

UGANDA PHARMACEUTICAL SECTOR REPORT 2010



June 2010

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FOREWORD

This Pharmaceutical Sector Report 2010 was prepared by the Ministry of Health (MOH) Pharmacy Division in collaboration with the Securing Ugandans' Right to Essential Medicine (SURE) Program. This report presents the findings from a performance assessment undertaken in 2010 assessing the current status of the pharmaceutical sector, in the public and private health facility dispensaries and pharmacies in Uganda.

The Pharmaceutical Sector Report 2010 does not offer any solutions to the challenges faced by the health facilities but instead documents the 2010 situation in Uganda related to ensuring access to good quality essential medicines and health supplies (EMHS).

There are many ongoing interventions to improve the pharmaceutical situation in the country, and MOH receives the support of a number of implementing partners. The MOH is in the process of implementing the supervision, performance assessment, and recognition strategy (SPARS) as one of its main strategies to improve performance at the facilities.

SPARS assesses the performance of health facilities before trained Medicine Management Supervisors (MMS) provide on-the-job training. It focuses on medicines management and financial management challenges identified in the performance assessments. Both MMS and the health facilities receive recognition through a reward system to incentivize good performance. The national strategy is currently being implemented in selected districts by SURE and other implementing partners. This survey therefore also plays an important role in providing a baseline for assessing impact of the SPARS intervention.

This Pharmaceutical Sector Report 2010 describe and identify the most important challenges that the pharmaceutical sector is facing at facility level and it is my hope that this report can play an important role in guiding the Ministry of Health, implementing partners, managers and health workers in finding ways to strengthen the system and prioritize our resources to reduce waste. Together we need to find innovative ways to address the challenges and inspire to change the systems. This important report is a first step in the direction of recognizing our situation and quantifying our problems.

I sincerely hope you shall find the time and enjoy reading this very comprehensive report that covers not only issues on staffing, supply chain, stock and storage management, appropriate use but also, as one of our first assessments, provide information on financial management and the patients.

I hope you will find this report helpful and interesting.

Martin Oteba

Assistant Commissioner for Health Services/Pharmacy

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ACRONYMS AND ABBREVIATIONS

ACT	Artemisinin-based Combination Therapy
ARV	Antiretroviral
BNF	British National Formulary
DHO	District Health Officer
EMHS	Essential Medicines and Health Supplies
EMHSLU	Essential Medicine and Health Supplies List for Uganda
EMLU	Essential Medicines List for Uganda
FP	Family Planning
FY	Financial Year
GOU	Government of Uganda
HC	Health Centre
HIV	Human Immunodeficiency Virus
HMIS	Health Managing Information System
HSD	Health Sub-District
HSSP	Health Sector Strategic Plan
INRUD	International Network for Rational Use of Drugs
JMS	Joint Medical Stores
LMIS	Logistics Medicines Information Systems
MOH	Ministry of Health
MSH	Management Sciences for Health
NA	Not Applicable
NDA	National Drug Authority
NDP	National Drug Policy
NGOs	Non Governmental Organizations
NHP	National Health Policy
NMS	National Medical Store
OPD	Out-Patient Department
ORS	Oral Rehydration Salts
PEPFAR	President's Emergency Plan for AIDS Relief
PHC	Primary Health Care
PNFP	Private Not-for-Profit
RH	Reproductive Health
SURE	Securing Ugandans' Right to Essential Medicines
UCG	Uganda Clinical Guidelines
UNEPI	Uganda National Expanded Programme for Immunisation
USAID	United States Agency for International Development
VEN	Vital, Essential, and Necessary

SUMMARY

Data for the Pharmaceutical Sector Report 2010 were collected in June 2010 from 63 randomly selected facilities that represent all levels of care in nine randomly selected districts of Uganda. The table below shows a summary of the findings for selected indicators. For more information, please refer to the “Results and Discussion” section.

Table 1. Summary of findings for selected indicators

No.	Indicators	Value/Score 2010
Facility Findings		
1.	Facilities with Internet access available	2%
Stock Management		
2.	Facilities with stock cards available	68%
3.	Facilities with correctly filled in stock cards (name, strength, formulation, storage conditions, expiry date, AMC filled in)	0%
4.	Facilities that perform a monthly physical count (PC) of essential medicines and health supplies (EMHS)	4%
5.	Facilities with accurate stock cards (the stock card and PC balance are the same)	53%
Store Management		
6.	Facilities with at least acceptable clean and tidy main stores	63%
7.	Facilities with acceptable, hygienic, and functioning toilet facilities	71%
8.	Facilities where medicines are stored in a systematic manner	57%
9.	Facilities with adequate main storage facilities (defined as enough space to move around between shelves and store medicine appropriately)	63%
10.	Facilities that monitor temperature in main store	3%
11.	Facilities where no boxes are stored on floor	46%
12.	Facilities where pharmacy staff covers open tins with lids when not dispensing medicine from them	48%
Ordering and Reporting Quality		
13.	Facilities that report they base order calculations on stock card data	24%
14.	Facilities that report they adhere to the National Medical Store (NMS) schedule when ordering	33%
15.	Facilities that report they usually compile the Health Managing Information System (HMIS) 105 reports	74%
Availability of EMHS		
16.	Average availability of a basket of 22 vital EMHS at Health Centre (HC) IV levels on day of survey (21 in HC III, 20 in HC II)	53%
17.	Average availability of tracer medicine on day of survey	58%
18.	Facilities with all six tracer medicines available on day of survey	10%

Distribution		
19.	Lead time (from time of order to time of delivery at public health facilities)	57 days
20.	Items ordered but not delivered (nil lines) according to NMS orders and delivery notes	25%
Prescribing Quality		
21.	Facilities that use prescription recording system correctly	98%
22.	Rational prescribing (average for surveyed health facilities):	
	• Average number of medicines prescribed per prescription	3.2
	• % of medicines prescribed by generic name	80%
	• % of patients prescribed 1 or more antibiotics	68%
	• % of patients prescribed 1 or more injections	23%
Adherence to Ugandan Clinical Guidelines		
23.	Patients who received correct treatment for diarrhoea (oral rehydration salts (ORS) <u>or</u> ORS + paracetamol)	33%
24.	Patients who received correct treatment for acute respiratory infection (antipyretic <u>and/or</u> cough/cold medicine)	1%
25.	Patients who received correct treatment for malaria (artemisinin-based combination therapy (ACT) + paracetamol <u>or</u> quinine + paracetamol)	25%
Dispensing Quality		
26.	Overall average dispensing time	42 seconds
27.	Facilities with dispensing envelopes available for appropriate dispensing of tablets/capsules	62%
28.	Average availability of tablet counting tray, spatula, graduated measuring flask, and blank labels	21%
29.	Facilities with chairs/benches available for waiting patients	89%
30.	Facilities with privacy for patients when dispensing takes place	31%
31.	Patients with knowledge on use of medicine (average % patients with knowledge on dose, frequency, duration, reason to take medicine, and who got additional information)	62%
32.	Dispensed medicine is adequately labeled (average % with labels with medicine name, strength, quantity, dose, date of dispensing, and patient and facility name)	28%
33.	Average % of prescribed medicine that was dispensed	61%
Financial Knowledge		
34.	Facilities where pharmacy staff reported knowing current credit line budget	19%
35.	Facilities where pharmacy staff reduced number of items in order based on health impact (vital, essential, and necessary (VEN); medicine importance to patients; morbidity; or prevalence of disease when vetting order)	18%
Patient Interviews		
36.	Patients visiting facility because of good service	10%

INTRODUCTION

In June 2010, the Ugandan Ministry of Health (MOH) with support from the United States Agency for International Development (USAID)-funded Securing Ugandans' Right to Essential Medicines (SURE) Program, collected data for the 2010 Pharmaceutical Sector Report. This report presents the findings of the pharmaceutical sector survey on supply chain management, appropriate medicine use, and the quality standards of the dispensaries and pharmacies in public and private not-for-profit (PNFP) health facilities.

BACKGROUND

Uganda's pharmaceutical sector is guided by the 2002 National Drug Policy (NDP) and the Health Sector Strategic Plan (HSSP) II. Both policies are being implemented by the MOH in collaboration with the National Medical Stores (NMS), Joint Medical Store (JMS), National Drug Authority (NDA), and implementing partners.

The NDP works to attain a good health standard for Ugandans by ensuring that Essential Medicines and Health Supplies (EMHS) are available, accessible, affordable, and used rationally in addition to being safe, effective, and of quality.

SURVEY OBJECTIVES

The overall objective of this study was to assess Ugandan standards within the pharmaceutical sector in public and PNFP health facilities, specifically:

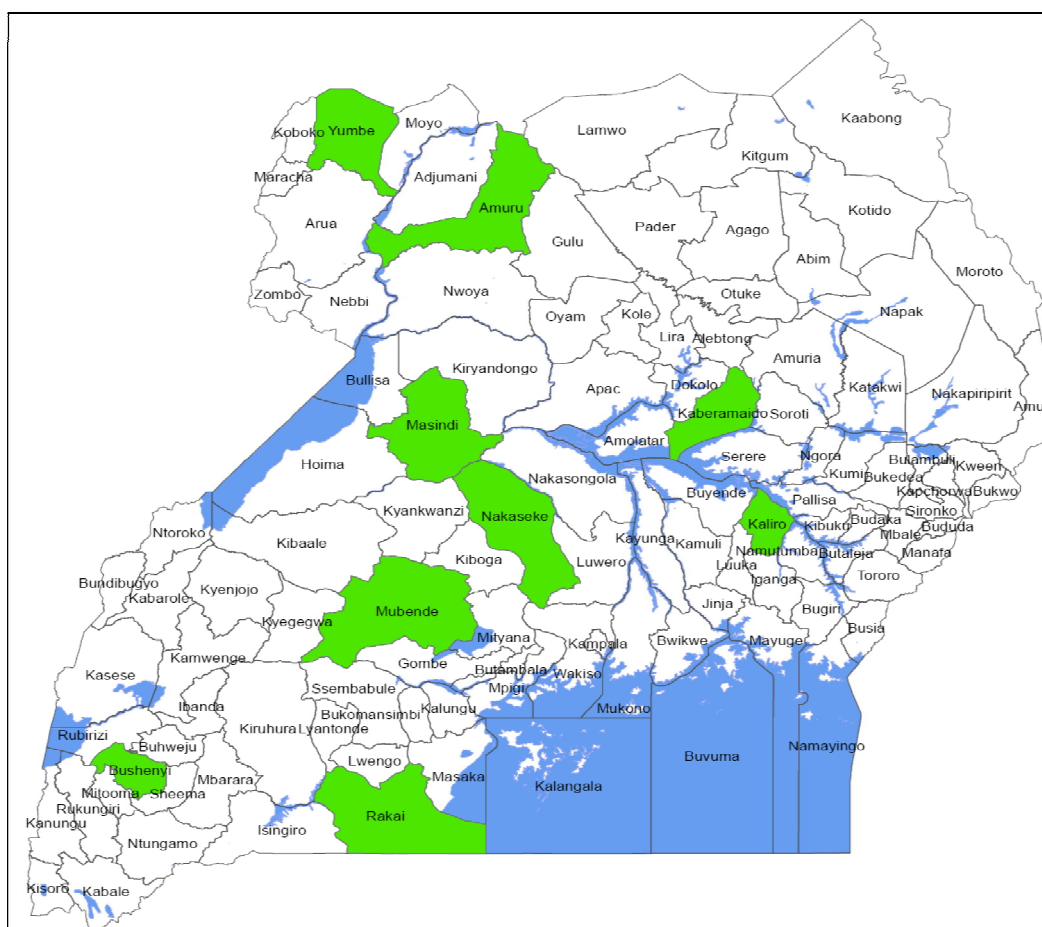
- General standard of the facility
- Supply chain management, including storage and stock management
- Availability of medicines and health supplies
- Distribution
- Appropriate use of medicine with regard to dispensing and prescribing
- Financial knowledge of pharmacy/dispensary staff
- Patient opinions

METHODOLOGY

SURVEY SAMPLING

Nine districts were randomly selected from fifteen non-SPARS supported districts, representing four geographical regions of Uganda. The figure below shows the sampled districts and their locations in Uganda.

Figure 1. Sampled Districts



Facilities from each district were selected using the following criteria:

- The district hospital (if present)
- One Health Centre (HC) IV (randomly selected)
- Three HC III (randomly selected)
- Two HC II (randomly selected)

This gave a sample size of 63 health facilities of different healthcare levels. The selection process ensured the inclusion of at least fifteen PNFP health facilities in total (see full list of facilities in Annex A. Facilities Included in Survey).

DATA COLLECTION TEAMS AND TRAINING

Three teams, each composed of three data collectors, conducted data collection. A SURE staff member was assigned the role of team leader on each team, while the remaining two members were regional pharmacists with prior survey experience, who were selected from regional hospitals.

The data collectors participated in a five-day training led by two trained SURE facilitators who had extensive experience surveying health facilities. The training included an introduction to the survey's purpose and the nature, instruction on and practice using the data

collection tool through role-play, and trial data collection from two health facilities. The data collected in the trials are not included in this report.

DATA COLLECTION

Data were collected in June 2010 using an indicator-based data collection tool. The tool was piloted as part of the data collectors' training, and the revised data collection tool is attached in Annex 2. Data were collected through in-depth health worker interviews, the observation of practices and premises, document reviews of stock cards and prescription books (out-patient registers), and client exit interviews. Data were collected in the data collection tool, inputted centrally into EpiData, and then exported to Excel for analysis.

FINDINGS AND DISCUSSIONS

This section describes and discusses the results of the pharmaceutical sector survey, which are divided according to the survey objectives:

1. General standard of the facility
2. Supply chain management, including storage and stock management
3. Availability of EMHS
4. Distribution
5. Appropriate use of medicine including dispensing practices
6. Financial knowledge
7. Patient opinions

1. GENERAL STANDARD OF THE FACILITY

This section describes the standards found at the surveyed facilities, specifically:

- 1.1. Patient load
- 1.2. Communication sources
- 1.3. Staffing in pharmacy/dispensary and medicine store
- 1.4. Staff views on medicine situation
- 1.5. Knowledge about the National Drug Policy
- 1.6. Tests and services offered
- 1.7. Health promotion activities
- 1.8. Hygiene conditions in staff toilet and hand washing facilities

The information was obtained through observations and interviews with the staff in charge of the health facilities and health workers responsible for medicine management.

The sampled facilities included public sector and PNFP facilities, which also serve an important role in the provision of health care services in the public sector. Table 2 illustrates the characteristics of the facilities surveyed, including the type of facility and its ownership. The majority of facilities are public HC III and HC II.

Table 2. Characteristics of health facilities surveyed

Type of Facility (n=63)	Government Facilities	Private Not-for-Profit Facilities	Total
Hospital	7	2	9
HC IV	9	0	9
HC III	19	8	27
HC II	12	6	18
Total	47 (75%)	16 (25%)	63

1.1 Patient Load

Patient load can be used as a measurement for work load. This section reports on both the number of prescriptions prescribed and the number of inpatients and outpatients per year.

The table below shows that higher level facilities generally see more patients per day than lower level facilities over an average of three days. Public facilities, particularly hospitals and HC II, were busier than non-government facilities. Additionally, the findings show that there was a wide range of patients seen/prescriptions provided per day per facility, which indicates a difference in work load in facilities at the same healthcare level.

Table 3. Number of patients seen per day measured as prescriptions prescribed per day according to prescription book

Type of Facility	Public Facility – Average # Patients Per Day (Range)	PNFP Facility – Average # Patients Per Day (Range)
Hospital	176 (95-306)	59 (43-75)
HC IV	90 (44-186)	Not Available (NA)
HC III	52 (12-124)	34 (10-118)
HC II	38 (15-86)	5 (3-8)

It is important to consider the different patient loads in facilities when determining staffing needs and fund allocation for EMHS. A busy facility requires more staff, medicine, and supplies to serve all of its patients, and thus a larger budget.

The table below shows the annual number of inpatients and outpatients in public and PNFP facilities based on the Health Management Information System (HMIS) reports from the surveyed facilities. Non-government facilities had more inpatients in lower healthcare facilities compared to public facilities, but the opposite was the case for outpatients. There was a large variation in both the number of inpatients and outpatients at different facilities of the same healthcare level.

Table 4. Annual number of inpatients and outpatients per facility according to HMIS reports

Type of Facility	Inpatients Per Year		Outpatients Per Year	
	Public Facility	PNFP Facility	Public Facility	PNFP Facility
Hospital	7,979 (4,490-13,180)	3,291 (n=1)	35,895 (29,185-44,723)	10,336 (n=1)
HC IV	5,979 (167 – 18,250)	NA	23,704 (10,147-34,238)	NA
HC III	928 (0-4,834)	985 (98-2,362)	12,261 (5,026-36,786)	5,382 (1,884-7,828)
HC II	0	2,950 (1,800-3,600)	8,928 (2,356-18,900)	3,017 (1,080-7,120)

1.2 Telecommunication – Telephone and Internet

The primary means of communication in the facilities is the telephone. Almost all of the facilities (n=58, 97%) reported that they had a telephone available. However, in most facilities, the telephone was privately owned and airtime was not provided by the facility. The availability of telecommunication services seems to be independent of facility ownership; both public and private facilities had telephones. Only one facility, which was publicly owned, had Internet access.

1.3 Staff in Pharmacies/Dispensaries and Medicine Stores

Pharmacists and pharmacy technicians are educated in handling medicines and are thus the optimal managers of medicine in health facilities.

Information collected on staffing in health facility pharmacies and drug dispensaries showed that pharmacists or pharmacy technicians were available in only one out of five facilities. In most facilities, the pharmacy staff was comprised of nurses. In almost half of the stores, storekeepers or assistants supported the pharmacy staff in stock management.

Table 5. Staffing levels in pharmacies and dispensaries, level of effort, and years of experience

Staff Level	Facilities with ≥1 Staff Working in Pharmacy (%)	Staff Working Full Time (%)	Average Years of Experience
Pharmacists	7	100	3
Pharmacy Technicians	15	86	10
Nurses	87	89	6
Storekeepers/Assistants	41	100	8
Other Staff with Client Contact	100	79	5

Findings also showed that most staff work full time in the dispensary. However, experience working with medicines varied. Pharmacists had the least years of experience possibly indicating a high turnover or that only newly graduates work in health facilities whereas more experienced pharmacists prefer to work in other capacities. Since pharmacists' retention is low, it would be wise to focus on employing pharmacy technicians to increase pharmaceutical staff in the public sector, while simultaneously increasing training of new pharmacists.

The average number of reported hours spent in the pharmacy by the pharmacist-in-charge was 7.6 hours per day (range of three to ten hours), which is slightly less than the typical working hours of many public sector health facilities. Weekly opening hours were reported to be between 8 AM and 10 AM to between 3 PM and 6 PM. Opening hours were dependent on the presence of patients at the health facilities.

1.4 Staff and Facility Views on the Medicines Situation

Health facility staff must continue to provide health services despite stock and budget challenges they may face, and in this survey, they shared their varying opinions on the medicines situation. The results underline the importance of treating each facility's needs and challenges individually to ensure the best possible healthcare service to all Ugandans.

Regarding the current medicines situation, a quarter of the interviewed staff were satisfied and believed there is enough medicine available for all of their patients. However, over half reported dissatisfaction, pointing to an undersupply of medicine that prevents facilities from meeting all patients' needs, particularly of antimalarial medicine. No relation was found between the availability of tracer medicines and the staff's satisfaction with the medicines situation.

Six out of ten facility staff thought the medicines situation had changed recently. Of these, half reported that the supply from NMS had improved and that more medicine was now available, while the other half expressed the opposite opinion. The identified challenges reported are shown in Table 6.

Table 6. Identified challenges regarding the medicines situation

Challenge	% Facilities
Insufficient supply	42
Delivery delays	25
Stock out	17
Price	8
Emergency orders not possible	5
Expiry	2

Most staff reported insufficient supplies and delivery delays as the most significant challenges, followed by stock outs. Another problem reported, as a result of Vote 116¹, was that it is no longer possible to make emergency orders except through NMS, which requires a costly trip to Entebbe. Further, facilities no longer have the option of procuring supplies from other sources.

Public and PNFP facilities did report different challenges due partly to varying EMHS funding per capita. One PNFP reported price as a problem, while public health facilities with a large number of patients thought that stock outs and insufficient supplies as the most significant problems. Differences of patient loads also influenced staff views among even

¹ Centralization of EMHS funds

public sector facilities. For example, expired medicines were a problem for facilities with a low patient loads but not necessarily for facilities with high patient loads.

1.5 Drug Policy Knowledge

*“The National Drug Policy (NDP) aims to contribute to the attainment of a good standard of health by the population of Uganda, through ensuring the **availability, accessibility, and affordability** at all times of essential drugs of appropriate **quality, safety, and efficacy**, and by promoting their **rational use**.”²*

As highly involved implementers of the NDP, it is important that health facility staffs, including pharmacy staff, are aware of the policy and its contents. Unfortunately, only 39% of health facility staff reported that they were aware of the NDP’s content. Of these, 56% could identify policy areas in the NDP, though most incorrectly believed that treatment guidelines were part of the NDP. Despite this, staffs were quite knowledgeable about the rational use and correct storage of medicine.

1.6 Tests and Services Offered

To provide good healthcare service, health facility pharmacies should be properly equipped to perform diagnosis tests for patients. Table 7 shows that the availability of equipment was low; only a few facilities were capable of administering tests. This reduces treatment quality and accuracy for several medical conditions, such as hypertension, diabetes, and asthma.

Table 7. Availability of equipment and tests offered to patients in outpatient departments

Availability of Equipment and Tests Offered	% Facilities
Weighing scale	35
Blood pressure monitoring	24
Pregnancy test	16
Prescription eye glasses	8
Glucose test meter	7
Asthma peak flow meter	5

Basic amenities available to patients were also assessed. Table 8 shows that most facilities had benches or chairs for patients to sit on while waiting, but only one-third had hand washing facilities, drinking water, or privacy for patients receiving dispensary services. The availability of these services implies the facility’s lack of regard for quality experiences when patients visit that facility.

² Ministry of Health, Uganda National Drug Policy, 2002.

Table 8. Services offered to patients in facilities

Services Available	% Facilities
Chairs/bench to sit on (n=62)	89
Hand washing facilities (n=62)	35
Privacy when receiving dispensary services (n=62)	31
Drinking water available to patients (n=60)	30

To improve quality of service, decrease the spread of disease, and increase medicine use compliance, all facilities should include the aforementioned services. Chairs and benches must be available for sick patients, who may find it difficult to stand and wait when ill. Additionally, hand washing develops good patient hygiene, while drinking water aids patients who must take medicine at the facility. Privacy is also necessary to discreetly provide medicine information to patients and ensure their compliance to treatment. Privacy for patients can easily be established by drawing a line on the floor indicating that other patients must remain behind the line until it is their turn. The facility staff must ensure that patients respect the line and keep their distance.

1.7 Health Promotion Activities

Health promotion activities are one way for health facilities to improve health in the areas they serve. This survey focused on the pharmacy staff's involvement in such activities. Two out of three (63%) facility pharmacies had engaged in one or more health promotion activities in the past year.

Table 9 presents the most frequently reported health promotion topics among health promoting pharmacies. Pharmacy staff were naturally involved in educating people about medicine use, but many were also involved in activities related to smoking and nutrition.

Table 9. Issues targeted by health promoting facilities

Health Promotion Issues	% Pharmacies/Dispensaries (n=40)
Smoking	78
Medicine Use	40
Obesity/Nutrition	21
Immunization	10
Family Planning/Pregnancy	10
Alcohol	8
Malaria	8
Others	8

Providing patients with informative leaflets is one way to promote healthy behaviors. The survey showed that 25% of facilities had patient leaflets available. The leaflets contained information about available family planning commodities, artemisinin-based combination

therapy (ACT) as the first line treatment for malaria, the use of insecticide-treated mosquito nets, child immunization, vitamin A supplementation, and de-worming products for children. There were also leaflets about the treatment of tuberculosis, HIV testing, the prevention of malaria during pregnancy, and the promotion of folic acid for pregnant mothers.

1.8 Level of Hygiene in Staff Toilets and Hand Washing Facilities

Hygienic hand washing facilities and toilets are vital to reduce the spread of bacteria by health workers who handle medicines. The study observed and evaluated the level of hygiene in facilities used by pharmacy staff, which is summarized in Table 10.

Table 10. Conditions of toilet and hand washing facilities

Hygiene	% Facilities
Toilet facilities acceptable, hygienic, and functioning	71
Toilet paper available	17
Hand washing facilities are acceptable, hygienic, and functioning	30
Soap for hand washing available	14

29% of the facilities did not have functioning and hygienic toilet facilities of acceptable standards (defined as acceptable for the surveyor to use the toilet facilities), and more than 80% did not have toilet paper available. With more than two-thirds without hand washing facilities and 86% without soap, the spread of bacteria in health facilities is potentially quite high.

2. SUPPLY CHAIN MANAGEMENT

The facility staff's ability to implement good supply chain management and storage practices is important to ensure the availability of good quality essential medicines and health supplies (EMHS) at facility level. This survey assessed the following aspects of supply chain management:

- 2.1. Receipt of medicines and health supplies
- 2.2. Stock management
- 2.3. Store management
- 2.4. Reporting and ordering
- 2.5. Knowledge about the vital, essential, and necessary (VEN) classification
- 2.6. Stock management supervision
- 2.7. Quality of medicines inspection

2.1 Receipt of Medicines and Health Supplies

When the facilities receive EMHS from the National Medical Store (NMS) or Joint Medical Stores (JMS), it is critical that they ensure that the supplies are in good condition with no visible damage, and that the quantity delivered matches the quantities on the delivery note.

Staff should also guarantee that the shelf life of delivered supplies is long enough for them to be used before their expiry date.

Health workers were asked what checks they performed upon receiving goods. One-third of facilities counted the number of boxes received and compared it to the delivery note, while the remaining two-thirds counted the packs after opening the boxes. Staff also checked if boxes were damaged (18%) or opened (22%). Four out of five health facilities ensured that at least two people were present when the boxes were opened. (See Table 11).

Table 11. Procedure for checking received supplies, before and after opening the boxes

Checks Completed upon Receiving Supplies	
Before Opening	% Facilities
Check packing, delivery note, and invoice	87
At least two persons present when receiving supplies	78
Count the boxes	33
Check that all boxes are unopened	22
Check that all boxes are undamaged	18
After Opening	
Signing the delivery form	71
Check for type of item, quantity, and physical damage	67
Check expiry date	40
Check label information on all supplied items	25

All activities listed in the table above should be performed when goods are received according to the Ministry of Health (MOH) and NMS standard operating procedures for medical supplies receipts and for handling discrepancies. Neither of these standard operating procedures was found at any of the surveyed facilities.

Almost half (43%) of the health facilities had experienced discrepancies between the quantities received and the quantities invoiced. Two-thirds (68%) of facilities reported that they had followed up the matter by contacting the supplier, while others noted the driver's name and the vehicle's registration number.

Only 17% of facilities had ever filed a discrepancy report, but other actions taken included calling or writing a letter to the supplier (NMS/JMS) or informing the relevant district health officer (DHO) to inform them about the difference. Of the 17%, four out of ten facilities reported receiving a response, which included correcting the number of packs in the delivery note by registering the number actually received and countersigning the delivery note. Though guidelines for writing discrepancy reports were only available in 4% of the facilities, there was a good understanding of how to address cases of discrepancies despite weak documentation.

2.2 Stock Management

Good stock or inventory management is measured by the ability to correctly monitor stock, quantify needs, and prepare orders. Stock movement must be punctually and accurately recorded on stock cards, which are part of the Ministry of Health's (MOH) Health Information Management System (HMIS). Stock management of 30 medicines and supplies (see the list in Annex C. Basket of Items) was assessed on five factors:

- Availability of stock cards
- Correctly filled stock card header
- Physical counts
- Accuracy of stock card data
- Comparison of public and PNFP facilities

2.2.1 Availability of Stock Cards

Stock cards are provided by the MOH through the NMS. The stock cards are not free of charge; health facilities must procure them from their credit line budget. 86% of the surveyed facilities used the official MOH stock cards for some or all of their EMHS, while other facilities used homemade stock cards to reduce their EMHS budget line expenditure.

On average, stock cards were available for two-thirds of the 30 basket items, though they were more frequently used for medicine items (74%) than for health supplies (63%). Overall, hospitals exhibited the highest average percentage of use, and stock cards were available for three-fourths of the items; HC II had the lowest average percentage of use where only 64% of the basket items had an available stock card (table below). However, the range of stock card availability was wide, especially at hospitals and HC II. For example, some hospitals only had stock cards for less than half of the items, whereas others had stock cards for almost all items.

Table 12. Availability of stock cards

	Hospital	HC IV	HC III	HC II	Average
Stock Card Availability (% Facilities)	75	66	66	64	68
Stock Card Availability (% Range)	43 – 93	50 - 77	50 - 77	0 - 85	4 - 75

2.2.2 Correctly Filled Stock Card Header

Even if a stock card is available, it does not guarantee correctly and accurately filled information. A correctly filled stock card includes the name of the item, its strength and formulation, the necessary storage conditions, expiry dates, and average monthly consumption (AMC).

In all the facilities surveyed, stock cards for the selected 30 items were assessed to determine whether all applicable information were properly entered. Findings show that none of the stock card headings had been filled in completely and correctly. In most cases, the name, strength, and formulation of the item were correctly written on the stock card, but the expiry dates and AMC were rarely recorded. The survey also showed that only 22% of health

workers reported they were able to calculate AMC for the EMHS credit line. This suggests that the health workers do not fill in the AMC on the stock card because they do not know how to calculate it.

2.2.3 Physical Count

Good medicine management practices require that stock is counted every month to verify that physical medicines and supplies in the facility accurately reflect records of their sales. In cases where items are in excess or deficient, the information should be recorded on the stock card and investigated as far as possible. The physical count should be recorded clearly on the card, preferably using a different coloured pen under the heading “physical count” or “PC”.

Table 13 shows that very few facilities carried out a physical count on a monthly basis in the past three consecutive months.

Table 13. Completed physical counting procedure in facilities that used stock cards

	Hospital	HC IV	HC III	HC II	Average
Monthly Physical Count (% Facilities)	5	0	7	3	4
Monthly Physical Count (% Range)	0- 35	0	0 – 68	0 - 45	0 - 7

2.2.4 Accuracy of Stock Card Data

The accuracy of the stock card data was assessed by comparing the recorded balance on the stock card with the physical count carried out by the survey team in the store. Only items with available stock cards could be assessed.

Over all, approximately half of the items’ recorded stock balance corresponded exactly to the physical count. The average percentage of accurately filled stock cards was similar across the different facility levels, but the range of accurate stock cards at same-level facilities varied greatly. While a few individual HC II facilities had 100% accurate stock card data, no facility level in aggregate achieve 100% correct records.

Table 14. Accuracy of stock card data by facility

	Hospital	HC IV	HC III	HC II	Average
Accurate Stock Cards (% Facilities, Average)	54	44	52	58	53
Accurate Stock Cards (% Range)	0 – 83	14 – 90	6 - 87	6 – 100	0 – 100

Unfortunately, the findings summarized above overestimate facilities’ capabilities to accurately track stock card movements. At the time of the survey, availability of medicines was low, and several items were out of stock at many facilities. Those stock cards correctly showed a zero balance. However, it is less challenging to ensure a correct balance when the item is out of stock than to correctly calculate a balance. Therefore, an accurate record is not indicative of the actual difficulty of updating the stock card and ensuring that the physical count corresponds with it. When excluding items with zero stock balance (recording them as

NA), the survey found that the overall average accuracy of stock cards was only 37% (16% - 75%).

2.2.5 Comparison of Public and PNFP Facilities

The following table compares public health facilities with PNFP facilities and shows that public sector facilities are slightly better at stock management than PNFP facilities, but PNFP facilities had a slightly higher availability on the day of the survey.

Table 15. Comparison of PNFP and public facilities in stock management and availability of medicine

Indicator	PNFP (% Facilities)	Public (% Facilities)
Stock card availability	60	68
Stock card accuracy	45	55
Average availability of basket items on day of survey	59	48

2.3 Store Management

Essential medicines and health supplies (EMHS) are received and stored in health facility stores until medicines and supplies are issued for use within the health facility. The main objective of store management is to store items in a way that reduces waste and does not affect the quality of the EMHS. Good store management includes clean storage facilities and systematic storage of EMHS.

This survey assessed the following areas of store management:

- Cleanliness of store
- Storage conditions
- Storage systems and practices for medicines and health supplies

2.3.1 Cleanliness of the Store

The level of cleanliness in and around the dispensary and main stores was checked and scored. The level of cleanliness and tidiness was acceptable or better in over 70% of the facility dispensary stores and approximately 60% of the main stores, and thus unacceptable in less than one-third of all stores observed.

Table 16. Cleanliness of dispensary and main stores

	Very Clean and Tidy	Acceptably Clean and Tidy	Dirty and Untidy	Very Dirty and Untidy
Dispensary Store	6%	65%	27%	2%
Main Store	6%	57%	22%	2%

Pests, such as rodents and insects, are destructive and can contaminate medicines, and they should not be found in medicine stores. In 35% of the pharmacy stores, traces of pests were found.

2.3.2 Storage Conditions

EMHS has to be stored under the right conditions to be of good quality for their entire shelf life. Storage conditions such as light, humidity, and temperature should be controlled as part of good storage practices in order to protect the EMHS and minimize deterioration. Water is needed to keep the main storage and dispensary clean. Storage conditions in both main and dispensary stores were assessed according to the indicators listed in Table 17.

Table 17. Storage conditions assessed in main and dispensary stores

Storage Conditions	Main (% Stores)	Dispensary (% Stores)
Storage space sufficient and adequate	63	71
Storeroom lockable and access limited to authorized personnel	90	76
Medicines and supplies not stored in same room as insecticides and chemicals	62	76
Roof maintained in good condition to avoid water penetration	82	85
Fire safety equipment and items available and accessible	7	8
Electricity on day of visit	52	53
Water in the main store or dispensary on day of visit	29	42
Storage Temperature		
Medicines protected from direct sunlight by painted glass or curtains	97	95
Temperature regulated by ventilation, heater, or air-conditioner	82	85
Temperature monitored	3	2
Functioning cold storage system (refrigerator) to store medicines	56	56
Refrigerator temperature kept between 0-8°C	97	87
Temperature of refrigerator recorded	100	80
Temperature chart updated daily	100	83
Vaccines placed in centre of refrigerator (not in door)	87	83

The storage conditions were more or less similar in main and dispensary stores. Fewer than two-thirds of the main stores and three-fourths of dispensaries had sufficient and adequate storage space, but not all stores were lockable with access only for authorized personnel. If there is not enough space, it is difficult to comply with good storage system practices. Lack of safety equipment compromises the safety of EMHS, but was found in less than 10% of the stores.

Temperature is an important precondition to maintain the quality of products throughout their entire shelf lives. Most EMHS must be stored at room temperature, which is normally between 20 and 30 degrees Celsius. The results showed that in four out of five stores, the temperature was regulated using ventilation, but only 3% of the facilities monitored the store temperature. As it is impossible for facility staff to check the quality of medicines, conditions in the stores must be regulated appropriately to ensure required medicine quality.

Some medicines and most vaccines must be stored below eight degrees Celsius to remain in good condition. The findings showed that in half the main store and dispensaries, cold chain storage was available and most facilities monitored the temperature. Every main store monitored and regularly recorded the temperature, regulating at below eight degrees Celsius.

2.3.3 Storage Systems and Practices for Medicines and Health Supplies

In addition to keeping EMHS under proper conditions, EMHS storage must be systematic; poor storage can increase the risk of commodities being kept beyond their expiry dates.

The results highlighted in the table below show that medicines were stored on shelves or in cupboards in most health facilities, but only 57% of the facilities arranged medicines systematically with clearly visible identification labels. Further, only 18% of stores labeled the shelves. This can be a sign of the mismanagement of EMHS.

Table 18. Storage systems for EMHS

Storage System Indicators	% Facilities
Medicines stored on shelves and/or in cupboards	92
Medicines stored on shelves and/or in cupboards in a systematic manner	57
Medicines arranged so that identification labels are visible	57
Shelves are labeled	18
Separate lockable cupboard for narcotic / psychotropic medicine available	11

Narcotic psychotropic medicines are sensitive and are highly regulated medicines; they need to be protected from theft, but lockable cupboards for these medicines were rarely found.

In addition, storage practices for medicines and health supplies include the management of open bottles, the storage of boxes, and the handling of expired medicines. In the majority of facilities, cartons and products were visually found to be in good condition. However, in half of the facilities, boxes were stored on the floor with the risk of the EMHS being damaged by humidity entering the boxes from the floor.

It is good practice in the dispensary to label bottles with the date they were opened. This is to ensure that the contents of the bottle are used within the recommended time after having been opened. The practice of labeling opened bottles with the date of opening was poorly implemented in dispensaries. Less than half of facility staff put the lids back on opened tins or bottles when not using them. Medicine can absorb water from the air thus compromising the quality of the medicine; protecting the contents within a tin or bottle is important.

Table 19. Storage practices for EMHS

Storage Practice Indicators	% Facilities
Cartons and products are in good condition, not crushed	65
Boxes on the floor in the dispensary or store	54
Opened tins and bottles have a lid on them	48
Separate area used to keep expired drugs before disposal	48
Record for expired medicines exists	13
Opened bottles of liquid/mixtures in dispensary labeled with the opening date	5
Written procedure for disposal of expired medicines exists	3

The management of expired medicines in health facilities was poor, and written procedures for the disposal of expired medicines were almost nonexistent. Pharmacy staff maintained records of expired medicines in about 10% of the facilities, while less than half of the facilities kept expired products separate from useable EMHS.

2.4 Reporting and Ordering

Health facility staff are obligated to regularly report to the central level to comply with the Health Managing Information System (HMIS) and to order and report for vertically supplied medicines. A great deal of effort has been made to ensure timely and accurate reporting. Facilities use special forms for ordering TB and HIV/AIDS medicines. Orders are made through the district and supplied by either the National Medical Store (NMS) for public facilities or Joint Medical Stores (JMS) for PNFs.

2.4.1 Reporting

In Uganda, health facility staff prepares reports on service statistics and logistics data for the HMIS, which also serve as supply orders for MOH vertical programs. The HMIS requires monthly, quarterly, and annual reports providing general facility data, such as the total number of admissions, outpatients, and patients receiving specific care. The report also includes the number of stock out days for six tracer medicines and health supplies. MOH vertical programs require more specific patient and consumption data, and this increases the workload of facilities.

According to the survey, the most common form of reporting between the health facilities and districts was the monthly HMIS 105 report. Three out of four (74%) of the health facilities reported that they usually compile the monthly report, and 63% of the interviewed facility in-charges said that the reports are generally useful. They mentioned that the reports provide feedback to district health officers (DHOs), help to determine the consumption of medicines and supplies, inform the higher authorities about stock out status, and serve as a form of accountability and transparency. The reports are also used for planning purposes.

2.4.2 Ordering

Each public facility is provided a credit line with NMS to purchase EMHS; the amount is based on the level of care provided. NMS has developed a bimonthly delivery schedule with delivery end dates and reporting deadlines. The schedule covers five delivery zones, where each zone has specific delivery end dates and reporting deadlines. The findings show that health staff in over half of the facilities are familiar with and have a copy of the NMS order and delivery schedule. Only one-third of the facilities reported that they adhere to the NMS order schedule as indicated in Table 20.

Table 20. NMS order and delivery schedule

NMS Order and Delivery Indicators	% Facilities
Facilities where health staff are familiar with the NMS order and delivery schedule	56
Facilities with an available ordering and delivery schedule	49
Facilities that say they adhere to NMS ordering deadline dates	33

A well-managed facility would adhere to the NMS schedule instead of depending on the district or HSD to inform on when to order or instead of placing orders when stock was low as this increases the risk of stock out before supplies are delivered. Table 21 indicates that facilities order when they are low on stock or when they are requested to order by the DHO or health sub-district (HSD).

Table 21. When a facility orders EMHS

Indicators for Order Time	% Facilities
When the facility is low on stock	38
When requested by DHO/HSD	33
Time based – every 2 months	8
When the facility reaches reorder level	3
The facility does not order – it receives a kit (kit only introduced at the time of survey)	2

The amount of EMHS ordered should be determined by the average monthly consumption. While this information can be obtained from stock cards, only one-fourth of the facilities used the stock card data to determine the order amount. It was more common for facility staff to use their memory and experience or base their orders on the funding available for the period. Funds available are also an important factor, since it is often necessary to reduce on quantities to stay within the budget allocated.

Table 22. Order quantity

Indicators for Order Quantity	% Facilities
Amount ordered is based on stock card data	24
Amount ordered is based on memory and experience	41
Amount ordered is based on money available	44

Though pharmacy staffs are best equipped to accurately place EMHS orders, the facility's in-charge was responsible for ordering in more than half of the facilities. In 41% of the facilities, the pharmacy staffs were responsible for placing and filing orders that were then signed by the in-charge.

2.4.3 Emergency Orders

Emergency orders can be placed with the district or NMS directly by facilities with very low stock levels. Emergency orders were rarely placed: 88% of the facilities reported that they had not made any emergency orders and about 9% had made only one emergency order in the twelve month period preceding the survey. Facility staffs tend not to place emergency orders because the process of receiving additional supplies is long and does not necessarily result in additional supplies.

Currently, districts do not hold stocks for emergency orders, so orders must be placed with NMS. Emergency orders must be picked up in Entebbe; this is challenging to many facilities that lack a transport budget. Some lower health facilities instead place emergency orders with the hospitals.

2.5 Knowledge of VEN Classification

Vital, Essential, and Necessary (VEN) classification is a method for prioritizing EMHS according to their health impact into three categories: vital, essential, or necessary. Vital items are life saving medicines, and it is very important that they are always in stock. As funding for EMHS is limited in Uganda, orders must be prepared using this concept to ensure that the most efficacious life saving medicine is available.

To optimize healthcare in Uganda, it is important that most if not all healthcare staff are aware of VEN. However, interviews with staff responsible for preparing orders revealed that only one in 20 health workers could explain and used the VEN classification when procuring EMHS.

Table 23. VEN classification of EMHS

VEN Indicator	% Facilities
Facilities where health workers had heard of VEN classification	10
Facilities where health workers could correctly explain the VEN concept	6
Facilities that reported that they applied VEN in procurement	5

2.6 Stock Management Supervision

Stock management is poor in Uganda despite the capacity building programs provided to health workers in the last decade. These programs were mostly based on classroom training. Instead, stock management improvement can be achieved by behaviour change through supervision and on-the-job training. Routine supervision by district personnel or implementing partners that focus on stock management can enhance the health staffs' capacities to manage EMHS at the facilities.

While 60% of health facilities reported having a supervisory visit including medicine management training in the six months prior to the survey, and 40% had written supervisory reports available at the facilities, stock management is still inadequate. This suggests that supervisory activities are not comprehensive or specific enough, and focused on-the-job training is required to change the behaviour of health facility workers.

2.7 Quality of Medicines Inspection

The National Drug Authority (NDA) is mandated to inspect medicines in pharmacies and assess them in accordance with specific quality standards. Currently, mandatory comprehensive inspections only take place in the private sector; however NDA only undertakes spot check inspections in public health facilities to assess the suitability of the premises. Only one-third of the surveyed health facility pharmacies or dispensaries reported having been visited by NDA inspectors in the past year. Of these, 81% were satisfied with the way the inspection was conducted.

3. AVAILABILITY

Over the past decade Uganda has struggled to ensure the availability of EMHS, which is fundamental for the provision of good healthcare. Good supply chain management and sufficient funding are critical for ensuring adequate availability. This survey applied a set of indicators to determine the availability and appropriate supply of a basket of items. This section includes our findings on the following:

- 3.1. Availability of a basket of medicines
- 3.2. Availability of vital items
- 3.3. Availability of tracer medicines
- 3.4. Availability of MOH technical program specific items
- 3.5. Overstocking

3.1 Availability of a Basket of EMHS

3.1.1 Survey Basket of EMHS

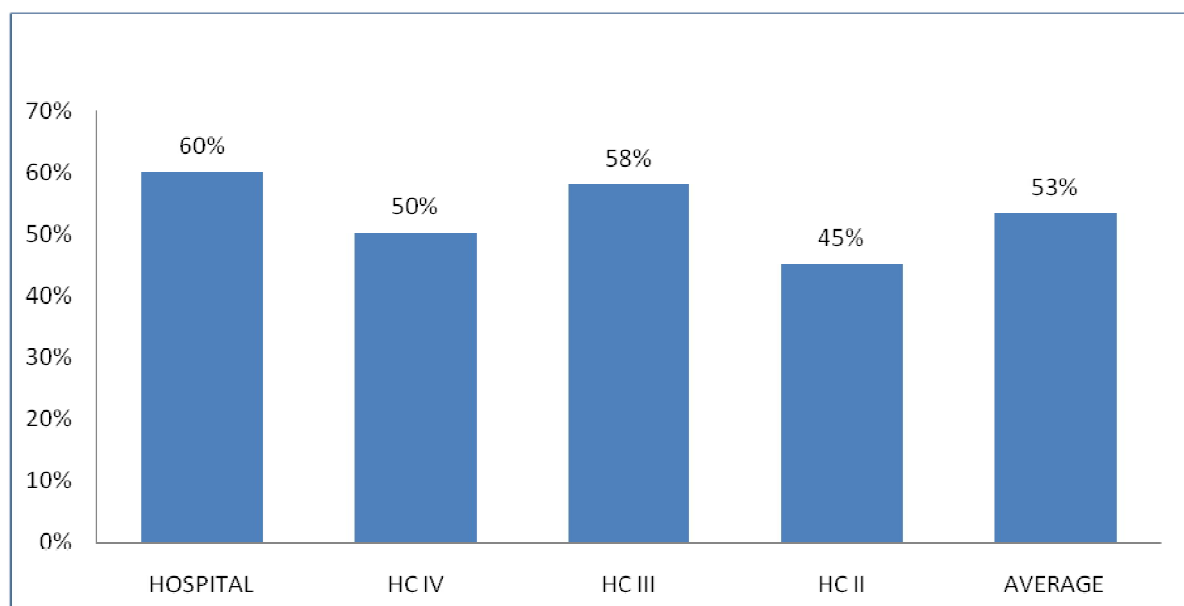
The basket included 30 items – 23 medicines and seven health supplies – that are made available by NMS and MOH technical programs including reproductive health, HIV/AIDS and malaria medicine. The table below shows the number of medicines and health supplies found in all health facilities at a certain healthcare level. A full list of the basket items can be found in Annex B.

Table 24. Number of surveyed EMHS by level of care

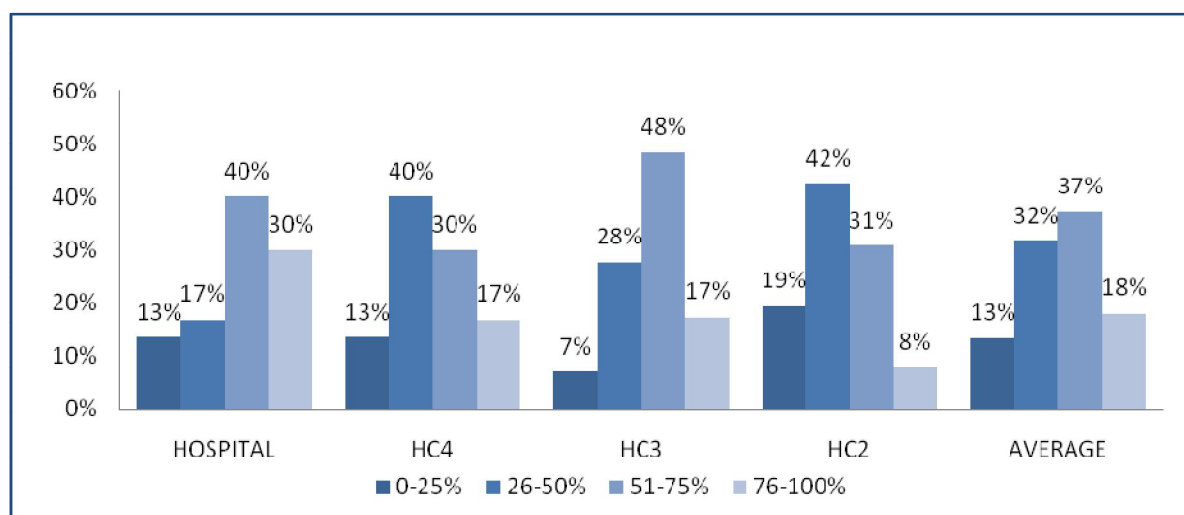
Level of Care	# Medicines	# Health Supplies
Hospital	23	7
HC IV	23	7
HC III	23	6
HC II	22	4
Average	23	6

3.1.2 Availability of EMHS

On average, facilities had available half of the items on the survey day with the highest availability at hospitals and the lowest in HC II. The availability of medicines did not differ significantly from that of health supplies. Erythromycin and malaria rapid diagnostic test kits were among the EMHS commonly unavailable on the survey day.

Figure 2. Availability of basket items by level of care on day of survey

The graph below illustrates the items available at different healthcare levels on the day of the survey. The items are divided into four groups that represent the percent availability of those items in each facility level. Together, the graph illustrates the distribution of availability from very low to an adequate percentage of EMHS in stock.

Figure 3. Availability in facilities on day of survey specific to level of care

On average, around 70% of the facilities had a medium availability of items (26% - 75%), 13% had less than a quarter of the items available, and only 18% of facilities had an availability of over 76% on the day of the survey. Hospitals had the best availability: almost one-third of all hospitals had more than three-quarters of the items available. Poor availability is not related to the level of care; fewer HC III facilities had low availability than HC IV facilities.

3.2 Availability of Vital Items

The basket of 30 EMHS included vital, essential, and necessary items selected according to the VEN classification, which is used to prioritize items according to their health impact. Vital items have the highest impact. The basket included 22 (73%) vital items, 6 (20%) essential items, and 2 (7%) necessary items. Table 25 shows the availability of the vital items on the day of the survey.

At the time of the survey, the 2007 Essential Medicine List for Uganda (EMLU) included only level of care recommendations, but the VEN classification was not used. The 2012 Essential Medicine and Health Supplies List for Uganda (EMHSLU) include VEN classification of all items. EMHSLU 2012 is not yet published but is used for analysis below.

Table 25. Availability of a basket of 22 vital medicines and health supplies on the day of the survey

	HC II	HC III	HC IV	Hospital	Average
Availability of Vital Medicines (% Facilities, Average)	44	57	51	59	53
Availability of Vital Medicines (% Range)	14 – 88	24 – 81	10 – 73	36 – 86	10 – 88

^a 21 vital items for HC III and 20 vital items for HC II.

On average, facilities had half the vital items available. The range at different care levels was wide, indicating that the availability of vital items was not specific to the level of care. The

reasons for the variation include stock management capacity and differences in EMHS funding per patient.

Overall, less than 60% of all facilities had all vital items available. HC II facilities had the lowest availability of vital items. The availability in HC III was a little higher than in HC IV facilities and almost similar to the availability in hospitals. Positively, some HC II and hospitals had almost 90% of the vital items available. As previously mentioned, only 6% knew about the VEN concept, which accounts for the low availability. If facility staff uses the VEN concept correctly when ordering, the availability of vital items should improve.

3.3 Availability of Tracer Medicines

The MOH has identified six critical medicines that should be available at all times for the provision of the Minimum Health Care Package. The availability of these six essential medicines is monitored on a regular basis by MOH.

This survey measured two indicators of availability: the availability on the day of the visit, which provides a cross-sectional perspective; and the availability over the previous six months, a more robust measure of supply chain performance. Both indicators reflect a combination of influencing factors: facility priorities for procuring/ordering these specific items, staff skills in calculating the correct amount to be supplied, availability of the item at central level in the two to three months period to time of the visit, and the timeliness and predictability of NMS deliveries.

The tracer medicines are:

- Cotrimoxazole (CTX)
- First line antimalarial medicine (currently Artemether and Lumefantrine (AL))
- Sulfadoxine and pyrimethamine (SP)
- Oral rehydration salt (ORS)
- Measles vaccine
- Depo Provera

On the survey day, only 10% of the 63 health facilities had all tracer medicines available, while 3% had none of the tracer medicines in stock (all HC II). Most facilities had between two to five of the tracer medicines available on the day of the survey (figure below).

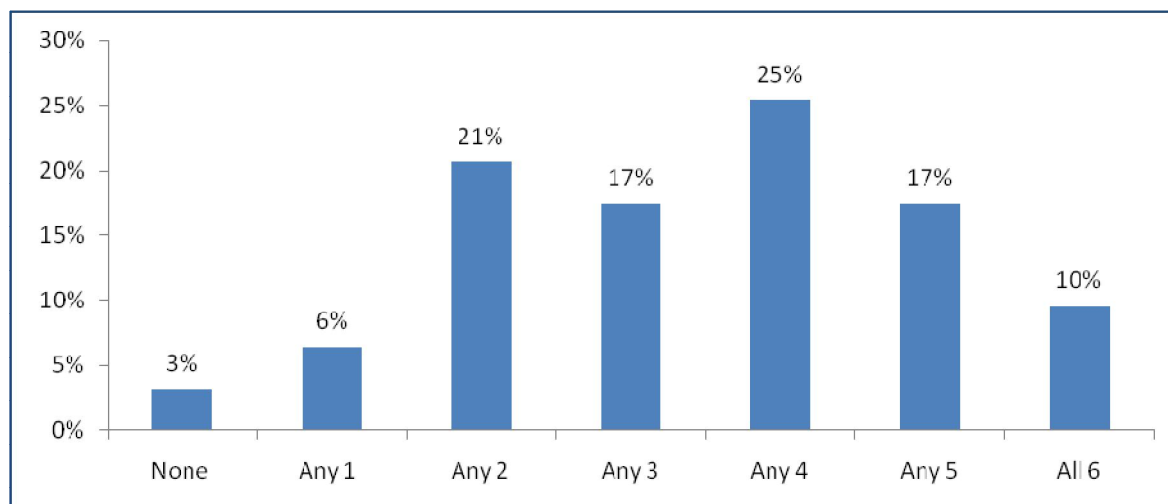
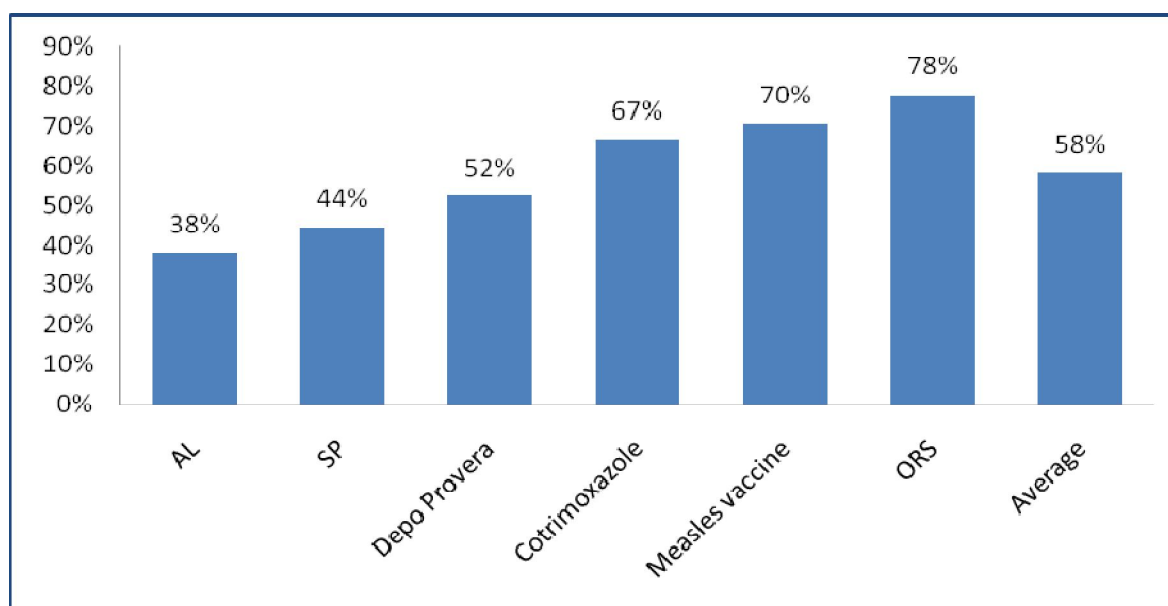
Figure 4. Percentage of tracer medicines available on the day of survey in each facility

Figure 5 shows individual tracer medicine availability in facilities on the survey day.

Figure 5. Availability of individual tracer medicines on the day of the survey

No single tracer medicine was found in all 63 facilities. ORS was found in almost 80% of the facilities on the day of the survey, making it the most widely available tracer medicine. AL, SP, and Depo Provera were the least available items on the day of survey in an average of 58% of facilities. At the time of this assessment, AL was being supplied by Global Fund and Quality Chemicals, and Depo-Provera was entirely supplied by donor partners (and thus not charged against a facility's credit line). Measles vaccine is supplied through a parallel distribution system of the Uganda National Expanded Program for Immunisation (UNEPI), whereas the remaining items are procured and supplied by NMS as part of the EMHS credit line. Donated items were unavailable for ordering due to recalls, administrative bottlenecks, and inability to meet market demands.

Table 26 shows the availability of items over the six months prior to the survey visit. There is 100% availability if the stock card showed no stock outs of an item over the previous 180

days. The average availability of the six tracer medicines over the six months period was 130 out of 180 days (72%).

Table 26. Percent availability in previous six months period

	ACT	Measles vaccine	SP	ORS	Depo Provera	CTX
Hospital	62%	100%	68%	92%	23%	97%
HC IV	61%	98%	78%	93%	54%	83%
HC III	65%	89%	54%	82%	69%	83%
HC II	37%	85%	46%	49%	73%	81%
Average	56%	93%	62%	79%	54%	86%

HC II is the main points of treatment for malaria and mild diarrhoea. Yet at the HC II level, the average availability for ACT and ORS were low: they were in stock 37% and 49% respectively. This has serious repercussions on the rate of mortality among children seeking care for malaria and diarrhoea.

Depo Provera is the most commonly used family planning method in Uganda with an average availability of only 54%. Hospitals had the lowest availability of 23% in the six-month period.

3.3.1 Stock Out Days for Tracer Medicine

The duration of tracer medicine stock outs was measured over a six-month period to assess facilities' service delivery. Stock outs were determined by calculating the number of days each tracer medicine was recorded as out of stock on available stock cards. Only items with stock cards available were included in the calculations.

Depo-Provera had the highest average number of stock out days, and it was unavailable for almost half of the six-month period (82 days). In January 2010, Pfizer (manufacturer of Depo Provera) recalled all Depo Provera procured by USAID and other suppliers over quality control issues, which caused worldwide shortages. Orders scheduled for January 2010 to Uganda were cancelled, and a regular shipping schedule was not resumed for the next six to nine months.

AL has also experienced high national stock outs since 2008 due to administrative bottlenecks in Global Fund procurement. Further, the quantities procured from Quality Chemicals are unable to fulfill the country's requirements.

Table 27. Average days medicine is out of stock over previous six months (180 days)

	ACT	Measles Vaccine	SP	ORS	Depo Provera	CTX
Hospital	68	0	57	15	138	5
HC IV	71	4	39	12	83	31
HC III	63	20	83	32	56	31
HC II	113	27	97	91	49	34
Average	79	13	69	38	82	25

Alarming, ACT and ORS were unavailable for more than half of the six-month period in HC II (113 and 91 days, respectively). Because diarrhoea and malaria account for 15% and 22% of mortality in children under five years of age, and most families rely on HC II facilities, it is critical that ORS (and zinc) and ACT are available to prevent child mortality.

3.4 Availability of MOH Technical Program-Specific Items

The survey included indicators focusing on the availability of certain groups of medicine provided by technical programs under the Ministry of Health (MOH). This section considers the availability of antiretrovirals (ARVs) and maternal health and family planning commodities.

3.4.1. Availability of ARVs

Treatment for HIV/AIDS is only available in specific health facilities in Uganda at the HC III level or higher, though antiretroviral treatment (ART) usually begins at the HC IV level. In this survey, 38% of the surveyed facilities offered ART.

Triomune Baby is one of the first-line treatment options for children, and it was used in this survey to assess the availability of ARV for children. On average, only 71% of the facilities with ART clinics had Triomune Baby in stock on the day of the survey. Two-thirds of the ARV facilities were supplied by implementing partners, while the remaining facilities were supplied only by the MOH. Triomune Baby was found to be out of stock at both PNFP and MOH facilities.

3.4.2 Availability of Maternal Health Commodities

At the time of the survey, there were maternity wards at the HC III level to hospital level. Table 28 shows the availability of commodities used for maternal health before, during, and after child delivery. The findings also reveal that some HC II supplied maternal health commodities, such as ergometrine, which is used to control excessive bleeding after spontaneous abortion.

At higher care levels where birth takes place, the availability of maternal health products was low. The availability of all three items was only around 10% at HC III and HC IV levels, and only one-third of surveyed hospitals had all three medicines available. This is potentially fatal for mothers who choose to deliver at health facilities.

Table 28. Availability of reproductive health commodities per healthcare level

Maternal Health Commodities	Hospital (% Facility)	HC IV (% Facility)	HC III (% Facility)	HC II (% Facility)	Average (% Facility)
Ergometrine	86	44	63	22	53
Oxytocin	86	33	58	17	45
Magnesium Sulphate	75	33	15	6	23
Health facilities where all three commodities were available	38	13	10	0	12

3.4.3 Availability of Family Planning Products

The population growth rate in Uganda is over three percent and strongly influences the development of the country, since additional funding is used to cater for the increased population. Family planning is important to help prevent unwanted pregnancies and thus reduce the growth rate.

This study investigated the availability of common family planning products – Microgynon, Ovrette, Depo Provera, IUD, implants, and male condoms – and found that only 44% of the facilities offered at least three of the above-mentioned family planning methods on the day of the survey. Additionally, 82% of the facilities had experienced at least one stock out over the previous six months, indicating that the availability of family planning items was not constant. Availability was lowest for long-term methods (IUD and implants), possibly indicating that these items are not being ordered and used in facilities because the staff has not been trained in their use. Depo Provera is the most popular method, but it was only available on average 98 days within the six-month survey period.

3.5 Overstocking

At the time of the survey, essential medicines and health supplies (EMHS) were being ordered by most facilities on the basis of consumption and available funding from Vote 116. Only 11% of the facilities surveyed had received a kit of which the contents and quantities delivered are determined centrally. The kit, or push-based supply system, was introduced at all the HC II and HC III facilities shortly before the survey, so overstocking at the primary healthcare level was not related to poor supply management or funding but the composition of the kit and the quantities delivered.

Overstocking indicates poor quantification and stock management, tampering, a weak redistribution system for over-supplied items at district level, changes in treatment guidelines, or morbidity. The survey identified cases of overstocking by whether the facility had more than five months of stock based on average monthly consumption (AMC) within the previous six-month period. The data collectors calculated AMC for all items with available stock cards (66% of the total items). According to the national supply chain system, the maximum stock level is five months for most medicine. Some items with a short expiry period have lower maximum stock levels, including the measles vaccine (two months) and the laboratory supply Field Stain A (three months). These two items were not included in the analysis.

On average, basket items were overstocked in 17% of the facilities. The table below shows that HC III had the highest percentage of overstocked items, as well as the most number of

overstocked items in the six-month period. The other three healthcare levels had around the same percentage of overstocked items.

The items that were overstocked differed by healthcare level. At the lower levels, catgut sutures and benzyl penicillin were reported to be overstocked in around half of the surveyed facilities, indicating that their consumption was less than expected by facility staff. One explanation for this could be that the items are not supposed to be used at lower levels of care.

Table 29. Percentage of facilities at each healthcare level where an item was overstocked

	Hospital	HC IV	HC III	HC II	Average
Overstocked Items (% Facilities)	16	14	23	15	17
Overstocked Items (% Range)	0-60	0 – 60	0 - 67	0 -54	0 – 67
# Items Never Overstocked	13	13	3	9	10

However, overstocking might also be associated with the amount of funding available. Facilities with low funding per patient would be expected to have fewer overstocked items. If this is the case, HC III may receive higher funding per patient compared to other healthcare levels.

4. DISTRIBUTION

A good distribution system maintains a constant supply of EMHS; keeps the EMHS in good condition throughout the distribution process; reduces waste from spoilage, theft and fraud; and uses transportation efficiently. There are two systems of distribution: delivery and collection. The National Medical Store (NMS) uses a delivery system from the central level to the district and regional referral hospitals using NMS' own vehicles. The Joint Medical Stores (JMS) use the collection system, where facilities or medical bureaus collect supplies from JMS. JMS has no responsibility for deliveries.

This section describes findings on the characteristics of the distribution system in facilities, means of transport, lead time, and nil lines and adjusted items ordered.

4.1 Means of Transport of Medicine and Health Supplies

The means of transport for EMHS deliveries illustrate the different distribution systems used in Uganda.

Facilities receiving supplies from JMS used their own (44%) or a hired vehicle (33%) to pick up their supplies. This assessment does not include data on whether supplies were collected from JMS in Kampala or collection points closer to the facility. Collection points are often medical bureaus, such as at religious organizations, which are the main users of the JMS distribution system.

At the time of the survey, NMS only made direct deliveries to facilities on the delivery route and to regional referral hospitals, which together make up 16% of facilities. For the

remaining facilities, NMS delivered to district health offices, which were responsible for delivering to individual health facilities. 53% were delivered by the district to the public health facilities, and 18% were delivered by the health sub-district (HSD). 12% of deliveries were picked up by the individual facilities in their own or hired vehicles. Since this study took place, NMS has employed third party private sector logistics providers to carry out distribution from district level to the health facility.

4.2 Lead Time

The lead time is the time it takes for EMHS orders to leave the health facility and procured EMHS to arrive at the facility. This includes the time it takes for the order to be approved by the district health officer, arrive at NMS, delivered to the district, and distributed by the district.

In this survey, data were collected from public facilities and four PNFs that receive supplies from NMS based upon order forms and delivery notes or invoices. However, there was a limited amount of data available for this indicator because facilities seldom received a copy of their order forms. Instead, the facility copy of the order forms was stored at the district. In addition, the filing system for orders and delivery notes was weak, and it was difficult to match orders and delivery notes.

The table below shows the average lead time for the different processes included in the ordering and delivery system. The average lead time of 57 days was computed only when both the order forms and delivery note (n=16). The days in the table below sum to only 55 because different facilities had data for only some of the processes.

In Uganda, the logistics system is based on stock levels of between two and five months with bi-monthly forced ordering. Therefore, the maximum total lead time from order to delivery should be less than two months (60 days) to avoid stock outs if facilities place their orders when they have reached minimum stock level. Although the average total lead time found in this study was 57 days, the lead time for 37% of the surveyed facilities was above 60 days. Other facilities experienced lead times above 90 days, which put facilities at high risk for stock outs.

Table 30. Lead time from ordering to receiving EMHS

Lead Time	District Approval (n=17)	District to NMS Order Delivery (n=8)	NMS Processing (n=8)	NMS to District Delivery (n=24)	District to Health Facility Delivery (n=25)	Total Lead Time (n=19)
Days	3	18	26	3	5	57
Range	0-31	0-37	3-66	0-12	0-33	13-95
% of Total Lead Time	5%	33%	47%	5%	9%	100%

The findings show that order processing at NMS encompassed the most days in the order-delivery cycle (47% of the overall lead time). NMS handles orders according to a delivery schedule, and one reason for NMS' long processing time could be that districts rarely submit

orders in accordance with the deadlines. Instead, orders are submitted in between deadlines, which results in a waiting period before the orders are handled.

District to NMS order form delivery took one-third of the total lead time. This time was calculated by the time registered on the district health officer's stamp of approval to the time the report was received in NMS. The time included both delays before forms were sent to NMS and actual delivery, which could be improved if more efficient systems were established. An Internet connection would make it possible to implement a computerized direct ordering system for orders from health facilities to NMS.

The delivery time between NMS and districts was on average shorter than the delivery time between districts and health facilities. The survey included facilities throughout the country, and an average of eight days for distribution is appropriate. The range for NMS delivery is from zero to twelve days, whereas district delivery is from zero to 33 days. 70% of the facilities received EMHS from the district or HSD vehicles, and the wide range of district delivery days suggests that improvement is needed.

4.3 Nil Lines and Adjusted Items Ordered

Data collectors compared order forms with delivery notes to assess whether ordered items were delivered and delivered in the right quantities. The table below summarizes the results, revealing that a quarter of the items ordered were not delivered (nil lines), while less than 10% delivered items were adjusted. Incorrect quantities delivered were typically lower (adjusted downwards) rather than increased (upwards adjustment) compared to what was ordered. Downward adjustments constituted 90% of the items adjusted. In addition to the ordered medicine, extra non-ordered items were also delivered. These equated to 3% of the total number of delivered items (n=2008). Non-ordered supplies to two facilities accounted for 72% of the delivered items evaluated. When the data from these two facilities are excluded, only 1% of the items were delivered without being ordered.

Table 31. Nil lines and adjustment of items ordered

Facility Level	Nil Lines	No Adjustment	Upward Adjustment	Downward Adjustment
Hospital (n=460)	32%	66%	0%	2%
HC IV (n=360)	21%	72%	1%	6%
HC III (n=715)	18%	73%	0%	9%
HC II (n=413)	35%	50%	1%	14%
Average (n=1948)	25%	66%	1%	8%

The order fulfillment rate for HC II was low. One-third of items were not delivered, and one in seven items was delivered in a lower quantity than was ordered. Only half of the items were delivered in the right quantity.

The best order fulfillment rate was observed in HC IV and HC III. Three-quarters of ordered items were received in the right quantity, but one-fifth of the items were not received at all. Though the fulfillment rate was better at these levels of care, it was still unacceptable.

The low fulfillment rate is a problem caused by both facilities and NMS. If facility orders exceed the allocated budget, then NMS is not able to deliver all items in the quantities ordered. Additionally, the availability of EMHS at central level influences the fulfillment rate: low availability results in a low fulfillment rate. The study did not record which medicines were ordered but not delivered and thus is unable to assess the cause for nil lines or adjustments in greater depth.

Nil lines and adjustments were also measured as part of the SURE policy option analysis based on data collected at NMS. The findings in the policy option analysis are similar to the findings in this report. The policy option analysis finds 25% of items are not delivered, though there is a slight difference in the nil lines per health care level. Downward adjustments are more frequent in this assessment (8% versus 2%), while upward adjustments are the same. The policy option analysis showed that downward adjustments occur most frequently at HC III level, whereas this assessment found the occurrence greatest at HC II level. The same method for gathering data – comparing order forms and delivery notes – was used in both studies.

5. APPROPRIATE USE OF MEDICINE

The World Health Organization (WHO) defines appropriate or rational use of medicine as patients receiving the medication appropriate to their clinical needs, in doses that meet their requirements, for an adequate period of time, and at the lowest cost to them and their community.³ The inappropriate use of medicine is a global problem, which can be harmful to the patient, increase the development of resistance, and result in the waste of limited financial resources.

Appropriate medicine use includes both prescribing (5.2) and dispensing (5.3), and both are included in the assessment described in this section. The survey also evaluated the availability of reference material (5.1)

5.1 Availability of Reference Material

The appropriate dispensing and prescribing of medicines depends on healthcare workers' knowledge of correctly treating a certain condition. Prescribers need reference material to find information on the appropriate treatment and to guide on medicine dosage and side effects. The availability of reference materials for pharmacy staff was poor in the health facility pharmacies surveyed. The two main reference guidelines in Uganda are the Uganda Clinical Guideline (UCG) and Essential Medicine List for Uganda (EMLU). UCG was found in less than half of the facilities, and EMLU in less than one-fifth of the pharmacies or dispensaries assessed. The reference guidelines when found were often old, outdated versions.

³ The Rational Use of Drugs. Report of the Conference of Experts. Geneva, World Health Organization, 1985.

Table 32. Reference materials available to pharmacy staff

Reference Material	% Facilities
Drug catalogues, e.g. MIMS ⁴ (big book)	16
Uganda Clinical Guidelines (UCG) 2003	48
Essential Medicine List for Uganda (EMLU) 2007	14
British National Formulary (BNF)	6
Martindale	5
Supply Chain Management Manual	3
MIMS (pocket size)	2
Drug Formulary (Uganda)	2
WHO Drug Formulary	2
Financial Manual	0

The Supply Chain Management Manual was available in few facilities. As part of its support to health facilities, SURE will make a pharmaceutical financial manual for hospital and HC IV levels.

5.2 Prescribing

Appropriate prescribing is a combination of correct diagnosis and prescribing. While it is difficult to assess the appropriateness of a diagnosis, it is easier to assess the appropriateness of a prescription. There are many problems related to prescribing, for example poly-pharmacy, the overuse of injections, the inappropriate use of antibiotics, and the failure to prescribe in accordance with clinical guidelines. This section assesses practices in the following areas:

- Prescription recording system
- Diagnostic equipment
- Adherence to standard treatment guidelines
- Appropriate duration of treatment
- Rational prescribing

5.2.1 Prescription Recording System

The Ministry of Health (MOH) provides health facilities with patient registers, documents that record an individual patient's prescriptions. In theory, this allows facilities to track patients in case of recall. The results of this survey showed that 98% of the 63 surveyed facilities had prescription data available in prescription books or patient registers.

Prescription entries were assessed to determine whether all the vital data were recorded. The date, patient's name, and name of the medicine were recorded in 100% of facilities, but the prescriber's name was not recorded in any facility. The prescriber's name is important to

⁴ MIMS: Monthly Index of Medical Specialties, (<http://www.mims.co.uk/MIMSPublications>)

monitor prescriber habits and will be included in the prescribing and dispensing log, which is a new Health Management Information System (HMIS) tool.

Though 98% of facilities have prescription books, only 84% had updated prescription data with entries within the last three days prior to the survey. Prescriptions must be stored for a minimum of five years; 45% of facilities complied with this requirement (n=33).

5.2.2 Diagnostic Equipment

The appropriate use of medicine requires correct diagnosis before the treatment is prescribed, and therefore the availability of diagnostic equipment is important. The availability of diagnostic equipment was assessed in consultation rooms where patients are diagnosed.

Table 33. Availability of diagnostic equipment in consultation rooms

Diagnostic Equipment	% Facilities
Vaginal Speculum	78
Stethoscope	76
Torch	75
Thermometer	25
Blood Pressure Machine	11
Otoscope	10
Patella Hammer	5
Tongue Depressor	0

A vaginal speculum, stethoscope, and torch were available in over three-quarters of the facilities; a blood pressure machine, patella hammer, tongue and otoscope were rarely found in facilities; and no facility had a tongue depressor.

It is a serious problem when fever cannot be measured in three-quarters of facilities because a thermometer is unavailable. Fever is a symptom of malaria and infectious diseases, conditions with high mortality in Uganda and other low-income countries where clinical diagnosis is still widely used. Fever is a symptom of these conditions. The unavailability of a thermometer hampers the proper diagnosis of these conditions.

5.2.3 Adherence to Standard Treatment Guidelines

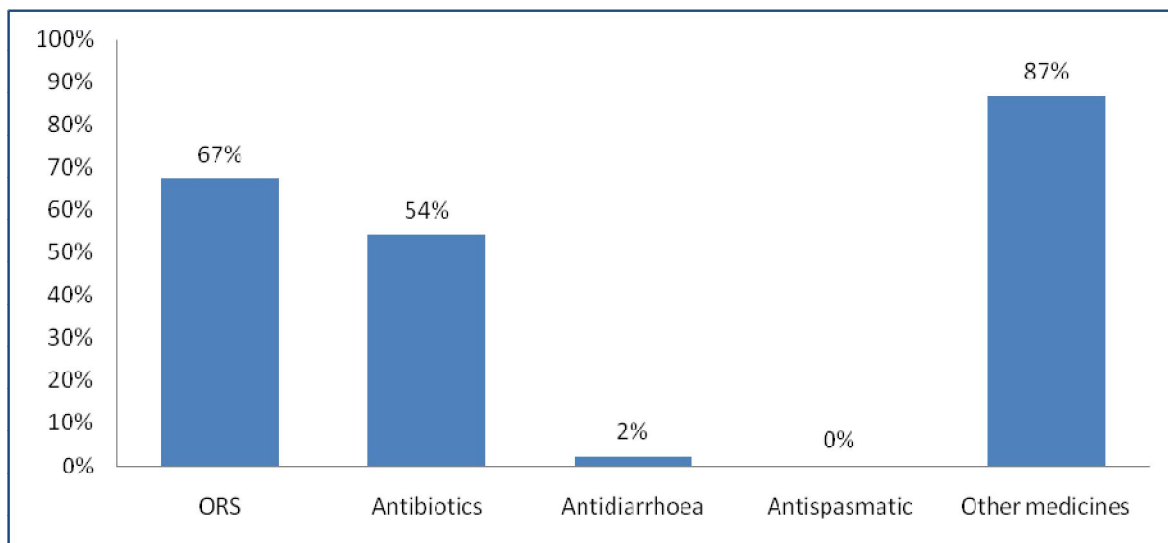
Adherence to standard treatment guidelines per the Uganda Clinical Guideline (UCG) 2010 was assessed for three common diseases: acute diarrhoea without blood, mild acute respiratory infection (ARI), and uncomplicated malaria. Data were collected by reviewing ten prescription records per common disease in each facility. The indicators used in this survey not only assessed adherence to UCG but also irrational poly-pharmacy for diagnosis treatment. A key constraint in assessing adherence to standard treatment is the widespread

use of symptomatic “diagnosis”; often, a specific diagnosis is not given.

Treatment of Acute Diarrhoea without Blood

Acute watery diarrhoea without blood is mild diarrhoea without infection and thus, antibiotics are not useful. Instead, the UCG 2010 recommends only oral rehydration salt (ORS) to treat the dehydration associated with the excessive loss of body fluids. The figure below shows the percentage of prescriptions containing ORS, antibiotics, anti-diarrhoeal medicine, and other medicines.

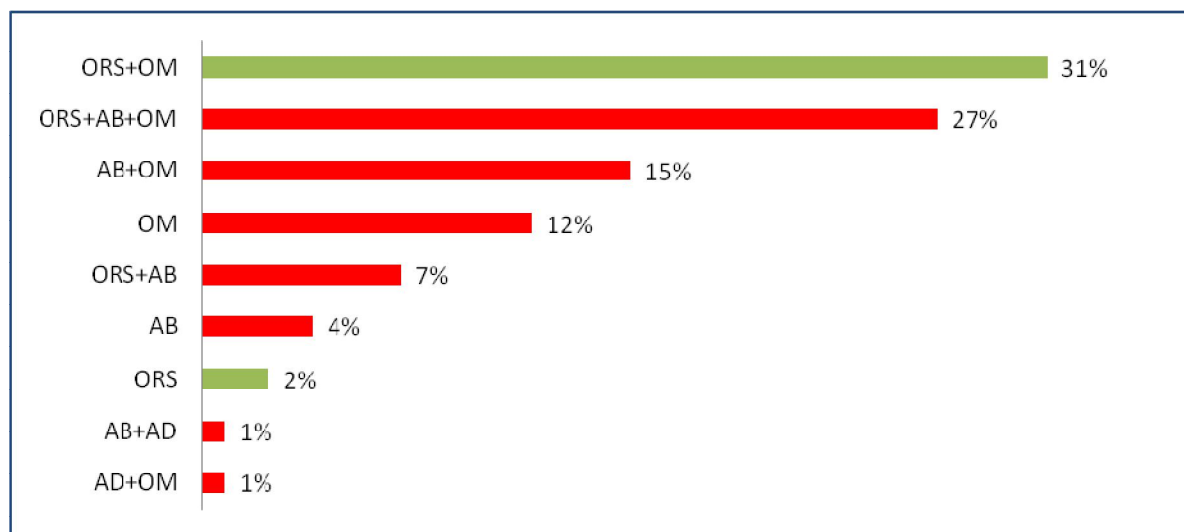
Figure 6. Medicine used for treatment of non-bloody diarrhoea (n=252)



Though not recommended by UCG, antibiotics were prescribed to half of the patients, and ORS, was prescribed to two-thirds. Other medicines were given to over four-fifths of patients, which contributes to over prescribing. It is encouraging to see that anti-diarrhoeal and antispasmodic medicines were hardly ever used in Uganda.

The most common combination of medicines prescribed to diarrhoea patients is ORS and other medicine, then ORS with antibiotic and other medicine (see figure below). The appropriate treatment, ORS only, was prescribed to 2% of the 252 patients. Unfortunately, it is impossible to identify what medicines are included in the category “other medicines”, because the data collection tool did not include this information. It is likely that since paracetamol or other antipyretic medicines were not considered to be a category option, “other medicines” may include this group of medicines. ORS and antipyretic are considered to be the correct treatment, and this is indicated by the green bar in the figure below.

Figure 7. Medicine combinations used for treatment of mild diarrhoea (n=252) (AD=anti-diarrhoeal medicine, OM=other medicine, AB=antibiotics, ORS=oral rehydration salt)



Uganda faces a challenge of non-adherence to treatment guidelines, as well as inappropriate and overuse of medicine, especially antibiotics, in diarrhoea treatment. In low-income and transitional countries, the prescription of ORS for diarrhoea cases has increased from approximately 40% in 2000 to 80% in 2006. In the same period, the use of antibiotics has decreased from 60% to 50%. Compared to other developing countries, Uganda more frequently overprescribes antibiotics and under prescribes ORS. Anti-diarrhoeal medicine is prescribed in only 2% of cases examined, which is lower than the average of 13% in Sub-Saharan Africa⁵. It is encouraging to see that anti-diarrhoeals are hardly ever used in Uganda.

Treatment of Mild Acute Respiratory Infection

UCG 2010 does not include mild acute respiratory infection (ARI) as a common medical condition, but it does include the common cold and influenza, which are both mild ARI conditions. The recommended management of the common cold is increased fluid intake and an analgesic/antipyretic. Influenza management includes paracetamol, steam inhalation, or xylometazoline nose drops (for nasal obstruction) and simple linctus (contains chloroform and citric acid monohydrate) for troublesome coughs.

Appropriate management is defined as including only antipyretics and cough/cold medicine, not antibiotics. The appropriateness of this combination in low-income countries will be discussed later. The figure below shows that only 1% of patients were treated appropriately. The most common combination of medicine was antibiotics and antipyretics/analgesics, which was prescribed to more than one-third of the patients.

⁵ Halloway K., van Dijk L. The World Medicine Situation 2011. Rational Use of Medicine. Geneva, World Health Organization, 2011:5-6.

Figure 8. Medicine combination used in the treatment of mild ARI (n=605) (AB=antibiotic, AP=antipyretic/analgesic, CC=cough/cold medicine, OM=other medicine)

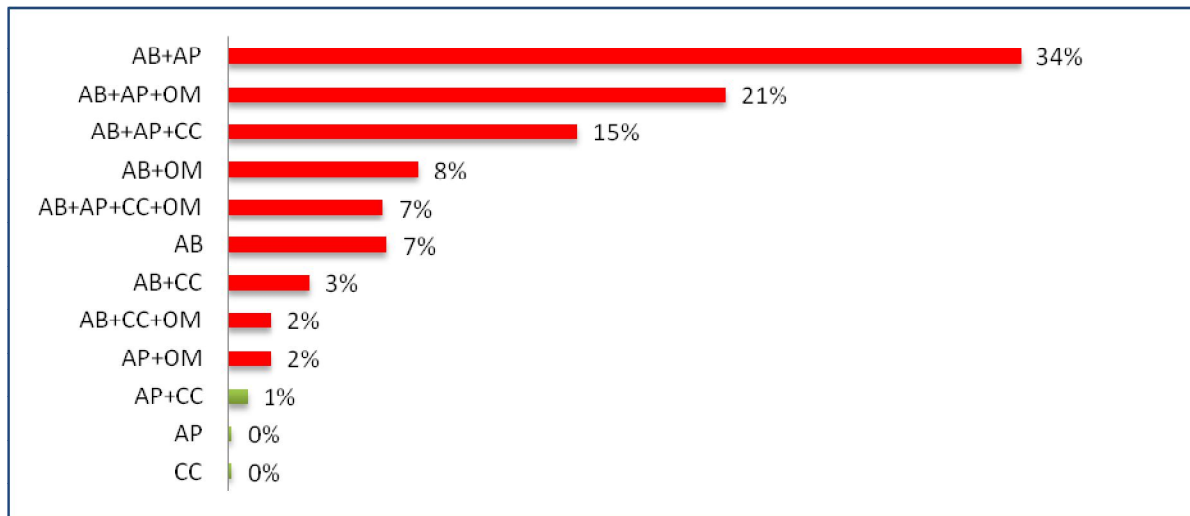
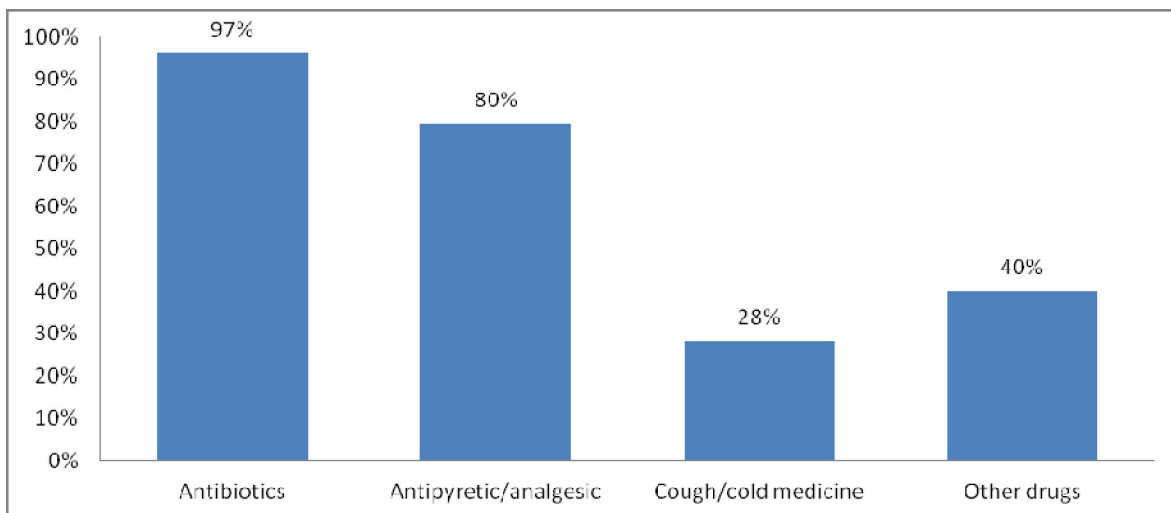


Figure 9 shows that 97% of all prescriptions for mild ARI patients include antibiotics, while 80% of all prescriptions include antipyretic/analgesic medicine. This suggests that there is no difference treating mild versus severe respiratory tract infections (a simple cold is treated as a life threatening pneumonia).

The African continent prescribes the highest percentage of antibiotics. According to the WHO database for medicines use for primary healthcare in developing and transitional countries, just below 80% of the prescriptions for acute respiratory infection (ARI) contain antibiotics⁶. The figure below shows that antibiotic use for ARI in Uganda is above 80%.

Figure 9. Total percent medicines prescribed for treatment of mild ARI (n=605)



Cough and cold medicines, such as cough syrups, are symptomatic treatments, and their use should be avoided or limited, especially in countries with a low medicine budget. Instead, priority should be given for the procurement of life-saving medicines. Since the mid-1990s, the number of ARI cases treated with cough syrups has decreased in low-income countries

⁶ Halloway K., van Dijk L. The World Medicine Situation 2011. Rational Use of Medicine. Geneva, World Health Organization, 2011:5-6.

from around 60% to less than 40% in 2003⁶. This survey shows that less than 30% of ARI cases in Uganda are treated with cough or cold medicine. Although this similar to other Sub-Saharan countries⁶ it is still too costly for the available funding for essential medicines and health supplies (EMHS) in Uganda.

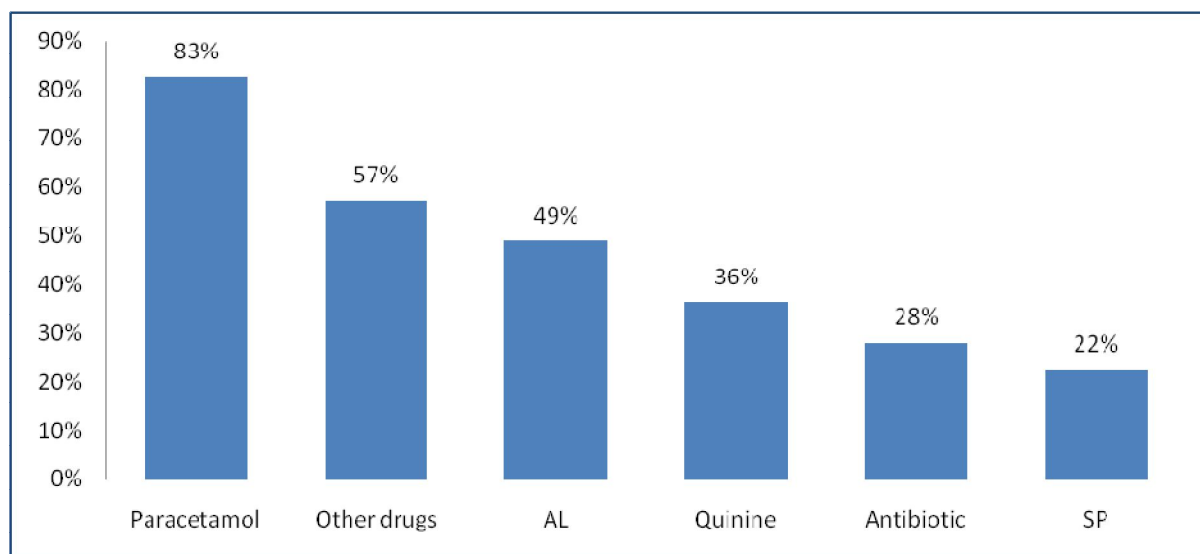
In Uganda, other medicines (the tool does not specify which medicines) were prescribed for 40% of ARI cases. This is a significant contributing factor to the overall poly-pharmacy in the country.

Treatment of Uncomplicated Malaria

Prescribing the appropriate treatment for uncomplicated malaria requires a parasitological test using either microscopy or rapid diagnostic tests (RDTs). A positive test indicates treatment with artemisinin-combination treatment (ACT) is needed.

According to UCG 2010, first line treatment is artemether/lumefantrine (AL), and second line treatment is oral quinine. The data collected for the survey did not include information about testing. Laboratory information for this indicator is not available in the Out-Patient Department (OPD) reference books. Therefore, appropriate treatment was assessed only for patients with recorded (but not necessarily tested) diagnoses of malaria.

Figure 10. Medicine used in treatment of malaria (n=629) (PCM=paracetamol, QNN=quinine AL=Artemether/Lumefantrine, SP=sulfadoxine/pyrimethamine)

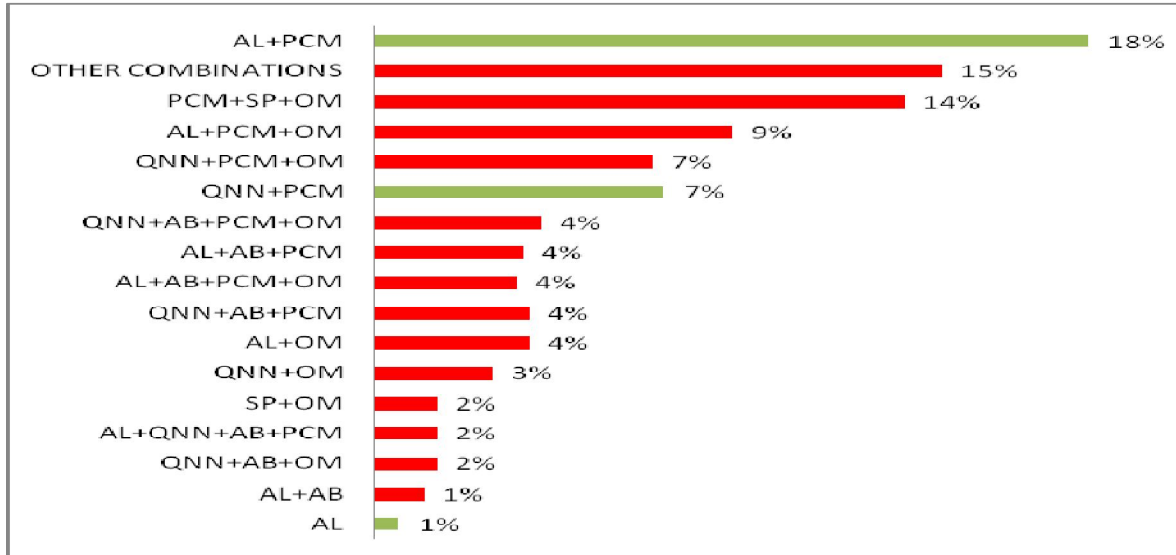


Inconsistent with UCG recommendations, paracetamol was the most common medicine prescribed in treatment of malaria; AL and quinine treatments were provided to one-half and one-third of patients, respectively. One-quarter received antibiotics (see figure above). Other medicine was often prescribed, which exacerbates poly-pharmacy.

Only 1% of the prescriptions provided only AL, which is the most appropriate treatment. Instead, most patients received a combination of AL and paracetamol. Paracetamol is not included in the clinical guidelines for treatment of uncomplicated malaria in Uganda, but this combination is considered to be appropriate in countries with good medicine funding. Though all sampled prescriptions had diagnosed patients with malaria, 2% of patients did not

receive any anti-malarial. This suggests that the anti-malarial was unavailable, patients were misdiagnosed, or the correct diagnoses were miswritten in the OPD book.

Figure 11. Medicine combination used for treatment of malaria (n=629) (QNN=Quinine, AB=antibiotic, OM=other medicine, AL=Artemether and Lumefantrine, PCM=paracetamol, SP=sulfadoxine and pyrimethamine)



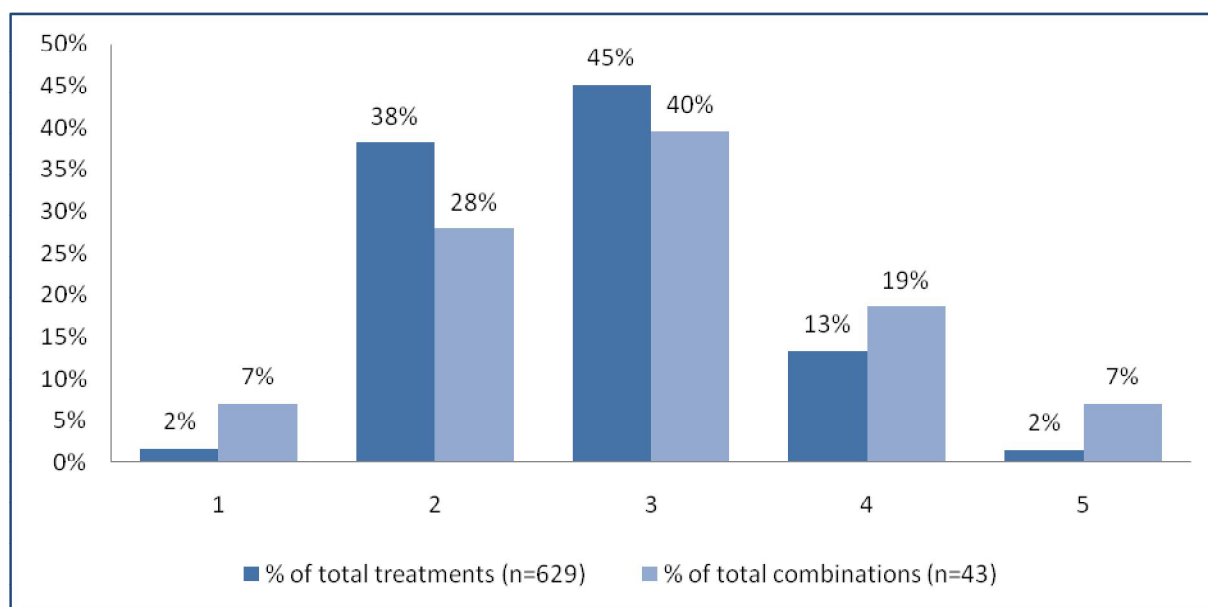
There is a high percent of “other combinations” (27 different treatment combinations), indicating that the treatment of malaria is not standardized, and prescribers do not adhere to standard treatment guidelines. A wide range of combinations can also be due to prescribers failing to conclude a final diagnosis.

Treatment of malaria on average includes three of the following categories of medicines:

- AL (ACT)
- Quinine
- Paracetamol (antipyretic/analgesic)
- SP
- Antibiotics
- Other medicines

Figure 12 shows that most treatment combinations and overall treatments contain three groups of medicines. Further, the number of patients treated with medicine from one category is the same as patients treated with medicine from five categories.

Figure 12. Number of medicines included in the various treatment combination (medicine groups: ACP, antibiotics, SP, analgesic, QNN and other medicines)



5.2.4 Appropriate Duration of Treatment

Appropriate prescribing includes prescribing the medicine for the right duration of time. In this survey, the appropriate duration of treatment was assessed using the duration of amoxicillin treatment as the indicator. The duration of amoxicillin treatment differs according to the patient's condition. UCG recommends treatment durations of amoxicillin from five to ten days. However, some studies have shown that the treatment of certain conditions (acute otitis media and non-severe pneumonia) can be effectively treated with a three-day course of an antibiotic⁷.

In this survey, the examination of 20 prescriptions from each facility revealed an average of five amoxicillin treatment days. The study also found that the treatment was not prescribed for only two days or less for any patient.

5.2.5 Rational Prescribing

Appropriate prescribing was assessed in a random sample of prescriptions made during the previous three months prior to the survey at each facility. The assessment included several WHO appropriate medicine use core indicators. The indicators were:

- Medicines prescribed per prescription
- Prescribing by generic name
- Use of abbreviations when prescribing
- Prescription of antibiotics
- Prescription of injections
- Medicines prescribed from the Essential Medicine List for Uganda (EMLU) 2007

⁷ Gulani A., Sachdev H.P.S. Effectiveness of Shortened Course (≤ 3 days) of Antibiotics for Treatment of Acute Otitis Media in Children. A Systematic Review of Randomized Controlled Efficacy Trials. Geneva, World Health Organization, 2009.

Medicines Per Prescription

The collected data revealed that an average of 3.2 medicines was prescribed per prescription in health facilities. Though it may be expected that higher referral levels, which admit patients with complicated cases, would prescribe more medicines, this study only evaluated out-patient prescriptions from which a similar pattern for the use of medicines should be observed among all healthcare levels. It was found that lower health facilities typically prescribed more medicine than higher health facilities.

Poly-pharmacy is often linked to poor diagnostic skills, resulting in the treatment of all possible conditions linked to the observed symptom. Prescribers at higher levels of care may be better equipped to make diagnoses, thereby treating patients more appropriately and with fewer medicines. This could explain why more medicines are prescribed per patient at lower rather than at higher levels of care.

Table 34. Number of medicines prescribed per prescription

Level of Care	Number of Drugs Prescribed
Hospital	3.0
HC IV	3.2
HC III	3.4
HC II	3.4
Average	3.2

Since 1982, developing countries prescribed a range of two and three medicines per patient; in 2006, the average was 2.5 medicines. Across different regions of the world and both the private and public sectors, East Asia and the Pacific has an above-average prescription of three medicines per patient; however, this is still less than Uganda's average of 3.2 medicines per patient⁸.

Excessive medicines prescriptions increase the patients' risk of adverse effects and interactions due to poly-pharmacy. Additionally, over prescribing is wasteful and costly, undermining an already limited EMHS budget.

Prescribing by Generic Name

The generic name, also known as the international non-proprietary name (INN), i.e. paracetamol; is the official name given to a pharmaceutical substance by World Health Organization (WHO). It differs from the brand name given by its manufacturer i.e. Panadol. Often there are numerous brand names for the same INN or generic product.

To minimize costs, governments should procure medicines using the generic names, as these are less expensive than brand names despite sharing the same active ingredients and having the same effect. Further, the medicines should be prescribed and labeled with the fully spelled

⁸ Halloway K., van Dijk L. The World Medicine Situation 2011. Rational Use of Medicine. Geneva, World Health Organization, 2011:5-6.

out generic name as the use of the brand name can lead to confusion and possibly incorrect prescribing and dispensing.

The findings show that 80% of items are prescribed by their generic name with no variation among high and low healthcare facilities. The WHO database on the rational use of medicine shows that for public and PNFP facilities in Sub-Saharan Africa and other developing countries, only 60% of medicines are prescribed by their generic name. Private sector facilities tend to prescribe more brand names⁹. Although the goal is to have 100% of medicines prescribed by their generic names, Uganda's performance is better than many other developing countries included in the WHO data base.

Use of Abbreviations when Prescribing

Like the use of brand names, abbreviations can also lead to confusion and incorrect dispensing of medicine if the dispenser misinterprets the prescription.

Table 35. Medicine prescribed using abbreviations

Level of Care	% of Medicine Prescribed Using Abbreviations
Hospital	59
HC IV	58
HC III	55
HC II	58
Average	57

The INN or generic name is often long and can easily lead to the use of incorrect abbreviations. The findings in Table 35 show that over half the items prescribed used abbreviations. For the safety of the patients, the habit of arbitrarily abbreviating medicines should be addressed. In the event that it is not possible to completely eliminate the use of abbreviations, standard abbreviations should be agreed upon in order to avoid dispensing mistakes.

Prescription of Antibiotics

The irrational use of antibiotics creates a potential health problem of resistance to drugs, thereby rendering these medicines ineffective in the treatment of infectious diseases. In Sub-Saharan Africa, almost half of the patients receive at least one antibiotic when they visit a health facility⁷. This study found that two out of three patients in Uganda receive at least one antibiotic, and one-quarter of all the medicines given to patients are antibiotics.

⁹ Halloway K., van Dijk L. The World Medicine Situation 2011. Rational Use of Medicine. Geneva, World Health Organization, 2011:5-6.

Table 36. Prescribed antibiotics

Level of Care	% Patients Prescribed Antibiotics	% Antibiotics of Total Prescribed Medicine
Hospital	69	27
HC IV	69	25
HC III	66	23
HC II	68	24
Average	68	25

The overprescribing of antibiotics is found at all healthcare levels without any significant difference among the levels.

Prescription of Injections

The high rate of injections is a sign of inappropriate medicine use. Injection use is generally high in Africa with one-quarter of all patients receiving injections. According to WHO, injection use in developing and transitional countries has remained steady at around 20% of patients receiving at least one injection.¹⁰

Similar to other African countries, one-quarter of all Ugandan patients receive an injection during every health facility visit. Injections were most commonly used in primary healthcare facilities than hospitals and HC IV, which raises concerns regarding costs, clinical capacity, and higher risk of infection if sterile instruments are not used for each patient.

Table 37. Prescribed injections

Level of Care	% Patients Prescribed Injection	% Injections of Total Prescribed Medicine
Hospital	8	4
HC IV	22	8
HC III	29	10
HC II	35	14
Average	23	9

Medicines Prescribed from EMLU

Uganda has an essential medicines list that includes all the medicines to be used in public health facilities in the country. The Essential Medicine List for Uganda (EMLU) dictates procurement orders by NMS, thereby limiting facility orders. Because the EMLU has not been updated since 2007, it does not reflect all medicines included in UCG. The table below shows that 5% of the medicines prescribed is not included in the EMLU.

¹⁰ Hallaway K., van Dijk L. The World Medicine Situation 2011. Rational Use of Medicine. Geneva, World Health Organization, 2011:5-6.

Table 38. Prescribed medicine included in EMLU

Level of Care	% Prescribed Medicine from EMLU
Hospital	97
HC IV	95
HC III	94
HC II	97
Average	95

5.3 Dispensing

Appropriate dispensing requires the right equipment, packaging materials, good dispensing procedures, and specific instructions on how and when to take the medicines. This section assesses the following:

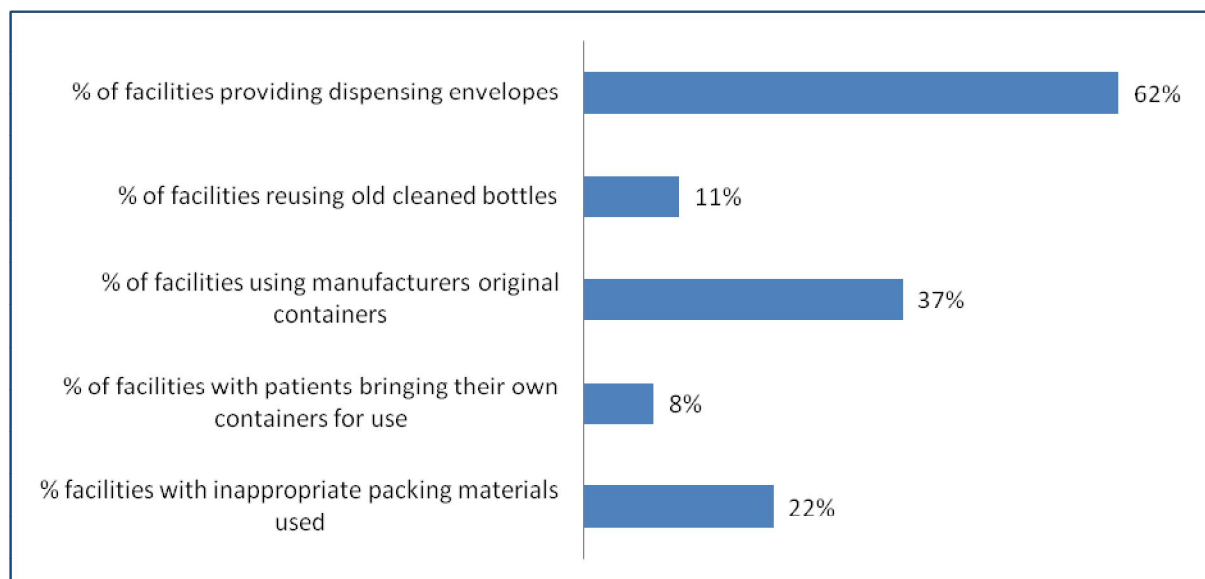
- Packaging materials
- Dispensing equipment
- Dispensing procedure
- Dispensing time
- Labeling
- Patient knowledge
- The correlation between the medicines dispensed and medicines prescribed

5.3.1 Packing Materials

The type and quality of packaging materials for medicines dispensed to patients must be appropriate to minimize damage due to handling, which may reduce the medicines' effectiveness. Inappropriate packaging materials were used in almost a quarter of the facilities.

Dispensing envelopes as opposed to paper cones are the appropriate option for tablets and capsules. They are available from JMS and NMS and are bought as part of the facility credit line. Yet the envelopes were only used in 62% of the pharmacies surveyed.

Few types of syrup are available by NMS and thus rarely dispensed in public facilities. This reflects the low availability of appropriate containers for dispensing liquids that are not pre-packed in their original containers by the manufacturer. Figure 13 shows that old cleaned bottles and patients' own containers are used. This practice is not appropriate because the cleanliness and possible contamination of the medicine is unknown. Also, there is a risk of mistaking a medicine for the original substance found in the container.

Figure 13. Use of packaging materials in health facility pharmacies/dispensaries

5.3.2 Dispensing Equipment

Appropriate dispensing is also defined by using dispensing equipment to avoid counting medicine using bare hands. In 57% of the facilities, healthcare workers counted tablets with their bare hands, which compromised their own health due to contact with potentially harmful active ingredients in the medicines. Dispensing equipment must also be used to avoid cross contamination and a potential reduction of the medicine's shelf life from contact with human skin.

Table 39. Use of dispensing equipment in health facilities pharmacies

Dispensing Equipment	% Facilities
Tablet counting tray available	25
Spatula/Spoon available	43
Graduated measuring cylinder available	11
Blank labels available	5

In less than half of the pharmacies, healthcare workers used a spatula or spoon for counting, while in a quarter of the facilities, they used tablet counting trays. Either can be used by itself to count, for example using a tin lid or pen when counting. Graduated measuring flasks were available in only a few pharmacies, though this is not as critical due to infrequent prescription of liquid medicine. Blank labels to put on medicine bottles were rarely available.

5.3.3 Dispensing Procedure

Dispensers act as quality controllers to ensure that prescriptions are correct and that the medicine is prescribed and dispensed in the correct dose and for the appropriate duration of time.

To verify appropriate medicine or dosage prescribed, the dispenser must contact the prescriber. Dispensers in this survey were asked their course of action if the prescription was incorrect. Three-quarters of the health workers replied that they would contact the prescriber for verification and make any necessary changes, while 21% would physically visit the prescriber. Twelve percent responded that they would dispense the prescribed medicines in a dosage and strength that they themselves deemed to be correct without consulting the prescriber. This last practice should be discouraged: the prescriber should always be contacted, and their approval to change the medication should always be obtained.

Table 40. Methods for contacting the prescriber in case of a wrong prescription

Prescriber contact	%Facilities
Dispense what is prescribed but in correct strength and/or dose	12
Explain to patient what and why dispensed medicine is different from prescribed	2
Contact prescriber to verify and make changes	76
Send patient back to prescriber	5
Dispenser and prescriber is the same person	5

The second dispensing control is a check to reduce dispensing errors. The procedure involves checking that the right medicine, formulation, and quantities are dispensed according to the prescription. Additionally, the label must provide the patient with correct information. It is recommended that two people ensure correct dispensing: one to dispense the medicine and the other to carry out a countercheck.

There is usually only one dispenser in Uganda, and thus this individual must also perform the countercheck. This requires an individual to prepare the medicine for the prescription; step back; recheck the medicine, formulation, and quantities; and compare them to the prescription. Dispensing counterchecks were only observed in 11% of pharmacies.

5.3.4 Dispensing Time

The dispensing time is the actual time the pharmacy staff takes to dispense the medicines to the patient, and provides information, counseling and education about medicine use with the patient. The time spent with each patient reflects the quality standard of the information provided to ensure appropriate medicines use.

When measuring dispensing time, data collectors excluded the time spent receiving the prescription, identifying the medicine needed, and obtaining the medicine. The average dispensing time was 42 seconds; dispensing time was lowest in hospitals and highest in HC II facilities (see Table 41).

Table 41. Dispensing time

	Hospital	HC IV	HC III	HC II	Average
Dispensing Time (seconds)	31	33	44	57	42
Range (seconds)	8-56	13-53	9-142	9-205	8-205

According to the WHO, the average dispensing time in low-income countries is over one minute. This time, however, includes the preparation of a prescription and the dispenser's interaction with the patient, and it is not comparable to the dispensing time measured in this survey. In fact, it is likely that the procedure used to prepare prescriptions requires more time than interacting with a patient¹¹.

This survey found that the range of dispensing time is wider at the lower healthcare facilities than at higher healthcare facilities, indicating that more time are spent communicating with individual patients at HC II and, to a lesser degree, at HC III facilities. However, it is not possible to conclude that longer dispensing time results in better patient care since patient information and labeling did not differ between lower levels and higher levels of healthcare.

5.3.5 Labeling

The appropriate labeling of medicines clarifies the information provided by the dispenser to the patient, thereby minimizing medication errors. During the study, exiting patients were asked to show the medicines they had received in the pharmacy to assess the labeling. None of the labels included all of the required information, though dosage and the medicine's name were most often written on the labels. The table below summarizes the labeling indicators by facility level.

Table 42. Labeling indicators by facility level (n=382)

Level of Care	Medicine Name (n=382)	Medicine Strength (n=382)	Medicine Quantity (n=382)	Date of Dispensing (n=382)	Medicine Dose (n=382)	Patient Name (n=381)	Facility Name (n=381)
Hospital	82%	10%	13%	0%	99%	0%	0%
HC IV	73%	9%	1%	10%	99%	10%	10%
HC III	77%	4%	1%	1%	95%	1%	1%
HC II	71%	18%	20%	8%	87%	8%	2%
Overall Average	76%	8%	7%	4%	95%	4%	3%

5.3.6 Patient Knowledge

Patient knowledge of medicines use is a WHO/INRUD¹² indicator for rational dispensing that focuses on patient adherence. It assesses patients' understanding of how and why they should take the medicine. On average, seven patients leaving each health facility were interviewed.

¹¹ Medicines Use in Primary Care in Developing and Transitional Countries. Fact Book Summarizing Results from Studies Reported between 1990 and 2006. Geneva, World Health Organization, 2009.

¹² INRUD: International Network for Rational Use of Drug

Table 43. Patient knowledge of use of medicines dispensed

Level of Care	Know Dose	Know Frequency	Know Duration	Know Reason to Take Medicine	Got Additional Information
Hospital	95%	89%	18%	55%	23%
HC IV	92%	82%	34%	49%	22%
HC III	89%	90%	43%	68%	21%
HC II	92%	87%	38%	65%	18%
Overall Average	92%	89%	41%	63%	27%
Overall Range	30-100%	33-100%	0-100%	0-100%	0-100%

Patients were found to be more knowledgeable about how much (dose) and how often (frequency) to take the dispensed medicines than about how long (duration) they should take the medicines. This corresponded with the labeling data on a dispensing envelope where the dose and frequency were described in a pictogram. There were no significant differences between facility levels for most of the indicators, except that knowledge about the duration of medicines was lowest in hospitals, while knowledge of reason for medicines use was highest in HC III.

Instructions on how to take the medicine were often available on the label (pictogram), but information about the reason for taking the medicine, side effects, and whether medicine had to be taken with or without food was to be communicated by the dispensing staff. Only 63% of patients knew why they were to take the medicine, and only one-quarter of the patients received additional information.

5.3.7 Dispensing the Medicine Prescribed

This indicator measures the differences between the medicines prescribed and the medicines dispensed. The level of discrepancies in HC II was lower compared to that in other health centres but overall, discrepancies occurred in more than half of the prescriptions. A likely reason is that the prescribed medicine was out of stock. The results show that on average, only two of the three prescribed drugs were dispensed per patient. The main reason for this discrepancy being stock out of some of the medicines prescribed.

Table 44. Actual prescribed medicine dispensed

Level of Care	% Prescribed Medicine Dispensed out of Medicines Prescribed
Hospital	52
HC IV	79
HC III	59
HC II	34
Average	61

According to the WHO, the average percentage of medicine dispensed out of medicines prescribed is approximately 85% in Sub-Saharan Africa, which is much higher than the Ugandan average (61%).¹³

6. FINANCIAL KNOWLEDGE

Finances in health facilities are normally handled by the in-charges of facilities. In the lower facilities, in-charges are doctors, clinical officers, or nurses, who are not required to learn financial management in their education, and thus may face challenges to optimally manage a health facility. Pharmacy in-charges do not have any financial educational background, but they have a better understanding of medicine and medical supplies and are therefore more equipped to maximize funding for EMHS orders and procurement. This section focuses on the financial knowledge of pharmacy staff and assessed the following:

- 6.1. Availability of finance training and reference manual
- 6.2. Pharmacy staff's knowledge of budget and expenses
- 6.3. Pharmacy staff's knowledge of current annual credit line balance
- 6.4. Vetting of orders in light of available funds
- 6.5. Donations
- 6.6. Cost recovery (for private wings in public facilities and PNFPs)
- 6.7. Procurement in facilities with cost recovery

Good knowledge of finances can increase the availability of life saving medicine in health facilities.

6.1 Finance Training and Reference Material Availability

The lack of financial manuals and financially trained staff makes it difficult for facilities to carry out good financial management. This survey found that 24% of the facilities had staff with additional financial management training after graduation and of these, 16% had a degree, diploma, or certificate in a financial management related area. Guidelines in financial management were only available in 10% of the surveyed facilities.

6.2 Pharmacy Staff Knowledge of Budget and Expenses

Financial management, especially in hospitals, is overseen by financial staff; pharmacy staffs often have no influence over these matters. When the involvement of pharmacy staff in EMHS finances was assessed, it was found that no pharmacy in-charge had financial responsibility in any of the facilities.

Table 45 shows the number of facilities with pharmacy staff who knew or had information on the budget and expenditure for financial years (FY) 2008-2009 and 2009-2010.

¹³ Holloway K., van Dijk L. The World Medicine Situation 2011. Rational Use of Medicine. Geneva, World Health Organization, 2011:5-6.

Table 45. Percentage of public facilities with pharmacy staff who knew the total budget, expenditure, or both for FY 2008-2009, 2009-2010, or both financial years (n=48)

Staffs' Areas of Financial Knowledge	% Facilities
Budget	48%
Expenditure	37%
Budget and expenditure	33%
None	48%

In almost half of the facilities, staff had no knowledge of either the overall budget or expenditure. In these facilities, the in-charge or administrative staff made all financial decisions. Though not included in the Table 45, only a small percentage of pharmacy staff were knowledgeable about the EMHS budget and expenditure: 29% of surveyed facility staff had or could find information on the EMHS budget and 15% on EMHS expenditure from FY 2008-2009, 2009-2010, or both financial years.

No health facility knew the EMHS expenditure per capita or per patient for their health facility due to limited knowledge of the expenditure,

6.3 Pharmacy Staff Knowledge of Current Annual Credit Line Budget

6.3.1 EMHS Budget

The most important information needed to operate a pharmacy is the amount of funding available for procurement of medicine and health supplies. Without this information, it is very difficult to make correct orders. In Uganda, the facility's current annual credit line (Vote 116) balance indicates the available funds for EMHS procurement (through orders) from NMS.

Findings show that only 19% of facilities had pharmacy staff who knew the current annual credit line budget for EMHS and of these, only 9% of them knew the exact balance. The two tables below show where and when the facilities obtain information on the credit line balance.

Table 46. When facility obtains information on EMHS credit line balance (n=15)

Frequency Facility Receives Credit Line Balance	% Facilities
When facility orders	20
When facility receives medicine	47
Annually	13
Other	20

NMS delivery notes and invoices contain an updated credit line balance, and these documents are the facility staff's main source of this information. Delivery notes and invoices are delivered with all supplies from NMS, which makes the information easily and readily

accessible when preparing the next order. Some facilities obtain the information when ordering. This is also a good financial practice that allows facilities to immediately crosscheck available funding while making orders to NMS. Receiving credit line information annually indicates that the facility staff interviewed was not involved in the ordering process or did not use an optimal financial approach to ordering.

Table 47. Where facility gets information on EMHS credit line balance (n=15)

From Where the Facility Obtains Credit Line Balance	% Facilities
From NMS invoice/Delivery note	53
Through calls to NMS	27
From district	20

Annual credit line information is available at any time from NMS on NMS' toll free line. Twenty-nine percent (n=45) of the facilities knew that NMS has a toll free line. However, some facilities receive their credit line balances from the district, which can create a dependency on the district to oversee finances rather than overseeing finances themselves.

At this stage of the survey, the kit supply program was just initiated. Facilities that were supplied with kits had no incentive to manage finances or apply the Vital, Essential, and Necessary (VEN) concept because they were unable to influence the facility's procurement. Thus, it is important that hospitals and HC IV are trained in financial management. The survey shows that there is pharmacy staff with knowledge of the credit line budget at all healthcare levels, but there is not enough data to determine if higher level facilities have more knowledge about credit line than HC2 and HC3 that receive the kit.

6.3.2 Laboratory Supplies Budget

Knowledge of the laboratory credit line among the pharmacy staff is very low. The findings show that only one pharmacy staff member out of all interviewed staff members claimed to have knowledge of the laboratory credit line. However, the credit line amount was not known.

6.4 Vetting of Orders from Available Funds

In Uganda, facilities cannot fulfill its actual EMHS needs because funding is too small. After quantifying the EMHS needs, facilities must reduce the number and volume of items to stay within the available funds. This is called vetting. The correct way of reducing order costs is to reduce the number of items with a lower health impact or items less likely to save lives. The Vital, Essential, and Necessary (VEN) classification is an example of a method for prioritizing items according to health impact.

In this survey, the following steps were considered acceptable for carrying out the quantification and vetting of an order correctly:

1. Identify items and calculate quantities to order based on stock card data
2. Cost the items and quantities to order
3. Reduce the number of items based on their health impact by using the VEN classification or other methods of prioritization (for example medicine importance to patients, morbidity, or prevalence of disease) to stay within the available funds
4. Fill in the order and send to it to the district or NMS

Vetting was only considered to be correct if the first three criteria were met. Eight-two percent of the facilities checked their credit line balance before ordering to ensure there was enough money for ordering, but only one facility (2%, n=44) described a correct way of vetting. Eighteen percent mentioned correct ways of prioritizing as described under the third criteria.

In addition to the four steps, facility staff were asked how they reduced the cost of an order if there were not enough funds available. The table below shows their responses.

Table 48. Steps taken by facility staff to adjust orders to match available funds (n=42)

Steps Taken to Adjust Orders to Available Funds	% Facilities
Reduce less commonly used items	24
Leave decision to NMS	12
Leave decision to district	2
Reduce items/quantities by considering their disease burden	12
Reduce items/quantities using VEN classification or priority medicine list	10
Reduce items/quantities according to importance of item	7
Reduce item/quantities without using any specific criteria	24
No reduction – leave order cost above budget	2
No need to reduce, order fits budget in first place	7

More than one-quarter of the facilities reduced the cost of the order without using any specific criteria, or orders were sent without adjusting it to match the available funds. This is a sign of inadequate financial knowledge because the funds were not being used optimally. Additionally, 14% of the facilities left NMS and the district to make decisions, showing that the staff in many facilities was not capable of making decisions related to the use of funds.

Only 22% of the facilities reduced the cost of the order by correctly considering disease burden, VEN classification, or a priority medicine list. In the current Essential Medicine List for Uganda (EMLU) 2007, there is no VEN classification of items and therefore facilities have had to make their own priority medicine lists to use for orders until the new version of the EMLU, including the VEN classification, is available.

6.5 Donations

Sixty-five percent of the facilities received donations. Although 14% of facilities reported to cost the donations (estimated the total cost of the item donated), none had a reasonable

explanation for the method they used for costing. Medicine for HIV/AIDS treatment was the most frequently donated item and included both ARVs and cotrimoxazole.

6.6 Cost Recovery

In this survey cost recovery is defined as any payment that patients have to do for health care services and or medicines provided to the patient as a mean for the facility to recover some of the costs involved. This could involve payment for consultation, special services, hospitalization, payment for medicines dispensed etc.

Twenty-nine percent of the surveyed facilities had cost recovery schemes such as cost sharing, private wings, or health service funds at the time of survey. Most of the facilities with cost recovery schemes were non-government facilities (78%). Among the public facilities, three-quarters were hospitals and one-quarter were HC III (n=4).

6.7 Procurement in Facilities with Cost Recovery

The findings showed that half of the facilities with cost recovery schemes procured their supplies from the private market and 39% procured supplies from Joint Medical Stores (JMS). The remaining facilities reported that they relied on the National Medical Store (NMS) and donations. Items procured from wholesalers are 10% to 20% more expensive than those procured from JMS or NMS, and private pharmacies have an average of 260% mark-up on JMS prices¹⁴. One reason is that JMS supplies many facilities, and therefore buys EMHS in bulk. This allows JMS to negotiate with manufacturers to lower the procurement price. Though more than one-third of the facilities procured their supplies from JMS, it is recommended that more facilities use this supplier.

In 41% of the facilities with cost recovery, medicine was charged separately, while in the remaining facilities, there was a fixed fee covering services and medicine. The reports show that facilities used different criteria for determining how to use the funds generated from the sale of EMHS. Table 49 shows that most facilities procured supplies according to their current needs or had pre-determined guidelines for procurement. None of the facilities had separate accounts for income generated from medicine sales and very few ring-fenced¹⁵ the medicine funds.

¹⁴ Uganda Ministry of Health and Securing Ugandans' Right to Essential Medicines Program. 2011. *Policy Option Analysis for Uganda Pharmaceutical Supply System*. Submitted to the U.S. Agency for International Development by Management Sciences for Health.

¹⁵ Method to protect an amount of money so that it can only be used for a particular purpose – here procurement of EMHS (<http://dictionary.cambridge.org/dictionary/business-english/ring-fence?q=ring+fence>, 6th October, 2011).

Table 49. Criteria used for determining how funds generated from sale of medicine should be spent (n=17)

Criteria for Using Generated Funds	% Facilities
Current needs	44
Pre-determined guidelines	44
Medicine sales income on separate account	0
Medicine funds are ring-fenced	6

6.7.1 Prices of Medicine in Facilities with Cost Recovery

The table below shows revenue, procurement, and sales prices for five medicines of varying importance according to the VEN classification. There is a large price range paid by patients for the same item in different facilities, though the procurement prices are similar. The prices seem to be unconnected to the VEN classification. For example, despite both being vital medicines, amoxicillin has the smallest revenue, while metronidazole has one of the largest revenues.

Table 50. Prices for five VEN classified medicines in facilities with cost recovery, including procurement price, selling price, and revenue (calculated as procurement price – selling price / procurement price)

Item	# of Tablets	VEN	Average Procurement Price (UGX) (Range)	Average Selling Price (UGX) (Range)	% Revenue
Ibuprofen 200mg	20	E	158 (150-170)	867 (400-2000)	448
Metronidazole 400mg	21	V	157 (126-170)	856 (400-1200)	447
Omeprazole 20mg	28	E	1475 (990-1960)	4671 (840-5600)	217
Amoxicillin 250mg	15	V	425 (390-465)	1200 (750-1500)	182
Paracetamol 500mg	20	E	153 (120-180)	553 (200-1100)	263

The price of medicine can be determined by the facility in several ways, for example by adding a fixed percentage (mark up) to all items. Unfortunately, it was not possible to clearly identify how facilities included in this survey had determined the prices charged to patients, but there was a tendency to round up prices. It is important that patients are aware of the price to assess affordability and whether or not they are being charged the correct price. Prices were on display for the patients in 40% of the facilities.

A challenge posed by cost recovery is that there are patients who cannot afford to buy the full course of medicine. This can influence the rational use of medicine, particularly for patients not able to afford a full course of antibiotics. Table 51 shows how the facilities addressed situations where patients did not have enough money to pay for the full course of medicine.

Table 51. Actions taken if patient cannot pay for a full course of medicine

Action Taken if Patient Cannot Pay Full Course of Medicine	% Facilities
Patient gets full course without paying	63
Patient gets full course and pays later	25
Dispense according to money available	6
Prescriber changes prescription to fit available funds	6

Most facilities were aware of the importance of providing a full course of medicine, even when the patient was unable to pay for it. Only 6% of the facilities dispensed according to the funds the patient had available. The remaining facilities provided medicine either without pay, on a delayed payment schedule, or changed the prescription to match the funds available.

Some items have a greater health impact than others, and it is important that patients can afford such medicines. A way to increase the patients' ability to pay for these items would be to reduce the price of vital items, possibly by subsidizing it using the funds generated from the sale of essential or necessary items; to regulate the mark up in the sector; or to introduce a pricing policy that would ensure a more rational use of medicine and improve equity and affordability.

7. PATIENT VIEWS

One hundred ninety-two patients from 54 facilities (average 3.6 patients ranging from one to five patients per facility) were interviewed after receiving medicine from the health facility pharmacy or dispensary. The questionnaire asked about:

- 7.1. Patients' reasons for using a public health facility
- 7.2. How patients handled the unavailability of free medicine
- 7.3. Health insurance
- 7.4. Distance to a health facility and pharmacy

Patients using both government and PNFP facilities were included in the survey.

The respondents averaged 29 years old, and 75% were females. The average respondent lived in a household with six people. Most (85%) were diagnosed at public facilities; the remaining were diagnosed at private not-for-profit health facilities (PNFPs). The table below shows for whom the respondents were seeking medicine.

Table 52. Member of household for whom the respondent sought medicine

Member of Household	% Respondents
Myself	60
Husband/Wife	2
Son/Daughter	37
Father/Mother	2
Other	2

The findings show that most of the interviewed persons had sought medical attention for themselves, while more than a third had sought medical attention for their children.

7.1 Reasons for Using a Public Health Facility

There are several reasons respondents reported for visiting a public health facility. The table below shows that most patients visit a public health facility because it is free of charge or convenient due to its location. Though the main reason for visiting a facility should be its good service or previous good experience, only 23% gave those reasons for visiting the facility.

Table 53. Reasons for visiting public health facilities

Reasons for Visiting Public Health Facilities	% Respondents
Close by/Convenient	20
Good service	10
Free of charge/Not too expensive	49
Previous Good Experience	13
Prefer to Use Public Sector	3
Other	4

The most common response under “other” was that patients visit public health facilities in order to be examined and diagnosed and obtain a prescription, clearly indicating that the lack of medicine in the facilities was a well-known problem and that patients acted accordingly.

7.2 How Respondents Handle the Unavailability of Free Medicine

Thirty-nine percent of the patients reported that they received all prescribed medicine, and only those who received medicine from PNFP or a government private wing paid for the medicine. Patients who were unable to receive free medicine were placed in difficult situations. Table 54 shows what patients planned to do in that situation.

Table 54. What respondents would do if prescribed medicine was unavailable

What Patients Would Do if Prescribed Medicine was Unavailable	% Respondents
Purchase it from private sector	79
Not buy the medicine	17
Try going back to the facility a few days later	4

Over three quarters of the respondents answered that they would procure the medicine from the private sector. For some patients, this was not an option: one-fifth of the patients said they could not procure medicine from the private sector due to insufficient funds. Others reported that they would revisit the facility in hopes of a new supply of EMHS.

Realistically, free medicine from the public sector is not always available, and most patients need alternative ways of obtaining prescribed medicine, such as purchasing from the private sector. The table below shows alternative medicine vendors when the prescribed drug was out of stock in public sector facilities.

Table 55. Medicine sources when free medicine is unavailable from public health facilities

Sources for Purchasing Medicine	% Respondents
Private drug shop	47
Private health facility	23
Private pharmacy	22
Public health facility (private wing)	5
Other	3

Private drug shops are the most common places to buy medicine followed by private pharmacies. As mentioned in the section on “financial knowledge”, the prices of medicines in the private market are much higher than in public facilities that procure medicine from, for example, JMS.

The table above shows that one-fifth of the patients were not able to purchase the medicine. This percentage could be reduced if the medicine was available at a cheaper price. Therefore, it would be in the interests of many patients to have cheaper alternatives to the private sector. Though only 5% of the respondents used private wings in public health facilities, these vendors can be a cheaper alternative to private facilities when free medicine is unavailable.

Healthcare should be free in Uganda, but the respondents had used on average 19,708 UGX (n=151) on medicine, excluding consultation fees, in the previous month. Table 56 shows the sources of money used to pay for medicine.

Table 56. Where patients obtain money to pay for medicines purchased

Where Patients Obtain Money to Pay for Medicines	% Respondents
From family members	17
From household income	47
By selling possessions	25
Other	11

Though more than half obtained money for medicine through household income and casual labour, which was the most frequent answer under “other” responses, the remaining respondents borrowed from family members or sold possessions.

7.3 Health Insurance

Only four percent of the respondents had a medical card or a health insurance scheme (n=190). Of those, 71% had insurance from their employer, while the remaining 29% received insurance from “Global partnership on output based aid”. This may not be indicative of how many Ugandans are insured, since insured people are less likely to seek care at public or PNFP facilities.

Under the assumption that insured individuals would visit private clinics, increasing the percentage of insurance scheme members would reduce the patient load in public and PNFP health facilities and thereby increase funding per patient and availability of medicine. This would result in better public healthcare.

7.4 Distance to Health Facility and Pharmacy

According to the Ugandan Demographic and Health Survey 2006, 55% of women responded that the distance to a health facility was a significant problem to accessing healthcare in Uganda. Additionally, 49% reported that transportation was a problem¹⁶.

In this survey, respondents (both male and females) were asked how far the health facility was from their home. The average distance to health facilities was five kilometers away, though it ranged from living next door to the facility and to living 29 kilometers away (n=177). For patients using public transport, the price paid on average to reach the facility was UGX 2,600.

The distance to the nearest pharmacy was eight kilometers (n=169). Again, the difference in the distance to the pharmacy varied greatly with some patients living next door to the pharmacy and others 80 kilometers away.

Both the distance to health facility and pharmacy varies greatly. Some patients have easy access to healthcare and medicine, while others must walk long distances or pay for transport, which makes it difficult to receive the treatment that they need.

¹⁶ Uganda Bureau of Statistics (UBOS) and Macro International Inc. *Uganda Demographic and Health Survey 2006*. Calverton, Maryland, USA: UBOS and Macro International Inc. 2007

CONCLUSION

The survey found that there is great need to strengthen medicines management in the public and private not for profit sector. Challenges were found in all areas assessed and new innovative strategies are called for in order to assure access to essential medicine and health supplies of good quality that are affordable and used appropriately.

It is recommended that the survey is repeated annually to assess progress in the sector and to assess impact of interventions aimed at strengthening pharmaceutical management at the facility level.

ANNEXES

ANNEX A. FACILITIES INCLUDED IN SURVEY

AMURU DISTRICT	YUMBE DISTRICT	MASINDI DISTRICT
Anaka Hospital (GOU)	Yumbe Hospital (GOU)	Masindi Hospital (GOU)
Atiak HC IV (GOU)	Midigo HC IV (GOU)	Bwijanga HC IV (GOU)
Alero HC III (GOU)	Kulikulinga HC III (GOU)	Ikoba HC III (GOU)
Koch Goma HC III (GOU)	Kochi HC III (GOU)	Pakanyi HC III (GOU)
Amuru HC III (PNFP)	Ariwa HC III (GOU)	Kinyara HC III (PNFP)
Otong HC II (GOU)	Mongoyo HC II (GOU)	Kijenga HC II (GOU)
Todora HC II (GOU)	Okuyu HC II (GOU)	Kibyama HC II (GOU)
KALIRO	KABERAMAIDO	NAKASEKE
Bumanya HC IV (GOU)	Lwala Hospital (PNFP)	Nakaseke Hospital (GOU)
Gadumire HC III (GOU)	Kaberamaido HC IV (GOU)	Ngoma HC 4 (GOU)
Namugongo HC III (GOU)	Alwa HC III (GOU)	Wakyato HC III (GOU)
Budini HC III (PNFP)	Kaberamaido Catholic HC III (PNFP)	Kinyogoga HC III (GOU)
Nawaikoke HC III (GOU)	Buluku HC III (GOU)	Kirema HC III (PNFP)
Kasokwe HC II (GOU)	Otoboi C/U HC II (PNFP)	Lusanja HC II (PNFP)
Nawaikoke Flep HC II (PNFP)	Apapai HC II (GOU)	Kigegge HC II (GOU)
RAKAI	MUBENDE	KITAGATA
Kalisizo Hospital (GOU)	Mubende Hospital (GOU)	Kitagata Hospital (GOU)
Kakuto HC IV (GOU)	Kasanda HC IV (GOU)	Comboni Hospital (PNFP)
Mutukula HC III (GOU)	Madudu HC III (GOU)	Rugazi HC IV (GOU)
Kyebe HC III (GOU)	St. Joseph Maduudu HC III (PNFP)	Katerera HC III (GOU)
Buyamba HC III (GOU)	St. Gabriel Mirembe Maria HC III (PNFP)	Nyakatsiro HC III (PNFP)
Kasensero HC II (GOU)	Kitoloko HC II (PNFP)	Rutoto HC II (PNFP)
Kyotera Muslim HC II (PNFP)	Kaweeri HC II (GOU)	Rwandaro HC II (GOU)

ANNEX B. BASELINE DATA COLLECTION TOOL**SURE DATA COLLECTION TOOL**

The Securing Ugandans' Right to Essential Medicines (SURE) Program is a USAID funded five year program with the mandate to strengthen the national pharmaceutical supply system to ensure that Uganda's population has access to good quality essential medicines and health supplies. To achieve this goal, SURE will build supply chain and financial management capacity, strengthen the appropriate use of medicines and the use of management information at all levels. At facility level SURE will base its capacity building process on MSH's Monitoring-Training-Planning (MTP) and Coaching approach. Performance-based incentive programs and a facility accreditation scheme will reinforce capacity-building efforts and encourage not only individuals, but also organizations to improve pharmaceutical and financial management practices at all levels.

In order to assess the impact of these interventions and the combination of them, this data collection tool has been developed to assess performance in the areas of: a) Facility assessment and service quality, b) supply chain management, c) appropriate medicines use and d) financial management and e) consumer assessment.

When filling in the questionnaire use 0 for No and 1 for Yes.

Remember to debrief the hospital before you leave and undertake the survey in good collaboration with the staff. Do not embarrass anybody.

Name of the facility:			
Date of survey:		District:	Health Sub district:
Type of Facility:	National Referral Hospital <input type="checkbox"/>	Health Centre IV <input type="checkbox"/>	
	Regional Referral Hospital <input type="checkbox"/>	Health Centre III <input type="checkbox"/>	
	District Hospital <input type="checkbox"/>	Health Centre II <input type="checkbox"/>	
	Faith Based facility <input type="checkbox"/>	IP facility <input type="checkbox"/>	
Operating authority	MOH <input type="checkbox"/> NGO: <input type="checkbox"/>		
Catchment area: population			

Name of surveyor(s) and persons meet:		
Filled in by: (Survey team):	Persons met: (Name and Title):	Telephone number
1		
2		
3		
4		
5		

Facility Assessment and Service Quality

1. Computerization and Internet:

Is there a computer at the pharmacy? Yes No NA Is it in use: Yes No

If yes:
What is it used for:

- Procurement:/drug ordering: Quantification:
- Are expiry dates monitored to ensure FEFO¹⁷:
- Communication /email:
- Internet search:
- Budget/finance:
- Training:
- Pt records:

Who is using it?

- Pharmacy staff:
- Administrative staff:
- Clinical staff:
- Finance staff:

Others: _____

Is it protected from lightening? Yes No NA

Is it used for labelling? Yes No NA

Is it used for patient information? Yes No NA

Is it used for prescription recording? Yes No NA

Is it used for patient medication profile? Yes No NA

What type of communication does the pharmacy staff have?

Telephone: Yes No ; Internet access: Yes No Which provider: _____

Who provided Internet access? District: _____ Others (Which): _____

What is the monthly cost for Internet: Cost/ NA: _____

Have you had any problems with the communication system?: Yes No NA

Explain: _____

Who if any are responsible for maintenance: _____

2. View on the medicines situation:

Interview the pharmacist/dispenser in charge.

How would you describe the medicines situation:

Has it changed Yes No

If Yes, then describe how?

What are the biggest problems you are facing with regards to medicines?

¹⁷ FEFO: First expiry first out

3. Number and training of staff:

Record the staffing at the pharmacy/ store and dispensary responsible for managing and handling medical supplies in the facility. **Circle the person interviewed**

Category of staff	Number	Full time	Part-time	Years of practice experience record for each
Pharmacist				
Pharmacy technicians				
Nurse				
Pharmacy orderlies, storekeepers, store assistant				
Other in contact with clients				
Other not in contact with the clients				

How much time (hours) does the pharmacy I/C spend in the pharmacy on an average working day: (In hours): _____

How many of the staff working in the pharmacy has been trained in Supply chain management or logistics management? _____

4. Services offered and availability of patient information sources:

Ask what services and patient information sources are offered- check their availability

	Yes	No
Can privacy be achieved in dispensing		
Blood pressure monitoring		
Pregnancy test		
Glucose test meter		
Asthma peak flow meter		
Weighing scale available		
Chairs to sit on/bench		
Prescription eye glasses		
Patient leaflets		
Facility to wash hands by patient		
Drinking water (to take tablets) by patient		
Others , Specify which:		

Record the patient leaflets/information available

5. Information available to dispenser/pharmacy staff:

What information sources are available – check their availability tick and record the year:

	Yes	No	Which Year
Drug catalogues e.g. MIMS (big book)			
MIMS (pocket size)			
Drug Formulary (Uganda)			
WHO Drug formulary			
Essential drug list (Uganda)			
UCG (Uganda Clinical Guidelines)			
Martindale			
BNF			
Financial Manual			
Supply Chain Management manual			
Other			

6. LMIS / Reporting

Which and How many reports do you fill in or provide information to, related to medicines (management and use) (mention which):

Recipient (District/HSD/Partner/NMS etc)	Frequency of reporting	Nature of information reported	Tools used

Do you find the reporting useful: Yes No NA

If yes how is it useful:

Supply Chain Management Assessment

7. Stock management system

- a) Does the pharmacy have formalized stock management cards or computerized stock management system that allows for calculation of reorder level values: Yes No

If Yes, which:

Stock / bind card based	
Computerized inventory system	
Stock Ledger book based	

If you use stock cards are they kept: Yes No NA . If yes for how long: _____ years

8. Reorder level and reorder time:

You are interested in knowing what is the system used for reordering, - How does he calculate: When to order and how much to order?

Ask the question. How do you know when to order drugs

When to order:	Tick
I don't order- receive KITS (PUSH)	
When you are low on stock, you order	
When reaching reorder level, you order	
Time based – every 2 month	
When told by district /HSD	
NMS schedule	

Ask: How do you know how much to order?

How much to order:	
Amount ordered is based on a stock card or other quantification system	
Quantification based on memory and experience	
Available money	

Ask: When are orders done (any order regular and emergencies):

	Tick
I don't prepare orders but receive a KIT	
Bi monthly	
Monthly	
Weekly	
Daily	
Other intervals (Which):	
Emergency orders are done frequently	

JMS/ Private sector procurement:

Do you procure medicines from JMS: Yes No NA

Do you procure from private sector: Yes No NA

VEN:

Have you heard about VEN classification: Yes No

If No, go to: Adherence to NMS schedules

If yes – Explain. Explanation correct: Yes No

Do you apply VEN in your procurement: Yes No NA -I receive the kit

Look at last procurement to check if it includes E and N medicines: (Paracetamol, albendazole, captopril etc – see EMLU)

Order does not contain E and N items : Yes No

Adherence to NMS Schedules:

Do you know if NMS has a schedule for when to order and when to deliver: (yes, No): ____.

Do you have the schedule for ordering and delivery: Yes No

Do you adhere to the NMS schedule Yes No

If yes: Please explain and give the last 3 dates for ordering and distribution: (information may be obtained from order or ledger book)

	Date	Date	Date
Ordering schedule/due date			
Actual date of ordering			
Delivery schedule			
Date of delivery from NMS			
Date of delivery from District /HSD			

Obtain the order and ledger book:

Are orders and delivery notes filed and filed by date by the pharmacist: yes/no: _____

How many emergency orders have you placed in the last 3 month?

None: 1: 2: 3:
> 3:

If None. Why not; _____

9. Nil lines and adjustments:

Here you need the Delivery note or delivery invoices and order forms.

Req. no.	Number of items in the requisition/orders A	No of nil lines/items supplied B	No . of extra not ordered supplies C	Number of lines(items) that have been adjusted (up+ ;down -) D		
				No adj.	No.+	No.-
1						
2						
3						
4						
5						
total						
Total % of nil lines. Btot/Atot%				Total % of adjustments C tot/A tot-B tot%		

Malaria Orders last 3 months

Reg No.	Number of Malaria items in requisition	Number of Malaria items not (Nil) supplied	No . of extra not ordered supplies	Number of malaria items that have been adjusted
---------	--	--	------------------------------------	---

10. Means of transportation/ Delivery / ordering

How do you send your order?

- a) Hand/meeting
- b) Post
- c) E-mail
- d) Supervisor visiting
- e) Fax
- f) Any other. Specify : _____

g) How did you receive your medicines from NMS/ JMS –What type of transportation is most often used?

	NMS	JMS
Own facility vehicle	<input type="checkbox"/>	<input type="checkbox"/>
Hired vehicle	<input type="checkbox"/>	<input type="checkbox"/>
Drop off point where you pick	<input type="checkbox"/>	<input type="checkbox"/>
Suppliers deliver to your door	<input type="checkbox"/>	<input type="checkbox"/>
District organizes transport.	<input type="checkbox"/>	<input type="checkbox"/>

HSD picks at district and distribute	<input type="checkbox"/>	<input type="checkbox"/>
Motorbike (facility, supervisor, district)	<input type="checkbox"/>	<input type="checkbox"/>
Bicycle or foot	<input type="checkbox"/>	<input type="checkbox"/>
Others: _____		

11. Lead times

On average, approximately how long does it take between ordering and receiving products:

< 2 weeks ; 2w- 1 month: ; 1-2 month: > 2 month:

Time taken to submit a medicines order from the Health unit to NMS (Obtain and check copies of orders made)

<i>Date is recorded as day, month and year: 31/11/04</i>													
1	2	3	4	5	6	7	8	9	10	11	12	13	
Re q. no .	Emergency or Monthly E/M	Date of Requisition stamp (date)	Date order approval (date)	Approval time (Days between 3 to 4)	Date the order is received at NMS (date)	No of days for req. to reach NMS (days from 5 to 6)	Date order complete d at medical store:	Completion time (Days from 7 to 9)	Date supplies received at district	Delivery time to D (Days from 9 to 10)	Date supplies received at facility	Total lead time (days from 4 to 12)	
												E	M
1													
2													
3													
4													
5													
6													
	Average number of days for:			E: __ M: __		E: __ M: __		E: __ M: __		E: __ M: __		E: __ M: __	

12. Average monthly issues (AMI)

Can you calculate AMI for Credit Line supplies?: Yes No –CHECK: Correct: Yes No

Do you record AMI somewhere: Yes No ; if yes Where is it recorded: _____ (Check)

Do you calculate it each time you order. Yes No

13. Procurement

What is the total number of medicines in stock in your store (different brands, strength and formulations): _____

If precise number is not available, estimate number of items (Tick):

Less than 80: ___ 81-100: ___ 101-200: ___ 201-500: ___ more than 501: ___ Not Know ___

14. Number of different brands of cotrimoxazole:

If available tick:

Generic cotrimoxazole	<input type="checkbox"/>	Septin	<input type="checkbox"/>
Bactrim	<input type="checkbox"/>	Cordiprim	<input type="checkbox"/>
Cotrimox	<input type="checkbox"/>		<input type="checkbox"/>
Cotrech	<input type="checkbox"/>	Other _____	<input type="checkbox"/>

15. ARV medicines

Is this facility an ART site? Yes No

If yes: Is d4T/3TC/NVP 6.30.50mg (Triomune Baby) availability yes /No : Stock card: yes /No If available who is the source: Ministry ; Implementing partner

16. Cleanliness of the store:

Ask to be shown around the pharmacy, in particular the dispensing and storage area

The store is: (Tick only one)	Very clean and tidy	Acceptable clean and tidy	Not clean and untidy	Very dirty and untidy
Dispensary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
Signs of pests/ harmful insects /rodents seen in the area ?(Check traces, droppings etc from bats, rats, ants etc)	<input type="checkbox"/>	<input type="checkbox"/>
There are windows that can be opened or there are air vents.	<input type="checkbox"/>	<input type="checkbox"/>

17. Health Promotion activities

Ask if the pharmacy/pharmacist has been engaged in any health promotion/public health activities during the last year (Yes/No): _____

If yes, record the type of activities:

	Yes	No
Smoking		
Obesity		
Diabetes		
School education		
Others : (Specify) :		

18. Drug policy knowledge:

Ask pharmacist / pharmacy staff questions regarding drug policy

a) Does Uganda have a national drug policy document? (Yes/No/Don't know): _____

If answer is yes ask pharmacist/druggist what is the key policy issues?

19.. Inspection (NDA):

Ask pharmacist about inspection

a) In last year is your pharmacy visited by NDA inspector or some control was done? (Yes/No/Don't know)

b) If yes, then are you happy with the way how inspections were conducted? (Yes/No) _____

Please explain or suggest any improvement if it is needed.

20. Storage conditions:

Look at pharmacy store / main store and tick the following (tick)

	Yes	No	comments
Are the medicines protected from direct sunlight (Painted glass, curtains or blinds – or no windows)?			
Is the temperature of the storage room monitored?			
Can the temperature of the storeroom be regulated (Ventilation, heater, air-condition)?			
Roof is maintained in good condition to avoid water penetration?			
Is the storage space sufficient and adequate?			
Is the storeroom lockable and access limited to authorized personnel?			
Operational electricity on day of visit			
Operational water in the pharmacy on day of visit			
Fire safety equipment is available and assessable (any items for promotion of fire safety should be considered)			
Are medicines and supplies stored in separate rooms (insecticides and chemicals)?			
Is there a functioning system for cold storage (Refrigerator) to store medicines?			
Are the vaccines placed in the centre of refrigerator (not in the door)?			
If yes, are food and beverages stored in the refrigerator used for medicines storage?			
Is the temperature of the refrigerator recorded?			
Temperature chart up-to-date with daily entries? (check)			
Check the temperature Is it between 0-8C (note if thermometer is not available)			

Look at the dispensary and/or the store in connection with dispensary and tick the following (tick off)

	Yes	No	comments
Are the medicines protected from direct sunlight (Painted glass, curtains or blinds – or no windows)?			
Is the temperature of the storage room monitored?			
Can the temperature of the storeroom be regulated (Ventilation, heater, air-condition)?			
Roof is maintained in good condition to avoid water penetration?			
Is the storage space sufficient and adequate?			
Is the storeroom lockable and access limited to authorized personnel?			
Operational electricity on day of visit			
Operational water in the pharmacy on day of visit			
Fire safety equipment is available and assessable (any items for promotion of fire safety should be considered)			
Are medicines and supplies stored in separate rooms (insecticides and chemicals)?			
Is there a functioning system for cold storage (Refrigerator) to store medicines?			
Are the vaccines placed in the centre of refrigerator (not in the door)?			
If yes, are food and beverages stored in the refrigerator used for medicines storage?			
Is the temperature of the refrigerator recorded?			
Temperature chart up-to-date with daily entries? (check)			
Check the temperature Is it between 0-8C (note if thermometer is not available)			

21. Hygiene of the pharmacy:

Ask to be shown the toilet and hand washing facilities in the pharmacy.

	Yes	No
Are the toilet facilities acceptable, hygienic and functioning?		
Is there toilet paper in the toilets?		
Is the hand washing facilities acceptable, hygienic and functioning?		
Is there soap for hand washing?		

22. System of storage of medicines and supplies:

Ask to be shown around the pharmacy and observe the following conditions (Tick off):

	Yes	No	Comments
Are medicines stored on shelves and /or in cupboards?			
Are medicines stored on shelves or in cupboards stored in a systematic manner (alphabetic, therapeutic etc)?			
Are the shelves labelled?			
Medicines arranged so that identification labels are visible			
Is there a separate lockable cupboard for narcotic / psychotropic drugs?			
Is the storeroom lockable?			

23. Storage practices of medicines:

h) Ask to be shown around the pharmacy and observe the following conditions (Tick off):

	Yes	No	NA
Are opened bottles of liquid/mixtures in dispensary labelled with the opening date?			
Do all tins/bottles in dispensary that have been opened have a lid on?			
Are there boxes on the floor in the dispensary or store?			
Is there a record for expired drugs (Check)			
Is there a separate space to keep expired drugs until they are disposed?			
Is there a written procedure for disposal of expired medicines (Check)			
Cartons and products are in good condition not crunched due to mis- management			
Is FEFO ¹⁸ adhered to? (Check 20 randomly selected medicines in the storeroom for FEFO) Record the number of medicines that does not adhere to FEFO:	No adherent to FIFO::		

24. Goods receipt

What do you check when you receive superintendent goods from the supplier: /Tick off as the below are mentioned- don't ask! - Tick if mentioned/

Before opening

Packing/Delivery form/invoice note	
Check if that all boxes are unopened	
Check that they are all undamaged	
Count the boxes	
After opening	
Type; quantity; physical damage	
Expiry date > 18 month left	
Check label information of all supplies type,	
At least two persons present when you receive the goods	
Signing the delivery form	
Others (Which): _____	

Do you have a written procedure for goods receipt /SOP? Yes No If yes, check _____

¹⁸ FEFO: First to expiry first out

Have you ever received medicines where there were a discrepancy Yes No
 If yes, how often: Almost every delivery Every 1-6 deliveries Annually

What was the problem
 (Describe): _____

What do you do if a box or some medicines is missing or there is another discrepancy (Tick off):

Write on delivery note/consignment note no of boxes received – than sign	
Note the drivers name:	
Write in delivery form the problem –than sign	
Note vehicle registration number	
Fill in a discrepancy note	
Use invoice as discrepancy report	
Communicate to supplier	
Others (Which)	

Have you filled in a discrepancy report / or similar Yes No

When: _____

Do you file discrepancy reports Yes No (check)

Do you follow up with the supplier Yes No

If yes, does it help / you get a response Yes No

Do you have written procedures related to discrepancy report? Yes No

25. Supervision/ coaching

Have you had a pharmaceutical supervisory visit within the last 6 month that included drug management? yes /No

If yes When: _____,

Do you have a report/ or written into the pharmacy supervisory book or visitors book: yes /No (Show it).

Total no. of visits received last 6 month as recorded in book/ system: _____

Financial Assessment

26. Financial Management Skills:

Do you have the guideline: Managing the Medical and Surgical supplies budget: Yes No

Do you have any training in financial management for medicines and health supplies? Yes No If Yes, what training have you acquired and when was it done

Date	Training course attended	Award

27. Budget and expenses

Only public health facility

Ask pharmaceutical staff:

Do you have an idea of how much of your total expenditure is used on medicines and consumables: _____
 record figure and compare later

Facility

All in Uganda shillings	2008/9	2009/10
Total facility budget		
Total facility actual expenditure		

¹⁹Finance and budget

Do you know your current annual 2010 Credit Line budget: Yes No (if yes record below)

Where do you get the information from: Explain?

How often do you get a status update/report on your balance?

Each time you order: Annually: Others: _____

How do you get the status: _____

Do you know NMS have a toll free number you can call? Yes No .

What is the number? : _____

EMHS	2008/9	2009/10
Total facility budget		
Medicines/ supplies – credit line		
Laboratory supplies		
Total facility expenditure		
Medicines/ supplies – credit line		
Laboratory supplies		

Do you know your annual laboratory supplies budget: Yes No NA if HCII (if yes record below)

Where do you get the information from: Explain:

How often do you get a status?

Each time you order: Annually: Others: _____

Budget and procurement (Could you obtain the figures from the pharmacy staff Yes No . Did you have to obtain from finance account staff Yes No

Do you receive donations: Yes No Are donations costed? Yes No

If yes, how are they costed?(International median price or what)

Are EMHS donations included in accounts as both income (donation drugs Yes No) as expenses (Yes No) _____

¹⁹ EMHS: Essential Medicines and Health Supplies

What types of donations have you received (Tick): last 6 months (do not include what you get on a regular basis from the ministry or implementing partners)

ACT: ; ARV: TB: ; cotrimoxazole: ;
RPH:

Others: Which: _____ Source of donation: _____

Do you know how much is spent on EMHS/capita (in USD- divide by 2000) in your catchments area: Yes No
 If yes: how much _____

What is the number of patients per year?

In-patients: _____ out-Patients: _____ Total No. Of Pt (most important): _____

What is the cost of EMHS (excluding Lab): for in-pt / year: _____

What is the cost of EMHS (excluding lab) for out-pt / year: _____

28. Vetting to available funds

Before sending in an order do you ensure that you have enough money on your account: Yes No

If yes, how do you do it describe the process in a stepwise manner:

Step 1: _____

Step 2: _____

Step 3: _____

Step 4: _____

Step 5: _____

What do you do if cost of drugs you are to procure exceeds your CL balance. What principles do you use to decide what to buy in that situation?

Do you keep a record of financial commitment? Yes No

If yes ask to see the commitment register: _____

29. Cost recovery/ Private Wing /PCCP/PNFP

Do you have any cost recovery schemes like cost sharing, private wings or health service fund? Yes No

If the facility has a private wing or cash for medicines. Ask questions below

**Procurement of EMHS
2009/10**

2008/9

Procurement of medicines/supplies from NMS using cash/out credit line		
Procurement from private sector		
Procurement from JMS		
Procurement from other sources or donations		
Total procurement of medicines= total expenditures – Check with total medicine expenditures		

If Yes, how much is generated and how much of it is spent on EMHS (Fill table below)

	2008/9	2009/10
Total funds generated		
Total funds generated on medicines		

sale (excl. Lab)
 EMHS income out pt
 EMHS income in pt
 Funds spent on EMHS

Who decides on how the generated funds are to be spent? (check involvement of pharmacy staff)

What criteria is used to determine how the generated funds are to be spent

Source of Information	Yes	No
a) current needs		
b) pre-determined guidelines in place for spending funds,		
c) medicines funds deposited on separate account etc		
d) medicines funds from sale of EMHS are ring fenced		
e) Other specify		

Do you have any problem with the release of funds (e.g. lead time etc)

Do you have a separate bank account for medicines: Yes No

b) Financial Responsibilities

	Pharmacist/Pharmacy staff in charge in pharmacy	Administrative Office or Accounts staff	Others
Who keeps budget/expenditure record?			
Who keeps the commitment register of purchases?			
Who is responsible for checking receipt accuracy against order?			
Who is responsible for making payment?			

30. Medicines prices/ equity

If the facility charges for medicines please record the price to the patient:

Medicine	Course	Price paid by patient	Procurement price
Ibuprofen 200mg	20 tabs		
Metronidazole 400mg	21 tablets		
Omeprazole 20mg	28 tabs		
Amoxicillin 250mg	15 tabs		
Paracetamol	20 tabs		

How is the price composed (Cost price times 2 or plus 100% or what – and same for all drugs?)

Do you charge for drugs separately: yes /No

Do you charge a fixed fee that cover services and medicines: yes /No

Is a pricelist visible to the patients yes /No

Take three prescriptions or bills or what is used to calculate pt payment and redo the full calculation. Record all details on the back of the page before. Give comments: (Is the calculation and result adhering to the principles described, is the price rounded up etc:

What happens to Pt who cannot pay the full course or part of the full course?

Will you dispense some of the medicine and keep the prescription to dispense the rest when patient has obtained more money? Explain the system:

If so how do you decide which medicine to dispense?: and who makes decision on what not to give and on what basis

31. Availability and use of stock cards, stock books etc.

Name of Medicine (T): Tracer V: Vital K: KIT	Item in stock (check) (1/0) Mark if expired (E)	Stock card /ledger book avail. (1/0)	Is physical count done every month and PC marked in stock card (check 3 month) (1/0)	Is the card filled correct with name, strength, dosage form, AMI, Special storage (1/0)	Balance according to stock card: (record no. from the card)	Count the number of drugs in stock and record:	Does balance and physical count agree 100%? (1/0)	Record their monthly consumption (AMI) NR/No.	Calculate AMI record (3month/3):	Is AMI correct/ calculate/ recorded (1/0)(±2 weeks)	Is stock book in use (entry each month each drug)	Is stock book correctly used (all fields filled and AMC)	No of days out of stock for the last 6 month: Record no. of days	Calculate if there was overstocking (OS >5 month stock) in last 6 month stock (note if donation)- D
Amoxicillin tabs 250 mg V														
Artemether /lumefantrine 20 /120mg tabs V (T) K														
Calcium or sodium hypochlorite sol.5% V (JIK)														
Chlorpromazine HCL tabs 100 mg V														
Ciprofloxacin tabs 500mg V														
Cotrimoxazole tabs 400-80 V (T) K														
Depo-Provera inj 150 mg/ml (T)														
Diazepam Injection														
Ergometrine inj cold 0.2mg/ml V														
Erythromycin tabs 250mg V														
Ferrosulphate+Folic acid tabs 60mg/400ug N K														
Glucose (dextrose) inf 5% 500 ml V														
Magnesium Sulphate inj 2500 mg/5ml V														

Name of Medicine (T): Tracer V: Vital K: KIT	Item in stock (check) (1/0) Mark if expired (E)	Stock card /ledger book avail. (1/0)	Is physical count done every month and PC marked in stock card (check 3 month) (1/0)	Is the card filled correct with name, strength, dosage form, AMI, Special storage (1/0)	Balance according to stock card: (record no. from the card)	Count the number of drugs in stock and record:	Does balance and physical count agree 100%? (1/0)	Record their monthly consumption (AMI) NR/No.	Calculate AMI record (3month/3):	Is AMI correct calculate/ recorded (1/0)(±2 weeks)	Is stock book in use (entry each month each drug)	Is stock book correctly used (all fields filled and AMC)	No of days out of stock for the last 6 month: Record no. of days	Calculate if there was overstocking (OS >5 month stock) in last 6 month stock (note if donation)- D
Measles vaccine inj IM/SC V (T)														
Mebendazole tabs 100 mg V K														
Metronidazole tabs 200mg														
Oral rehydration salt sachet V (T) K														
Oxytocin inj 5 IU/ml V (Cold)														
Paracetamol tabs 500 mg E K														
Penicillin benzyl inj 1 MU/ 600mg V K														
Quinine tabs 300 mg(T)														
Sulfadoxine pyrimethamine /Fansidar tabs 500mg/25mg(T) K														
Tetracycline eye ointment 1% V 5g K														
Water for injection w. preservative. 2ml V K														
Surgical Glove latex – 7.5 E														
Syringe 5cc Needle disp. 21G E														
Blood collecting bag 250 ml E														

Name of Medicine (T): Tracer V: Vital K: KIT	Item in stock (check) (1/0) Mark if expired (E)	Stock card /ledger book avail. (1/0)	Is physical count done every month and PC marked in stock card (check 3 month) (1/0)	Is the card filled correct with name, strength, dosage form, AMI, Special storage (1/0)	Balance according to stock card: (record no. from the card)	Count the number of drugs in stock and record:	Does balance and physical count agree 100%? (1/0)	Record their monthly consumption (AMI) NR/No.	Calculate AMI record (3month/3):	Is AMI correct calculate/recorded (1/0)(±2 weeks)	Is stock book in use (entry each month each drug)	Is stock book correctly used (all fields filled and AMC)	No of days out of stock for the last 6 month: Record no. of days	Calculate if there was overstocking (OS >5 month stock) in last 6 month stock (note if donation)- D
Cat Gut 2-0, 40 mm rn 75 cm E														
Field Stain A 25g V														
Malaria diagnostic Rapid test kit														

32. Reproductive Health Assessment

Percentage of all SDPs providing delivery services with 5 life saving maternal/RH medicines²⁰ available at any point in time

Availability on the day of the survey

Ergometrine 0.2mg/ml Yes No
 Oxytocin 5 IU/ml inj Yes No
 Magnesium Sulphate inj 50% Yes No

Amoxicillin caps 250 mg Yes No
 Penicillin Benzathine 2.4 MU Yes No
 Ferrosulphate/folic acid Yes No
 Metronidazole 1 g inj Yes No

The facility has the 3 first mentioned available plus 2 more of the next listed medicines available on the day of survey: Yes : No

33. EMHS KIT assessment only applicable for HC II & III

Have you received a kit? Yes No . If yes, fill in the table below

²⁰ Includes the three mandatory medicines (Ergometrine, Magnesium sulphate and Oxytocin) plus any two medicines from the list of the rest of the 7 UNFPA priority medicines

Name of Medicine (T): Tracer V: Vital K: KIT	Item in stock (check) (1/0)	How much in stock at day of survey	How much issued last 2 months	How many days out of stock last 2 months	Record expiry date
Albendazole 400 mg					
Calamine lotion 100 ml					
Chloramphenicol 5% ear drops					
Clotrimazole 1% top cream					
Folic acid tabs 5 mg					
Vitamin A (retinol)200.000 iu drops					

When did you receive the last 3 KITS:

Date : _____ Date _____ Date: _____

What do you think is good about the KIT (If anything)?

What do you think is bad about the KIT (if anything)?

How well does it fit your needs (Type and quantities)?

Content/ type of medicines: very good ; ok ; poorly ; very poorly

WHY:

34. Consumption of RPH commodities

Item	Jan	Feb	Mar	Apr	May
FP CLIENT REGISTER DATA					
No. of FP clients in month					
# of Microgynon cycles dispensed					
# of Ovrette cycles dispensed					
# of Depo-Provera injections dispensed					
# of IUDs dispensed					
# of Implants dispensed					
# of male condoms dispensed					
HMIS 105 REPORT DATA					
No. of FP clients in month					
# of Microgynon cycles dispensed					
# of Ovrette cycles dispensed					
# of Depo-Provera injections dispensed					
# of IUDs dispensed					
# of Implants dispensed					
# of male condoms dispensed					

STOCK CARD DATA

Method/Brand/	a	b	c	d	e
Product	Quantity Received in Dec – May 2010	Quantity Issued in Dec-May 2010	Number of Days Stocked out in Dec-May 2010	Quantity of Stock on Hand Today	Stock card not available/updated for product
Microgynon (cycle)					
Ovrette/Microlut (cycle)					
Depo-Provera (vial)					
IUD (piece)					
Implant (piece)					
Male condom (piece)					

Percentage of SDPs offering at least three modern methods of contraceptives:

Contains at least 3 entries in above table column d: **Yes** **No**

Did the health facility experience any stock out of contraceptives the last 6 month (see column c): **Yes** (if any days are recorded) **No** (All entries are filled and all are 0)

Appropriate Medicines Use Assessment

CONSUMER PROFILE SURVEY - PATIENT 1-5

Patient care:

Interview 10 patients leaving the pharmacy and ask to see the medicines they have received and if possible their prescription: Select one of the medicines to check patient knowledge (The first given to you by the patient). Record the following (Yes = 1, No =0, NA (if e.g. 3 drugs prescribed but no medicines dispensed)

Pt. no	No. medicines prescribed	No of medicines dispensed	Discrepancy (Y=1/N=0)	Patient knowledge				Other information given: Adverse reactions, how to take etc)
				Dose How many /much to take	Frequency How often to take	Duration How long to take the medicine	Does pt. know why he is getting the treatment	
1								

Labelling

Interview 10 patients leaving the pharmacy and ask each patient to see the medicines they have bought/received. Select one medicine to check for labelling (The first given to you by the patient). Use Yes = 1 / No = 0 to indicate if the information appears on the label:

Medicine no	Medicine name*	Strength	Quantity	Date	Dose	Patient name	Facility name
1							

1. Sex: Male Female

2. Age: _____

3. How many people live within your household? ____
 'eat from same pot'

4. Which member of your household are you seeking medicines/drugs for?

- Yourself
 - Husband/Wife
 - Son
 - Daughter
 - Mother
 - Father
 - Other:
- (Single Response)*

5. Where was this person diagnosed as needing these drugs?

- Public Health Centre/Hospital
 - Private health Centre/Hospital
 - Pharmacist
 - Village Health Worker
 - Traditional Healer
 - Other:
- (Single Response)*

 Purchased drug without consultation

6 Did you spend any money to obtain the medicines? Yes No

7 Did you get all medicines prescribed? Yes No

If you did not get all medicines prescribed, what are you planning to do?

- Purchase in the private sector
 Purchase from private wing
 Not buy the medicine why not: _____
 Try and come back in a few days
 Others

8. **Why do you visit public health sector facilities to seek consultation or medicines/drugs?**

- Close by/convenient
 Good service
 Free of cost/ not too expensive
 Good previous experience (Multiple Response)
 Prefer to use public sector health providers
 Other

9 Where do you **most often** purchase drugs/medicines from?

- Private Pharmacy
 Public Health Centre/Hospital
 Private Health Clinic/Hospital
 Traditional Healer
 Other: _____ (Single Response)

10 How much money did you spend yourself last month on drugs/medicines? (Not including consultation costs) I Spend: _____ UGX Not Known:

11. Where do you obtain the money from to afford Drugs / medicines

- From family members
 From household income
 By selling possessions
 By borrowing money
 Other _____

12. Are you a member of a Medical Aid or health insurance Scheme?

- Yes No

13. If so, who pays?

- The company I work for
 The government
 The armed services (Single Response)
 Other _____

14. **Transport cost**

- How do you get to the health centre?
 Walk Time to walk: _____
 Matatu/ Boda boda Cost: _____

15. How far is the health facility from your house: _____ miles _____ km _____ Minutes

16. How far is the private pharmacy from your house: _____ miles _____ Km _____ Minutes

35. Dispensing Time:

Record the dispensing time for 6 patients

(Dispensing time: measure the time it takes for the staff to dispense the medicines after having been informed what needs to be dispensed and obtained the medicines. Note! Having received the prescription and finding the medicines are not included, only the actual dispensing and talking to patient while dispensing.)

Patient number	1	2	3	4	5	6
Dispensing time in seconds						

36. Packaging materials:

What packaging material are being used

Type of packaging material	
Pharmacy supply new bottles	yes <input type="checkbox"/> /No <input type="checkbox"/>
Dispensing envelope	yes <input type="checkbox"/> /No <input type="checkbox"/>
Pharmacy reuses old but cleaned bottles	yes <input type="checkbox"/> /No <input type="checkbox"/>
Use of manufacturer's original containers	yes <input type="checkbox"/> /No <input type="checkbox"/>
Patients bring own containers/bottles to be used	yes <input type="checkbox"/> /No <input type="checkbox"/>
Non-appropriate packaging material is used	yes <input type="checkbox"/> /No <input type="checkbox"/>

Which:

37. Dispensing equipment:

Verify that the pharmacy has the following equipment in the dispensing area:

Equipment	Yes	No	NA
Does the pharmacy have a spatula/spoon			
Non filled labels			
Tablet counting tray or similar			
Are tablets counted by bare hand			
Graduated measuring flask			

What type of water is used for reconstituting mixtures?

	Tick
Tap water	
Purified water	
Give pt so they can reconstitute themselves at home	
Other (which):	

38. Dispensing procedure:

Observe the dispensing process.

Is there a control carried out of the prescriptions and the medicines before dispensing, i.e. is it counterchecked?
Yes /No

If yes who undertakes the control: _____

39. Prescriber contacts:

Does the pharmacy have a record or file for recording of contacts to the prescriber yes /No

Ask and check if the pharmacy keeps a record or file for recording of contacts to the prescriber regarding pharmacy initiated changes in prescriptions

Record date of last entry: _____ (d/m/y)

What do you do if the strength is wrong on the prescription or the course prescribed of an antibiotic is only 2 days: (Tick – you can tick more than one answer)

	Tick
Dispense what is prescribed but in the correct strength and/or dose	
Contact the doctor / prescriber to verify and make the change	
Explain to the patient what and why dispensed medicines is different from prescribed	
Send patient back to the prescriber	
Others (describe)	

40. Diagnostic equipment:

Go to one OPD examination room and check for availability of the following

Tongue depressor	yes <input type="checkbox"/> /No <input type="checkbox"/>	Otoscope	yes <input type="checkbox"/> /No <input type="checkbox"/>
Torch	yes <input type="checkbox"/> /No <input type="checkbox"/>	Stethoscope	yes <input type="checkbox"/> /No <input type="checkbox"/>
Thermometer	yes <input type="checkbox"/> /No <input type="checkbox"/>	Vaginal speculum	yes <input type="checkbox"/> /No <input type="checkbox"/>
BP machine	yes <input type="checkbox"/> /No <input type="checkbox"/>	Patella hammer	yes <input type="checkbox"/> /No <input type="checkbox"/>

41. Patient care:

Interview 10 patients leaving the pharmacy and ask to see the medicines they have received and if possible their prescription: Select one of the medicines to check patient knowledge (The first given to you by the patient). Record the following (Yes = 1, No =0, NA (if e.g. 3 drugs prescribed but no medicines dispensed))

Pt. no	No. medicines prescribed	No of medicines dispensed	Discrepancy (Y=1/N=0)	Patient knowledge				Other information given: Adverse reactions, how to take etc)
				Dose How many /much to take	Frequency How often to take	Duration How long to take the medicine	Does pt. know why he is getting the treatment	
1								
2								
3								
4								
5								

42. Labelling

Interview 10 patients leaving the pharmacy and ask each patient to see the medicines they have bought/received. Select one medicine to check for labelling (The first given to you by the patient). Use Yes = 1 / No = 0 to indicate if the information appears on the label:

Medicine no	Medicine name*	Strength	Quantity	Date	Dose	Patient name	Facility name
1							
2							
3							
4							
5							
Total							
%							

*Note: The medicine name appears by generic name or by brand and generic name

43 Prescription recording system availability:

Is a prescription book/ computerized system available for recording prescription data :(OPD or dispensary) Yes No

Does the system provide recording of all the following data: (yes/no):

Date Yes No

Patient name Yes No

Medicines name Yes No

Prescriber name Yes No

Are **all** old prescriptions kept (yes/no) (Check): Yes No If yes, for how long: ____ years

Are old prescriptions for narcotic kept (yes/no) (Check): Yes No NA

If yes, for how long: ____ years

44 Prescription recording system use:

Check if there are entries during the last 3 days Yes No NA

Record from last 6 entries what information have been entered in the system Yes (1) No (0)

Dispensing Operation	Date	Patient name	Medicines Name	Prescribers name	Sum	%
1.						
2						
3						
4						
5						

6						
Sum						
%						

45 Patient load:

Average Number of prescriptions filled per day

Check in the prescription book (if available) or from prescriptions stored by random selecting three different days within the last month and record the number of prescriptions filled:

	Day 1	Day 2	Day 3	Average
No of prescriptions filled				

If there is no prescription book or prescriptions are not kept ask how many patients they have/seen per day. No of patients per day _____

What are the opening hours (per day) of the pharmacy (from - to)?

	From	To	Break
Working day (Monday – Friday)			
Saturday			
Sunday			

46. Rational prescribing: out put

From the prescriptions from the last 3 month select randomly i.e. every 10 and record what has been prescribed in the below table:

If retrospective information is not available: Select prescription information from the day of the survey in below table:

Antibiotics does not include: antihelmintics, TB, antifungal, anti amoebic or anti malaria medicines, but should include penicillins and tetracycline eye ointments.

Brand : Amoxil, Cotrim; Camtrim;

Prescription No.	Number of drugs	Number of generics	Number of antibiotics	No of injections	No and type of drugs not included in the EDL	Diagnose recorded Yes (1)/ No (2)	No of Abbreviations
1							
2							
3							
4							
5							
6							
7							
8							
9							

10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
Total		/	/			
Average			No of encounters:	<i>No of tot. encounters</i>			
%		% of total drugs:	% of drugs:	: % of drugs:	% of tot. drugs:		

47. Appropriate Duration of Amoxicillin:

Look at the place they keep old prescriptions. Record the last 10 prescriptions with Amoxyl and record the dose, duration and diagnosis:

Prescription no	1	2	3	4	5	6	7	8	9	10
Is duration < 2 days (Yes=1/No=0)										
Duration of treatment										

48. Adherence to standard treatment guidelines:

Select latest 10 patients cards/prescriptions with diarrhoea, 10 with mild ARI and 10 with malaria

Disease/Drug prescribed	Cases (Yes=1, No=0)										Total yes(1)/number of cases *100
	1	2	3	4	5	6	7	8	9	10	
1.1.1.1.1.1 Diarrhoea (no blood)											
ORS											
Antibiotics											
Antidiarrhoeal											
Antispasmodic											
Other drugs given											
Level 1 assessment (A,B)											% A=___,% B=___

Level 1 assessment: A= appropriate (ORS 1, All others =0)										
Non-pneumonia acute respiratory tract infection (Mild ARI)										
Antibiotics prescribed										
Level 1 assessment (A,B)										% A= ____, %B= __
Antipyretic/analgesic										
Cough and or cold drugs										
Other drugs given										
Level 2 assessment (C,D)										% C= ____, %D: __
Level 1 assessment: A = Appropriate: antibiotics = 0 (No antibiotic given) else B Level 2 assessment: (Only if level 1 is A), C = appropriate antipyretic/analgesic or cough/cold drugs 1 or 0; other drugs = 0 therefore not appropriate (D) if any other drugs is given.										
Malaria treatment										
Rapid test or Smear conducted										% A=
Artemeter lumefantrine										
Quinine injection or tabl.										
Antibiotics										
Paracetamol										
Pyrimethamine /sulfadoxine										
Other drugs given										
Level 1 Assessment: A= Appropriate: M tested Level 2: B= Appropriate M tested + and ACT or M tested + and Quinine if ACT not available. Level 3: no test but ACT or Quinine. Level 4: In appropriate; + and ACT and antibiotic										

ANNEX C. BASKET OF ITEMS SURVEYED

The basket items included in this survey are listed in the table below. The level of care according to EMLU 2007 and the level of care used for analysis are also included in the table. The level of care for analysis is based on the lowest healthcare level that the item was found at when collecting data for this report.

Basket Item	Level of Care (EMLU)	Level of Care (Analysis)	VEN^a
Amoxicillin Tablets 250mg	HC II	HC II	V
Artemether/Lumefantrine Tablets 20/120mg	HC II	HC II	V
Calcium or Sodium Hypochlorite Solution 5% (JIK)	HC I	HC II	E
Chlorpromazine HCL Tablets 100mg	HC II	HC II	V
Ciprofloxacin Tablets 500mg	HC III	HC II	V
Cotrimoxazole Tablets 480mg	HC II	HC II	V
Depo-Provera Injection 150mg/mL	HC III	HC II	V
Diazepam Injection 5mg/mL	HC IV	HC II	V
Ergometrine Injection 0.2mg/mL	HC II	HC II	N
Erythromycin Tablets 250mg V	HC II	HC II	N
Ferrosulphate/Folic Acid Tablets 60mg/400ug	HC I	HC II	V
Glucose (Dextrose) Infusion 5%, 500 mL	HC II	HC II	V
Magnesium Sulphate Injection 2500 mg/5mL	HC III	HC III	V
Measles Vaccine Injection IM/SC	HC II	HC II	V
Mebendazole Tablets 100mg	HC I	HC II	E
Metronidazole Tablets 200mg	HC II	HC II	V
Oral Rehydration Salt Sachet	HC I	HC II	V
Oxytocin Injection 5IU/mL	H	HC II	E
Paracetamol Tablets 500mg	HC I	HC II	E
Penicillin Benzyl Injection 1 MU/600mg	HC II	HC II	E
Quinine Tablets 300mg	HC IV	HC II	E
Sulfadoxine/Pyrimethamine Tablets 500mg/25mg	HC I	HC II	V
Tetracycline Eye Ointment 1%, 5g	HC I	HC II	V
Water for Injection with Preservative 2mL	HC II	HC II	V
Surgical Gloves Latex size 7.5	HC II ^a	HC II	V
Syringe 5cc Needle Disposable 21G	HC II ^a	HC II	V
Blood Collecting Bag 250mL	RR ^a	HC IV	V

Cat Gut 2-0, 40 mm rn 75cm	HC II ^{ab}	HC II	V
Field Stain A 25g	HC III ^a	HC III	V
Malaria Diagnostic Rapid Test Kit	HC II ^a	HC III	V

^a According to 2012 Draft Essential Medicine and Health Supplies List for Uganda

^b Some Cat Gut sutures available only at HC IV levels, but one found at an HC II