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Auditable Pharmaceutical Transactions and Services (APTS): Findings of the Baseline Assessment at Federal, Addis Ababa, and Teaching Hospitals

July 2014



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Systems for Improved Access
to Pharmaceuticals and Services

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About SIAPS

The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to assure the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Toward this end, the SIAPS result areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision-making in the pharmaceutical sector, strengthening financing strategies and mechanisms to improve access to medicines, and increasing quality pharmaceutical services.

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Key Words

pharmacy management, finance, budgeting and auditing, availability, wastage rate, patient satisfaction, medicines sales revenue.

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CONTENTS

Acronyms	iv
Acknowledgments	v
Executive Summary	vi
Introduction	1
Objectives	3
General Objective	3
Specific Objectives	3
Methodology	4
Review of Documents	4
Interviews	4
Observation	4
Results and Discussion	5
Availability of Services and Adequacy of Staffing	5
Management of Pharmacy Operations	8
Finance, Budgeting, and Audit	9
Availability of Key Medicines	16
Accuracy of Records (Matching of Recorded Quantity with Physical Count)	17
Quality of Pharmacy Services and Patient Satisfaction with Services	18
Job Satisfaction of Pharmacy Personnel	22
Conclusions and Recommendations	24
Focus Area 1: Availability of Services and Adequacy of Staffing	24
Focus Area 2: Pharmacy Management	24
Focus Area 3: Finance, Budgeting, and Audit	25
Focus Area 4: Availability of Key Medicines	26
Focus Area 5: Accuracy of Records	26
Focus Area 6: Quality of Pharmacy Services (Effective Counseling Time, Labeling, and Patient Satisfaction with Pharmacy Services)	26
Focus Area 7: Job Satisfaction of Pharmacy Personnel	27
Annex A. Baseline Assessment Tool for APTS	28
Annex B. Instructions for Use of the Assessment Tool for APTS (Baseline Data Collection)....	38
Annex C. Team of Data Collectors	41
References	42

ACRONYMS

APTS	Auditable Pharmaceutical Transaction and Services
ART	antiretroviral therapy
DTC	Drug and Therapeutics Committee
EC	Ethiopian calendar
EHRIG	Ethiopian Hospital Reform Implementation Guideline
ETB	Ethiopian Birr
FMOH	Federal Ministry of Health
HSDP	Health Sector Development Program
MSD	Medical Services Directorate
OPD	outpatient department
RHB	Regional Health Bureau
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
SNNPR	Southern Nations, Nationalities and People's Region
SSA	Stock Status Analysis
USAID	US Agency for International Development
VEN	Vital, Essential, Nonessential

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EXECUTIVE SUMMARY

Diseases such as pneumonia, diarrhea, and malaria are the major causes of morbidity and mortality in Ethiopia. They can be successfully treated with essential medicines. Non-communicable diseases are emerging challenges that are receiving the attention of the Government of Ethiopia. However, the essential medicines required to treat such priority health problems are not available on a continuous basis in all public health facilities. Weaknesses in the governance of the pharmaceutical sector are believed to contribute to most of the challenges to the continuous availability of essential medicines. There is a lack of transparency and accountability in managing medicines and financial transactions at the health facility level, which causes the wastage of limited resources.

To effectively tackle these problems, health facilities in some regions have implemented a package of interventions known as Auditable Pharmaceutical Transactions and Services (APTS). The approach is yielding positive results. With support from the USAID-funded SIAPS project, APTS was first piloted at Debre Markos Hospital and then scaled up to other hospitals in the Amhara region. Hospitals in other regions learned about best practices from these health facilities and the Amhara Regional Health Bureau (RHB) and adapted the approach to their own context. APTS institutes transparency and accountability in the way medicines are managed at health facilities and improves the overall performance of pharmacy services, thereby enhancing the quality of services and minimizing the wastage of resources. APTS uses existing and new approaches and tools to improve the use of available budgets, transparency, and accountability of medicine transactions, and customer satisfaction with pharmacy services. APTS also leads to improvements in staff recruitment and deployment, the availability of medicines, and generation of revenues from medicines sales.

In recent years, FMOH has made tremendous efforts to improve the quality of services and ensure client satisfaction with services being provided to citizens at the hospital level. The development of the Ethiopian Hospital Reform Implementation Guideline (EHRIG) and follow-up of its effective implementation is one of the critical steps forward in achieving this goal. Nevertheless, frequent stock-outs of essential medicines and the poor quality of pharmacy services have emerged as important challenges hindering progress in achieving the desired level of success in satisfying the demand of citizens. Therefore, the Ministry, with support from SIAPS, planned a series of interventions to resolve issues related to pharmaceutical services, focusing on federal, Addis Ababa, and university hospitals because they provide services to a significant proportion of the population.

As part of the effort to improve the overall quality of pharmacy services and the availability of medicines, FMOH planned to initiate implementation of APTS at the aforementioned hospitals. To facilitate implementation and monitor progress, baseline data were collected from 17 hospitals that were selected to implement APTS on a priority basis.

The assessment has shown that the hospitals need to reorganize their pharmacy services as per the EHRIG standards. The number of pharmacists and support staff is inadequate to initiate APTS. Moreover, the assessment revealed that pharmacy services at these hospitals are not

guided by annual action plans, making it difficult to monitor progress in the achievement of deliverables.

In most hospitals, budgets are allocated by bodies that do not have intimate knowledge about the day-to-day activities of the facilities. As a result, the amount of budget allocated does not usually match with actual needs. Some of the hospitals do not have facility-specific medicine lists. Most hospitals do not practice vital, essential, nonessential (VEN), ABC,¹ or stock status analyses. Therefore, they do not produce evidence-based information to guide procurement decisions. Hospitals rely mainly on the PFSA for their medicine needs. However, the PFSA is able to supply only about 45% of their requirements. The hospitals do not widely practice open tender and proforma tender methods to augment direct purchases from the PFSA. The private sector is also not serving as a good alternative source of medicines, as demonstrated by its very poor supply rate in response to hospital requests.

The culture of recording and reporting at the hospitals is very weak and performance is poor. Information on pilferage and wastage of medicines is hard to find. The amount of revenue collected from medicines sales is not tracked and reported regularly. Inventory management is also an area needing attention.

The availability of key medicines varies among the hospitals, but results show that the hospitals require substantial improvement in this respect. Dispensing practices were found to be in very bad shape. For example, the average counseling time was a mere 43 seconds, labeling of medicines was very poor, and only 50% of the patients interviewed knew how to take their medicines properly. Despite these results, overall patient satisfaction with pharmacy services was rated at 74% excluding availability of medicines prescribed from the interview list. However, the job satisfaction of pharmacy professionals was very low.

Overall, it can be concluded that pharmaceutical services and medicine transactions at the hospitals in this survey are being managed below standards and are in urgent need of improvement. APTS is expected to provide the perfect package of interventions that will improve the overall performance of pharmacy services and reduce wastage of limited resources by instituting greater transparency and accountability in the system. It is recommended that the hospitals review the findings of this report and rectify identified gaps by implementing the approaches and methodologies provided under APTS.

¹ ABC is a method of ranking and analysis to determine the highest- and lowest-consumed products.

INTRODUCTION

Diseases such as pneumonia, diarrhea, and malaria are the major causes of morbidity and mortality in Ethiopia. These and other diseases of public health importance can be successfully treated with essential medicines. Essential medicines are those that satisfy the priority health care needs of the population. They are selected with due regard to disease prevalence, and evidence of efficacy, safety, and comparative cost-effectiveness. Essential medicines are intended to be available at all times in adequate amounts, in the appropriate dosage forms, with assured quality, and at a price the individual and the community can afford. However, essential medicines are not adequately available at all public health facilities on a continuous basis for multiple reasons.

The national assessment of the pharmaceutical sector in Ethiopia conducted in 2003 showed that the average duration of stock-outs in public health facilities was 99.2 days. Moreover, the national figure for expiry was reported to be as high as 8%. This was mainly due to the accumulation of medicines that are of little relevance to the catchment population, leading to expiry and wastage of limited resources (FMOH 2003).

Poor governance in the pharmaceutical sector is believed to significantly contribute to most of the challenges in pharmaceutical management at different levels of the health system. Inefficiencies in medicines management at health facilities have resulted in multiple forms of irrational practices and waste. Management of the meager financial resources available for medicines at health facilities is ineffective by all standards. Accountability for pharmaceutical transactions at health facilities is also very poor. The absence of tools and systems for tracking products and financial information has made auditing transactions and services almost impossible. The lack of transparency and accountability in managing medicines and financial transactions has exposed the system to theft, pilferage, and misappropriations. The poor and most vulnerable segments of the population are most affected by such inefficiencies, as their access to medicines is limited to government health facilities through a fee waiver mechanism.

The selection and prioritization of medicines are not guided by proven tools and techniques, resulting in frequent stock-outs and expiry of life-saving medicines, thus compromising key public health services. Moreover, the provision of pharmaceutical services is not adequately organized to ensure safety and maximize treatment outcomes as it lacks proper counseling on medication use during the dispensing process. The provision of pharmaceutical services is not documented properly, and relevant reports that would guide decision making processes are not produced and shared with relevant bodies.

To effectively tackle these limitations, the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Project funded by the US Agency for International Development (USAID), in collaboration with Debre Markos Hospital and the Amhara Regional Health Bureau (RHB), developed and piloted a package of interventions that improve accountability and transparency of pharmaceutical transactions and services, namely, Auditable Pharmaceutical Transactions and Services (APTS). APTS uses existing and new approaches and tools to improve the use of available budgets; transparency and accountability of transactions; workforce needs estimation and development; generation of reliable information; and client satisfaction. Implementation of APTS leads to the generation of additional revenue by minimizing medicine wastage, increasing

stock turnover, and producing reliable medicines sales information to support timely decision making. It improves overall efficiency of pharmaceutical services, which will ultimately ensure the availability of essential medicines, thereby contributing to the overall improvement of health outcomes (Adinew 2012).

Following its successful piloting at Debre Markos Hospital in the Amhara Region, APTS was effectively implemented in different regions, leading to encouraging results. Amhara and Dire Dawa City Administrations have enacted legislation and begun to implement APTS in selected hospitals under their jurisdiction. Tigray, Harari, and Southern Nations, Nationalities and People's Region (SNNPR) Regions and Addis Ababa City Administration are in the process of finalizing their legislation and have also begun implementing APTS in some of their hospitals. It is widely reported that those hospitals that are implementing APTS are seeing initial benefits. The quality of pharmaceutical services has improved dramatically in the facilities, and the availability of essential medicines has also improved significantly. Since APTS effectively tracks the movement of all medicines in a facility, thefts and pilferages have decreased substantially. The pharmacy division at the hospitals can now be easily audited to evaluate medicine and/or financial transactions and the quality or adequacy of pharmacy services.

Having witnessed the remarkable gains obtained by hospitals that have implemented APTS, the Federal Ministry of Health (FMOH) planned to initiate its implementation at federal and university hospitals. Moreover, the Ministry is preparing a huge medicines procurement plan to improve access to essential and specialty medicines at hospitals. The Ministry manages very large federal and university hospitals, most of which are expected to deliver tertiary level care. However, the hospitals have suffered from acute and chronic shortages of much needed medicines, supplies, and equipment. It is expected that the procurement plan will cost the government hundreds of millions of Ethiopian Birr. The Ministry cannot entrust health facilities with this huge undertaking without putting in place proper mechanisms for improving the quality of services and instituting good governance in the management of medicines to make sure that meager resources are properly controlled and accounted for. Hence, a system that makes services and transactions accountable and transparent needs to be urgently established.

APTS requires careful planning and execution of the interventions, with proper monitoring and evaluation of progress and outcomes. Results have to be measured and compared with baseline data to see changes registered as a result of APTS' implementation. Baseline information is needed in all areas of APTS interventions, such as pharmacy management and staffing, the availability of key medicines, accuracy of pharmacy records, quality of patient care, and staff satisfaction. Information on human resource needs, pharmacy service organization, premises, and management of services is mandatory to successfully kick start the APTS package of interventions. The baseline assessment also provides information on the gaps and key areas of improvement that require focused attention prior to the implementation of APTS.

This baseline assessment was conducted by the Medical Service Directorate (MSD) of FMOH and the Pharmaceutical Fund and Supply Agency (PFSA), in collaboration with SIAPS. The assessment was conducted in all teaching, Addis Ababa, and federal hospitals. This assessment report summarizes the major findings of the baseline assessment at these hospitals.

OBJECTIVES

General Objective

To conduct a baseline assessment of the current status of overall pharmaceutical services in terms of meeting the required standards of the Ethiopian Hospital Reform Implementation Guidelines (EHRIG)-Pharmacy Chapter at federal and university hospitals as well as at hospitals under the Addis Ababa City Administration.

Specific Objectives

- Assess the pharmacy workforce situation at 17 hospitals
- Identify gaps in the management of pharmaceutical services
- Measure the availability of key medicines
- Identify financial and budgetary issues and challenges in relation to medicines procurement
- Assess how medicines sales and revenues from medicine are managed and tracked
- Assess the accuracy of stock records for key indicator medicines
- Evaluate the quality of pharmacy services
- Assess the culture of auditing in pharmacy transactions and services
- Determine the level of patient satisfaction with pharmacy services
- Measure the level of job satisfaction of pharmacy staff
- Recommend areas of improvement for pharmaceutical services and transactions

METHODOLOGY

The baseline assessment was conducted at 17 hospitals (13 federal and teaching hospitals and 4 hospitals under the Addis Ababa City Administration). The hospitals in Addis Ababa were selected by FMOH for the purpose of implementing APTS. The study was conducted during the period February 19 to 25, 2014. It was a descriptive cross sectional survey using a structured questionnaire. The following three methods were employed for data collection.

Review of Documents

Documents related to finance, human resources, procurement, and stock records that are available at health facilities were reviewed to gather information on relevant indicators. Registers, vouchers, medicines sales reports, requisition/procurement forms, and bin/stock cards were reviewed, if available.

Interviews

Staff in key positions at the health facilities, including the chief executive officer, head of the finance/audit unit, and head of the hospital pharmacy unit, was interviewed to obtain information on budget, audit practices, pharmacy workforce, sources of hospital income, resource allocation, infrastructure, and related subjects. In addition, all available staff in the pharmacy unit was interviewed to obtain information on their level of job satisfaction. As part of the evaluation of the quality of services, a total of 100 patients were interviewed at each hospital to gather information on patients' knowledge of dispensed medicines and their level of satisfaction with services provided by the hospital pharmacies.

Observation

Data on counseling time, the availability of key medicines, and the accuracy of records were collected through direct observation of services, products, and records, respectively. Counseling time was calculated based on the time the dispenser spent providing information to the patient on medicines provided to him/her. The data collector recorded the time a dispenser started talking to a patient and the time the patient left the counter. The availability of medicines was measured based on actual observation of products on the shelf at the time of the assessment visit. To measure the accuracy of records, the data collector gathered information recorded on the stock/bin card and the results of an actual physical count. The two records were then matched to judge accuracy. Any mismatch between records and actual counts was reported as a discrepancy.

Data collectors were selected from FMOH, PFSA, Addis Ababa RHB, hospitals, and SIAPS. All data collectors were pharmacists who had ample knowledge about the management of medicines and pharmaceutical services at hospitals. The data collectors were given one day of training on the structured questionnaire prepared for the assessment. Comments were collected and incorporated into the questionnaire. The data collectors were grouped into teams of two persons and were assigned to a hospital (Annex C). Senior pharmacists from FMOH and SIAPS were assigned to ensure the quality of data and facilitate the data collection process. Each team was given a guide on the questionnaire. After the data were collected, they were entered and analyzed using the Statistical Package for the Social Sciences (SPSS) software package.

RESULTS AND DISCUSSION

Availability of Services and Adequacy of Staffing

The majority of the hospitals assessed deliver pharmacy services through several dispensing outlets, such as the outpatient pharmacy, inpatient pharmacy, emergency pharmacy, and pharmacy for antiretroviral therapy (ART). Some have specialized pharmacy services, such as clinical pharmacy, chronic care pharmacy, and medicine information services. The number of pharmacy and accounting staff varied depending on the level of the hospital and the availability of various pharmaceutical services. Information on the availability of services and adequacy of pharmacy staff for each service is provided in table 1.

Ninety-four percent of the hospitals have an outpatient department (OPD) pharmacy service. Jimma University Hospital has only an emergency pharmacy that also provides outpatient pharmacy services. It also has a Model Pharmacy that provides outpatient services but which is not managed by the hospital. Only 37.5% of the hospitals believed that the number of pharmacists at the OPD level was adequate. All hospitals use full-time employees to provide the service. Emergency pharmacy services are available in 70.6% of the hospitals, with 67% of the facilities reporting that they have an adequate number of pharmacists to provide the service.

Of the 17 hospitals, 94.1% were providing inpatient pharmacy service. One of the hospitals provides the service by using a part-time employee. Only 37.5% said that the number of pharmacists was adequate to provide the service. All hospitals have ART services, which are provided by full-time employees; 47% of the hospitals reported having an adequate number of pharmacy professionals for the provision of ART services.

Seventy-six percent of the hospitals reported having clinical pharmacy services, of which only one hospital thought that the number of professionals was adequate to provide the service. One hospital provides the service by using part-time staff. Chronic care pharmacies were reported to be available in only four of the hospitals. Three of these hospitals thought that the number of pharmacists in their chronic care pharmacy was sufficient.

Extemporaneous compounding is one of the services overlooked by the hospitals. Only one hospital reported providing compounding services to its clients. About 88% of the facilities perform medicine selection, quantification, and procurement activities, with 53.8% of them reporting having an adequate number of professionals for these activities. One hospital reported having no warehousing and inventory management service for medicines. Only 44% said that they had an adequate number of pharmacists for managing warehousing and inventory management activities; 82% of the facilities had separate warehouses for supplies and equipment. Fifty-seven percent had enough pharmacists for managing the warehouses. All hospitals had a designated person for the overall management of the pharmacy section. However, about 27% think that one pharmacist is not sufficient for the overall coordination and management of pharmacy services.

The hospitals have tried to organize pharmaceutical services as per the requirements of the EHRIG-Pharmacy Chapter (FMOH 2010). But, the quality of the service at each service delivery

point varied from one hospital to another. Most of the hospitals reported that the number of pharmacy professionals was not adequate to effectively provide the services in each unit.

All hospitals have deployed pharmacists (317, 77%) and druggists (94, 23%) to the various pharmacy service delivery points to serve their clients. The number of pharmacists is higher than the number of druggists in all but three hospitals. Unlike in the past, all positions in the pharmacy sections are occupied by pharmacy personnel. All hospitals, except Gondar, St. Paul, and Yekatit 12, have dedicated cashiers for the pharmacy department. Only Zewditu, and Amanuel Hospitals have pharmacy accountants. To improve the quality of pharmaceutical services, professionals with better training and experience should be deployed. However, the assessment results indicate that a considerable number of druggists (94, 23%) are still assigned to manage key services in the hospitals. As these hospitals are providing services at tertiary and secondary levels of care, the standards and quality of care desired at these levels can only be ensured by deploying staff of a higher caliber and with more expertise. There is a need to revisit the staffing mix in the pharmacy divisions of these hospitals. The number of cashiers and accountants is very low in the hospitals; urgent recruitment and deployment are required as adequate staffing in this area is an important prerequisite for the implementation of APTS.

In about 35% of the hospitals, human resource-related issues are decided by the hospital management. Other decision makers include FMOH/RHB (17%), hospital/university board (17%), and others (29%). A predetermined staff size is the most common factor employed by health facilities for deciding the pharmacy staff size, followed by the number of clients served (25%) and budget availability (21%). Hospital management should be given greater autonomy in deciding human resource needs of the pharmacy divisions. It is the most appropriate body to understand actual needs, and to develop and deploy appropriate staff with the right mix of expertise and competencies.

Table 1. Availability of Services and Adequacy of Pharmacy Staff for Each Service (N=17)

SN	Type of Service	Availability of services		Perceived adequacy* of staffing (%)
		# Hospitals	%	
1	OPD (dispensing) pharmacy	16	94.1	37.5
2	Emergency pharmacy services	12	70.6	66.7
3	Inpatient pharmacy services	16	94.1	37.5
4	ART pharmacy	17	100.0	47.0
5	Clinical pharmacy services	13	76.5	8.0
6	Chronic care pharmacy (other than ART)	4	23.5	75.0
7	Drug information services	13	76.5	38.5
8	Extemporaneous compounding	1	5.9	0.0
9	Medicines selection quantification and procurement	15	88.2	53.8
10	Warehousing and inventory management for medicines	16	94.1	43.8
11	Warehousing and inventory management for medical supplies and equipment	14	82.4	57.0
12	Overall management and coordination of pharmacy services	17	100.0	73.3

*Perceived adequacy means the opinion of the pharmacy head about the size of the pharmacy workforce in the respective service delivery units.

Baseline data collected from the 17 hospitals were analyzed to identify major gaps in human resources in the pharmacy services. The various types and number of human resources available were compared to international recommendations and experiences from hospitals in the Amhara Region that are implementing APTS. Key factors affecting the level of effort, including the number of patients, beds, and service delivery units, were considered for the estimation of human resource needs (SHPA 2005). The results indicate huge gaps at the majority of the hospitals. The hospitals need to urgently hire the additional personnel that are necessary to carry out activities in the various pharmacy services, including medicine procurement, storage of medicines and supplies, billing/evaluation of prescriptions, counseling/dispensing, compounding, provision of medicine information, and clinical pharmacy services. The results show that a total of 127 pharmacists need to be hired to fill the gaps at 15 hospitals (table 2). An average of seven additional pharmacists are needed per hospital. Other pharmacy staffing needs range from a minimum of three (Hawassa, St. Peter, and Hiwot Fana Hospitals) to a maximum of 24 (Black Lion Hospital). Menilik and Ayder Hospitals do not need additional pharmacists.

As regards financial management of medicines sales and auditing, human resource needs for these activities were also identified based on the number of clients served and the number of service delivery units. These criteria were taken from the experiences of sites implementing APTS. All hospitals urgently need pharmacy accountants and cashiers to start implementation of APTS (table 3).

Table 2. Number of Pharmacists Needed and Gaps Identified per Hospital (N=17)

SN	Name of hospital	# Pharmacist needed	Existing # pharmacist	Gap
1	Zewditu Memorial	28	18	10
2	Wolaita Soddo Referral	19	14	5
3	Dilla University	20	14	6
4	Hawassa Referral	30	27	3
5	ALERT	26	22	4
6	Amanuel	45	30	15
7	St. Paul	39	31	8
8	St.Peter	17	14	3
9	Ras Desta Damtew	16	12	4
10	Yekatit 12	17	13	4
11	Ayder Referral	34	40	0
12	Hiwot-Fana Referral	19	16	3
13	Asella	24	13	11
14	Black-Lion	91	67	24
15	Gondar University	54	35	19
16	Jimma University	42	28	14
17	Menilik	18	18	0
Total		539	412	133

Table 3. Number of Accountants, Cashiers, and Auditors Needed and Gaps Identified per Hospital (N=17)

SN	Name of Hospital	# Pharmacy Accountants Needed	Existing # Pharmacy Accountants	Gap	Total # Cashiers Needed	Existing # Cashiers	Gap
1	Zewditu Memorial	2	1	1	6	3	3
2	Wolaita Soddo Referral	2	0	2	6	2	4
3	Dilla University	2	0	2	6	2	4
4	Hawassa Referral	3	0	3	9	2	7
5	ALERT	2	0	2	6	2	4
6	Amanuel	4	1	3	12	4	8
7	St. Paul	2	0	2	6	0	6
8	St. Peter	1	0	1	6	1	5
9	Ras Desta Damtew	1	0	1	6	1	5
10	Yekatit 12	1	0	1	6	0	6
11	Ayder Referral	3	0	3	9	2	7
12	Hiwot-Fana Referral	2	0	2	6	1	5
13	Asella	2	0	2	6	4	2
14	Black-Lion	8	0	8	24	5	19
15	Gondar University	4	0	4	14	0	14
16	Jimma University	2	0	2	6	1	5
17	Menilik	2	0	2	6	1	5
Total		43	2	41	140	31	109

Management of Pharmacy Operations

Only 47.1% of the hospitals defined the roles and responsibilities of pharmacy staff in job descriptions (table 4). Expecting deliverables from a professional who does not know his/her specific role and responsibilities is therefore very difficult. Moreover, the roles and responsibilities of pharmacy staff need to be redefined in light of the implementation of the EHRIG-Pharmacy Chapter and other government initiatives and standards. The pharmacy division is represented in the management of all of the hospitals except for one. Forty-one percent of the hospitals have an annual action plan for pharmacy services, however, only 23.5% of the hospitals monitor and evaluate their activities against their annual plans. Fifty-three percent of the hospitals apply a participatory, continuous improvement process as a means of improving the quality of services. Approaches the hospitals employ include regular meetings (52.9%), surveys and interventions (17.6%), in-service training (17.6%), and consultations with stakeholders (5.9%). Such practices seem to be gaining ground in the hospitals and their adoption by all hospitals should be encouraged. The hospitals send reports to management on monthly (35.3%), quarterly (29.4%), and an annual (5.9%) basis. The planning, monitoring, and reporting culture of the hospital pharmacies is poor, which has implications for maximizing the efficiency and effectiveness of hospital pharmacy functions. The pharmacy division in all of the hospitals is expected to have an annual plan, a monitoring and evaluation system, and to report its performance to decision makers on at least a monthly, quarterly, and yearly basis. As pharmaceuticals consume a very significant share of the hospitals' budgets, this management style is extremely vulnerable to inefficient and ineffective management of products, finances, and services, leading to wastage of resources and poor client satisfaction.

Table 4. Pharmacy Management Practices (N=17)

No. Pharmacy Management Practices		Findings		
		#	%	
1	Roles defined in staff job descriptions	8	47.1	
2	Pharmacy service representation at hospital management meetings	16	94.1	
3	Annual plan of action	7	41.2	
4	Practice of monitoring and evaluation in pharmacy	4	23.5	
5	Practice of continuous improvement	Regular meetings	9	52.9
		Conduct survey and make interventions	3	17.6
		In-service training	3	17.6
		Consultations with stakeholders	1	5.9
6	Frequency of reporting to hospital management	Monthly	6	35.3
		Quarterly	5	29.4
		Biannually	0	0.0
		Annually	1	5.9

Finance, Budgeting, and Audit

The hospitals reported that in 17.6% of the cases, FMOH or the RHB allocates the budget. In 18.9% of the hospitals, budget allocation is conducted by the hospitals' management. In most (52.9%) of the hospitals, the hospital board or university allocates the budget. These results indicate an inconsistent practice of budget allocation among the hospitals surveyed.

Only four hospitals (23.5%) reported being allocated adequate budget for pharmaceuticals in the 2005 Ethiopian calendar (EC) year. Among those hospitals reporting that they had inadequate budget for pharmaceuticals, the average number of months covered by the allocated budget was 7.84 (table 5). The number of months covered by the allocated budget indicates a need for decision makers at different levels to advocate for adequate allocations of budget for medicines.

Table 5. Adequacy of Annual Medicines Budget and Months Covered by Allocated Budget, by Hospital (N=17)

SN	Name of Hospital	Adequacy of Budget in 2005	# Months Covered by Budget
1	Zewditu Memorial	No	6
2	Wolaita Soddo Referral	No	8
3	Dilla University	Yes	12
4	Hawassa Referral	No	6
5	ALERT	No	11
6	Amanuel	Yes	12
7	St. Paul	Yes	12
8	St. Peter	No	8
9	Ras Desta Damtew	No	10
10	Yekatit 12	No	10
11	Ayder Referral	No	4
12	Hiwot-Fana Referral	No	11
13	Asella	Yes	12
14	Black-Lion	No	7
15	Gondar University	No	6
16	Jimma University	No	6
17	Menilik	No	9

In 71% of the hospitals, Drug and Therapeutics Committees (DTCs) have developed and approved hospital-specific medicines lists (table 6). This is an encouraging result; the other hospitals should follow similar practices. Of these hospitals, 58.8% had their medicines lists classified by VEN. Stock status analysis (SSA) was conducted by only one hospital. ABC value analysis was conducted by three hospitals (17.6%), of which only one performed ABC-VEN reconciliation, indicating that ABC value analysis is rarely used for decision-making purposes. Two of the hospitals used three years of data while the other hospital used data for only one year when computing ABC value analysis. The information obtained by conducting VEN classification and ABC analysis should be reconciled to produce information that is helpful for decision making. The relevance of ABC value analysis, VEN categorization, and reconciling the two is of paramount importance to ensuring the availability of medicines required to respond to the priority public health needs of the hospitals' catchment populations. These proven methodologies help budget managers allocate scarce resources to the most important medicines, ones that are highly relevant to clients served by the hospital. The level of SSA is very low. Considering its importance to maintaining the continued availability of medicines and minimizing expiry, the hospitals should subject their medicines stock to SSA on a regular basis to prevent stock-outs and waste. Despite the importance of SSA, the hospitals are not applying this best practice. This may be due to the lack of knowledge and skills on the part of pharmacists responsible for the management of medicine supply, or the lack of accountability for stock-outs and wastage of medicines.

Table 6. Availability of Medicines List Classified by VEN, SSA, ABC Analysis, and ABC-VEN Reconciliation (N=17)

SN	Parameters	Hospital Practices	
		# Hospitals	%
1	Medicines list developed & approved by DTC	12	70.6
2	Medicines list classified by VEN	10	58.8
3	SSA conducted	1	5.9
4	ABC value analysis performed	3	17.6
5	ABC-VEN reconciliation performed	1	5.9

The hospitals use several mechanisms to procure pharmaceuticals. All of the hospitals use direct procurement methods, followed by proforma-based (76.5%), and open tender (58.8%) methods. These results indicate that the hospitals are making little effort to obtain medicines from other sources or suppliers if they fail to receive their medicines from the PFSA through direct procurement. It is expected that hospitals use all types of procurement methods to ensure the availability of medicines from various sources in situations where products are not supplied through the PFSA. The surveyed hospitals frequently reported being challenged by the legal requirements governing the procurement process. In light of this, there is a need for intersectoral collaboration among the procurement agency, FMOH, PFSA, and other stakeholders to review procurement guidelines to address challenges related to medicine procurement by hospitals, taking into account the peculiarities of medicines.

Data obtained from 15 hospitals covering six months of the 2013/14 budget year indicate that they placed 197 orders for 17,773 items with the PFSA (figure 1). The facilities received 45.2%

of the orders placed for procurement from the PFSA. The number of orders sent to private suppliers was 31, for 1,517 items. The private sector was able to supply only 38.1% of the requested products. The performance of both the public and private sectors in supplying medicines in response to hospital requests is poor (44.7%). This shows that there is an urgent need to look at how the system is operating. It is also alarming to see that the private sector is performing less well than expected. This is probably due to their poor attention to the needs of public hospitals. This result needs further study to identify the root causes. PFSA's efforts are mainly focused on supplying essential medicines, which address the health needs of the population in all categories of health facilities. However, it has been repeatedly observed that PFSA lacks the capacity to adequately respond to the huge medicine needs of tertiary hospitals.

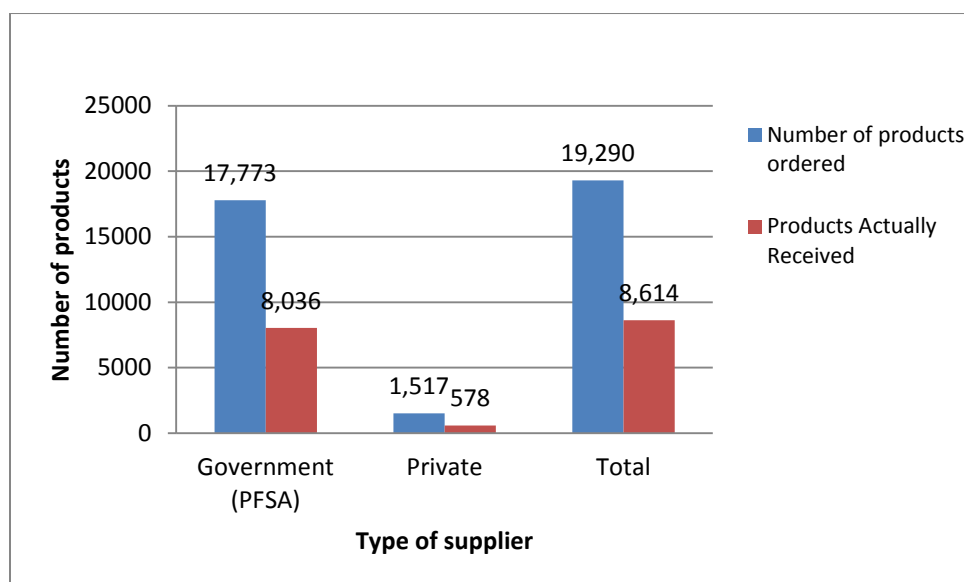


Figure 1. Procurement request refill rate by type of supplier in a six-month period (September 2013-February 2014)

Eighty-four percent of the health facilities claimed that they document wastage of medicines due to expiry and damage, while only one hospital did the same for theft and pilferage of pharmaceuticals. However, only eight (47.1%) hospitals have documented wastage of medicines in at least one of the previous three years. Only four hospitals (23.5%) continuously documented their wastage of medicines. This is an indication of a lack of accountability for preventing or minimizing wastage of medicines.

The total wastage rates for medicines in the hospitals were found to be as high as 118% and as low as 0.5% (table 7). Most of the records show wastage rates between 0.5% and 9%. In 2004 EC, there was an overall wastage of 3,281,562.20 Ethiopian Birr (ETB), accounting for an average of 3.9% of the total value of medicines received by six hospitals. In 2005 EC, the value of wastage was estimated to be 6,254,856.31 ETB, indicating an average wastage rate of 5.27% for eight of the study hospitals. The six-month data for 2006 EC show a total wastage of 1,542,491.6 ETB, indicating an average wastage rate of 5.1%. If the outlier results from Amanuel Hospital are excluded from the analysis, the average rate of wastage in the remaining

seven hospitals would be 4.8%, amounting to 11,078,910.52 ETB. The national target in the Health Sector Development Program (HSDP) IV for the medicines wastage rate is below 2%. The actual situation is therefore far from the target. Generally, there is poor documentation of wastage and pilferage. There seems to be no accountability on the part of health facilities to properly document and report wastage. There are also no tools that automatically capture wastages and there is no system that obligates health facilities to document and report it. It is evident from this assessment that the country is facing a very large amount of medicine wastage that requires urgent attention and action.

Note: The wastage rate should be calculated taking into account the total monetary value of the stock available for sale during the specified period. But, in this study, the wastage rate is calculated by taking the total amount of stock received during the period.

Table 7. Total Medicine Wastage (Expired, Damaged, and Lost) by Hospital (2004-2006 EC) (n=8)

SN	Name of Hospital	2006 EC (Six Months Only)			2005 EC			2004 EC		
		Received, Birr	Wasted, Birr	%	Received, Birr	Wasted, Birr	%	Received, Birr	Wasted, Birr	%
1	Dilla University	3,614,767.00	134,002.00	3.70	8,163,778.00	575,725.00	7.10	8,628,791.00	466,546.00	5.40
2	ALERT	2,357,583.00	28,349.00	1.20	8,212,367.80	39,487.32	0.50	6,672,201.00	56,457.31	0.80
3	Amanuel *	155,098.00	182,785.00	117.90	346,709.00	10,401.10	3.00			
4	St. Paul	15,261,605.00	158,299.00	1.00	33,136,836.60	376,023.39	1.10	29,396,603.00	320,000.00	1.10
5	St. Peter	1,806,391.00	154,929.00	8.60	4,012,001.00	234,062.20	5.80	4,394,770.00	339,063.80	7.70
6	Menilik *	6,880,203.00	884,128.00	12.90	16,473,028.70	3,417,966.27	20.70			
7	Gondar Uni. *				29,039,408.50	519,867.03	1.80	19,154,851.00	1,703,115.10	8.90
8	Zewditu *				19,415,246.70	1,081,324.00	5.60	15,448,973.00	396,380.00	2.60
Total		30,075,647.00	1,542,492.00	5.13	118,799,376.30	6,254,856.31	5.27	83,696,189.00	3,281,562.21	3.92

The average waste rate for the eight hospitals is calculated to be 4.8%.
 *Hospitals with incomplete data

The number of hospitals that generate financial reports from medicines sales on a regular basis was found to be only four (23.5%). Of the four hospitals, three produce monthly reports while the other hospital produces quarterly reports. Most facilities are in the dark about financial transactions regarding medicines. Although medicines sales are one of the major income-generating mechanisms for hospitals, there is widespread inefficiency in tracking and reporting financial transactions and revenues. This is an indication of a huge loophole for financial loss to the hospitals.

Physical inventory of medicines is carried out in 88.2% of the hospitals. Among these 17 hospitals, physical inventory is conducted on a yearly (80%), biannual (13.1%), and both monthly and yearly (6.7%) basis. Physical inventory is one of the most important ways to minimize wastage, stock-outs, theft, and pilferage. Physical inventory should be performed more frequently than most of the hospitals are doing. More frequent physical inventory will help to track and take action on theft, pilferage, expiries, and other wastage on a timely basis.

While medicines sales are a major source of hospital revenue, it is unacceptable that information on the amount of revenue collected from the sale of medicines was not captured equally by all of the hospitals. Information was not collected at all at ALERT, Black Lion, and Menilik Hospitals. In another six hospitals, one year of sales data was not found. In 2004 EC, a total of 19,848,933.10 ETB was collected as revenue by 10 hospitals. In 2005 EC, 36,836,566.16 ETB was collected by 14 hospitals. The amount of revenue collected by 12 hospitals was 28,042,633.26 ETB for the first six months of 2006 EC. Only eight (47.0%) hospitals have recorded their medicines sales revenue consistently, as shown in table 8.

Table 8. Amount of Revenue Collected from Medicines Sales by Hospital (2004-2006 EC) (n=14)

SN	Name	2006 (Six months)	2005	2004
1	Amanuel	105,323.20	149,344.17	10,540.38
2	Asella	995,462.96	1,382,144.77	853,003.85
3	Ayder Referral	329,797.50	1,576,743.00	
4	Dilla University		2,096,312.00	2,212,361.00
5	Gondar University	3,434,146.28	4,842,946.68	3,138,078.80
6	Hawassa Referral	1,395,383.96	2,081,979.29	2,368,969.67
7	Hiwot-Fana Referral	1,422,250.03	3,133,277.96	
8	Jimma University	1,169,128.50	3,119,772.00	
9	Ras Desta Damtew	254,798.17	167,259.31	551,823.22
10	St. Paul	673,394.08	8,048,727.15	6,401,157.72
11	St. Peter	247,185.33	320,780.33	219,000.00
12	Wolaita Soddo Referral	14,535,456.65	3,302,386.00	2,883,963.11
13	Yekatit 12	3,480,306.60	4,692,481.20	
14	Zewditu Memorial		1,922,412.30	1,210,035.35
	Total	28,042,633.26	36,836,566.16	19,848,933.10

Information was also gathered on the amount of revenue collected by the hospitals from services and other sources. This information was collected from 13 hospitals. The hospitals recorded

revenues of 21,031,767.62, 35,714,705.49, and 11,758,700.48 ETB in 2004, 2005, and 2006 EC, respectively (table 9).

Table 9. Amount of Revenue Collected from Services and Other Sources (n=13)

SN	Name of Hospital	2006 (Six months)	2005	2004
1	ALERT	1,184,847.29	1,810,196.24	1,865,217.20
2	Amanuel	376,534.89	505,295.81	442,285.23
3	Asella	1,225,110.20	2,119,556.76	1,948,765.42
4	Ayder Referral	607,693.86	4,120,276.45	
5	Dilla University		1,047,439.00	943,864.00
6	Gondar University	1,312,168.19	5,586,472.09	2,904,173.76
7	Hiwot-Fana Referral	191,883.67	552,931.40	
8	Jimma University	3,046,440.86	6,870,550.00	2,676,215.97
9	Ras Desta Damtew	1,905,484.83	3,571,033.42	2,861,978.13
10	St. Paul	1,484,677.72	1,833,934.16	1,591,397.47
11	St.Peter	353,360.19	472,306.04	233,027.67
12	Yekatit 12	70,498.78	350,192.42	
13	Zewditu Memorial		6,874,521.70	5,564,842.77
Total		11,758,700.48	35,714,705.49	21,031,767.62

As can be clearly seen in tables 8 and 9, medicines sales are the most important source of revenue for the hospitals. Even though the recording of sales was found to be unsatisfactory, it is very easy to observe that the shares of medicines sales revenue is 70.5%, 50.8%, and 48.6% in 2006, 2005, and 2004 EC, respectively. In addition, it should be noted that the revenue from services and other sources also contains revenue collected by medical staff from medicines and supplies, as well as revenue from other pharmaceuticals, such as reagents and consumables for laboratory and imaging services. The practice of separately recording the types of services being delivered and type and amount of medicines used by the patient at the ward level is not in place. Patients only pay for the medicines and consumables used during the course of their medical care, including those used as part of medical procedures. This practice creates loopholes for wastage, theft, and pilferage. In most cases, there is little accountability and transparency in managing medicine transactions, especially at the ward level. Transactions are not managed using standard tools, and there is poor documentation and reporting in this regard. This is an important area for intervention by hospital management and other top-level decision makers.

Of the 17 hospitals included in the study, 53% use a revolving drug fund (RDF) to improve their working capital. In these hospitals, management's commitment to making sure that the system is operating effectively is reportedly poor. The rest of the hospitals depend on budget allocations from the government treasury. This funding mechanism is not based on capital formation and lacks flexibility as it depends on the distributive capacity of the government to address its many competing needs, which are often influenced by several factors. Mechanisms, such as a RDF, help to harness the huge revenue generation capacity of the hospitals and make an adequate amount of funding available to improve access to medicines. The government has established the legal framework that authorizes revenue retention and use by hospitals. This is an excellent step forward, but it cannot guarantee the full supply of essential medicines because of the

bureaucratic decision-making process to get budget approval and the lump sum revenue management system that doesn't give priority for medicines purchase in practice.

Auditing the pharmacy department has always been a very daunting task. The main reason is the lack of standardized, transparent, and accountable management practices for medicines and revenues from the sale of medicines. Medicines are not properly tracked, from their receipt at the pharmacy store to their issuance to the ultimate user. There are no customized tools to properly document and report transactions. This has led to the grim reality that the pharmacy service is considered "non-auditable." The baseline assessment showed that only four (23.5%) of the hospitals have conducted an audit at least once in the previous fiscal year. Among the auditing practices, St. Paul Hospital reported conducting a quarterly physical inventory, St. Peter Hospital reported conducting a surprise and scheduled audit at least once per year, and Yekatit 12 Hospital reported the practice of a scheduled audit. The assessment has revealed that accountability and transparency in an important service delivery function, where a huge amount of a hospital's investment is being made in an effort to save the lives of citizens, are very poor.

Availability of Key Medicines

The assessment questionnaire defined 25 key medicines based on several factors. The selection of five other key medicines was left to the hospital medical and pharmacy staff based on the prevalence of diseases and the specialty services they are delivering. In total, 30 key medicines were selected to assess their availability at the time of the assessment teams' visit to dispensaries and stores. However, some hospitals preferred to use the predetermined list of 25 key medicines and some included less than five other key medicines. Therefore, the total number of key medicines used to measure availability varied from 25 to 30.

The availability of key medicines at the dispensaries ranged from 33.3% at Zewditu Hospital to 100% at Assela and Black Lion Hospitals (table 10). On average, 81.5% of the key medicines were available in the dispensaries at the time of the visits. The availability of key medicines at the pharmacy stores ranged from 58.6% at Ras Desta Hospital to 100% at Black Lion Hospital. The average availability of key medicines in the stores was 82.3%. In some of the hospitals, there was a wide gap in the availability of key medicines between the pharmacy store and dispensary. This shows that patients are not getting their prescribed medicines, although they are available in the hospital, and that they incur unnecessary costs at private pharmacies. In addition, such practices cause medicines to expire, while patients are experiencing stock-outs at the dispensaries. Improving accountability at the dispensary level through bin ownership among dispensing pharmacists is one major intervention that has proven instrumental in curbing this problem at hospitals implementing APTS.

The maximum stock-out duration for some of the key medicines in past three months was 90 days for most of the health facilities (table 10). The minimum stock-out duration ranged from 1 to 30 days. One hospital registered no stock-outs during the three months before the assessment. Some of the key medicines that were out of stock for more than three months included glucose 40% (one hospital), metronidazole injection (one hospital), co-trimoxazole tablet/suspension (one hospital), ceftriaxone injection (one hospital), doxycycline capsule (one hospital), tetanus

antitoxin (two hospitals), pentavalent vaccine (two hospitals), ferrous sulfate plus folic acid (five hospitals), and tetracycline eye ointment (five hospitals). One may ask why the hospitals have stock-outs of these critical medicines for such a long period of time. There are a lot of reasons, including the lack of accountability for stock-outs. Some maternal and child health medicines were out of stock for a long duration and thus need urgent attention. As per the HSDP IV target, the proportion of health facilities with stock-outs of essential medicines will decrease from 35% to 0%. Therefore, there is still a major gap to achieve this national goal.

The major reason cited by the hospitals for stock outs of essential medicines is the absence of reliable suppliers that can respond effectively to their ever-increasing need for medicines. It is also important to note that information for decision making in procuring medicines is not properly generated by the hospitals. And when information is available, it is not used to guide the selection and procurement of pharmaceuticals. The legal and administrative issues surrounding methods of procurement are also cited as reasons for the observed inefficiencies.

Table 10. Availability of Key Medicines at the Store and Dispensary (N=17)

SN	Name of Hospital	# Key Medicines	% availability		Duration of stock-out, in days	
			Dispensary	Store	Minimum	Maximum
1	Zewditu Memorial	25	33.3	70.0	12	90
2	Wolaita Soddo Referral	25	64.5	80.6	8	90
3	Dilla University	30	96.4	93.3	1	30
4	Hawassa Referral	30	86.7	90.0	5	90
5	ALERT	30	76.7	76.7	7	90
6	Amanuel	30	90.0	73.3	0	0
7	St. Paul	30	75.9	96.0	15	90
8	St.Peter	30	93.1	86.2	30	90
9	Ras Desta Damtew	30	65.5	58.6	15	90
10	Yekatit 12	30	87.1	77.4	5	90
11	Ayder Referral	30	76.7	73.3	14	90
12	Hiwot-Fana Referral	30	Information not obtained		1	90
13	Asella	30	100.0	92.9	0	60
14	Gondar University	28	89.3	82.1	3	90
15	Jimma University	25	76.0	76.0	20	90
16	Black-Lion	25	100.0	100.0	0	80
17	Menilik	30	92.6	92.6	2	90

Accuracy of Records (Matching of Recorded Quantity with Physical Count)

The generation of accurate records is necessary because most decisions regarding medicine selection, quantification, procurement, and use depend on it. When there are poor stock records, the investment that is going to be made on medicine supply will be based on inaccurate data, which leads to stock-outs and/or overstock. When this happens in a country like Ethiopia, where there is shortage of adequate financing for essential medicines, the consequences can be dire.

Stock records for the key medicines were assessed in the 17 hospitals at the time of the visit. The key medicines selected were similar to those used for measuring availability and the approach for selection was similar. The actual physical count for each medicine was checked against the amount recorded on bin cards at the pharmacy store. The team identified as few as two records (6.7%) that were not accurate at ALERT Hospital to as many as 24 records (85.7%) in St Paul Hospital that were not accurate (table 11). Gondar University Hospital and Menilik II Hospital had up-to-date records for all 28 and 25 medicines selected, respectively. Although not all records were updated, Gondar University Hospital, Ayder Referral Hospital, and ALERT Hospital have records for all key medicines selected for this assessment. The lowest availability of records for the key medicines was at Assela Hospital; it had records for only 40% of the key medicines. Black Lion Hospital did not have any records at all for the selected key medicines. The assessment has shown that the hospitals' culture for keeping transaction records is very poor and needs urgent attention. The hospitals need to institute stronger management of inventory records. The facilities should also be encouraged to start the practice of using information for decision making.

Table 11. Availability and Level of Accuracy of Records for Key Medicines (N=17)

SN	Name of Hospital	Availability of Records for Key Medicines			Accuracy of Records	
		# Medicines	# with records	%	# records with discrepancy	%
1	Zewditu Memorial	25	24	96.0	11	45.8
2	Wolaita Soddo Referral	25	24	96.0	14	58.3
3	Dilla University	30	29	96.7	10	34.5
4	Hawassa Referral	30	24	80.0	6	25.0
5	ALERT	30	30	100.0	2	6.7
6	Amanuel	30	27	90.0	7	25.9
7	St. Paul	30	28	93.3	24	85.7
8	St. Peter	30	29	96.7	6	20.7
9	Ras Desta Damtew	30	21	70.0	8	38.1
10	Yekatit 12	30	27	90.0	19	70.4
11	Ayder Referral	30	30	100.0	8	26.7
12	Hiwot-Fana Referral	30	17	56.7	2	11.8
13	Asella	30	12	40.0	9	75.0
14	Gondar University	28	28	100.0	0	0.0
15	Jimma University	25	24	96.0	6	25.0
16	Menilik	30	25	83.3	0	0.0
17	Black Lion	25	0	0.0	NA	NA

Quality of Pharmacy Services and Patient Satisfaction with Services

Effective Counseling Time

Effective counseling time is the time a patient spends with the dispenser being actively involved in providing and receiving information on the appropriate use of dispensed medicines. This parameter is different from the average dispensing time, which is much longer and includes time for interpretation and evaluation of the prescription, payment, packaging, and labeling of the

product, medicines-use counseling time, and other important activities in the dispensing process. The assessment results show that the average time spent on counseling in the hospitals was 42.8 seconds. The minimum and maximum average counseling times recorded were nine seconds at St. Paul Hospital and 277 seconds at Amanuel. These results indicate that there is a very wide discrepancy in the amount of counseling provided to clients. It is also evident that the average counseling time obtained from this study is by no means adequate for the provision of relevant medicine information to clients to influence their medicine use behaviors. All the time and effort invested in diagnosing a patient's ailment is wasted if the patient ultimately fails to take his or her medicine properly. The type and level of medicine counseling service observed during the assessment needs improvement.

Labeling

Clients should be given adequate labeling information to reinforce the counseling service provided because of the possibility of clients forgetting key information after they leave the pharmacy. Exit interviews were conducted with 100 patients at each of the 17 hospitals who had received medicines from the hospital pharmacy. During the interviews, the data collector reviewed labeling information on the package by just randomly picking one of the medicines. The assessment showed that the information on the labels of the dispensed medicines was very poor. Very few (3.4%) of the 1,700 medicine packages reviewed had the patient's name written on the label. The medicine name and its strength were the most frequent information written on the labels. This could be because of the name of the product printed by the manufacturer. But the information that ultimately determines the appropriate use of medicines, such as dose, frequency, and directions for use were unexpectedly very low, as indicated in figure 2.

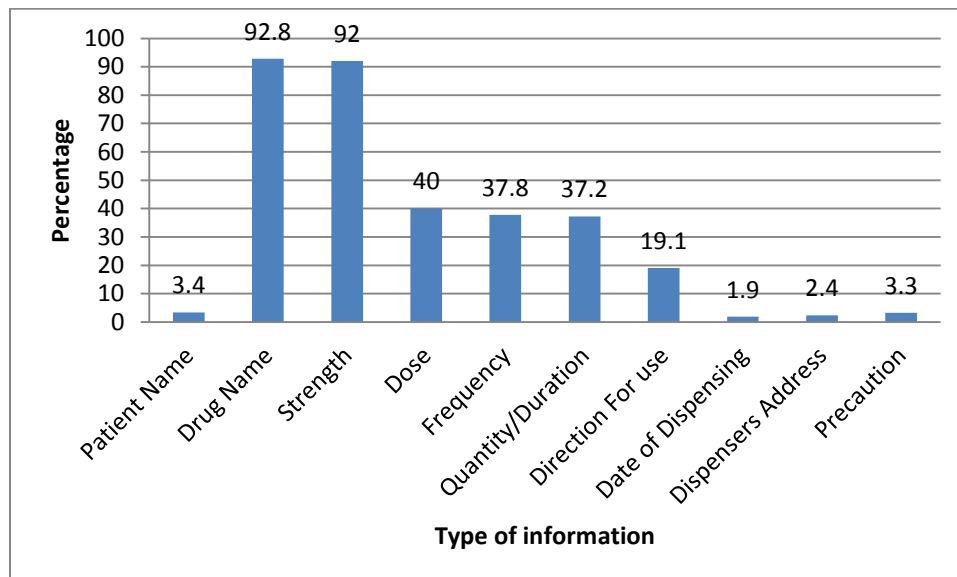


Figure 2. Adequacy of labeling information on dispensed medicines

Patient Knowledge of Dispensed Medicines

To assess patient knowledge of dispensed medicines, 100 patients from each of the 17 hospitals were interviewed after they received their medicines. Given the very poor results obtained for counseling time and the adequacy of labeling, one would expect a very poor level of patient knowledge. However, a very large number of patients knew the dose, frequency, and route of administration, at 83.2%, 90.8%, and 94.6%, respectively (figure 3). Most of the interviewed patients did not know the name, precautions, and storage conditions for the medicines dispensed to them. However, it is important to bear in mind that proper use of medicines is only possible when a patient knows all of the selected set of information components. The dose, route of administration, frequency, and duration of use are considered the most important components of medicine knowledge without which patients may fail to take the medicines correctly (FMHACA 2012). Only 50.5% of the patients knew all four types of information. If storage conditions are considered in the calculations, only 31.3% of patients knew all five types of information. Moreover, only 4% of patients knew all types of information.

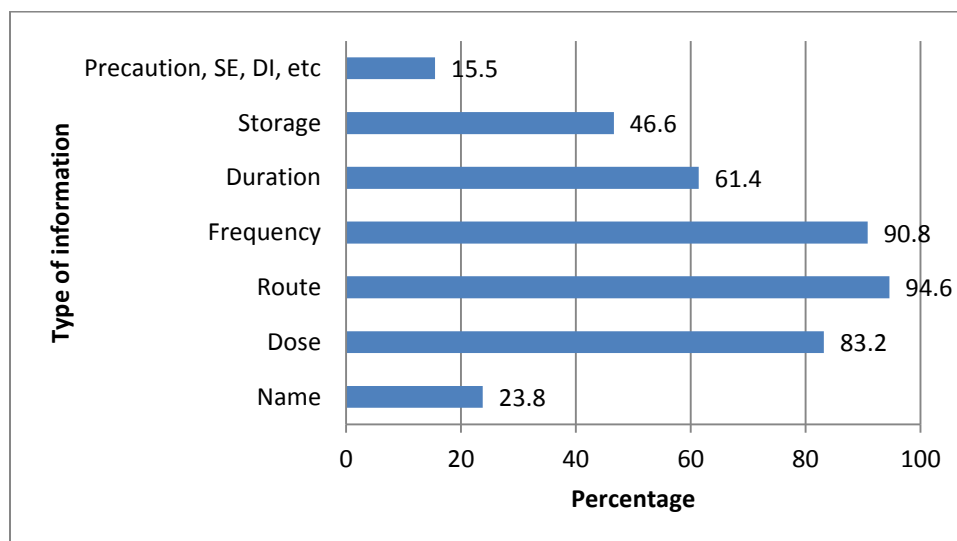


Figure 3. Level of patient knowledge of dispensed medicines²

Amount of Medicines Actually Dispensed

The number of medicines prescribed and dispensed was reviewed during the exit interview with 100 patients randomly selected from 16 of the 17 hospitals. Amanuel Hospital did not provide information in this regard. Overall, 2,645 medicines (81%) were actually dispensed at the OPD dispensary from a total of 3,261 prescribed medicines, a finding that is consistent with the availability of key medicines at the dispensaries (table 12). The minimum and maximum percentages for medicines actually dispensed were 70% and 94%, respectively. These average values indicate that the facilities have to work harder to ensure better access to essential medicines. This result indicates the need for instituting better procurement methods, inventory

² SE and DI stand for side effect and drug interaction, respectively

management, record keeping and reporting, ensuring adequate access to financial resources, and a system for transparency and accountability for stock-outs, losses, and wastage.

Table 12. Number of Medicines Prescribed and Actually Dispensed (n=16)

SN	Name of Hospital	Number of Medicines		
		Prescribed	Actually Dispensed	% Dispensed
1	Black-Lion	208	171	82.2
2	St. Paul	206	147	71.4
3	Yekatit 12	244	225	92.2
4	Zewditu Memorial	190	153	80.5
5	Menilik	194	163	84.0
6	Ras Desta Damtew	232	180	77.6
7	ALERT	181	141	77.9
8	St.Peter TB Specialized	176	165	93.8
9	Hawassa Referral	177	152	85.9
10	Wolaita Soddo Referral	196	163	83.2
11	Dilla University	176	154	87.5
12	Jimma University	220	161	73.2
13	Asella	186	169	90.9
14	Gondar University	245	171	69.8
15	Ayder Referral	203	154	75.9
16	Hiwot Fana	227	176	77.5
Total		3,261	2,645	81.1

Patient Satisfaction

Patient satisfaction with the quality of pharmaceutical services provided was assessed by interviewing the same patients who responded to questions regarding labeling and patient knowledge. The parameters used for assessing patient satisfaction were dispensing area, dispensing process, personnel skills, privacy of the setting, and assistance offered to the patient. All patients from Ayder and Hiwot Fana Hospitals were satisfied with the dispensing area. Gondar, Black-Lion, Assela, and Yekatit 12 Hospitals scored less than 50% for this parameter. The average result on the suitability of the dispensing area was 71.5% (figure 4). The results indicate that patients, especially those at Addis Ababa hospitals, were not satisfied with the dispensing area. They need to be modified to improve patient convenience. The privacy of settings was also one reason for patient dissatisfaction in most of the hospitals. The average result obtained for privacy was the lowest, i.e., 54.9%. About 74% of the patients were satisfied with the dispensing process, while 81.4% of clients were satisfied with the competence of pharmacy staff during dispensing. Seventy-five percent of the respondents acknowledged that they received good assistance from pharmacy staff. Overall satisfaction stood at an average of 74.5%. This figure might have been lower had patients been asked whether they had received all of the medicines prescribed to them from the dispensing outlet. The information on the percentage of prescribed medicines actually dispensed to patients was reviewed in another section of this survey report. The main purpose of this patient satisfaction survey was to identify the major factors, other than the availability of medicines, contributing to patient dissatisfaction with pharmacy services.

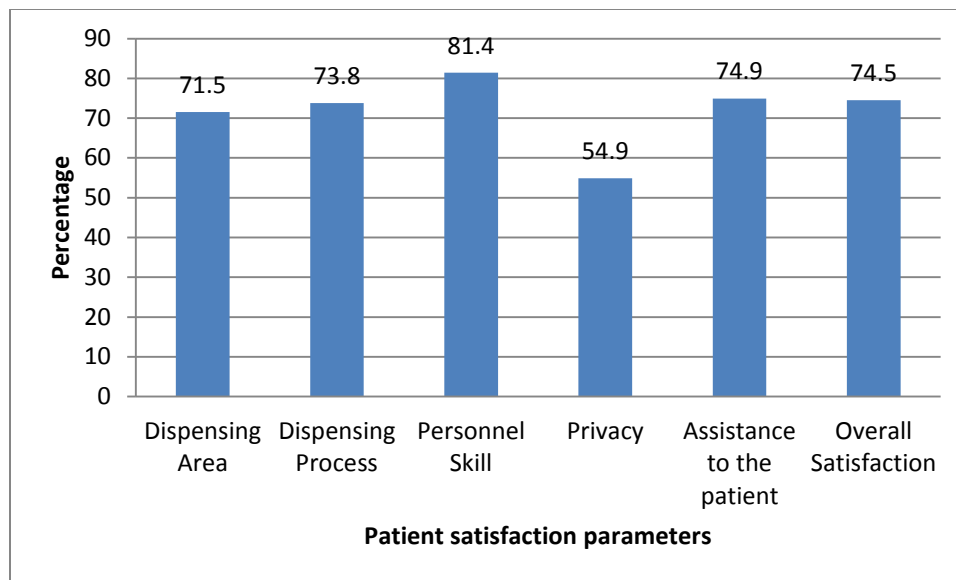


Figure 4. Level of patient satisfaction with pharmacy services

Job Satisfaction of Pharmacy Personnel

For a hospital to be effective in serving its clients, the job satisfaction of employees plays a key role. Job satisfaction is “an individual’s reaction to the job experience” (Berry 1997). Job satisfaction is usually measured using the following parameters: pay, promotion, benefits, supervisor, coworkers, work conditions, communication, safety, productivity, and the work itself. Individual employees respond differently to these issues.

The job satisfaction of employees in the 17 hospitals was assessed as regards the state of supervision, collaboration with coworkers, payments, promotion, the work itself, and pharmacy premises and facilities. The most dissatisfaction was observed on the amount of remuneration (table 13). Professionals feel that their payments are unfairly low and believe that they should receive better benefits in light of their contributions and responsibilities. Pharmacy staff are also unhappy about their work settings. More than 60% of them responded that they disagree or strongly disagree with the premises and facilities. The highest satisfaction was obtained for collaboration with coworkers and for satisfaction with the work itself. Considering everything, the level of satisfaction of pharmacy professionals is very low, more than 50% responding to disagree or strongly disagree. On the other hand, the results show that pharmacy staff do appreciate their profession and are able to create better working environments with their colleagues.

Table 13. Job Satisfaction of Pharmacy Staff (N=228)

SN	Job Satisfaction Parameters	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Satisfaction with Supervision						
1	The supervisors I work with are supportive	14.0	15.8	27.6	28.9	13.6
2	My superiors listen to me properly	13.6	15.4	23.2	32.0	13.6
3	I am treated fairly by the management of the hospital	21.1	25.4	23.2	22.8	6.6
4	My suggestions are usually given consideration by my supervisor	13.6	20.2	25.9	28.1	10.1
5	My work responsibilities are made clear by my supervisor	10.5	21.1	21.5	34.6	9.2
Satisfaction with Coworkers						
6	I enjoy working with my colleagues in the hospital	2.6	11.0	17.5	46.5	21.5
7	The people I work with are responsible for their job	4.4	9.6	18.0	50.9	15.4
8	The people I work with give me enough support	2.6	12.7	21.9	46.9	13.6
9	The people I work with are cooperative	2.2	9.2	19.3	48.7	18.0
Satisfaction with Payment						
10	My pay is adequate, considering the responsibilities I have	57.9	23.2	7.0	7.5	2.6
11	The hospital pays me fair benefits (transport, medical, etc.)	45.2	23.7	11.4	14.9	2.2
12	There are benefits we do not have that we should have	15.8	15.4	14.9	18.9	31.1
Satisfaction with Promotion						
13	I like the basis on which my hospital promotes people	16.7	27.6	36.8	12.3	3.5
14	Promotions are infrequent in my hospital	4.4	18.4	29.8	26.3	15.8
Satisfaction with the Work Itself						
15	My job is interesting	11.8	7.9	11.4	39.9	28.1
16	I would rather be doing another job	16.7	22.8	19.7	27.2	11.8
17	I feel unappreciated by the hospital for the work I do	7.0	14.5	26.3	35.1	15.4
18	I have too much to do at work	3.9	8.8	15.8	46.1	21.5
19	I often feel that I do not know what is going on with the organization	6.1	17.1	29.8	29.8	14.5
20	I feel a sense of pride in doing my job.	9.6	18.4	20.6	37.3	12.3
21	I don't feel my efforts are rewarded the way they should be	7.0	13.2	23.2	37.7	15.4
22	Work assignments are not fully explained	5.7	19.7	25.0	34.6	9.6
23	My job makes good use of my skills and abilities	9.6	17.5	14.9	41.2	13.6
24	I have the tools and resources to do my job well	24.6	32.9	15.8	21.5	3.5
25	My work gives me a feeling of personal accomplishment	8.8	21.5	25.4	32.9	8.3
26	In-service trainings adequately prepared me for the job	37.3	22.8	17.5	16.2	3.9
Premises and Facilities						
27	Sufficient attention is given to job safety	29.8	33.3	11.4	18.9	5.7
28	Premises are convenient for conducting my duties	21.9	33.3	17.1	21.1	4.4
29	Facilities are adequate for conducting my duties	30.3	32.9	15.4	15.8	3.5
Overall Satisfaction						
30	Considering everything, I am satisfied with my job	21.1	30.3	22.8	21.1	2.6

CONCLUSIONS AND RECOMMENDATIONS

Focus Area 1: Availability of Services and Adequacy of Staffing

The availability of different components of pharmaceutical services is not uniform across the hospitals included in this study. Services such as emergency pharmacy, clinical pharmacy, medicine information, and extemporaneous compounding are lacking in most of the hospitals. Most pharmacy staff feel that the various components of pharmacy services are inadequately staffed. The pharmacy staff's perceptions match the findings of pharmacy workforce needs obtained by calculating the staff requirements of the hospitals based on patient load.

There is a need to set up pharmaceutical services as per the standards in the EHRIG-Pharmacy Chapter. The overall management of pharmacy services seems to require restructuring. There is a need to assign coordinators that are responsible for overseeing the various service units under the supervision of the overall pharmacy service head.

The determination of staff size should be an ongoing process; it should be conducted on the basis of the workload of pharmacy staff. Hospitals should be given the authority to determine the type and number of pharmacy staff needed to properly respond to the ever growing need for professionals at all service delivery points. Predetermining staff size has been repeatedly shown to be a bottleneck for instituting quality pharmaceutical service delivery because it does not readily respond to emerging needs and workload. Therefore, to effectively implement APTS, the hospitals should urgently make an adjustment in their workforce, as per the findings of this assessment.

Focus Area 2: Pharmacy Management

Pharmacy professionals are reportedly practicing at hospitals without a formal job description. This has contributed to the overall lack of accountability and responsibility. Managers do not understand the specific deliverables expected from the pharmacist. Without job descriptions, performance measurements and promotions are likely to be distorted (Bradley 2008). There is an urgent need to prepare job titles and job descriptions for all pharmacy staff practicing in the hospitals.

The pharmacy section does not have a clear plan of action and deliverables. It is therefore not clear how hospital management monitors the activities of the pharmacy division. In most instances, the pharmacy section has only a procurement plan. It does not have detailed plans and targets for the various services it provides. The pharmacy division should be given management support to prepare an annual plan of action that will be closely monitored and evaluated by the pharmacy section and hospital management.

Focus Area 3: Finance, Budgeting, and Audit

Budget allocation, revenue generation, and self-sufficiency to cover the needs for pharmaceuticals deserve better consideration from concerned authorities, such as FMOH, RHBs, the Ministry of Finance and Economic Development, Bureau of Finance and Economic Development, and hospital/university boards. The amount of the budget being allocated for medicine supply is not adequate to cover all months of the year. Therefore, there should be a mechanism to capitalize on the small amount of budget allocated over the year. This can be done by enhancing the income-generating capacity of the hospitals through proven schemes, such as a RDF. The RDF is incorrectly thought to be applicable only in the special pharmacy setting; it can be implemented in all pharmacy settings. APTS provides the necessary tools and procedures for instituting a RDF. The hospitals should facilitate the effective implementation of revenue retention and use in line with RDF principles. Further investigation is needed to understand why there is such a low level implementation of the RDF scheme.

There are proven methodologies that enable hospitals to efficiently manage and use their budgets. They include developing facility-specific medicine lists, prioritization of medicine lists by VEN, conducting ABC value analysis, reconciliation of ABC value analysis and VEN categorization, SSA, and stock turnover analysis. Such methodologies should be widely practiced, the results obtained should be diligently implemented, and should guide decision making on medicine selection, procurement, inventory management, and dispensing activities. Also, improving the proper use of resources by instituting protections against pilferage, theft, and wastage, such as expiry, is believed to contribute greatly to mitigating the problem of budget shortage.

The hospitals were found to depend mainly on direct procurement from PFSA. The capacity of PFSA to refill all requests is very low as compared to the huge demand from health facilities. Unfortunately, the private sector is also unable to fill the gap, as exemplified by the much lower refill rate compared to the PFSA. There is a lack of clear ownership and accountability in managing medicine supply at the hospitals. The hospitals should deploy full-time pharmacists to manage the medicine supply and provide appropriate training on government procurement procedures to effectively use all legitimate mechanisms to obtain medicines. Overall, the poor performance of the medicine supply system at the hospitals requires follow-up actions.

The culture of recording wastage and pilferage is very poor in the hospitals surveyed. Medicines that are being received by health facility stores and issued to different service delivery points are unaccounted for due to a lack of recording and documentation as well as poor transparency and accountability. It is high time that facilities implement clear procedures and tools for controlling, tracking, documenting, and reporting all types of transactions.

It is also common practice that revenues from hospitals are not properly documented and reported. It is well known that the sale of medicines is a major source of revenue for hospitals. This capacity has to be enhanced by instituting a transparent and accountable system under which all medicine-related transactions (free, credit, cash sales) are properly recorded and reported on specific forms prepared for this purpose. Hospital administrators should make every

effort to monitor sales at all service delivery points, including in the wards, and assuring that the monetary value of medicines in all the services are accounted for separately.

The auditing practice at the hospitals included in this survey was likewise found to be very poor. It is considered to be practically impossible to audit pharmaceutical transactions. This is the result of the lack of standardized recording and documentation that ensures transparency and accountability. Once services and transactions are standardized, it will be easier to audit the pharmacy division.

Focus Area 4: Availability of Key Medicines

The availability of medicines in hospitals is expected to be 100%. This is especially true if the medicines are essential and lifesaving. This is not the reality at the surveyed hospitals and an urgent response is needed. In some of the hospitals, availability was different at the store and the dispensary. To increase the availability of essential medicines, inventory management needs to be improved so that decisions are guided by accurate information. The hospitals need to apply various procurement methods besides direct procurement from PFSA. Moreover, health institutions should avoid wastage and pilferage through the application of methodologies, such as VEN classification of medicines, ABC value analysis, SSA, etc.

Focus Area 5: Accuracy of Records

The accuracy of inventory records for essential medicines was found to be poor. This has direct implications for the availability of medicines because medicine procurement depends on information from these records. Quantification and procurement of medicines based on unreliable and untimely data result in frequent stock-outs and waste due to expiry. Hospitals should implement manual and electronic inventory data capturing tools managed by dedicated clerks and medicine supply managers.

Focus Area 6: Quality of Pharmacy Services (Effective Counseling Time, Labeling, and Patient Satisfaction with Pharmacy Services)

Effective counseling is of paramount importance for the rational use of medicines by patients. The level of counseling service at the surveyed hospitals was found to be very low. Interventions, such as improving the premises, providing on-the-job skills training, reducing workloads, and improving the work flow, are important measures to enhancing the medicine counseling service at the dispensary level.

The level of medicine labeling is also very poor in the hospitals. Information delivered to the patients has to be augmented by supplemental medicine information in the form of labeling. Labeling is one of the easiest tasks the pharmacy section can do to improve patient adherence to prescribed regimens. It is not surprising to observe the low level of patient knowledge of dispensed medicines (only half of respondents knew all dose, route of administration, frequency,

and duration combined) considering the very poor dispensing practices at the hospitals. What is more worrying is that patients would not be able to correct their misinformation by referring to the medicine labels because the level of labeling practice was also very low. Generally, there is a need to institute standardized dispensing practices in the hospitals. The factors that may contribute to inefficiencies should be identified and interventions should be immediately sought to alleviate the widespread problem of irrational medicine use by service providers and patients.

Considering the overall quality of services, the level of satisfaction of patients is good. However, more is expected from the hospitals to improve the dispensing premises, dispensing processes, and the skills of their pharmacy staff if greater patient satisfaction is to be obtained. The dispensary setting should provide adequate privacy. In addition, pharmacy staff should be trained on customer handling and on addressing patients' specific needs.

Focus Area 7: Job Satisfaction of Pharmacy Personnel

The study revealed that the level of job satisfaction of pharmacy staffs is low. It is widely accepted that performance on the job has direct links to overall job satisfaction of employees. A professional with a low satisfaction level cannot be expected to perform well in his/her day-to-day activities. The assessment showed that salary scales and other benefits are the major source of dissatisfaction for pharmacy professionals. Poor premises were also a reason for dissatisfaction which can be corrected during designing phase of hospital construction for the new ones. For existing hospitals, this can be properly addressed during renovation as witnessed during the implementation of APTS. Financial dissatisfaction can be reduced by introducing merit-based salary scales and other incentive mechanisms. Also, the idea of private-wing clinics³ can be extended to the pharmacy section and, as such, the experience can be used to motivate pharmacy staff and ensure equity across professional categories.

³ Private-wing clinics are clinics established in the premises of public hospitals and run by hospital staff (physicians and nurses). The clinics operate after working hours and during weekends. These clinics were established to encourage the professionals to stay at the hospital for longer hours and also to serve as an additional income-generating scheme for the professionals.

ANNEX A. BASELINE ASSESSMENT TOOL FOR APTS

1. Availability of Services and Adequacy of Staffing

1) Number of technical and support pharmacy staff full time for pharmacy service:

- a. #Pharmacists= _____ b. #Druggists= _____
 c. # Pharmacy technicians = _____ d. #Cashiers= _____
 e. #Accountants= _____
 f. #others (specify) _____

2) Who is entitled to make the final decision on employment of pharmacy staff?

- a. FMOH/RHB b. Hospital Management c. Hospital/University Board
 d. Others (specify): _____

3) On what basis is the number of pharmacy staff (employment) decided? (you may choose one or more)

- a. Budget available 1. Yes 2. No
 b. # Clients served 1. Yes 2. No
 c. Staff size already pre-determined (e.g., BPR) 1. Yes 2. No
 d. Others, specify:

4) Are any of the following services available?

SN	Type of Service	Yes/No	# Staff		Adequacy of pharmacy personnel (1 = Yes, 0 = No)	Remark
			Fulltime	Part-time		
1	OPD (dispensing) pharmacy					
2	Emergency pharmacy services					
3	Inpatient pharmacy services					
4	ART pharmacy					
5*	Clinical pharmacy services					
6	Chronic care pharmacy (other than ART)					
7	Drug information services					
8	Extemporaneous compounding					
9	Medicines selection quantification and procurement					
10	Warehousing and Inventory management for medicines					

SN	Type of Service	Yes/No	# Staff		Adequacy of pharmacy personnel (1 = Yes, 0 = No)	Remark
			Fulltime	Part-time		
11	Warehousing and Inventory management for medical supplies and equipment					
12	Overall management and coordination of pharmacy services					
13	Others, Specify					

**check the availability of ADR focal person*

5) On average, how many patients per day are served at each dispensing outlet?

a. OPD pharmacy = _____ b. Emergency pharmacy = _____

c. ART pharmacy = _____

d. Inpatient pharmacy = _____ e. Chronic care pharmacy = _____

f. Others (specify) = _____

2. Pharmacy Management and Staffing

1) Does all staff of pharmacy have a job description indicating details of their role? 1. Yes 2. No

2) Is the pharmacy section directly represented in the health facility management meetings?

1. Yes 2. No

3) Are the pharmacy activities guided by an annual plan of action (other than a procurement plan)?

1. Yes 2. No

4) Does the pharmacy section monitor and evaluate its activities based on its plan? 1. Yes 2. No

5) Does the pharmacy section apply a participatory and continuous improvement process as a means to improve the quality of service on a continuous basis? 1. Yes 2. No

6) If yes to Q5, what approaches does the pharmacy section apply?

a. Regular meetings with staff and/or management

b. Conduct survey or assessment and make an intervention as per the results

c. Facilitate in-service training for staff

d. Organize consultative meetings with stakeholders

7) Does the pharmacy section report its performance to the health facility management?

1. Yes

2. No

8) If yes to Q7, how often does it report?

a. Monthly

b. Quarterly

c. Biannually

d. Annually

3. Finance, Budgeting, and Audit (*ask finance head and pharmacy head*)

- 1) Who allocates budget for pharmaceuticals?
 - a. FMOH/RHB b. Hospital Mgt c. Hospital/University Board d. Others (specify): _____
- 2) What was the total annual medicines budget of the hospital?

2006 = _____ 2005 = _____ 2004 = _____
- 3) Was the pharmaceuticals budget adequate to cover annual needs (2005)? 1. Yes 2. No
- 4) If no to Q3, for how many months was the budget adequate? _____
- 5) Does the health facility have a medicines list developed by the DTC? 1. Yes 2. No
- 6) Is the medicines list prioritized by VEN? 1. Yes 2. No
- 7) Does the facility practice stock status analysis to minimize wastage, overstock, and shortage? a. yes b. No
- 8) Has the facility performed ABC value analysis? 1. Yes 2. No
- 9) If yes to Q 8, when was it (specify years covered in the analysis)?

- 10) If yes to Q 8, does the facility utilize results of ABC/VEN analysis to prioritize/adjust medicines budget? 1. Yes 2. No
- 11) What procurement mechanisms are applied to purchase medicines? (choose one or more as appropriate)
 - a. Direct procurement from PFSA b. Tender based c. Proforma based
 - d. Others, specify _____
- 12) How much of the products procured/ordered were actually received during 2005 & 2006

Procurement/Order Reference	Number of Products		Name of Supplier	Remark
	Ordered/requested	Actually received		
2006				
Supply order 1				
Supply order 2				
Supply order 3				
Supply order 4				
Supply order 5				
Supply order 6				

Procurement/Order Reference	Number of Products		Name of Supplier	Remark
	Ordered/ requested	Actually received		
Supply order 7				
Supply order 8				
Supply order 9				
Supply order 10				
2005				
Supply order 1				
Supply order 2				
Supply order 3				
Supply order 4				
Supply order 5				
Supply order 6				
Supply order 7				
Supply order 7				
Supply order 8				
Supply order 9				
Supply order 10				
Supply order 11				
Supply order 12				
Supply order 13				
Supply order 14				
Supply order 15				

13) Do you have recorded documents on wastage of medicines due to expiry and damage?

1. Yes 2. No

14) Do you have recorded documents on wastage of medicines due to theft and pilferage?

1. Yes 2. No

15) If yes to Q.13 and/or Q 14, complete the following table:

Year	Total Value (in ETB) of Medicines Received (both budget and program)	Value of Medicines wasted (in ETB)				Remark
		Expired and damaged		Total expired and damaged	Theft and pilferage	
		Budget	donation			
2006 (6 months)						
2005						
2004						
2003						

16) Does the pharmacy generate financial reports from medicines on a regular basis (segregated by cash, credit & free)? 1. Yes 2. No

17) If yes to Q16, how often (tick one or more): a. Monthly b. Quarterly c. Yearly

18) Does the facility carry out a physical inventory on a regular basis? 1. Yes 2. No

19) If yes to Q18, how often (tick one or more): a. Monthly b. Quarterly c. Yearly

20) What is the amount of revenue collected from medicines sales?

2006 (6 months) _____ 2005 = _____ 2004 = _____

21) What is the annual revenue of the hospital from services and others sources, if available? 2006 (6 months)= _____ 2005= _____ 2004= _____

22) Do you use a Revolving Drug Fund (RDF) to improve your working capital for medicine supply?
1. Yes 2. No

23) Has the overall financial, product transactions, and services of the pharmacy section (store plus dispensaries) been audited in the past? 1. Yes 2. No

24) If yes to Q23, when was it last audited? _____

25) If yes to Q 23, which of the following auditing practices was/were performed? (you may choose one or more)

- a. Daily summary (sales, shortages, overages, services, etc.)
- b. Monthly reporting (sales, shortages, overages, services, etc.)
- c. Surprise auditing of product and finance
- d. Schedule auditing at least once per year (service, finance, and product)
- e. Regular pharmacy service auditing
- f. Physical inventory at least quarterly and balanced with quarterly financial reports

4. Availability and Duration of stock-outs for Key Medicines

SN	Medicine Description	At the time of visit				Stock-out duration (in days) - at store	
		Dispensary		Store		Past 3 months	Remark
		Yes	No	Yes	No		
1	Amoxicillin with or without clavulinic acid						
2	Oral Rehydration Salts						
3	Artemether + lumefantrine (coartem) tabs						
4	Mebendazole Tablets						
5	Tetracycline Eye Ointment						
6	Paracetamol tablet/suspension						
7	Refampicin/Isoniazide/Pyrazinamide/Ethambutol						
8	Medroxyprogesterone (depo) injection						
9	Ergometrine Maleate Injection/Tablets						
10	Ferrous Sulphate plus Folic Acid						
11	Pentavalent DPT-Hep-Hib Vaccine						
12	Lidocaine injection						
13	TAT injection						
14	Diclophenac injection						
15	Doxycycline capsule						
16	Cimetidine injection						
17	Ceftriaxone injection						
18	Fluconazole tablet/capsule						
19	Ciprofloxacin tablet						
20	Cotrimoxazole tablet/suspension						
21	Metronidazole injection						
22	Adrenaline injection						
23	Ringer lactate solution						
24	Glucose 40% solution						
25	TDF or AZT /3TC/EFV or NVP						
26							
27							
28							
29							
30							

5. Accuracy of Records (Matching of Recorded Quantity with Physical Count)

Accuracy of Records for Key Medicines

SN	Medicine Description	Store		
		Record	Count	Discrepancy
1	Amoxicillin with or without clavulanic acid			
2	Oral Rehydration Salts			
3	Artemether + lumefantrine (coartem) tabs			
4	Mebendazole Tablets			
5	Tetracycline Eye Ointment			
6	Paracetamol tablet/suspension			
7	Refampicin/Isoniazide/Pyrazinamide/Ethambutol			
8	Medroxyprogesterone (depo) injection			
9	Ergometrine Maleate Injection/Tablets			
10	Ferrous Sulphate plus Folic Acid			
11	Pentavalent DPT-Hep-Hib Vaccine			
12	Lidocaine injection			
13	TAT injection			
14	Diclophenac injection			
15	Doxycycline capsule			
16	Cimetidine injection			
17	Ceftriaxone injection			
18	Fluconazole tablet/capsule			
19	Ciprofloxacin tablet			
20	Cotrimoxazole tablet/suspension			
21	Metronidazole injection			
22	Adrenaline injection			
23	Ringer lactate solution			
24	Glucose 40% solution			
25	TDF or AZT /3TC/EFV or NVP			
26				
27				
28				
29				
30				

6. Effective Counseling Time

Counseling Time

Instruction: Fill in the time in seconds (total time measured from the time the counselor starts advising the patient until he/she ends)

Pt. No	Time (in Seconds)		Total time spent with patient (b – a)		Pt. No	Time (in Seconds)		Total time spent with patient (b – a)		Pt. No	Time (in Seconds)		Total time spent with patient (b – a)
	Started (a)	Ended (b)				Started (a)	Ended (b)				Started (a)	Ended (b)	
1					30					59			
2					31					60			
3					32					61			
4					33					62			
5					34					63			
6					35					64			
7					36					65			
8					37					66			
9					38					67			
10					39					68			
11					40					69			
12					41					70			
13					42					71			
14					43					72			
15					44					73			
16					45					74			
17					46					75			
18					47					76			
19					48					77			
20					49					78			
21					50					79			
22					51					80			
23					52					81			
24					53					82			
25					54					83			
26					55					84			
27					56					85			
28					57					86			
29					58					87			

7. Quality of Pharmacy Services & Patient Satisfaction with Services

1. Instruction: Write 1 if 'Yes' and 0 if 'No' in the chart

2. Fill in data for at least 100 patients

Patient #	Labeling Information									Patient Knowledge							# Drugs Prescribed	# Drugs actually dispensed	Patient satisfaction with services provided by pharmacy					
	Patient Name	Drug Name	Strength	Dose	Frequency	Quantity/ duration	Direction for use	Date of Dispensing	Dispensers Address	Precaution	Name	Dose	Route	Frequency	Duration	Storage			Precaution (SE, DL, etc.)	Dispensing area	Dispensing Process	Personnel Skill	Privacy	Assistance to the patient
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																								
22																								
23																								
24																								

Job Satisfaction (for pharmacy personnel)

Instruction: responses should be collected from all staff in the pharmacy. Fill in numbers 1 to 5 in the box as per the following scale.

SN	Please circle one number for each question that comes closest to reflecting your opinion	1	2	3	4	5
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Satisfaction with the Supervision						
1	The supervisors I work with are supportive					
2	My superiors listen to me properly					
3	I am fairly treated by the management of the hospital					
4	My suggestions are usually given consideration by my supervisor					
5	My work responsibilities are made clear by my supervisor					
Satisfaction with Coworkers						
6	I enjoy working with my colleagues in the hospital					
7	The people I work with are responsible for their job					
8	The people I work with give me enough support					
9	The people I work with are cooperative					
Satisfaction with Payment						
10	My pay is adequate, considering the responsibilities I have					
11	The hospital pays me fair benefits (transport, medical, etc.)					
12	There are benefits we do not have that we should have					
Satisfaction with Promotion						
13	I like the basis on which my hospital promotes people					
14	Promotions are infrequent in my hospital					
Satisfaction with Work Itself						
15	My job is interesting					
16	I would rather be doing another job					
17	I feel unappreciated by the hospital for the work I do					
18	I have too much to do at work					
19	I often feel that I do not know what is going on with the organization					
20	I feel a sense of pride in doing my job					
21	I don't feel my efforts are rewarded the way they should be					
22	Work assignments are not fully explained					
23	My job makes good use of my skills and abilities					
24	I have the tools and resources to do my job well					
25	My work gives me a feeling of personal accomplishment					
26	In-service training adequately prepared me for the job					
Premises and Facilities						
27	Sufficient attention is given to job safety					
28	Premises are convenient for conducting my duties					
29	Facilities are adequate for conducting my duties					
Overall Satisfaction						
30	Considering everything, I am satisfied with my job					

ANNEX B. INSTRUCTIONS FOR USE OF THE ASSESSMENT TOOL FOR APTS (BASELINE DATA COLLECTION)

1. Availability of Services and Adequacy of Staffing

- Ask head of the pharmacy
- Q1. Restrict your question only to those professionals who are dedicated to the service on a fulltime basis
 - 1f: specify means: write the type of staff and the corresponding number
- Q4. In the “Remark” column, consider university staff who are also providing pharmacy service on part time basis for this study purpose
- Q4. 13th row in the column “ type of service”: “other, specify” means any other pharmaceutical services the department may provide in addition to those listed
- Q5. Collect data by referring to the number of prescriptions served per day, registration book, service report, etc. to validate what the expert has said.

2. Pharmacy Management and Staffing

- Ask human resources
- For the rest of the questions, ask the pharmacy head
- All responses should be verified by observation of the required document:
 - Q1. Job descriptions (for all professionals)
 - Q3. Annual services plan of action
 - Q4. Report and feedback
 - Q6.
 - a) Meeting minutes
 - b) Survey report
 - c) Certificate or training reports
 - d) Report or minutes
 - Q7. Report

3. Finance, Budgeting and Audit

- Ask pharmacy head. If adequate information if not obtained, ask the finance head.
- Q 5, 6. observe pharmaceuticals list of the hospital
- Q7. Observe stock status analysis (SSA) report
- Q8-9. Observe ABC analysis document
- Q10. Observe ABC-VEN reconciliation document
- Q12. Supply order refers to an official request submitted to medicine suppliers, such as PFSA, private supplier, RHB, and others. Don’t consider supply order above the indicated numbers. But write the total number of orders on the remark.
- Q13 and 14. Observe stock record cards, inventory and audit reports, etc.
- Q15. If in case the expired and damaged drugs are not separately recorded for budget and donations, record the total on “Total expired and damaged” column.
- Q16 and 17. Refer financial report

- Q18 and 19. Refer physical inventory report
- Q21. Refers to revenues from other sources excluding cost of medicines from service fee, x-ray, lab, etc. (This information is obtained if only available)
- Q22. Check separate bank account and ask if the facility uses the fund without restrictions.
- Q23. Refer to Q25 to see what constitutes financial, product and services
- Q25. Circle one or more choices

4. Availability of Key Medicines: Availability and Stock-out duration of Key Medicines

- Ask the pharmacy head and/or store manager
- If the medicines are not available at the OPD pharmacy level, check the availability of the medicines in other dispensing outlets
- The list of medicines (1-11) is selected based on the nationally selected key indicator medicines (EHRIG)
- The 14 drugs (12-25) are selected because of their significance and wide use at tertiary hospital level
- Top five medicines should be selected and filled on the remaining blank space (26-30) by the team based on the first choice of top five diseases (facility specific). If the first choice is indicated in the above list, choose the next top disease.

5. Accuracy of Records (Matching of Recorded Quantity with Physical Count): Accuracy of Records for Key Medicines

- Obtain information from the store manager and the stock records
- “Record” means the balance of the stock on the bin card for the listed medicines
- “Count” means physical count of the medicines at the store at the time of the visit

6. Effective Counseling Time

- To be collected from the dispensary by the data collector
- **Counseling time** is defined as the effective time that starts just as the counselor starts to give the counseling after the medicines are prepared and before the patient leaves the dispensary.
- Record counseling time of 100 patients
- Record the time in a way that does not disrupt the normal dispensing process
- Use a stop watch or mobile phone with this function to record the seconds

7. Quality of Pharmacy Services & Patient Satisfaction of Services

- To be collected by using exit interview
- If you find only the drug name and strength on the strip/blister (manufacturer’s label), consider as Name and Strength in the labeling information
- “# Drugs Prescribed” column should be filled by counting the number of medicines on the patient’s hand if the patient has no prescriptions. If the patient has a prescription at hand, count the medicines at hand and medicines on the prescriptions.
- “# Drugs actually dispensed” is obtained by counting the number of medicines on the patient’s hand

- Patient satisfaction parameters mean:
 - Dispensing area = የመድኃኒት ማደያ ክፍሉ ለአገልግሎቱ የሚያመች ነበር;
 - Dispensing Process = የመድኃኒት አሰጣጥ ሂደቱ እንዴት ነበር;
 - Personnel Skill = የባለሙያዎቹ የአገልግሎት አሰጣጥ ብቃት አርከቶታል;
 - Privacy = የአገልግሎት አሰጣጡ የግል ምስጢሮን ፄአና ምሹቶን የሚጠብቅ ነበር ወይ;
 - Assistance to the patient = የተደረገላቸው እንክብካቤ ምን ይመስል ነበር;
 - Overall Satisfaction = በአጠቃላይ የፋርማሲ ክፍል የአገልግሎት አሰጣጥ ረከተዋል;

8. Job Satisfaction (for pharmacy personnel):

- Response should be collected from all staffs of pharmacy,
- Fill numbers 1 to 5 in the box as per the scale indicated
- The pharmacy professionals should fill the form independently and should be collected in person by the data collector

ANNEX C. TEAM OF DATA COLLECTORS

- 1) **Black Lion Hospital:** Regassa Bayissa (FMOH), Yikeber Gebeyaw (PFSA), Yosef Wakwoya (SIAPS), one pharmacist from the facility
- 2) **St. Paul Hospital:** Tinsae Yigletu (PFSA), Fikru Worku (PFSA/SIAPS), one pharmacist from the facility
- 3) **Yekatit 12 Hospital:** Kalkidan Endeshaw (PFSA), Edmealem Ejigu (SIAPS) one pharmacist from the facility
- 4) **Zewditu Memorial Hospital:** Tilahun Birhane (PFSA), Yosef Wakwoya (SIAPS), one pharmacist from the facility
- 5) **Menilik II Hospital:** Robera Bogale (PFSA), Dejen Sahile and Elias Geremew(SIAPS), one pharmacist from the facility
- 6) **Ras Desta Damtew Hospital:** Haileyessus Wossen(PFSA), Solomon Getnet (Addis Ababa-RHB), Fikru Worku (PFSA/SIAPS), one pharmacist from the facility
- 7) **ALERT Hospital:** Biyensa Negera (PFSA), Tesfaye Erega (SIAPS), one pharmacist from the facility
- 8) **Ammanuel Hospital:** Alemnew Dessie (PFSA), Tesfaye Erega and Ayalew Adinew (SIAPS), one pharmacist from the facility
- 9) **St. Peter TB Specialized Hospital:** Admassu T. (PFSA), Dejen Sahile (SIAPS), one pharmacist from the facility
- 10) **Jimma University Hospital:** Jimma-PFSA, Dereje Chemed (SIAPS), one pharmacist from the facility
- 11) **Gondar University Hospital:** Gondar –PFSA, Getahun Sisay (SIAPS), one pharmacist from the facility
- 12) **Ayder Referral Hospital:** Mekele- PFSA, Meresa W/Gabriel (SIAPS), one pharmacist from the facility
- 13) **Hawassa Referral Hospital:** Hawassa –PFSA, Mulugeta Asfaw (SIAPS), one pharmacist from the facility
- 14) **Wolaita Soddo Referral Hospital:** Hawassa-PFSA, Mulugeta Asfaw (SIAPS), one pharmacist from the facility
- 15) **Dilla University Hospital:** SNNPR-RHB, Mulugeta Asfaw (SIAPS), one pharmacist from the facility
- 16) **Assella Hospital:** Adama- PFSA, Abebaw Gulent (SIAPS), one pharmacist from the facility
- 17) **Hiwot Fana Hospital:** Dire Dawa- PFSA, Tewodros Ewnetu (SIAPS), one pharmacist from the facility

REFERENCES

Ayalew Adinew, et al. Auditable Pharmaceuticals Transactions and Services (APTS), A Guide For Implementation. Amhara Regional State Health Bureau. May 2012. Bahir Dar, Ethiopia.

Berry, Lily M. *Psychology at Work*. San Francisco: McGraw Hill Companies Inc. 1997.

Bradley EL, Hartwig KA, Rowe LA et al. Hospital Quality Improvement in Ethiopia: A Partnership–Mentoring Model. *Int J Qual Health Care*. 2008; 20:392–399.

Federal Ministry of Health (FMOH) of Ethiopia. Ethiopian Hospitals Reform Implementation Guideline (EHRIG). Ethiopian Hospital Management Initiative. May 2010. Addis Ababa, Ethiopia.

Federal Ministry of Health of Ethiopia and World Health Organization. Assessment of the Pharmaceutical Sector in Ethiopia. October, 2003. Addis Ababa, Ethiopia

Food, Medicines and Healthcare Administration and Control Authority of Ethiopia. Manual for Medicines Good Dispensing Practice, Second Edition. May 2012.

SHPA Standards of Practice for Clinical Pharmacy. *Journal of Pharmacy Practice Res* 2005; 35(2) 122-46. Accessed from <http://www.cff.org.br/userfiles/file/Prescri%C3%A7%C3%A3o/THE%20SOCIETY%20OF%20HOSPITAL%20PHARMACISTS%20OF%20AUSTRALIA%20Standards%20of%20practice%20for%20clinical%20pharmacy%202004.pdf>