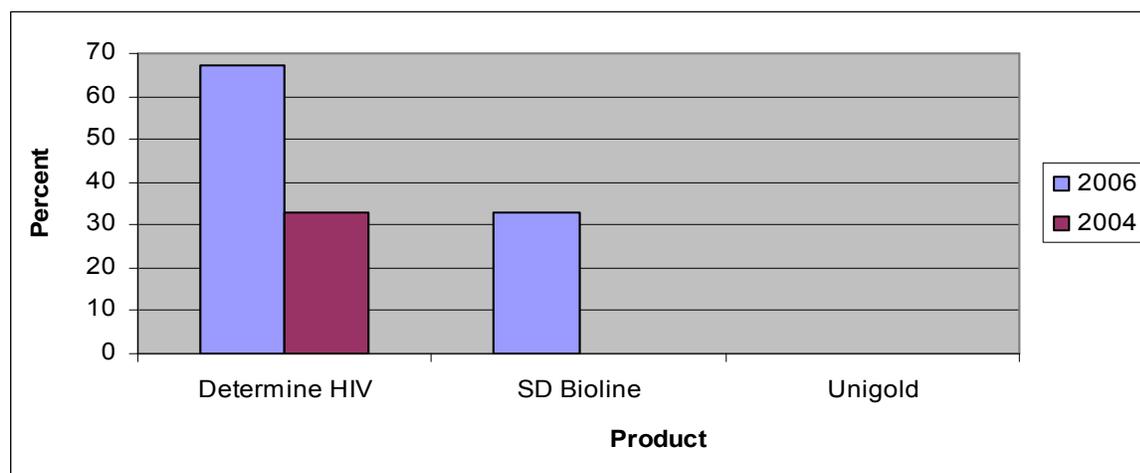


Figure 34: Percentage of RMS's that experienced a stockout of test kits in the last six months



AVERAGE NUMBER AND DURATION OF STOCKOUTS OF TEST KITS

Figures 35-38 illustrate the average number and duration of stockouts for test kits. In 2006 hospitals experienced an average of three stockouts for Determine HIV compared to 1.5 in 2004; however, there was improvement in the average duration of stockout in 2006 (down to 17 days compared to 38 days in 2004). In the case of SD Bioline, hospitals experienced fewer number of stockouts in 2006 (one stockout compared to 2.5 in 2004), but the average duration of stockout was much higher in 2006 compared to 2004 (100 days of stockout compared 5.2 days in 2004).

The only exception is stock level of Unigold at the RMS level which did not experience any stockouts in 2006. There is no comparative data available for Unigold in 2004 as it was not included in the survey.

Figure 35: Average number of stockouts - Hospitals

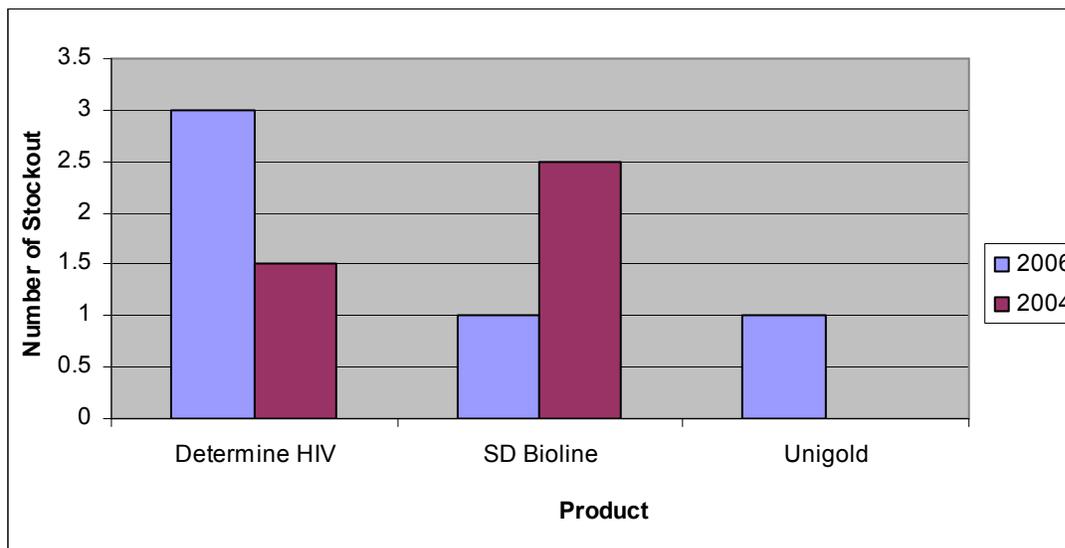


Figure 36: Percentage of RMS's that experienced a stockout of test kits in the last six months

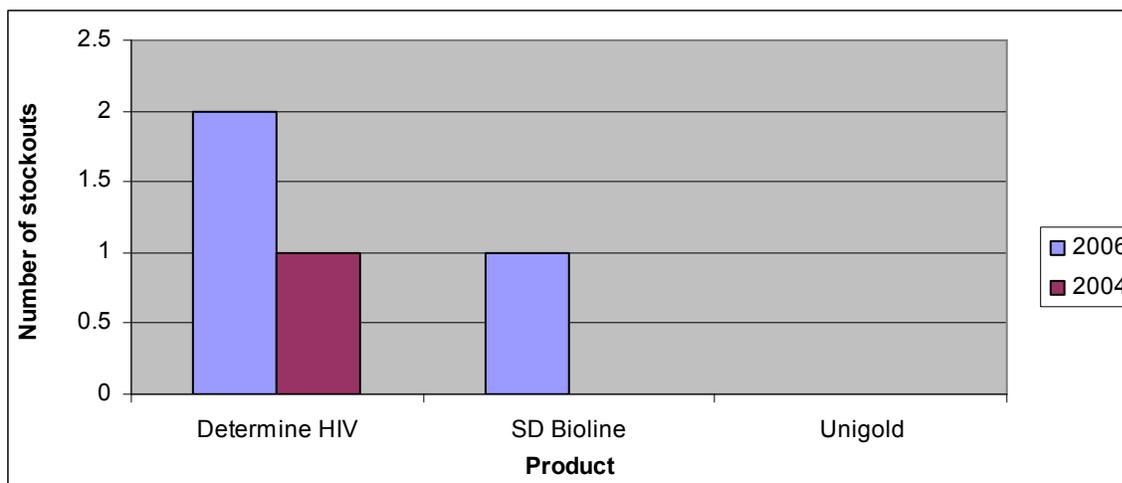


Figure 37: Average duration of stockouts - Hospitals

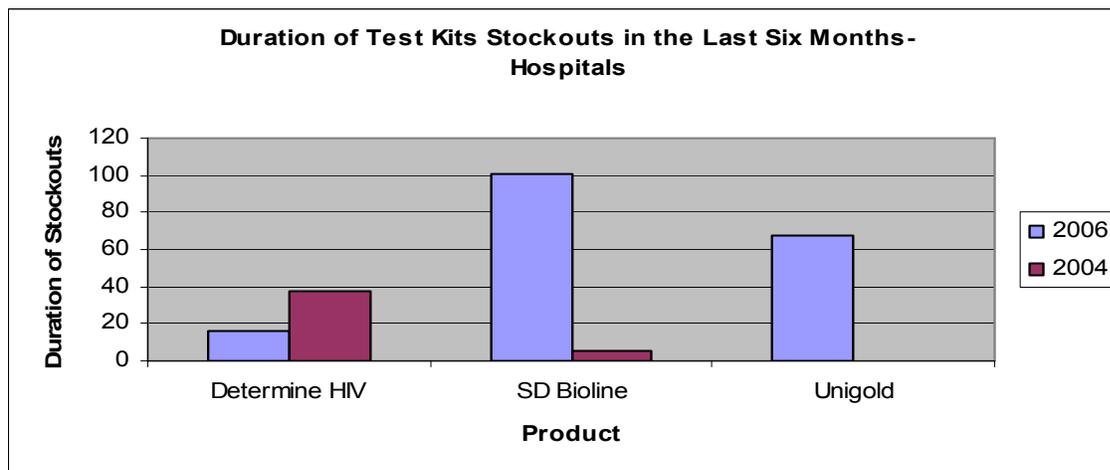
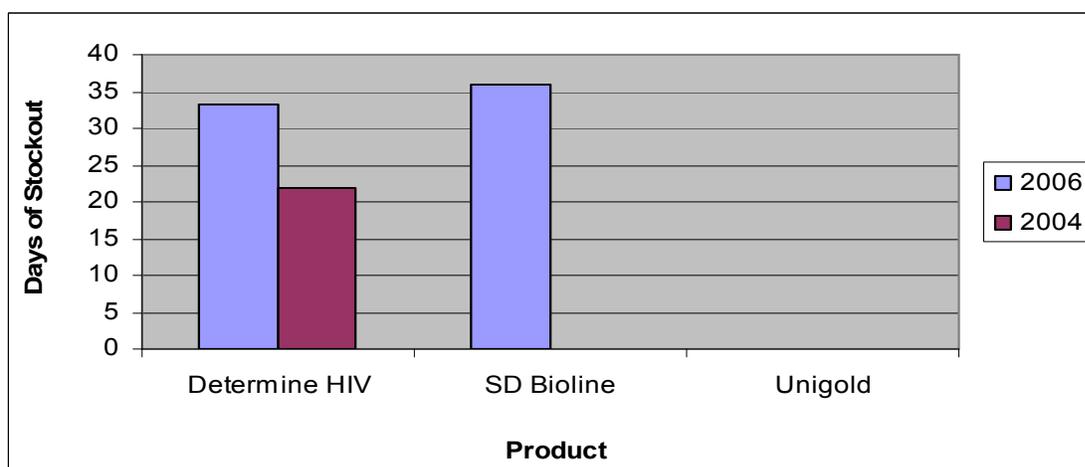


Figure 38: Average duration of stockouts – RMS



MONTHS OF STOCK ON HAND FOR TEST KITS

Hospitals were adequately stocked between their minimum and maximum levels for Determine HIV and slightly above the maximum for Unigold (at 3.3 months). Since SD Bioline is no longer being widely used (most facilities have started using Unigold instead since both are considered alternative tests), it has most likely contributed to the major overstock of SD Bioline at time of the survey. RMS on the other hand were not adequately stocked for either Determine HIV or SD Bioline but within the required levels for Unigold. An almost complete stock out of Determine at the RMS level is rather alarming considering Determine is used as one of the first (parallel) tests and without it testing cannot occur. Decrease in the use of SD Bioline is also the probable cause for an understock at the RMS level.

Figure 39: Months of stock of test kits available - Hospitals

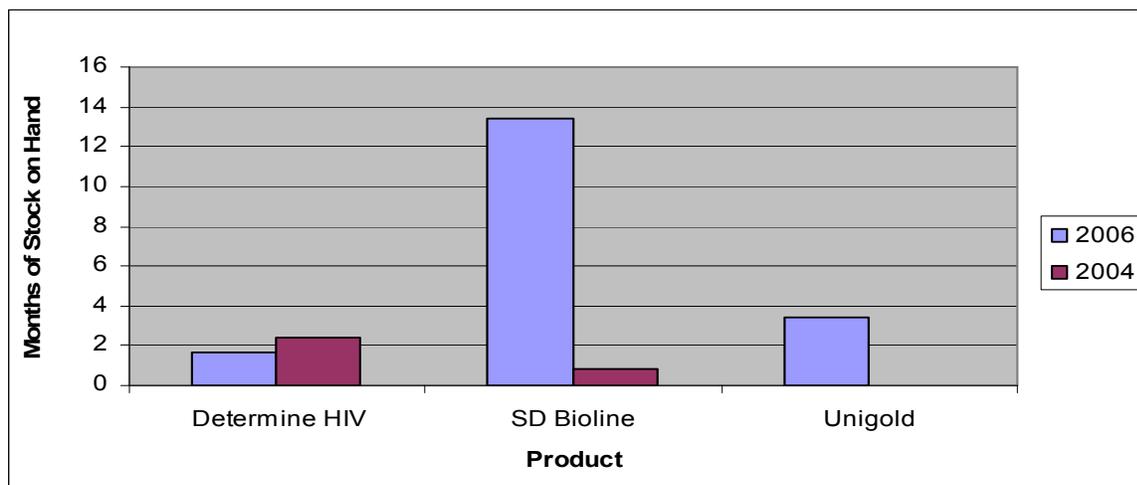
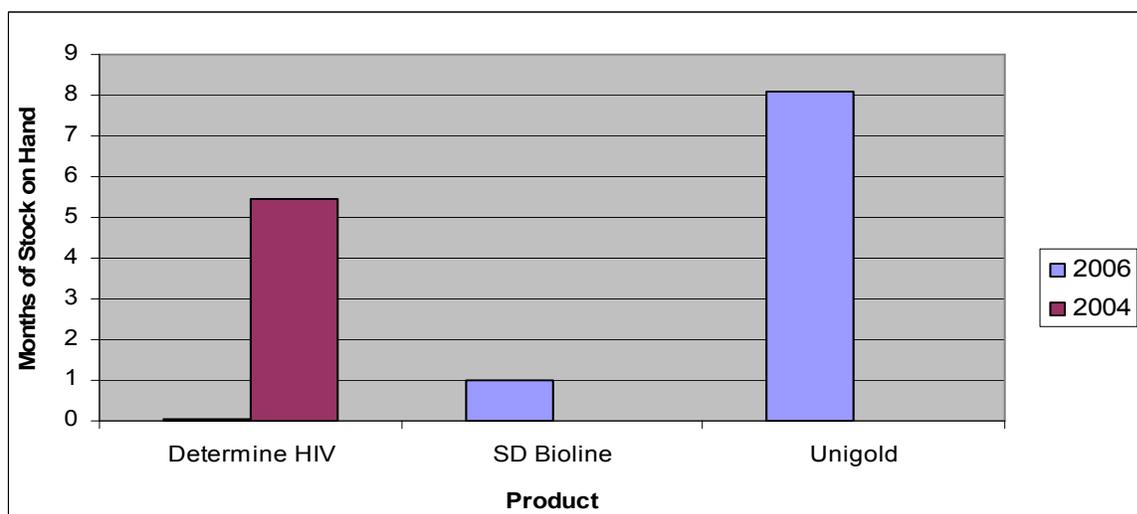


Figure 40: Months of stock of test kits available – RMS



CONCLUSIONS FOR TEST KITS

- **There was a decrease in the percent of hospitals found out of stock of Determine HIV test kits, but an increase at the RMS level.** Determine is used as one of the first (parallel) tests and without it testing cannot occur. Determine is the one test used for blood safety at the hospitals, many of whom still rely on their own labs to test any incoming blood.
- **In 2006 over 20 percent of the hospitals experienced a stockout of every test kit at some point between July and December 2005.** Over 80 percent of the hospitals and two of the three RMS had stockouts of Determine HIV between July and December 2005. This finding indicates that there are still significant challenges in the logistics system for HIV test kits.
- **On average the HIV test kits stockouts decreased between 2004 and 2006, however the duration of the stockouts increased.**

RECOMMENDATIONS

In the analysis of both the facility survey and the Logistics System Assessment completed in March 2006 there were a number of challenges identified at the national level. The following recommendations are designed to address both short and long term needs. Some of the recommendations (e.g. storage conditions, removal of expired products) can be implemented immediately with little associated finances.

- There is a need for more consistent communication and coordination between the MOH working groups focusing on supply chain management (e.g. Drugs and Medicines Supplies Technical Working Group and Logistics Working Group). Strengthening the coordination between various partners will ensure that all relevant stakeholders are well informed and kept abreast of key strategic decisions.
- The existing procurement plan for contraceptives and essential drugs should be implemented immediately. Considering that the average procurement cycle may take eighteen months or more, and that many essential drugs are currently stocked out, emergency procurement is also needed for certain essential and life saving drugs.
- If feasible, an immediate replenishing exercise (top-up) needs to be implemented for all essential drugs. Although, not all essential drugs are considered “full supply” products, they constitute the essential health package commodity list which should be available to all Malawians. For contraceptives, which are overstocked at many facilities but understocked or stocked out at some, a redistribution of existing supplies is needed to eliminate any stockouts at health facilities. It is likely that current rationing practices at RMS and facilities not submitting timely or accurate reports have contributed to this problem.
- Create a feedback form that summarizes facility reporting rates. This quarterly form will be distributed to all District Medical Officers.
- Short and long-term procurement commitments need to be solidified to achieve commodity security. At present, both donor and MOH financial commitments are based on possibly unreliable forecasts and so may prove inadequate. These commitments must ensure funding for the purchase of contraceptives and STI drugs in the event of inadequate funding through the SWAp mechanism.
- Clarify the roles and responsibilities of CMS, MOH departments and supporting projects (DELIVER, MSH, etc.) in integrated commodity management, forecasting finance and procurement.
- Storage condition guidelines must be distributed to all levels of the system. These storage conditions should be reviewed by supervisors and facility staff during each supervisory visit.
- At the RMS level there is a need for improved organization and a capital investment in proper racking and material handling equipment (forklifts).
- Expired items are being kept at health facilities. CMS in cooperation with the MOH should disseminate and enforce guidelines for proper disposal of expired and/or damaged drugs. These guidelines must be distributed to all health and storage facilities.

- Continued supervision should emphasize the timely and accurate completion of logistics reports (LMIS 01A/B/C). Currently if a facility fails to submit reports they do not receive a re-supply of commodities. Under-reporting is evidence of poor inventory management at the facility level and contributes to a higher rate of both stockouts and wastage.
- Build logistics capacity of district pharmacy technician who are now on the district management team. This can be done with on-the-job training for current pharmacy technician and by continuing logistics sessions in the pharmaceutical training program.
- Clarify the roles and responsibilities of the zonal supervisors to avoid an overlap of effort between supervisors at the zonal level and district management teams.
- Encourage coordination between the drugs managers and reproductive health coordinators at all levels to ensure proper contraceptives management. For example, District Reproductive Health Coordinators could submit reports to the Reproductive Health Unit on family planning that include information on couple-years of protection achieved. This information is now readily available through Supply Chain Manager and can be produced by the Pharmacy Technician. This information can help reproductive health coordinators determine actual consumptions level for facilities.

REFERENCES

Papworth, David, Erika Ronnow. 2004. *Malawi Logistics System and Stock Status Report*. Arlington, Va.: John Snow, Inc/DELIVER, for the U.S. Agency for International Development (USAID).

APPENDIX 1

LOGISTICS INDICATOR ASSESSMENT TOOL MALAWI, 2006

FACILITY SERVICES AND INFRASTRUCTURE

FACILITY IDENTIFICATION	
Name of the facility _____	
Facility location	
City/town:	<input type="checkbox"/>
Region _____	REGION
District _____	DISTRICT..... <input type="checkbox"/> <input type="checkbox"/>
Code of the facility.....	FACILITY CODE..... <input type="checkbox"/> <input type="checkbox"/>
Facility Type: (1= District hospital; 2= Rural hospital; 3=Health centre; 4 = Dispensary; 6=RMS; 7=Other _____)	FACILITY TYPE..... <input type="checkbox"/>
Operating Authority: 1= MOH; 2= MOH/LG; 3= CHAM; 7= Other (Specify _____)	OPERATING AUTHORITY..... <input type="checkbox"/>
Facility characteristics: Tarmac to the facility? ((0=no; 1=yes).....	TARMAC..... <input type="checkbox"/>
Operational electricity on day of visit? (0=no; 1=yes).....	ELECTRICITY..... <input type="checkbox"/>
Operational water in the building on the day of visit? (0=no; 1=yes).....	WATER..... <input type="checkbox"/>
Operational telephone or radio on day of visit? (0=no; 1=yes)	EXTERNAL COMMUNICATION..... <input type="checkbox"/>
RMS/SDP? (1 = RMS; 2 = SDP).....	RMS/SDP..... <input type="checkbox"/>

INFORMATION ABOUT INTERVIEW

Date: _____	DAY/ MONTH/ YEAR <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> <td style="border: 1px solid black; width: 20px; height: 20px;"></td> </tr> </table>								

FACILITY INFRASTRUCTURE AND PRODUCTS AVAILABLE

FIRST MEET WITH THE IN-CHARGE TO INTRODUCE ALL TEAM MEMBERS AND ASK FACILITY REPRESENTATIVES TO INTRODUCE THEMSELVES.

EXPLAIN THE OBJECTIVES OF THIS SURVEY:

As part of their on-going monitoring and evaluation the Ministry of Health and USAID-supported programs are conducting a survey regarding the health commodity logistics system. We are looking at the availability of selected commodities and information about how you order and receive those products. We are visiting selected health facilities throughout the country and this facility was selected to be in the survey. The objectives of the survey are to collect current information on logistics system performance and stock status of key health products.

The results of this national survey will provide information to make decisions and to promote improvements. The survey has been and will be conducted again in the future to measure changes in the logistics system.

We would like to ask you a few questions about the products and supplies available at this facility. In addition, we would like to actually count selected products you have in stock today and observe the general storage conditions. Do you have any questions?

FIND OUT FROM THE IN-CHARGE WHO IS THE PRINCIPLE PERSON MANAGING THE DRUGS (WHO IS FILLING THE FORMS, KEEPING STOCK CARDS AND DOING REPORTING)

ASK THE IN-CHARGE THE FOLLOWING QUESTIONS

NO.	QUESTION	CODE CLASSIFICATION	GO TO
01	Can we continue?	YES 1 NO 2	→ STOP
02	Name and title of the In- Charge interviewed for this section		
03	Number of years and months you have worked at this facility?	Years: _____ Months: _____	
04	Who is the principal person responsible for managing medical supplies at this facility?	NURSE 1 CLINICAL OFFICER 2 PHARMACY TECHNICIAN 3 PHARMACY ASSISTANT 4 PHARMACIST 5 MEDICAL ASSISTANT 6 OTHER (SPECIFY) 9	

THANK YOU FOR YOU TIME AND INFORMATION, YOU HAVE BEEN VERY HELPFUL. OUR REMAINING QUESTIONS WILL REQUIRE LOOKING AT PRODUCTS IN THE STOREROOM AND SPEAKING WITH THE PERSON WHO OVERSEES THE STORE.

WHEN IN THE STORE ROOM (IF WITH A DIFFERENT PERSON):

INTRODUCE ALL TEAM MEMBERS AND ASK FACILITY REPRESENTATIVES TO INTRODUCE THEMSELVES.

EXPLAIN THE OBJECTIVES OF THIS SURVEY:

As part of their on-going monitoring and evaluation the Ministry of Health and USAID-supported programs are conducting a survey regarding the health commodity logistics system. We are looking at the availability of selected commodities and information about how you order and receive those products. We are visiting selected health facilities throughout the country and this facility was selected to be in the survey. The objectives of the survey are to collect current information on logistics system performance and stock status of key health products.

The results of this national survey will provide information to make decisions and to promote improvements. The survey has been and will be conducted again in the future to measure changes in the logistics system.

We would like to ask you a few questions about the products and supplies available at this facility. In addition, we would like to actually count selected products you have in stock today and observe the general storage conditions. Do you have any questions?

NO.	QUESTION	CODE CLASSIFICATION	GO TO
05	Name and title and of person interviewed for this section		
06	Number of years and months you have worked at this facility?	Years: _____ Months: _____	
07	Who is the principal person responsible for managing medical supplies at this facility?	NURSE 1 CLINICAL OFFICER 2 PHARMACY TECHNICIAN 3 PHARMACY ASSISTANT 4 PHARMACIST 5 MEDICAL ASSISTANT 6 OTHER (SPECIFY) 9	

FIRST, REVIEW THE FOLLOWING QUESTIONS. AFTER THE 22 QUESTIONS VISIT THE WAREHOUSE, STOREROOM OR STORAGE AREA WHERE THE HEALTH PRODUCTS LISTED ARE MANAGED. IF YOU ARE REFERRED TO ANOTHER STAFF MEMBER FOR THE STOCKTAKING EXERCISE INTRODUCE THE SURVEY GOALS AND OBJECTIVES AS YOU DID IN THE INTRODUCTION.

NO.	QUESTIONS	CODE CLASSIFICATION	GO TO/ COMMENTS
101	Do you use and fill out the following?		
	A. Stock cards	YES 1 NO 0	
	B. Daily register	YES 1 NO 0	

	What forms do you use for reporting logistics data (these do not include service statistics reports)? (IF NEED BE ASK TO SEE THE FORM)		
102	A. LMIS-01A	YES 1 NO 0	→104
	B. LMIS-01B	YES 1 NO 0	→104
	C. LMIS- 01C	YES 1 NO 0	→104
	D. Other	YES (Specify) _____ 1 NO 0	
	Does this report include the following?		
103	A. Stock on hand	YES 1 NO 0	
	B. Quantities used	YES 1 NO 0	
	C. Losses and adjustments	YES 1 NO 0	
104	How often are these reports (from 102) sent to the higher level? CIRCLE ALL THAT APPLY	Monthly A Quarterly B Semi-annually C Annually D Other: W	
105	When was the last time you sent in an order/report for products at this facility?	Never 1 Within the last month 2 2 months ago 3 3 months ago 4 more than 3 months ago 5	
106	How often are you supposed to send these reports to the higher level? CIRCLE ALL THAT APPLY	Monthly A Quarterly B Semi-annually C Annually D Other: W	
107	How did you learn to complete the forms/records used at this facility? CIRCLE ALL THAT APPLY	Never learned A During a logistics workshop B On the job training C On the job (self-learning) D Other (Specify): W	
108	How many emergency orders for contraceptives have you placed in the last 3 months?	None 0 NA 1 One 2 Two 3 Three 4 More than three 5	
109	How many emergency orders for STI/OI drugs have you placed in the last 3 months?	None 0 One 2 Two 3 Three 4 More than three 5	

110	How many emergency orders for HIV test kits have you placed in the last 3 months?	None.....0 NA.....1 One2 Two3 Three4 More than three.....5	
111	How many emergency orders for other drugs have you placed in the last 3 months?	None0 NA.....1 One2 Two3 Three4 More than three.....5	
112	Who determines this facility's re-supply quantities? CIRCLE ALL THAT APPLY	The facility itselfA District officeB RMSC Other:W	→114 →114
113	How are the facility's re-supply quantities determined?	Formula (Specify)1 Don't know2 Other means:8	
114	Who is responsible for transporting products to your facility? CIRCLE ALL THAT APPLY	Local supplier deliversA RMS deliversB District deliversC This facility collectsD Other (Specify)W	→116 →116 →116
115	What kind of transportation is most often used?	Facility vehicle1 Public transportation2 Private vehicle3 Boat.....4 Motorcycle5 Bicycle6 On foot7 Other (Specify)9	
116	On average, approximately how long does it take between reporting (HC's)/ordering (Districts) and receiving products?	Less than 2 weeks.....1 2 weeks to one month2 Between 1 and 2 months3 More than 2 months4	
117	When did you receive your most recent general supervision visit? CHECK VISITORS BOOK IF NECESSARY	Never received1 Within the last month2 Within the last 3 months3 Within the last 6 months4 More than 6 months ago5 Other (Specify)9	
118	When did you receive your last supervision visit that included drug management?	Never received1 Within the last month2 Within the last 3 months3 Within the last 6 months4 More than 6 months ago5 Other (Specify)9	
119	Is there a Health Committee at this facility?	YES1 NO0	→Table 1
120	When was the last Health Committee meeting?	Never.....1 Within the last 3 months2 Within the last 6 months3 More than 6 months ago4 Other (Specify)8	
121	Are Health Committee members routinely available to receive health commodities at this facility?	YES1 NO0	

TABLE 1: STOCK STATUS (July 1– December 31, 2005 and the day of visit)

1. Name of the product
2. Unit of count for the produce
3. Whether or not the product is managed at this facility, answer Y for yes or N if no skip to the next product
4. Check if the stock card is available, answer Y for yes or N for no
5. Check if the stock card had been updated within the last 30 days, answer Y for yes or N for no. Note: If the stock card was last updated with the balance of 0 and the facility has not received any resupply consider the stock card up to date.
6. Record the balance on the stock card
7. Record if the facility is experiencing a stockout of the product on the day of the visit, answer Y for yes or N for no
8. Record if the facility has had any stockout of the product between July and December, 2005, answer Y for yes or N for no
9. Record how many times the product stocked out between July and December, 2005
10. Record the total number of days the product was stocked out between July and December 2005
11. Record the quantity of product issued from the storeroom between July and December 2005, Note: if the answer to column 4 is No, record NA in this column
12. Record the number of months the issued data represents (may be less than 6), record the months for which there is any data recorded, including 0. Note: if column 4 is No, record NA in this column
13. Record the quantity of product in the storeroom. Estimate to ¼ of a bottle for open containers of tablets
14. Record the quantity of expired products. Count all expired products on the day of the visit. If there are products that are near expiry (within one week) please note in the comments section.

Product	Units of count	Managed at this facility?	Stock card available? (Y/N)	Stock card updated? (Y/N)	Balance on stock card	Stockout today (Y/N)?	Stockout July, through December, 2005 (Y/N) (Y/N)?	Number of stockouts	Total number of days	Total issued (July, through December, 2005)	#r of mos. of data available	Physical inventory – Store room	Quantity of expired products
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Lo-Femenal	Cycle												
Ovrette	Cycle												
Male condom	Piece												
Depo-Provera and Petrogen	Vial												
Norplant	Piece												
Comments:													

Product	Units of count	Managed at this facility?	Stock card available? (Y/N)	Stock card updated? (Y/N)	Balance on stock card	Stockout today (Y/N)?	Stockout July. through December, 2005 (Y/N)?	Number of stockouts	Total number of days	Total issued (July. through December, 2005)	# of mos. of data available	Physical inventory - Store room	Quantity of expired products
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Benzathine penicillin	2.4 mU vial												
Doxycycline	100 mg Tabs												
Metronidazole	250 mg Tabs												
Fluconazole/ Diflucan	200 mg Tabs												
Nystatin	Pessaries												
Erythromycin	250 mg Tabs												
Metronidazole injection	5mg/ml, 100ml Vial												
Ferrous Sulphate (FeFo)	200mg + 250 mcg Tabs												
Syntometrine	500mcg/ml + 10IU/ml Ampoule												
Comments:													

Product	Units of count	Managed at this facility?	Stock card available? (Y/N)	Stock card updated? (Y/N)	Balance on stock card	Stockout today (Y/N)?	Stockout July through December, 2005	Number of stockouts	Total number of days	Total issued (July through December, 2005)	# of mos. of data available	Physical inventory – Store room	Quantity of expired products
1	2	3	4	5	6	7	8	9	10	11	12	13	14
SP	500 + 25mg Tabs												
Cotrimoxazole	480 mg Tabs												
Paracetamol	500 mg Tabs												
ORS	Sachet												
Determine HIV	Test 100/box												
SD Bioline	Test 30/20 per box												
Unigold	Test 20/box												
Amoxicillin	250mg Caps												
Aspirin	300mg Tabs												
Gloves Exam. (Medium)	Boxes												
Gloves Exam. (Large)	Boxes												
Comments:													

122	Are stock cards recorded using the smallest unit of count?	YES 1 NO 0
123	Is there a record where quantity dispensed to patients is recorded for inpatients?	YES 1 NO 0
124	Is there a record where quantity dispensed to patients is recorded for outpatients?	YES 1 NO 0

Table 2: Storage Conditions

ITEMS 1-12 SHOULD BE ASSESSED FOR ALL FACILITIES FOR PRODUCTS THAT ARE READY TO BE ISSUED OR DISTRIBUTED TO CLIENTS. PLACE A CHECK MARK IN THE APPROPRIATE COLUMN BASED ON VISUAL INSPECTION OF THE STORAGE FACILITY, NOTING ANY RELEVANT OBSERVATIONS IN THE COMMENTS COLUMN. **TO QUALIFY AS "YES," ALL PRODUCTS AND CARTONS MUST MEET THE CRITERIA FOR EACH ITEM.**

No	Description	No	Yes	N/A	Comments
1.	Products that are ready for distribution are arranged so that identification labels and expiry dates and/or manufacturing dates are visible.				
2.	Products are stored and organized in a manner accessible for First-Expiry / First-Out (FEFO) counting and general management.				
3.	Cartons and products are in good condition, not crushed due to mishandling. If cartons are open, check if products are not wet or cracked due to heat/radiation (fluorescent lights in the case of condoms)				
4.	The facility makes it a practice to separate damaged and/or expired products from good products and remove them from inventory.				
5.	Products are protected from direct sunlight at all times of the day and during all seasons.				
6.	Cartons and products are protected from water and humidity during all seasons.				
7.	Storage area is visually free from harmful insects, bats and rodents. (Check the storage area for traces of rodents, bats (droppings or insects).				
8.	Storage area is secured with a lock and key, but accessible during normal working hours, with access limited to authorized personnel.				
9.	Products are stored at the appropriate temperature during all seasons according to product temperature specifications.				
10.	Roof is maintained in good condition to avoid sunlight and water penetration at all times.				

11.	Storeroom is maintained in good condition (e.g. clean, all trash removed, shelves are sturdy, boxes are organized).				
12.	The current space and organization is sufficient for existing products and reasonable expansion (i.e., receipt of expected product deliveries for the foreseeable future).				
13.	Fire safety equipment is available and accessible (any item identified as being used to promote fire safety should be considered).				
14.	Products are stored separately from insecticides and chemicals.				

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

No.	Description	No	Yes	N/A	COMMENTS
15.	Products are stacked at least 10 cm off the floor.				
16.	Products are stacked at least 30 cm away from the walls and other stacks.				
17.	Products are stacked no more than 2.5 meters high.				

Additional guidelines for specific questions:

Item 2: In noting proper product arrangement, the shelf life of the different products should be considered.

Item 3: Cartons should be checked to determine whether they are smashed due to mishandling. The conditions of the products inside opened or damaged cartons should also be examined to see if they are wet, cracked open due to heat/radiation (e.g. because of fluorescent lights in the case of condoms) or crushed.

Item 4: The discarding of damaged or expired products should be conducted according to the facility's procedures (which may differ from one facility to another). Please specify if procedures exist and note what they are.

Item 7: It is important to check the storage area for traces of rodents (droppings) or insects harmful to the products.

Item 8: This refers to either a warehouse secured with a lock or to a cabinet with a key in a clinic.

Item 16: Fire safety equipment does not have to meet international standards. Any item identified as being used to promote fire safety (e.g. water bucket, sand) should be considered. Empty and expired fire extinguishers do not considered as valid fire safety equipment

ASK THE PERSON/PEOPLE YOU INTERVIEWED IF THEY HAVE ANY QUESTIONS FOR YOU.

COMMENTS OR GENERAL OBSERVATIONS ON PRODUCTS MANAGEMENT:

THANK THE PERSON/PEOPLE WHO TALKED WITH YOU. REITERATE HOW THEY HAVE HELPED THE PROGRAM ACHIEVE ITS OBJECTIVES AND ASSURE THEM THAT THE RESULTS WILL BE USED TO DEVELOP IMPROVEMENTS IN LOGISTICS SYSTEM PERFORMANCE

NOTES/COMMENTS:

APPENDIX 2

FACILITY LIST- 2006

Region	Region code	District	District code	Facility name	Agency	Facility type	Facility code	Full facility code
North	1	Karonga	2	Chilumba	MOH	Rural hospital	1	10201
North	1	Karonga	2	Karonga	MOH	District hospital	6	10206
North	1	Karonga	2	Mpata	MOH	HC	9	10209
North	1	Karonga	2	Nyungwe	MOH	HC	11	10211
North	1	Karonga	2	Sangilo	CHAM	HC	12	10212
North	1	Nkahata Bay	3	Chintheche	MOH	Rural hospital	5	10305
North	1	Nkahata Bay	3	Kachere	MOH	HC	8	10308
North	1	Nkahata Bay	3	Kande	MOH	HC	9	10309
North	1	Nkahata Bay	3	Nkhata Bay	MOH	District hospital	15	10315
North	1	Mzimba	5	Ekwendeni	CHAM	Rural Hospital	4	10504
North	1	Mzimba	5	Mzimba hospital	MOH	District hospital	32	10532
North	1	Mzimba	5	Euthini	MOH	Rural hospital	9	10509
North	1	Mzimba	5	Jenda	MOH	HC	11	10511
Central	2	Ntchisi	12	Chinguluwe	MOH	CH	1	21201
Central	2	Ntchisi	12	Malomo	MOH	HC	6	21206
Central	2	Ntchisi	12	Mkhuzi	MOH	HC	7	21207
Central	2	Salima	14	Chinguluwe	MOH	HC	1	21401
Central	2	Salima	14	Chipoka	MOH	HC	2	21402
Central	2	Salima	14	Lifuwu	MOH	HC	7	21407

Region	Region code	District	District code	Facility name	Agency	Facility type	Facility code	Full facility code
Central	2	Salima	14	Makiyoni	MOH	HC	9	21409
Central	2	Salima	14	Dedza East (previously Mtakataka)	MOH	HC	12	21411
Central	2	Lilongwe	15	Malingunde	CHAM	HC	22	21522
Central	2	Lilongwe	15	Ming'ongo	MOH	HC	29	21529
Central	2	Lilongwe	15	Mitundu	MOH	Rural hospital	30	21530
Central	2	Lilongwe	15	Nkhoma	CHAM	Hospital	38	21538
Central	2	Mchinji	16	Kaigwazanga	MOH	HC	4	21604
Central	2	Mchinji	16	Kochilira	MOH	Rural hospital	7	21607
Central	2	Mchinji	16	Mchinji	MOH	District hospital	9	21609
Central	2	Mchinji	16	Mikundi	MOH	HC	10	21610
Central	2	Mchinji	16	Mkanda	MOH	HC	11	21611
Central	2	Mchinji	16	Tembwe	MOH	Dispensary	13	21613
Central	2	Ntcheu	18	Bilira	MOH	HC	1	21801
Central	2	Ntcheu	18	Dzunje	MOH	Dispensary	7	21807
Central	2	Ntcheu	18	Nsiyaludzu	MOH	HC	26	21826
Central	2	Ntcheu	18	Ntcheu	MOH	District hospital	27	21827
Central	2	Ntcheu	18	Mlangeni	MOH	HC	20	21820
Central	3	Ntcheu	25	Mtonda health	CHAM	Rural hospital	23	32323
South	3	Mangochi	18	Katuli	MOH	HC	7	22507
South	3	Mangochi	25	Nagalamu-replacement	MOH	HC	25	32525
South	3	Mangochi	25	Lungwena	MOH	HC	12	32512
South	3	Mangochi	25	Mangochi hospital	MOH	District hospital	17	32517
South	3	Mangochi	25	Monkey Bay	MOH	HC	20	32520
South	3	Mangochi	25	Namwera	MOH	HC	23	32523
South	3	Zomba	27	Chancol		University		32799
South	3	Zomba	27	Pirimiti	CHAM	HC	18	32718
South	3	Zomba	27	Chamba	MOH	Dispensary	2	32702
South	3	Zomba	27	Makwapala	MOH	HC	11	32711
South	3	Zomba	27	Thondwe	MOH	Dispensary	21	32721
South	3	Blantyre	29	Makata	MOH	Dispensary	12	32912
South	3	Blantyre	29	Chikowa	MOH	HC	3	32903
South	3	Blantyre	29	Chileka	MOH/LG	HC	4	32904
South	3	Blantyre	29	Mdeka	MOH	HC	13	32913

Region	Region code	District	District code	Facility name	Agency	Facility type	Facility code	Full facility code
South	3	Blantyre	29	Ndirande	MOH	Urban HC	18	32918
South	3	Blantyre	29	Soche clinic SDA	CHAM		20	32920
South	3	Mwanza	30	Mwanza	MOH	District hospital	8	33008
South	3	Mwanza	30	Neno	MOH	HC	10	33010
South	3	Mwanza	30	Tulongkhondo	MOH	HC	13	33013
South	3	Mulanje	32	Mulanje	MOH	District hospital	11	33211
South	3	Mulanje	32	Mulanje Mission	CHAM	Hospital	12	33212
South	3	Mulanje	32	Namphungo	MOH/LG	HC	16	33216
South	3	Mulanje	32	Mbiza	MOH/LG	HC	0	33207
South	3	Nsanje	34	Masenjere	MOH	HC	5	33405
South	3	Nsanje	34	Ndamera	MOH	HC	8	33408
South	3	Nsanje	34	Nsanje	MOH	District hospital	9	33409
South	3	Nsanje	34	Nyamithuthu-not visited, still active	MOH	HC	10	33410
South	3	Nsanje	34	Sorgin	MOH	HC	12	33412
South	3	Nsanje	34	Tengani	MOH	HC	13	33413
South	3	Balaka	36	Balaka	MOH	District hospital	1	33601
South	3	Balaka	36	Phimbi	MOH	HC	7	33607
South	3	Balaka	36	Ulongwe	CHAM	HC	8	33608
South	3	Balaka	36	Kalembo	MOH	Dispensary	3	33603
North	1	RMS						19999
Central	2	RMS						29999
South	3	RMS						39999

APPENDIX 3

LIST OF DATA COLLECTORS

Region	District	Team leader
North	Karonga	Veronica Chirwa, JSI
	Nkhata Bay	
	Ntchisi	John Zingeni, JSI/George Mangani, MOH
	Salima	
Central	Mzimba	E. Mwenelupembe, MOH
	RMS (N)	
	Mchinji	Erika Ronnow, JSI
	Lilongwe	
	RMS (C)	
	Ntcheu	Cynthia Kamtengeni, MSH/Jaya Chimnani, JSI
South	Balaka	Sam Chirwa, MOH
	Nsanje	
	RMS (S)	
	Mangochi	Texas Zamasiya, MSH
	Blantyre	Dorica Salamba, MOH
	Mwanza	
	Mulanje	James Gondwe, JSI
	Zomba	

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